

How to get a European patent

Guide for applicants

Part 1

October 2013
(14th edition)
Updated to 1.10.2013

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Foreword

The "Guide for applicants" aims to provide companies, inventors and their representatives with an outline of the procedure involved in applying for a European patent.

This updated 14th (October 2013) edition of the first part of the Guide is based on the revised European Patent Convention (EPC 2000) which entered into force on 13 December 2007. All references to articles or rules in this Guide therefore relate to the EPC as in force since that date. Please note, however, that in some cases certain provisions of the earlier Convention (EPC 1973) will continue to apply for applications which were pending at the time the revised EPC entered into force. The present edition is updated to 1 October 2013, and only takes account of changes to European Patent Office (EPO) procedures entering into force up to that date. Users of this Guide should therefore always check the EPO website (www.epo.org) for information about any changes which may have occurred since then.

The second part of the Guide concerns the Euro-PCT route (How to get a European patent, Guide for applicants - Part 2, Euro-PCT, see point 8).

A. General

I. Introduction

- 1 This Guide outlines the provisions relevant to the filing of European patent applications, offering practical advice to smooth the way to a European patent. It cannot, however, go into the details or specific issues of the European patent grant procedure, and it does not constitute an official commentary on the European Patent Convention (EPC).

If you need more detailed information, you are advised to consult the "Guidelines for Examination in the European Patent Office", a comprehensive guide to every stage of the grant procedure and to EPO practice.

The charts in Annexes I and VI to the present Guide illustrate the course of the grant procedure and the time limits applicants have to observe.

- 2 In the right-hand margin you will find references to the provisions of the EPC, the Implementing Regulations and the Rules relating to Fees, and to passages from the Guidelines and the Official Journal (OJ) of the EPO. You are strongly advised to consult the works in question before taking any decisions in practice.

The authentic texts of the EPC and the Guidelines are given in two EPO publications, the **European Patent Convention** and the **Guidelines for Examination in the European Patent Office**. We also refer you to the decisions and notices published by the EPO in its Official Journal and on its website (www.epo.org). You should ensure that you use the latest edition of these or any of the other publications mentioned in this Guide.

A selection of important decisions of the EPO boards of appeal (see points 197-207) is published in the OJ and on the EPO website. We recommend that you consult the relevant decisions when questions regarding the interpretation of particular EPC provisions arise. The boards' decisions are also recorded on the ESPACE LEGAL CD-ROM. The **Case Law of the Boards of Appeal of the EPO** contains brief summaries of selected decisions and makes it easier to find the relevant ones.

The most important sources for European patent law and EPO practice, along with much other useful information, are accessible on the **Internet** via the **EPO website** (www.epo.org).

- 3 As in any other patent grant procedure, you need to be thoroughly familiar with patent matters if you are to steer your way successfully through the European route. **So if you lack the requisite experience, we advise you to consult a professional representative before the EPO (see points 58-66).**
- 4 The EPO brochure entitled **National law relating to the EPC** contains detailed information on the regulations and requirements governing European patent applications and patents in the contracting states. A valuable supplement to this Guide, it is obtainable free of charge from the EPO and can also be downloaded from the **EPO website** (www.epo.org).

II. Nature and purpose of the European Patent Convention

- 5 A patent is a legal title granting its holder the right – in a particular country and for a certain period of time – to prevent third parties from exploiting an invention for commercial purposes without authorisation. The EPC has established a single European procedure for the grant of patents on the basis of a single application and created a uniform body of substantive patent law designed to provide easier, cheaper and stronger protection for inventions in the contracting states.

The contracting states are: Albania, Austria, Belgium, Bulgaria, Cyprus, Croatia, Czech Republic, Denmark, Estonia, Finland, former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

In each contracting state for which it is granted, a European patent gives its proprietor the same rights as would be conferred by a national patent granted in that state. If its subject-matter is a process, protection is extended to products directly obtained by that process. Any infringement of a European patent is dealt with by national law (but see point 9).

Art. 64

A published European patent application provides provisional protection which is no less than that conferred by a contracting state for a published national application and which must at least include the right to reasonable compensation in the event of wrongful infringement.

Art. 67

The standard term of a European patent is twenty years as from the date of filing. Provided that the annual renewal fees are duly paid, in most of the EPC contracting states patents remain in force for the maximum term.

Art. 63

Article 63(2) sets out circumstances in which the term of a patent can be extended or a longer term granted. This option is intended primarily for medical or plant protection product patents, where the administrative approval procedure takes so long that the useful life of the patent is diminished.

- 6 European patents may also be effective in some countries that have not acceded to the EPC (extension states). At present these are Bosnia and Herzegovina and Montenegro (see point 26).

III. Relationship to other international conventions

- 7 The EPC constitutes a special agreement within the meaning of the Paris Convention for the Protection of Industrial Property.

This means in particular that the principles of the Paris Convention on claiming priority and the national treatment principle also apply in the European procedure and to European applications.

Art. 87-89

Since nearly all the contracting states of the EPC are members of the WTO, the relevant provisions of the TRIPS Agreement (Agreement on trade-related aspects of intellectual property rights) are implemented in the revised EPC.

- 8 The EPC further constitutes a regional patent treaty within the meaning of Article 45(1) PCT, which means that European patents can be granted on the basis of an international application filed under the PCT. The Euro-PCT Guide (Part 2 of the present Guide, "Euro-PCT") deals with this filing route. It can be obtained free of charge from the EPO at all sites or downloaded from the **EPO website** (www.epo.org).

*Art. 150-153
R. 157-165
Guid. E-VIII*

- 8a The Agreement on the application of Article 65 EPC – the London Agreement – is an optional agreement aiming at reducing the costs relating to the translation of European patents. The EPC contracting states which have ratified or acceded to the Agreement undertake to waive, entirely or largely, the requirement for translations of European patents. For more information, please consult the EPO website (www.epo.org).

- 9 The future "European patent with unitary effect" will be based on a European patent granted by the EPO under the rules and procedures laid down in the EPC. After grant of the European patent - but no later than one month after the mention of grant is published in the European Patent Bulletin - the patent proprietor will have the new option to file at the EPO a request for unitary effect if he wishes to obtain unitary patent protection in the 25 EU Member States participating in the project. The EPO will:

- examine these requests and register unitary effect,
 - set up and administer a new "Register for unitary patent protection" and
 - collect renewal fees for European patents with unitary effect.
- These new tasks will be carried out by the EPO under new rules

which will implement Regulation (EU) No 1257/2012 of the European Parliament and of the Council (see <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:361:0001:0008:EN:PDF> or <http://www.epo.org/law-practice/unitary/unitary-patent.html>).

The new European patent with unitary effect will not become available until the Agreement on the Unified Patent Court enters into force (see <http://register.consilium.europa.eu/pdf/en/12/st16/st16351.en12.pdf>). Thirteen Member States, including France, Germany and the United Kingdom, must ratify this Agreement before it can enter into force.

IV. Choosing a route: national, European or international

- 10** The European procedure has not superseded the national grant procedures. So when seeking patent protection in one or more EPC contracting states you have a choice between following the national procedure in each state for which you want protection and taking the European route, which in a single procedure confers protection in all the contracting states that you designate.
- 11** If you decide you want a European patent, you have a further choice between the direct European route and the Euro-PCT route (see point 8 and Part 2 of the Guide). With the direct European route, the entire European patent grant procedure is governed by the EPC alone; with the Euro-PCT route, the first phase of the grant procedure (the international phase) is subject to the PCT, while the regional phase before the EPO as designated or elected Office is governed primarily by the EPC.
- 12** We will now summarise the chief legal and economic factors that are likely to influence your choice between the European and national procedures.

Legal factors

- 13** A European patent is granted after an examination designed to establish whether the European patent application and the invention to which it relates comply with the patentability requirements of the EPC.

These requirements are the basis not only for the granting of a European patent, but also for the assessment of its validity by national courts. In addition, under the EPC the extent of the protection conferred by the European patent is determined uniformly for all the contracting states.

Art. 69, 138

- 14** The examination procedure is conducted by the EPO departments of first instance (Receiving Section, search divisions and examining divisions); if they decide against your application, you can file an appeal before the boards of appeal of the EPO. Once a European patent has been granted, there follows a nine-month period in which third parties are entitled to file a reasoned notice of opposition; and at

Art. 16, 17, 18

the end of the resulting opposition proceedings, either the patent is maintained as granted or as amended or it is revoked. The decision taken in the opposition proceedings can also be appealed.

Art. 105a, 105b

Once it has been granted, you can file a request for limitation or revocation of your own patent.

- 15** European patents have a uniform wording and a uniform extent of protection for all designated contracting states (but see points 91 and 102) and offer a high presumption of validity.

Patent law in the contracting states has been extensively harmonised with the EPC in terms of patentability requirements. However, as grant procedures continue to be differently structured and are conducted in parallel by several offices, the national route generally leads to national rights with differing extents of protection.

Economic factors

- 16** Processing fees in the European patent grant procedure are staggered; so at each stage of the procedure you have a further chance to decide, in the light of the completed stages, whether your interest in obtaining patent protection is still great enough to justify paying the next fee. *Art. 2 RFees*

In particular, the separation between search and substantive examination (see points 130-132) enables you to decide in the light of the European search report (see point 144) whether it is worth requesting substantive examination.

- 17** In certain circumstances you may be interested in having your application processed faster, at the search stage or the substantive examination stage or both.

If so, the EPO will make every effort to reduce the usual processing times as much as it can, under the programme for accelerated prosecution of European patent applications (for details see Annex II).

OJ 2010, 352

- 18** Your application may be a **first filing** with the EPO.

In that case, you will as a rule be sent the search report within **six** months of the date of filing (see Annex II, point 2).

- 19** Like a first filing with a national office, a European first filing gives rise to the right of priority for a national, European or international second filing made in the priority year (see points 52-56).

- 20** The European search fee is refunded in full or in part if the European search report can be based on an earlier search report already prepared by the EPO on a national, European or international application whose priority is claimed. Refund of the search fee can be

*Art. 9 RFees
Guid. A-X,
10.2.1, 10.4, 10.5
OJ 2010, 338
OJ 2013, 153*

requested by crossing the box in section 40 of the request for grant form.

- 21** Taking into account the fees levied for the European grant procedure, costs for representation by a single agent and the cost of conducting the proceedings in a single language, a European patent as a rule costs about as much as three or four national patents.
- 22** The European procedure is conducted in one of the three official languages of the EPO (English, French, German), specifically the one in which you file your application or a translation thereof. In addition, if you are from a contracting state whose language is not one of the EPO's official languages, you enjoy certain advantages as regards languages and fees if you use an official language of your contracting state (see points 44-46). *Art. 14(2), (3)
R. 6(3)
Art. 14(1) RFees*
- 23** In the final phase of the European patent grant procedure, however, you are required to file a number of translations. You have to provide the EPO with translations of the claims in its other two official languages. Some contracting states require you to file a translation of the European patent specification or of the claims in one of their official languages, if different from the language of the proceedings, in order for the European patent to take effect there (see point 177). Further information is available on the website of the European Patent Office (www.epo.org). *Art. 97
R. 71
Art. 65*
- 24** The European patent grant procedure lasts about three to five years from when the application is filed. It breaks down into two main stages. The first comprises formalities examination, search report preparation and the drafting of an opinion on whether the application and the invention to which it relates seem to meet the requirements of the EPC. The second comprises substantive examination. *R. 55-66*
- 25** In the first of these stages there is no need for your active involvement unless the Receiving Section finds formal deficiencies. However, in the second stage - substantive examination - your application is assigned to an examining division, which usually communicates with you or your representative before deciding whether to grant the patent or refuse the application (see points 131 and 155-176). *R. 71-72*

Competent preparation of the patent application and of all procedural steps before the EPO is a crucial factor in ensuring that the examination procedure runs quickly and satisfactorily (see point 3).

V. Extending European patents to non-EPC states

- 26** The European Patent Organisation has signed co-operation and European patent extension agreements with a number of states that are not party to the EPC. *OJ 1994, 75;
OJ 2004, 619 (BA)
OJ 2010, 10 (ME)
Guid. A-III, 12*

As an applicant for a European patent you thus have a simple and cost-effective way of obtaining patent protection in such countries. If you request an extension and pay the extension fee(s) in time, you

can have European patent applications (direct and Euro-PCT filings) and patents extended to these countries, where they will then in principle have the same effect as national applications and patents and enjoy essentially the same protection as patents the EPO grants for EPC contracting states. You can currently request extension to Bosnia-Herzegovina and Montenegro.

The extension system is largely the same as the designation system operating in the contracting states. For example, the period for payment of the extension fee is the same as the period for payment of the designation fee. However, the extension system is based not on direct application of the EPC but solely on national law modelled on the EPC. Hence it is subject to the national extension rules of the country concerned.

B. Patentability

- 27 European patents are granted for inventions that are new, involve an inventive step and are susceptible of industrial application. An invention can belong to any field of technology. *Art. 52(1)*

I. Invention

- 28 The EPC does not define the meaning of "invention", but it does provide a non-exhaustive list of subject-matter and activities that may not be regarded as inventions, i.e. that are expressly excluded from patentability. *Art. 52(2), (3)*
Art. 53
Guid.G-II, 1-3

In this respect your attention is particularly drawn to the following four fields:

- 29 The first is **programs for computers**, which are not regarded as inventions if claimed as such. However, a computer program is not excluded from patentability under Article 52 if, when running on a computer, it causes a further technical effect going beyond the "normal" physical interaction between the program (software) and the computer (hardware). An example of a further technical effect is where the program serves to control a technical process or governs the operation of a technical device. The internal functioning of the computer itself under the influence of the program could also bring about such an effect. *Art. 52(2)(c), (3)*
Guid.G-II, 3.6

If the computer program itself is not excluded, it is immaterial whether the program is claimed by itself, as a data medium storing the program, as a method or as part of a computer system.

Thus computer programs are not automatically excluded from patentability. More information about the patentability of computer-implemented inventions is available from the EPO website (www.epo.org).

- 30 The second field is **methods for treatment** of the human or animal body **by surgery or therapy**, and **diagnostic methods** practised on the human or animal body. These inventions are expressly excluded from patentability. The exclusion from patentability does not apply to products, substances and compositions for use in such methods, e.g. medicaments or surgical instruments. Substances and compositions are in fact singled out for special treatment in the EPC as regards the novelty requirement: even a known substance or composition may be patented for further medical or veterinary uses, provided that such use is novel and inventive. *Art. 53(c)*
Guid. G-II, 4.2
Art. 54(4)-(5)

This exception does not exclude the patentability of other methods of treatment of living human beings and animals; moreover the treatment of body tissues after they have been removed from the human or animal body and diagnostic methods applied to such

Guid.G-II, 4.2.1

tissues are patentable as long as the tissues are not returned to the same body.

- 31** The third field is **plant and animal varieties** and essentially biological processes for the production of plants or animals, which are expressly excluded from patentability.

Art. 53(b)
R. 26, 27
Guid. G-II, 5.4

In the case of plant varieties, a separate form of protection is available in most contracting states and under EU law.

A process for the production of plants or animals is essentially biological if it is based on sexual crossing of whole genomes and on the subsequent selection of plants or animals, even if other technical steps relating to the preparation of the plant or animal or its further treatment are present in the claim before or after the crossing and selection steps.

The exclusion does not apply to microbiological processes or the products of such processes. In general, biotechnological inventions are also patentable if they concern biological material that is isolated from its natural environment or produced by means of a technical process, even if it previously occurred in nature.

Guid. G-II, 5.5

- 31a** The last field is inventions excluded from patentability because their commercial exploitation would be contrary to "**ordre public**" or **morality**. In particular, patents are not granted in respect of processes for cloning human beings, processes for modifying the germ line genetic identity of human beings, uses of human embryos for industrial or commercial purposes, or processes for modifying the genetic identity of animals that are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes.

Art. 53(a)
R. 28
Guid. G-II, 4.1

II. Novelty

Art. 54, 55
Guid. G-IV to G-VI

Basic principles

- 32** An invention is considered to be new if it does not form part of the state of the art.

Art. 54(1)

The definition of the state of the art in the EPC reflects the principle of absolute novelty: the state of the art comprises everything made available to the public anywhere in the world by means of a written or oral description, by use, or in any other way, before the date of filing or priority. However, novelty is prejudiced only by something which is clearly disclosed to a skilled person in a **single** source of prior art, e.g. in a patent application published before the date of priority.

Art. 54(2), 89
Guid. G-IV and G-VI

- 33** An earlier disclosure of the invention is non-prejudicial only if it occurred no earlier than **six months** before the filing of the European patent application **and** was due to an evident abuse in relation to the applicant or to display at an exhibition falling within the terms of the Paris

Art. 55
R. 25
Guid. A-IV, 3
Guid. G-V

Convention on international exhibitions¹. Apart from these two cases, the second of which is rare in practice, any disclosure of the invention before the date of filing or, if applicable, the earliest priority claimed (see point 56) can be cited against the applicant as forming part of the state of the art, even if the applicant himself was responsible for the disclosure.

Prior rights

- 34** The state of the art is also held to comprise the content of European patent applications filed before the date of filing or priority but not published until on or after that date. *Art. 54(3), 89
Guid. B-VI, 4
Guid. G-IV, 5.2*

A PCT application which is filed before the date of filing or priority but not published until on or after that date and for which the EPO acts as designated Office forms part of the state of the art for the purposes of Article 54(3) if the filing fee has been paid to the EPO and the PCT application is published in one of the EPO's official languages (English, French or German). If the PCT application was published in Arabic, Chinese, Japanese, Korean, Portuguese, Russian or Spanish, a translation into one of the official languages of the EPO must have been filed with the EPO, which will publish it (see point 8). *Art. 153 (5)
R. 165
Guid. G-IV, 5.2*

Everything in the earlier application as filed is prejudicial to novelty.

The consequences that any earlier national patent applications or patents have for the patentability of the invention in the designated contracting states are assessed by the competent national courts after the European patent has been granted (but see point 103). *Art. 139(2)
Guid. H-III, 4.5*

- 35** As a rule, a conflict between two European patent applications has only limited consequences, as the disclosed content of the earlier application is relevant only to the assessment of the later application's novelty, not its inventive step. Hence the later application's claims can mostly be drafted in such a way that the earlier application is not prejudicial to novelty. *Art. 56
Guid. G-IV, 5*

III. Inventive step

- 36** An invention is held to involve an inventive step if it is not obvious to the skilled person in the light of the state of the art (which does not include prior rights, see points 34-35). In assessing inventive step as opposed to novelty (see point 32), **multiple** sources of prior art may be applied. *Art. 56*

The inventive step requirement is intended to prevent exclusive rights forming barriers to normal and routine development.

¹ Every year in the April issue of its Official Journal the EPO publishes a list of exhibitions falling within the terms of this Convention that have been registered by the International Exhibition Bureau.

The Office seeks to make a realistic and balanced assessment of the inventive step criterion. Inventive step is usually evaluated on the basis of the "problem-solution" approach, in other words whether the solution presented to the problem in the patent application is obvious or not to the person skilled in the art.

This always depends on the specific circumstances of the case. Depending on the situation, various factors are taken into account, such as the unexpected technical effect of a new combination of known elements, the choice of specific process parameters within a known range, the difficulty the skilled person has in combining known documents, secondary indicia such as the fact that the invention solves a long-standing technical problem which there have been many attempts to solve, or the overcoming of a technical prejudice.

If you need more detailed information, you are advised to refer to the Guidelines and to the decisions of the boards of appeal (see point 2).

C. Preparing and filing a European patent application

I. Formal requirements

Entitlement to file European patent applications

- 38** A European patent application may be filed by any natural or legal person, or any body equivalent to a legal person, irrespective of nationality and place of residence or business (but see point 58). *Art. 58, 59, 118
Guid. A-II, 2*

A European patent application may also be filed by joint applicants or by two or more applicants designating different contracting states; where there are different applicants for different contracting states, they are regarded as joint applicants for the purposes of proceedings before the EPO (see also point 64).

States for which European patent applications may be filed

- 39** When filing a European patent application all the contracting states for which the EPC has already entered into force on the date of filing are deemed to be designated (see point 5 for the list of contracting states). *Art. 79*

Switzerland and Liechtenstein may only be designated jointly. *OJ 1980, 407*

- 40** In addition, European patent applications and patents may be extended to a number of states not party to the EPC, these at present being Bosnia-Herzegovina and Montenegro (see point 26).

References in this Guide to the designation of contracting states apply also to extension to non-contracting states, unless explicitly stated otherwise.

- 41** Even though all the contracting states are deemed to be designated upon filing of the application you must subsequently confirm the designations by paying the appropriate fee, which covers the designation of all contracting states, unless you have expressly withdrawn individual designations. *Guid. A-III, 12
Art. 2, item 3, RFees*

As to the extension states, all the extensions are deemed to be requested in the request for grant form, but you need to confirm the request for extension by paying the extension fee for each state to which you wish to extend protection.

Languages for European patent applications

- 42** The official languages of the EPO are English, French and German. *Art. 14(1)*
- 43** If you file your European patent application in any other language, you need to file a translation into one of the official languages of the EPO within two months of filing the application. If the translation is not filed in time, you will be invited to file the translation within two months of the notification of the invitation. If the translation is not filed within the time limit set in the invitation, the application is deemed to be withdrawn.
- The language in which you file the application (or its translation, if not filed in English, French or German) is used as the language of the proceedings, and any amendments made to the application or the European patent must be drawn up in that language. Otherwise, in written proceedings, any party may use any of the EPO's official languages. *Art. 14(3)*
R. 3
Guid. A-VII, 1.1-1.2
- At any time during the proceedings before the EPO, the translation may be brought into conformity with the text of the application as filed. *Art. 14(2)*
- With regard to divisional applications see point 211.

Language arrangements to assist applicants from certain contracting states

- 44** If you (or one of your co-applicants) have your residence or principal place of business in a contracting state that has a language other than English, French or German as an official language, or if you (or one of your co-applicants) are a national of such state but are resident abroad, and you file a European patent application and the request for examination in one of the state's official languages, you will be entitled to a 20% reduction in the filing and examination fees (see also point 45). *Art. 14(4)*
R. 6(3)
Art. 14(1) RFees
Guid. A-VII, 1.1
Guid. A-X, 9.2
- 45** If point 44 applies to you, at any time in the procedure after filing your application you may file any documents subject to a time limit in an official language of your state; but within **one month** of filing any such document you must submit a translation into the language of the proceedings. *Art. 14(4),*
R. 6(2),(3)
Guid. A-VIII, 2
Art. 14(1) RFees
- 46** However, if you use the official language of your state for filing an opposition, appeal or petition for review, you can file the translation into one of the official languages of the EPO **within** the opposition, appeal or petition for review period respectively, if that period expires after the one-month period mentioned in point 45. If you do not file the translation in due time, the document is deemed not to have been filed.

The fee reduction mentioned in point 44 also applies to the fees for opposition, appeal, petition for review, limitation and revocation.

Items making up a European patent application

- 47** A European patent application consists of a **request** for the grant of a European patent, a **description** of the invention, one or more **claims**, any **drawings** referred to in the description or claims, and an **abstract**.

*Art. 78(1)
Guid. A-II, 4.1.3.1*

Request for grant

- 48** The request **must** be filed on a **form prescribed by the EPO** (EPO Form 1001). The request for grant form is generated by means of the EPO Online Filing software. The paper form and the associated explanatory notes can be downloaded free of charge from the EPO website (www.epo.org).

*R. 41
Guid. A-III, 4
OJ 2012, 59*

You are strongly advised to read the notes carefully before completing the request form. By completing the form you meet all the mandatory requirements governing the information that the request for grant must contain. The request must be **duly signed**. It may be signed by your representative if you have appointed one. Where it is signed on behalf of a legal person, the position of the signatory within the legal entity must also be indicated.

*R. 41(2)(i)
R. 2(2)
Guid. A-III, 4.2.2
OJ 2009, 182*

One copy of the request itself must be filed; the receipt for documents (page 8 of the request for grant form) must be filed in triplicate, or in quadruplicate if filed with a national authority. If the application is filed electronically, no additional copies are necessary.

Designation of inventor

- 49** In your European patent application you must designate the inventor(s).

Art. 81

If you yourself are not the inventor or are not the sole inventor, you must file the designation of the inventor in a separate document, which must indicate the origin of your right to the European patent.

*R. 19
Guid. A-III, 5*

You can obtain forms for designating the inventor free of charge from the EPO and the national industrial property offices or you can download them from the EPO website (www.epo.org).

- 50** The person designated as the inventor will be mentioned in the published European patent application, in the European patent specification, in the Register of European Patents and in the European Patent Bulletin, unless he waives this right in due time in advance of publication.

*Art. 127, 129(a)
R. 20(1), 143(1)(g)
Guid. A-III, 5.2*

- 51** If you do not designate the inventor when you file the European patent application, you will be invited to correct this deficiency within **sixteen months** after the date of filing or the earliest priority date, and in any event no later than five weeks prior to the intended date of publication of the application (see point 149). If you fail to submit the designation of inventor within the specified period, your application will be refused (see point 140).

*Art. 81,
R. 60
Guid. A-III, 5.5*

Claiming priority

- 52** If you or your predecessor in title have duly filed an application for a patent, a utility model or a utility certificate in or for any state party to the Paris Convention for the Protection of Industrial Property or any member of the World Trade Organization you may claim priority when filing a European patent application in respect of the same invention. You must file the European patent application no later than **twelve months** after filing the first application (see points 226-228).
- If the earlier application was filed in or for an EPC contracting state, you may also designate that state in the European application. The earlier application whose priority you claim may also be a European or an international (PCT) application (see point 19).
- 53** You may claim multiple priorities in respect of one European patent application, even if they originate from different countries. You may also claim multiple priorities for any one claim. If you claim multiple priorities, time limits which run from the date of priority are computed from the earliest priority date.
- 54** To claim the priority of an earlier application you must indicate the date, country and file number of the earlier application.
- You must also file the priority document, i.e. a copy of the earlier application certified by the authority with which it was filed, together with authentication of its filing date from that authority. Currently the EPO adds a copy of the earlier application whose priority you claim to the file of the European patent application free of charge if the earlier application is either a European patent application, an international patent application filed with the EPO as receiving Office, a Japanese, Chinese or Korean patent or utility model application or a United States provisional or non-provisional patent application.
- If you are filing a European patent application claiming priority from an earlier application, you have to file a copy of any search results in respect of the earlier application. Where the search results are not available when filing the European patent application, they have to be filed without delay after they have been made available to you. The obligation to file the search results exists as long as the application is pending. Where the EPO notes, at the time when the Examining Division assumes responsibility, that the search results have still not been filed, it invites you to file them within a non-extendable time limit of two months. If you fail to file the search results or a declaration that they are not available to you, the European patent application will be deemed to be withdrawn.
- You are exempted from the obligation to file a copy of the search results if the EPO drew up the search report or your priority application was filed in Austria, Japan, the UK or the US. In future, further countries are expected to be included in this list.
- Art. 87
Guid. A-III, 6
Guid. F-VI, 1.3*
- Art. 88(2), (3)
Guid. F-VI, 1.5
Guid. A-III, 6.3*
- Art. 88(1)
R. 52, 53
Guid. A-III, 6.5, 6.7
Guid. F-VI, 3
OJ 2012, 492*
- Art. 124
R. 141, R. 70b
OJ 2010, 410,
OJ 2012, 540*

- 55** You should preferably submit the declaration indicating the date, country and file number of the earlier application **when you file your European patent application**.
- You must supply the complete declaration of priority and the priority document no later than **sixteen months** after the earliest priority date.
- If you do not indicate the file number or file the copy of the earlier application within the above time limit, you will be invited to remedy the deficiency; if you fail to do so, you will lose your right to priority (but see point 141).
- R. 41(2)(g)
R. 52, 53
Guid. A-III, 6.5, 6.7
Guid. F-VI, 3.2*
- R. 52(2)
R. 52(3)*
- R. 59
Guid. A-III, 6.9, 6.10*
- 56** Among the effects of a valid claim to priority is that the date of priority determines the prior art that can be cited against the European patent application.
- As a rule, the EPO examines only the formal conditions for claiming priority. The examining division (see points 159 et seq.) normally checks whether a right to priority exists if it finds prior art (see point 32) from between the priority date and the date of filing of the European patent application or if it finds a prior right under Article 54(3) (see point 34). The claimed subject-matter for which priority is claimed must be derivable directly and unambiguously from the full disclosure of the invention in the priority document.
- Where the priority document is not in English, French or German, you may be invited to file a translation of the previous application into one of the EPO's official languages. If you receive such an invitation, which may happen throughout the grant or opposition proceedings, you must file the translation within the period set by the EPO. Alternatively, a declaration that the European patent application is a complete translation of the previous application may be submitted in certain cases. If you fail to supply the translation of the priority document in due time, the right to the priority with respect to the priority claim in question will be lost.
- R. 53(3)
Guid. A-III, 6.7
Guid. F-VI*
- R. 53(3)
Guid. A-III, 6.8
OJ 2013, 150*
- Filing by reference**
- 57** When filing your patent application by reference to a previously filed application, you should indicate in the request for grant form (section 26.1) the filing date, application number and the state in which that application was filed. The reference must indicate that it replaces the description and/or any drawings. You will then have to file a certified copy of the previously filed application within two months of filing the application. If the reference application is not in English, French or German, you must file a translation thereof within the same time limit. If you do not file the certified copy within the said time limit or within a time limit set in a subsequent invitation, the application will not be dealt with as a European patent application. If you do not file a translation of the previously filed application within the said time limit
- R. 40(2), (3), 57(c)
Guid. A-II, 4.1.3.1
Art. 14(2)
OJ 2009, 486*

or within a time limit set in an invitation, the application will be deemed to be withdrawn.

Claims can also be filed by reference to those in the previously filed application.

Representation

- 58** If you have your residence or principal place of business in a contracting state, you may act on your own behalf in proceedings before the EPO (but see point 3). *Art. 133(1)
Guid. A-VIII, 1*
- If you have neither a residence nor your principal place of business in a contracting state, you must appoint a representative and act through him in all proceedings before the EPO other than in filing your European patent application and paying the fees. *Art. 133(2)*
- 59** Representation before the EPO may be undertaken only by professional representatives who are on a list maintained by the EPO, or by legal practitioners entitled to act before the EPO. You will find a searchable online database of professional representatives on the EPO website (www.epo.org). *Art. 134(1), (7)
Guid. A-VIII, 1.4*
- 60** As a rule, professional representatives who identify themselves as such do not need to file an authorisation, unless required under special circumstances. *Special edition No. 3, OJ 2007, L.1*
- Representatives may be authorised either by individual authorisation or by general authorisation. The relevant forms, to which amendments are permitted can be downloaded free of charge from the EPO website (www.epo.org). *R. 152(1), (2)
Guid. A-VIII, 1.5*
- General authorisations are registered at the EPO. These are a practical option for all concerned. *OJ 1985, 42
OJ 1986, 327*
- 61** If an authorisation is required but not filed within the period specified by the EPO, any actions taken by the representative other than the filing of the European patent application and the payment of fees are deemed not to have been taken. *R. 152(6)
Guid. A-VIII, 1.7*
- 62** If several representatives are appointed, they may act either jointly or singly before the EPO, regardless of any provisions to the contrary in the notification of their appointment or in the authorisation. With multiple representatives it is also advisable to give the particulars of only one of them in the request for grant, appending "et al." to his name. *R. 152(10)*
- 63** If you have your residence or principal place of business in a contracting state, you may also be represented by an employee, who need not be a professional representative. *Art. 133(3)
Guid. A-VIII, 1.2*

An employee who is representing his employer and who is not a professional representative must have an individual or general authorisation (see point 60).

- 64** If an application is filed by more than one person, the request for grant should designate one of them or a professional representative as the common representative. Otherwise, the applicant named first in the request for grant is deemed to be the common representative. However, if one of the applicants is obliged to appoint a professional representative, the latter is deemed to be the common representative unless the applicant named first in the request for grant has appointed a professional representative.
- Art. 133(4)
R. 41(3)
R. 151(1)
Guid. A-VIII, 1.3*

- 65** The particulars of the representative's name and business address given in the request for grant are recorded in the Register of European Patents, published in the European Patent Bulletin and printed in the published European patent application and patent.
- R. 143(1)(h)
Art. 129(a)
R. 68*

- 66** Notifications sent by the EPO (communications, notices, decisions and summonses) are addressed:
- Art. 119
R. 125–130
Guid. E-I, 2.4*

(a) to the representative recorded in the Register of European Patents; or

(b) to you as applicant if you do not appoint a representative, and also if an employee is acting on your behalf.

If your business operates from different locations (i.e. comprises structural sub-divisions with no separate legal personality) and you wish notifications in proceedings before the EPO to be addressed to the department dealing with the application and to have a different address, e.g. your company's head office, used for publications and the Register of European Patents, you must indicate this separately in the request for grant (see point 48), section 9, "Address for correspondence".

II. Presenting your invention

Disclosing your invention

- 67** The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
- Art. 83, 84, 69(1)*

The description and any accompanying drawings form the basis for the claims, which determine the extent of the protection conferred by the European patent. The description and the drawings are also used to interpret the claims.

*Guid. F-II, 4.1
Guid. F-IV, 6.1*

- 68** Once a European patent application has been filed, no amendments extending beyond its content as filed may be made to the description, the claims or the drawings. Hence you are not allowed to add examples or features to the application documents at a later date to remedy
- Art. 123(2)
Guid. H-IV, 2.1, H-IV, 2.3.7, 2.3.8
Guid. F-II, 4.3, F-III, 2*

deficiencies in the disclosure. Nor are you allowed to extend the subject-matter of the claims, e.g. by omitting certain features, unless there is clear support for such extension in the application as filed. You must therefore make sure that the claims as filed clearly and accurately identify the invention that you want to protect (see also point 175).

Unity of invention

- 69** European patent applications must relate to a single invention only, or to a group of inventions so linked as to form a single general inventive concept. In the latter case, multiple independent claims in the same category are allowed as long as they comply with Rule 43(2); but the more usual scenario is multiple independent claims in different categories (see point 85).

*Art. 82
R. 43(2), 44
Guid. F-V
OJ 2002, 112*

Drafting the technical application documents

- 70** The requirements relating to the content of the description, claims, drawings and abstract are set out in Articles 83 to 85 and Rules 42, 43, 47 and 48.

*Art. 83-85
R. 42-50
Guid. A-VIII, 2
Guid. A-IX*

The formal requirements for these documents are defined in Rules 46, 47 and 49; those for documents filed subsequently are in Rule 50.

- 71** The following are the chief provisions governing the form of application documents and documents filed subsequently:

*R. 49
R. 50*

- (a) The documents making up the European patent application (description, claims, drawings and abstract) must be filed in a single copy. The same applies to documents replacing these original documents.
- (b) In the case of paper filings, the documents must be on strong, pliable, white A4 paper (portrait format).
- (c) Each document making up the application (request, description, claims, drawings and abstract) must begin on a new sheet.
- (d) All the sheets must be numbered in consecutive Arabic numerals, which must be positioned top centre but not in the top margin.
- (e) The following minimum margins (type area) must be left blank:
 - top: 2 cm
 - left: 2.5 cm
 - right: 2 cm
 - bottom: 2 cm
- (f) The lines of each sheet of the description and the claims should be numbered in sets of five, the numbers appearing on the left side, to the right of the margin.

- (g) The line spacing must be 1.5.
- (h) The documents must be typed or printed, with a minimum character height of 0.21 cm for capital letters (normally font size 9 or 10).
- (i) There must be no handwritten additions to the text.

R. 49(12)

The special requirements for drawings are dealt with in the Guidelines, Part A, Chapter IX.

- 72** Annex III gives three examples of how to draft a European patent application.

Description

- 73** In the description you must:

R. 42, Guid. F-II, 4

- (a) Specify the technical field to which the invention relates. You may do this for example by reproducing the first ("prior art") portion of the independent claims in full or in substance or by simply referring to it.
- (b) Indicate the background art of which you are aware, to the extent that it is useful for understanding the invention, preferably citing source documents reflecting such art. This applies in particular to the background art corresponding to the prior art portion of the independent claims. Source document citations must be sufficiently complete to be verifiable: patent specifications by country and number; books by author, title, publisher, edition, place and year of publication and page numbers; periodicals by title, year, issue and page numbers.
- (c) Disclose the invention as claimed.

R. 42(1)(a)

*R. 42(1)(b)
Guid. F-II, 4.3-4.4*

*R. 42(1)(c)
Guid. F-II, 4.5-4.6*

The disclosure must indicate the technical problem that the invention is designed to solve (even if it does not state it expressly) and describe the solution.

To elucidate the nature of the solution according to the independent claims you can repeat or refer to the characterising portion of the independent claims (see example) or reproduce the substance of the features of the solution according to the relevant claims.

At this point in the description you need only give details of embodiments of the invention according to the dependent claims if you do not do so when describing ways of performing the claimed invention or describing what the drawings show.

You should state any advantageous effects your invention has compared with the prior art, but without making disparaging remarks about any specific previous product or process.

R. 48(1)(b)

- (d) Briefly describe what is illustrated in any drawings, making sure you give their numbers. *R. 42(1)(d)*
R. 46(2)(i)
Guid. F-II, 4.7
- (e) Describe in detail at least one way of carrying out the claimed invention, typically using examples and referring to any drawings and the reference signs used in them. *R. 42(1)(e)*
Guid. F-II, 4.8, F-III, 1-3
- (f) Indicate how the invention is susceptible of industrial application within the meaning of Article 57. *R. 42(1)(f)*
Guid. F-II, 4.9

74 In exceptional cases you may arrange the description in a different manner and order if this affords a better understanding or a more economic presentation. *R. 42(2)*
Guid. F-II, 4.10

75 Although the description must be clear and straightforward and avoid unnecessary technical jargon, the use of recognised terms of art is acceptable and often desirable. Little known or specially formulated technical terms may be allowed provided that they are adequately defined and that there are no generally recognised equivalents. *R. 49(11)*
Guid. F-II, 4.11 - 4.14

You may use proper names or similar words to refer to a product only if they uniquely identify it. Even then, however, the product must be sufficiently identified, without reliance upon such terms, to enable the invention to be carried out by the skilled person. If such proper names or similar words are registered trade marks, that fact should be mentioned.

Guid. F-III, 7-8

Biotechnology applications

(a) Nucleotide and amino acid sequences

75a If your European patent application discloses nucleotide or amino acid sequences (unbranched sequences of four or more amino acids or unbranched sequences of ten or more nucleotides), the description must contain a sequence listing complying with WIPO Standard ST.25 and presented as a separate part of the description. The sequence listing must be filed in electronic form, i.e. in text format (.txt). If you also file it on paper, you must submit a statement that the sequence listings in electronic form and on paper are identical. You are advised to use the EPO's free BiSSAP or PatentIn software, which simplifies standardised sequence presentation. *R. 30, 57*
Guid. A-IV, 5
OJ 2011, 372, 376

If you file your application online in electronic form, you must send the sequence listing as an attachment to the online filing. Further advice is obtainable from the EPO.

You must also fill in section 38 of the request for grant form (see annexes) to indicate that the application contains a sequence listing.

75b The standardised presentation of such nucleotide and amino acid sequences is mandatory. If you do not comply with the requirements even following an invitation to do so, where applicable including *R. 30*

payment of the late furnishing fee, your European patent application will be refused (but see point 225).

(b) Depositing biological material to supplement the description

- 76** If your invention involves the use of or concerns biological material that is not available to the public and cannot be described in your European patent application in such a way that it can be carried out by a skilled person, you must deposit a sample of this biological material with a recognised depositary institution no later than at the date of filing.
- Art. 53(b), 83
R. 31-34
Guid. A-IV, 4
Guid. F-II, 6OJ 2010, 498
- The recognised depositary institutions are the international depositary authorities under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure and a number of other institutions designated by the President of the EPO. A full list of recognised depositary institutions is published once a year on the EPO website and in the EPO's Official Journal; the Official Journal also publishes changes to the list as they occur, and any other relevant information.
- R. 33(6)
- 77** The application as filed must also give any relevant information that is available to you on the characteristics of the biological material.
- R. 31(1)(b)
Guid. F-III, 6.3
- If the biological material has been deposited by someone else, you must state the depositor's name and address in your application and submit documents satisfying the EPO that the depositor has authorised you to refer to the deposited biological material in your application and has given his unreserved and irrevocable consent to the deposited material being made available to the public in accordance with Rule 33.
- R. 31(1)(d)
OJ 2010, 498
- 78** Lastly you must state your chosen depositary institution and the accession number of the deposited biological material, as a rule within sixteen months after the date of filing or, if you have claimed priority, after the earliest priority date. If any of these requirements is not satisfied, the biological material in question cannot be considered as having been disclosed pursuant to Article 83 by way of reference to the deposit. Please refer to the Guidelines for Examination (F-III, 6.3) for further details.
- R. 31(1)(c), (2)
- 79** You should also ensure that you complete sections 34 to 37 of the request for grant ("Biological material"). These are designed to alert the EPO that the application refers to biological material deposited under Rule 31 and to enable it to draw your attention to any deficiencies before the time limits laid down in Rule 31(2) expire.
- Guid. A-IV, 4.2
- 80** From the date of publication of the European patent application (see point 150), the deposited material is available to anyone on request, but only if the requester makes certain undertakings to the applicant or proprietor regarding restrictions on the transmission and use of the material.
- R. 33

Until the technical preparations for publication of your application are deemed to be complete (see point 149), you may inform the EPO that, for a certain period, the only way the biological material can be accessed is by the issue of a sample to an expert. This may be an expert appointed by mutual agreement between you and the requester, or a person chosen by the requester from a list of experts recognised by the President which is published on the EPO website. The "expert" option is mentioned in the published European patent application.

R. 32
Guid. A-VI, 1.1, 1.3
OJ 2010, 498

- 81** Requests for the issue of samples of biological material deposited under Rule 33 must be submitted on forms which can be downloaded from the EPO website (www.epo.org). The completed forms must be sent to the EPO, which certifies them and transmits them to the competent depositary institution.

R. 33(4), (5)

Claims

- 82** The claims must define the matter for which protection is sought in terms of the technical features of the invention. They must be clear and concise and supported by the description.

Art. 84
R. 43
Guid. F-IV, 1

- 83** Wherever appropriate, claims should consist of two parts (see the examples in Annex III), a prior art portion and a characterising portion. In the first claim and all other independent claims, the prior art portion should designate the subject-matter of the invention and the technical features which are needed to define it but which, in combination, form part of the prior art. The characterising portion should state the technical features for which protection is sought in combination with the features in the prior art portion.

R. 43(1)(a), (b)
Guid. F-IV, 2

- 84** An "independent" claim must state all the essential features of the invention.

R. 43(3)
Guid. F-IV, 3.4, 3.7, 3.8, 4.5

- 85** A European patent application may not contain more than one independent claim in the same category (e.g. product and/or process) unless one of the exceptions listed in Rule 43(2) applies. See point 145 for further information.

R. 43(2)

- 86** Each independent claim may be followed by one or more "dependent" claims concerning particular embodiments of the invention.

R. 43(3), (4)
Guid. F-IV, 3.4 - 3.6

Dependent claims should include all the features of the claim to which they relate. They must contain, if possible at the beginning, a reference to this other claim, which may also be dependent, and then state the additional features for which protection is sought.

As far as possible, all dependent claims referring back to one or more previous claims must be grouped together in the most appropriate way.

- 87** As Article 84 requires claims to be concise (a requirement that applies both to the claims in their entirety and to each claim individually), you must keep the number of claims reasonable in consideration of the nature of the invention you wish to protect. You should therefore avoid undue repetition resulting from the use of independent claims in the same category or a proliferation of dependent claims. *R. 43(5)
Guid. F-V, 5*
- 88** You must number your claims consecutively in Arabic numerals. *R. 43(5)*
- 89** It is essential to formulate your claims clearly, as they define the matter that you want to protect. *Art. 84, 69
Guid. F-IV, 4.1*
- The wording you use in claims must leave no doubt as to their meaning and scope, and you must avoid any inconsistencies between the description and the claims. *Guid. F-IV, 4.2-4.9*
- The area defined by the claims must be as precise as the invention allows. As a general rule, claims which attempt to define the invention in terms of the result to be achieved are not allowed. Where the invention relates to a chemical product, it may be defined by its chemical formula or as a product of a process or, exceptionally, in terms of its parameters. *Guid. F-IV, 4.10-4.16*
- Furthermore, references to the description or drawings, particularly in the form of "as described in part ... of the description" or "as illustrated in figure ... of the drawings", are not allowed unless they are absolutely indispensable. *R. 43(6)
Guid. F-IV, 4.17*
- 90** However, in a European patent application containing drawings, reference signs linking the claims to the drawings should be placed in brackets after the technical features mentioned in the claims if this makes the claims easier to understand. They must not be construed as limiting the claims. *R. 43(7)
Guid. F-IV, 4.19*
- 91** In exceptional circumstances, a European patent application or patent may include separate sets of claims for specific designated states (see point 102).

Claims incurring fees

- 92** If your European patent application comprises more than 15 claims, you must pay a claims fee in respect of each claim over and above that number. For the 51st and each subsequent claim the amount of the claims fee is higher. You must pay claims fees within one month of filing the first set of claims. *R. 45(1), (2)
Guid. A-III, 9
Art. 2, item 15,
RFees
OJ 2009, 118*
- If your application includes several sets of claims (see point 102), a fee is payable only in respect of each claim beyond the 15th in the set that contains the greatest number of claims.
- If you fail to pay the fees in due time, you may still validly pay them within a non-extendable period of one month after being notified of your failure to observe the time limit. If you do not pay the fees within this *R. 45 (2), (3)
R. 112(1)
Guid. A-III, 9*

period, the claims for which you have not paid the fees are deemed to be abandoned, and you are notified accordingly (but see point 225).

- 93** If your application contains more than 15 claims at the time of *grant*, claims fees are payable at this stage if they have not already been paid. If you do not pay them in due time, your application is deemed to be withdrawn (see points 165, 168).
- R. 71*
Guid. C-V, 1-1.5

Drawings

- 94** The requirements governing the representation of your invention in the drawings are set out in Rules 46, 48 and 49. Reference signs not mentioned in the description and claims must not be used in the drawings, and vice versa. The same features, when denoted by reference signs, must be denoted by the same signs throughout the application.
- R. 46, 48, 49*
Guid. A-IX
Guid. F-II, 5
- 95** Drawings must not contain text matter except, when absolutely indispensable, keywords such as "water", "steam", "open", "closed", "section on AB" and, on electric circuits and block schematics or flow sheet diagrams, short catchwords indispensable for understanding. Any such keywords must be placed in such a way that they can be replaced by their translations without interfering with any lines of the drawings.
- R. 46(2)(j)*
Guid. A-IX, 8
- 96** Flow sheets and diagrams are considered to be drawings.
- R. 46(3)*
Guid. A-IX, 1
- 96a** Good-quality drawings are very important for the correct disclosure of the invention. If the drawings are unreadable, e.g. completely black, you may not be allowed to file better-quality drawings at a later stage, disclosing more details than those originally filed.
- Art. 123 (2)*
Guid. A-III, 3.2, A-V, 2.1

Although the EPC has no express provisions for photographs, they are nevertheless allowed. Colour photographs are scanned and made available in the electronic file in black and white.

Guid. A-IX, 1.2

If you file the application in electronic form, you have the advantage that the original quality of the drawings will be available to the EPO and no deficiency communication would be issued, which may happen when you file drawings on paper and only the scanned version is available to the EPO.

Abstract

- 97** The abstract merely serves for use as technical information. It may not be taken into account for any other purpose, such as interpreting the scope of the protection sought or applying Article 54(3). It must be so drafted that it constitutes an efficient instrument for searching in the particular technical field, particularly by making it possible to assess whether the European patent application itself needs to be consulted.
- Art. 85*
R. 47(5)
Guid. F-II, 2.1, 2.2
- 98** The abstract, which must be preceded by the title of the invention, must contain a concise summary (preferably no more than 150 words long) of the disclosure as contained in the description, claims and drawings.
- R. 47(1)-(3)*
Guid. F-II, 2.3

It should indicate the technical field to which the invention relates, unless that is already clear from the title, and should be so drafted as to allow a clear understanding of the technical problem, the gist of the solution of that problem through the invention and the principal use of the invention.

- 99** If your application contains drawings, you must indicate the figure or, exceptionally, figures which you suggest should accompany the published abstract. In this case each main feature mentioned in the abstract and illustrated in the drawing must be followed by the corresponding reference sign in parentheses. R. 47(4)
Guid. A-III, 10.3

- 100** The definitive content of the abstract is determined by the examiner (see point 148). Once the abstract has been published as part of the European patent application (see point 149), it is not amended again. R. 66

Prohibited matter

- 101** Your application must not contain statements or drawings that are contrary to *ordre public* or morality. Nor should it contain statements disparaging the products or processes of any third party, or the merits or validity of any third party's applications or patents. Mere comparisons with the prior art are not considered disparaging *per se*. Furthermore, no statements should be made which are obviously irrelevant or unnecessary under the circumstances. R. 48
Guid. A-III, 8
Guid. F-II, 7

Unitary character of European patent applications and patents

- 102** European patent applications and European patents have a unitary character, which means that the text and any drawings are uniform for all designated contracting states. Art. 118
Guid. H-III, 4

The exceptions to this principle are as follows:

- (a) If the EPO is informed of the existence of a prior right under Article 139(2), the European patent application or patent may, for such state or states, contain different claims and, if the examining division considers it necessary, different descriptions and drawings. R. 138
Guid. H-III, 4.1, 4.2
- (b) If it is adjudged by a final decision that a third party is entitled to be granted a European patent in respect of only one part of the matter disclosed in the European patent application, the original European patent application must, for the designated states in which the decision was taken or recognised, contain claims, descriptions and drawings which, where necessary, are different from those for the other designated contracting states. R. 18(1), (2)
Guid. H-III, 4.3, 4.3.1
- 103** National rights of earlier date do not form part of the state of the art for the purposes of the EPO's examination for patentability (see point 34, last paragraph). Guid. H-III, 4.4

However, during substantive examination (see point 173) or opposition proceedings (see point 182) you may, on your own initiative, submit separate claims for each designated contracting state in which an earlier national right exists, provided that you supply evidence of its existence to the examining or opposition division as appropriate. In such cases the examining or opposition division examines only the admissibility of the separate claims; it does not have to judge whether you have adequately limited the scope of your application in relation to the earlier national right. What it does examine, however, is whether the invention identified in the separate claims meets the patentability requirements of the EPC.

III. Filing European patent applications

Where to file

104 You can file European patent applications

Art. 75(1), (2)

- (a) with the EPO in Munich, its branch at The Hague or its sub-office in Berlin, but not at its sub-office in Vienna.
- (b) with the central industrial property office or other competent authority of a contracting state if the law of that state so permits or prescribes.

Divisional applications must however be filed direct with the EPO.

Art. 76(1)

105 The most popular way of filing European patent applications is online, using the EPO Online Filing software, provided free of charge. More than 80% of all European patent applications are filed online.

If you decide not to file online, the EPO's addresses are given in Annex IV. The addresses of the national patent authorities and national provisions of the contracting states governing compulsory or optional filing of European patent applications with such authorities are given in "**National law relating to the EPC**" (see point 4 above).

How to file

106 You must file applications **in written form**, i.e. in electronic form, in person, by post or by fax.

R. 1, R. 2, R. 35(1)
Guid. A-II, 1

You can file European patent applications in electronic form, **online** or on an electronic data carrier, using the software issued by the EPO (Online filing software; www.epo.org). On the EPO website you will find more information regarding the other online services provided by the EPO and their advantages, such as Online fee payment, Secure File Inspection, Publication Server, My Files and Mailbox.

Guid A-II, 1.3
OJ 2009, 182,
OJ 2012, 448
Special edition No. 3,
OJ 2007, A.5,
National Law relating
to the EPC, 15th
edition

You can also file European patent applications in electronic form with the competent national authorities of the contracting states which so permit. For applications filed online either with the EPO or with a competent national authority the filing fee is reduced.

You **cannot** yet file European patent applications with the EPO by e-mail, telegram, telex or teletext.

*OJ 2000, 458
OJ 2012, 486*

- 107** You can file by fax with the EPO, and with the competent national authorities of those contracting states which so permit, namely – at present – Austria (AT), Belgium (BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Finland (FI), France (FR), Germany (DE), Greece (GR), Iceland (IS), Ireland (IE), Liechtenstein (LI), Luxembourg (LU), Monaco (MC), Norway (NO), Poland (PL), Portugal (PT), San Marino (SM), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH) and United Kingdom (GB). For further details, see the latest version of the brochure "National Law relating to the EPC".

*Special edition
No. 3, OJ 2007, A.3
Guid. A-II, 1.2
National Law relating
to the EPC*

- 108** As the EPO uses an automatic scanner system to capture European patent applications for printing, you are urged to use a machine-readable typeface for your applications.

OJ 1993, 59

Confirmation on paper

- 109** If you file your application electronically (using the EPO software to prepare the application, online or on CD-R, DVD-R or DVD+R), you do not need to supply paper confirmation. Unless you are asked by the EPO to file paper confirmation because of the low quality of the fax transmission, you do not need to do so.

*OJ 2009, 182
OJ 2012, 448
Special edition
No. 3, OJ 2007, A.5*

When filing paper confirmation, you should indicate clearly that the document constitutes "confirmation of a document filed on ... by fax".

Date of receipt

- 110** The date of filing accorded to applications filed in electronic form (online) or sent by post or fax is the date on which the application documents are received at the EPO, provided the documents comply with the requirements of Article 80 and Rule 40 (see point 136).

The date of filing accorded to applications filed in person at the EPO is the date on which they are handed in or posted in one of the EPO's automated mailboxes.

*Art. 80, R. 40
OJ 1992, 306*

The above rules similarly apply to applications filed with the competent national authorities of the contracting states.

OJ 2009, 182

Acknowledgement of receipt

- 111** The authority with which you file your application acknowledges receipt without delay by sending you page 8 of the request for grant, on which it notes the date it received the application documents and the number of the application.

*OJ 2009, 182
R.35(2)
Guid A-II, 3.1
OJ 1992, 306, 310*

If you file online, receipt is acknowledged electronically during the submission session. If you file on CD-R, DVD-R or DVD+R, receipt is acknowledged by post.

On request, the EPO will also issue fax acknowledgement that it has received your documents, provided that:

- you enclose the request for fax acknowledgement with your documents
- you indicate the postal or fax address to which the acknowledgement is to be sent, and
- you provide evidence of payment of the prescribed administrative fee (see Annex VII) or enclose a debit order.

Applications filed with national authorities and forwarded to the EPO

- 112** If an application filed with a national authority is forwarded to the EPO, the EPO notifies you accordingly, indicating the date it received it, by sending you a copy of the receipt for documents (page 8 of the request for grant). National authorities inform the EPO without delay when they receive applications.

R. 35(3)
Guid. A-II, 3.2
OJ 1990, 306

You are also sent an acknowledgement of receipt pursuant to Rule 35(3), signed by the national authority concerned, if you file European patent applications electronically with any of the national authorities that so permit. If you do not receive this acknowledgement, please contact the national authority.

- 113** In the very rare event that your application fails to reach the EPO before the end of the fourteenth month after filing or after the earliest priority date, it is deemed to be withdrawn, and any fees that you have paid are refunded. The EPO notifies you accordingly, and you can then convert your European patent application into national applications.

Art. 77(3)
R. 37(1), (2)
R. 112(1)
Guid. A-II, 1.7, 3.2

You must file the request for conversion with the central industrial property office of the contracting state in which you filed the application, and you must do so within three months after receiving notification from the EPO. For more details see **"National law relating to the EPC"** (see point 4).

Art. 135(2)

Fees

- 114** The following fees are payable in respect of a European patent application:

Art. 2 RFees
Guid. A-IV, 1.4
Guid. A-X

- (a) filing fee and any additional fee for the 36th and each subsequent page of the application (see Point 118)
- (b) search fee
- (c) claims fee in respect of the 16th and each subsequent claim (where appropriate) (see points 92, 93)
- (d) designation fee (see point 152)

R. 45
Guid. A-III, 9
Art. 2, item 15, RFees

(e) extension fees (one for each extension state, see point 26)

Guid. A-III, 12.2

(f) examination fee (see points 152 and 153)

(g) renewal fees in respect of the third and each subsequent year
(see points 213-218)

- 115** After filing the application you must pay the filing and search fees (and any claims fees required, where claims were filed together with the application, but see point 92) within one month of the date of filing.

*Art. 78(2), R. 38,
R. 45(2)*

You must pay the designation fee (and any extension fees) within six months of the date on which the European Patent Bulletin mentions publication of the European search report.

*Art. 79(2), 94(1)
R. 39,
R. 70(1)*

The examination fee is payable within the same period.

An overview of important deadlines for filing a European patent application, including deadlines for the payment of fees, is contained in Annex VI of this Guide and in Form 1034, obtainable from the EPO or the EPO website at www.epo.org.

- 116** The EPO will not send you invoices or reminders to pay these fees in due time.

- 117** If you fail to pay the filing and search fees in due time, your European patent application is deemed to be withdrawn (but see point 225).

*Art. 78(2)
Guid. A-III, 13*

If you fail to pay the designation or examination fee in due time, the application is deemed to be withdrawn (but see point 225). If you fail to pay the extension fee in due time, the request for extension to this state is deemed to be withdrawn.

*R. 39(2), (3)
Guid. A-III, 11.2,
11.3, 12.2*

- 118** An additional fee is payable for European patent applications comprising more than 35 pages. The amount of the additional fee depends on the number of pages over 35 and is calculated on the basis of the pages of the description, claims, any drawings and one page for the abstract, in the language of filing. The language reduction under Rule 6(3) applies. The pages of the request for grant form (EPO Form 1001) are not counted, nor are any pages forming part of a sequence listing, provided that it complies with WIPO Standard ST.25 and is presented as a separate part of the description. The additional fee is payable within one month of the filing date of the application. If the application is filed without claims or by reference to a previously filed application, the additional fee is payable within one month of filing of the first set of claims or the certified copy (see points 137 and 147).

Art. 2(1) RFess

- 119** In the case of European divisional applications (see points 208-212), you must pay the filing fee, any additional fee and search fees (and any claims fees) within one month of filing. You must pay the examination fee, the designation fees and any extension fees within six months of

*R. 36(3), (4), 70(1)
Guid. A-IV, 1.4*

the date on which the European Patent Bulletin mentions publication of the European search report on the divisional application.

- 120** You should note that, if you fail to observe the above-mentioned time limits for payment of the filing fee, additional fee, search fee, the designation fee or the examination fee, further processing is available within two months of a communication from the EPO concerning the loss of rights on payment of the outstanding fee and the prescribed fee for further processing (see point 225).

*Art. 121
R. 135 (1)
Guid. A-III, 11.2,
11.3, 12.2, 13*

If you fail to pay the extension fee in due time, the request for extension to this state is deemed to be withdrawn. The EPO will not send a communication to that effect. However, the extension fee can still be paid with a 50% surcharge within a period of two months of expiry of the basic period for payment.

Fee amounts and payment methods

- 121** Fee amounts, payment methods and effective payment dates are governed by the Rules relating to Fees (RFees) and by measures adopted by the President of the EPO implementing certain provisions of those Rules.

*Art. 2, 5, 7 RFees,
Arrangements for
deposit accounts
(ADA²)
Guid. A-X*

Guidance on fee payment is published in each issue of the EPO's Official Journal and on the EPO's website at www.epo.org, so you should consult the latest issue to find out the current situation.

- 122** The following advice and recommendations on paying fees to the EPO should be noted:

- (a) Fees due to the EPO must be paid in euros.

*Art. 5 RFees
Guid. A-X, 3
OJ 2007, 533*

Fees, including those for a European patent application filed with a national authority, must be paid direct to the EPO (for the only exception see (e) below). You can do this by paying them into or transferring them to a bank account held by the EPO³ or by debiting a deposit account you have opened with the EPO.

- (b) Depending on how you pay, the deemed date of payment is the day on which

Art. 7 RFees

- the amount of the payment or transfer is actually credited to a bank account held by the Office, or
- the order to debit a deposit account is received at the EPO, provided the deposit account contains sufficient funds.

It is advisable to pay fees as promptly as possible, preferably at the same time as filing your application.

² Supplement to OJ 03/2009

³ The EPO publishes a list of accounts in every issue of its Official Journal and on its website (www.epo.org).

- (c) If a payment is received after expiry of the period within which it should have been made, the period is considered to have been observed if you can prove to the Office that:

*Art. 7(3) RFees,
Point 6.8 ADA
Guid. A-X, 6.2*

in a contracting state, within the relevant period for payment,

- you effected the payment through a banking establishment, or
- you duly gave an order to a banking establishment to transfer the relevant amount, or
- you despatched at a post office a letter addressed to the Office and containing an order to debit a deposit account opened with the EPO, provided that there are sufficient funds in the deposit account on the date on which the period for payment expires
- and you have paid a surcharge of 10% on the relevant fee or fees, but not exceeding EUR 150; no surcharge is payable if you took one of the actions listed above no later than ten days before expiry of the period for payment.
- t fee or fees, but not exceeding EUR 150; no surcharge is payable if you took one of the actions listed above no later than ten days before expiry of the period for payment.

The Office may request you to produce evidence of the date on which you took one of the actions listed above, and where necessary to pay the surcharge, within a period which it specifies. If you fail to comply with this request, if you produce insufficient evidence, or if you fail to pay the required surcharge in due time, the period for payment is considered not to have been observed.

Art. 7(4) RFees

- (d) If you pay fees through a banking establishment, you may use the bank of your choice. Payments and transfers must be to one of the accounts of the EPO.
- (e) If you file a European patent application with the EPO or a national authority and have a deposit account with the EPO, you can pay fees due on filing simply and securely by debiting your deposit account; you merely have to fill in the appropriate section of the fee payment form (EPO Form 1010) that you enclose with the application.

*Art. 7(2) RFees,
Point 6.9 ADA
Guid. A-X, 4.2*

The EPO also accepts debit orders filed electronically or issued by fax. For more information about Online fee payment, go to EPO Online services on the EPO website (www.epo.org).

Point 6.2 ADA

If you are an EPO deposit account holder, you also have the option of issuing an automatic debit order (using section 42 of the request for grant, Form 1001, see Annex).

*ADA, Annexes A.1
and A.2
Guid. A-X, 4.3
Point 6.10 ADA*

If you file your application with a national authority and the EPO does not receive the enclosed debit order until after the period

for fee payment has expired, you are deemed to have met the time limit if there were sufficient funds in your deposit account on the date when the time limit expired.

- (f) Regardless of how you choose to pay, it is advisable to use the fee payment form (Form 1010, see Annex) to communicate particulars concerning payments. You can download the form from the EPO website (www.epo.org).

IV. Filing other documents

Where and how to file

- 123** After you have filed a European patent application, you may file other documents as referred to in Rule 50 EPC with the EPO in Munich, The Hague or Berlin, either electronically, using the EPO's Online filing software, by hand or by post. The EPO provides forms which serve either as a prepared acknowledgement of receipt (Form 1037) or as letter accompanying subsequently filed documents (Form 1038).

R. 50
Guid. A-VIII, 2.5

OJ 2009, 182

You may also file documents (other than authorisations and priority documents) by fax. Documents may not be filed by e-mail, on diskette, or by teletex, telegram, telex or similar means.

OJ 2012, 348

- 124** If you filed the application with a national authority, you may likewise file all other documents relating to the application with that authority, subject to any restrictions under national law, but only until the date on which you receive notification that the EPO has received your application. Once you have received this notification, you must file any such documents with the EPO directly.

R. 35(4)
Guid. A-II, 3.2

Signature

- 125** With the exception of annexes, any documents filed after filing of the European patent application must be signed. In online filings the signature may be in the form of a facsimile, text string or enhanced electronic signature. In paper filings it may be a handwritten signature or a reproduction of the filer's signature (on faxes). The name and position of that person must be clear from the signature. Regarding signature of documents filed electronically in appeal proceedings, the authenticity of the documents must be confirmed by an enhanced electronic signature.

R. 50(3)
R. 2(2)
Guid. A-VIII, 3.3
OJ 2009, 182

If the signature is omitted from a document, the EPO will invite the party concerned to sign within a fixed time limit. If signed in due time, the document retains its original date of receipt; otherwise it is deemed not to have been received.

Guid. A-VIII, 3.1

Confirmation on paper

- 126** If you file documents electronically, you need not supply paper confirmation. If you are invited to supply a written confirmation of a document filed by fax, you must do so within a non-extendable period of two months. If you fail to comply with the invitation in due time, the document is deemed not to have been received (see point 109).
- R. 2(1)
Special edition
No. 3, OJ 2007, A.3,
OJ 2009, 182
Guid. A-VIII, 2.5
OJ 2005, 41*

Date of receipt

- 127** The rules governing the filing of the European patent application set out in point 110 apply *mutatis mutandis* to the filing of other documents.
- Special edition No. 3, OJ 2007, A.3*

Acknowledgement of receipt

- 128** The EPO acknowledges receipt of subsequently filed items on the forms provided for this purpose and completed by the applicant (EPO Forms 1037 and 1038). In case of electronic filing using the EPO's Online filing software, an acknowledgement of receipt is generated immediately.
- OJ 2009, 182*

For the possibility of obtaining an acknowledgement of receipt by fax see the second paragraph of point 111.

Guid. A-II, 3.1

D. The European patent grant procedure

I. General survey

- 129** The European patent grant procedure is an examination procedure beginning with a formalities examination and a mandatory search.

The first stage ends with the publication of the European patent application and the search report.

At the applicant's request this is followed by the second stage, substantive examination.

After the patent has been granted, there may be a further procedure in the form of opposition proceedings or, upon request of the patentee, limitation or revocation proceedings.

- 130** The **first stage of the procedure** comprises an examination on filing, formalities examination, preparation of the European search report and a preliminary opinion on patentability, and publication of the application and the search report. Responsibility for this stage rests with the Receiving Section and a search division.

*Art. 16, 17, 90-93
R. 55-69
Guid. A, B*

- 131** The **second stage** comprises substantive examination and grant. Examining divisions are made up of three technically qualified examiners, who may if necessary be joined by a legally qualified examiner. Until a decision has to be taken on the application, its examination is as a rule entrusted to one of the technically qualified examiners. This examiner is responsible for issuing the requisite communications and for discussing the application with the applicant in writing, in person or on the telephone.

*Art. 18, 94-98
R. 71-74
Guid. C-II*

If oral proceedings are requested by the applicant or (in exceptional cases) arranged at the Office's initiative, they are held before the full examining division. The final decision on the grant of the patent or refusal of the application is also a matter for the full examining division.

*Art. 116
Guid. E-II*

- 132** After the grant of the patent there may be opposition proceedings, involving third parties such as competitors as opponents. Responsibility for examining oppositions rests with the opposition divisions, which are composed in the same way as the examining divisions, except that only one member of the opposition division may have been involved in the earlier grant proceedings, and that member is not allowed to chair the division.

*Art. 19, 99-105
R. 75, 89
Guid. D*

- 133** After the grant of the patent there may also be revocation or limitation proceedings initiated by the patent proprietor himself. At any time after the grant of the patent the patent proprietor may request the

*Art. 105a-c
R. 90-96*

revocation or limitation of his patent. Decisions on the revocation or limitation of European patents are taken by the examining divisions. More details about revocation and limitation proceedings can be found in points 189-196.

- 134** Appeal proceedings constitute a **special procedure**⁴. Appeals may be filed against decisions taken by the Receiving Section, the examining divisions, the opposition divisions or the Legal Division. A decision which does not terminate proceedings as regards one of the parties can only be appealed together with the final decision, unless the decision allows separate appeal.

*Art. 106-112a
R. 99-103
Supplement to OJ
No. 1/2013*

Decisions on appeals are taken by the boards of appeal.

Art. 21

- 135** In certain cases it may be possible to file a petition for review by the Enlarged Board of Appeal. For further details, see point 207.

*Art. 112a
R. 104-110*

II. Procedure up to publication of the application

Examination on filing

- 136** On receiving an application the Receiving Section examines whether it can be accorded a date of filing. This is the case if the application documents contain:

*Art. 80, 90
R. 40
Guid. A-II, 4.1*

- an indication that a European patent is sought
- information identifying the applicant
- a description or a reference to a previously filed application

- 137** It is not necessary to file any claims in order to obtain a date of filing. You may file claims within two months from the date of filing or from an invitation requesting you to do so. However, you should take care that the late-filed claims do not contain subject-matter which extends beyond the content of the application as originally filed.

*Art. 123(2)
R. 57(c)
R. 58
Guid. A-III, 9*

- 138** If a date of filing cannot be accorded because any deficiencies found have not been remedied in due time despite an invitation to do so, the application will not be dealt with as a European patent application. For a date of filing to be accorded, the documents do not have to meet any particular requirements as to form or presentation. It is essential, however, that they be sufficiently legible to enable the information to be discerned.

*Art. 80, R. 55
Guid. A-II, 4.1.4*

- 139** Once the date of filing has been accorded, the Receiving Section examines whether the filing and search fees have been paid in due time and whether a translation of the application into the language of the proceedings, if required, has been filed in due time (see points 114, 115 and 42-46). If the filing fee or search fee has not been paid in due time, the European patent application is deemed to be withdrawn. However, see point 225 for the possibility of further processing.

*Art. 78(2), 90(1), (3)
Guid. A-III, 13
Guid. A-III, 14
Art. 14(2)
R. 58*

⁴ The EPO publishes information from the boards of appeal in an annual supplement to the Official Journal.

Formalities examination

- 140** If the application has been accorded a date of filing and is not deemed to be withdrawn, the Receiving Section checks for compliance with the provisions governing translations, the content of the request for grant (see point 48), the presence of claims (see point 92, 137), the filing of the abstract (see points 47 and 97-100), representation (see points 58- 66), formal requirements (see point 70), any priority claimed (see points 52-56), designation of the inventor (see points 49-51) and the filing of any drawings. If the Receiving Section finds correctable deficiencies, it invites you to remedy them (see points 66 and 208-212); if you fail to do so, the legal consequences provided for in the EPC take effect, i.e. the application is deemed to be withdrawn or is refused.
- 141** If the file number or the certified copy of the application whose priority is claimed is missing, you will be invited to file them within a specified time limit. If you fail to do so, you will lose your priority right.
- 142** If parts of the description or drawings referred to in the description or the claims are missing on the date of filing but are filed subsequently, you have a choice between re-dating the application to the date when the missing parts of the description or the drawings are filed and deleting the late-filed parts of the description or drawings together with references to them in the application. However, the first option is available only within two months from the date of filing or, alternatively, within a two-month time limit set in an invitation. The second option is available only within one month from the notification of the new date of filing. If the missing parts are completely contained in the priority document, on request no re-dating of the filing date will occur.
- 143** With regard to the requirements governing documents filed after the filing of the European patent application see points 123-128 and 171-176.

R. 57-60
Guid. A-III
Guid. E-I
Guid. H-III

R. 59
Guid. A-III, 6.5.3
A-III, 16.2

R. 56
Guid. A-V, 2, A-II, 5
Guid. C-III, 1

European search report

- 144** While the formalities examination is in progress, the European search is performed. As already mentioned (point 17), the EPO will make every effort to speed up the search if you request this when filing the application (see Annex II, point 2). For European first filings see point 18.

Art. 92
R. 61
Guid. B
OJ 2010, 352

The search report is drawn up on the basis of the claims, with due regard to the description and any drawings. It mentions the documents available to the EPO when it is drawn up which may be taken into consideration in assessing novelty and inventive step.

The search report is accompanied by an opinion on whether the application and the invention to which it relates meet the requirements of the EPC.

R. 62
R. 70
R. 71(1), (3)
Guid. C-VI, 3
Guid. B-XI, 7

The opinion is not issued if you have waived your right to receive the communication under Rule 70(2) EPC (see point 158) before the search report has been communicated to you. In this situation you will receive a first communication from the examining division instead.

The non-binding opinion is not published together with the search report but is available to the public by way of file inspection after publication of the application.

R. 62(2), Art. 128

- 145** If the application contains more than one independent claim in the same category (see point 85) and none of the exceptions listed under Rule 43(2) applies, you will be invited to indicate, within a two-month period, the basis on which the search is to be carried out. If you fail to do so, the search will be carried out on the basis of the first independent claim in each category.

R. 62a
R. 63
R. 137(5)

Similarly, if it is impossible to carry out a meaningful search on the basis of all or some of the subject-matter claimed, you will be invited to file, again within a two-month period, a statement indicating the subject-matter to be searched. Should your statement not be sufficient to overcome the deficiency, the EPO will issue a partial search report or a declaration that no meaningful search can be carried out.

You should note that, in response to such an invitation for clarification, you may not amend the application documents.

R. 137(1)
Guid. B-VIII, 4, 5

When the examining division assumes responsibility, it will invite you to delete the unsearched subject-matter from the application unless it finds that the objection was unjustified.

- 146** Immediately after it has been drawn up, the European search report is transmitted to you together with copies of any cited documents. If you require a second copy of the documents, you can obtain it by indicating it in the appropriate box on the request for grant form (refer to section 39 of the request for grant) when filing the application and by paying the prescribed administrative fee.

Art. 92(2)
R. 65
Guid. B-X

Having received the search report, you may withdraw the application if you think it has no chance of success. If you decide to pursue the patent grant procedure (see point 155), you will have an opportunity to amend the application to reflect the results of the search (see points 171-176).

R. 137

- 147** If the search division considers that the application does not comply with the requirement of unity of invention (see point 69), it draws up a European search report on those parts which relate to the invention first mentioned in the claims. It informs you that, if the search report is to

Art. 82
R. 64
Guid. B-VII
Guid. F-V, 10

cover the other inventions, you must pay a further search fee in respect of each of them within a non-extendable period specified in it.

If you do not respond to this invitation, and if the examining division considers the search division's objection justified, you are deemed to want the application to proceed in respect of the invention for which the search report has been drawn up. The application must not include claims for subject-matter for which a further search fee has not been paid. You may however file a divisional application for such subject-matter as long as the respective time limit is still running (see points 208-212).

Guid. F-V, 11
Guid. C-III, 3

Any further search fees paid will be refunded on request if it emerges during examination proceedings that the search division's payment demand was not justified.

- 148** Upon drawing up the European search report, the search division determines the definitive content of the abstract and transmits it to you together with the search report.

R. 47
Guid. B-X, 7
Guid. F-II, 2.4-2.6

III. Publication of the European patent application

- 149** The European patent application is published as soon as possible after the expiry of eighteen months after the date of filing or the earliest priority date. You may however request that it be published earlier.

Art. 93
Guid. A-VI

The publication contains the description, the claims and any drawings, all as filed, plus the abstract. If the European search report is available in time, it is annexed (A1 publication); if not, it is published separately (A3 publication). A European patent application which was not filed in English, French or German is published in the language of proceedings.

Guid. A-VI, 1.3
Guid. A-VI, 1.5

All European patent applications, European search reports and European patent specifications are published in electronic form only, on the EPO's publication server. The publication server is accessible via the EPO website (www.epo.org).

Guid. A-VI, 1.4

- 150** If you amend the claims after receiving the European search report but before completion of the technical preparations for publication (see point 172), the amended claims will be published in addition to the claims as filed. The technical preparations are deemed to have been completed five weeks before expiry of the eighteenth month after the date of filing or, if priority is claimed, after the date of priority.

R. 68(3)
Special edition No. 3
OJ 2007, D.1

- 151** The European patent application is not published if it has been finally refused or withdrawn or deemed withdrawn before completion of the technical preparations for publication.

R. 67(2)
Guid. A-VI, 1.2
Special edition No. 3
OJ 2007, D.1

- 152** The EPO informs you of the date on which the European Patent Bulletin mentions publication of the European search report, and it draws your attention to the period for filing the request for examination (paying the fee for examination), which begins on that

R. 69
Guid. A-VI, 2.1

date (see point 155). It also informs you that the designation fees must be paid within six months of the date on which the European Patent Bulletin mentions publication of the European search report and that the same period applies to the payment of any extension fees.

- 153** For the provisional protection that the application confers after publication see the third paragraph of point 5.

Art. 67

A contracting state not having the language of the proceedings as an official language may prescribe that provisional protection does not take effect until a translation of the claims into one of its official languages at your option or, where that state has prescribed the use of one specific official language, in that language:

Art. 67(3)

- (a) has been made available to the public in the manner prescribed by national law, or
- (b) has been communicated to the person using the invention in that state. The contracting states all make provisional protection conditional upon a translation of the claims. The same applies to the extension states (see point 26). For more information you are referred to **"National law relating to the EPC"** (see point 4) and to the key points of the London Agreement, to be found on the EPO website (www.epo.org).

- 154** Once the European patent application has been published, files relating to it are available for public inspection by way of the European Patent Register, which can be accessed via the EPO website (see also point 80).

Art. 128(1)-(4)
R. 143
R. 144

From that time, too, the public has access to the application's bibliographic data and to information about the state of the proceedings by means of the European Patent Register, which can be accessed via the EPO website (see Annex VIII).

Art. 127
R. 143
Guid. A-XI
OJ 2011, 110
OJ 2009, 598

The European Patent Register also allows you to monitor patent applications for updates using the Register Alert Service.

Additional information about the form in which European patent applications and patents are published and about periodical EPO publications is given in Annex VIII.

Art. 129

IV. Examination procedure

Request for examination

- 155** You need to file the request for examination within six months of the date on which the European Patent Bulletin mentions the publication of the European search report (see point 151). The request, which you must submit in writing, is contained in the request for grant form (see section 5), but it is not deemed to be filed until you have paid the examination fee. Once filed, it cannot be withdrawn.

Art. 94-98
R. 70-74
Guid. A-VI, 2.2
Guid. C-II, 1.1
Art. 2 No. 6 RFees

If you do not validly file the request for examination within the time limit, the application is deemed to be withdrawn. However, the opportunity to request further processing is available (see point 225).

Art. 94(2)
Guid. A-VI, 2.3
Guid. C-II, 1.1

- 156** You always have the option of paying the examination fee when you file the application. No disadvantages can accrue from this, as the examination fee is refunded in full if the application is withdrawn, refused or deemed to be withdrawn before the examining division has assumed responsibility, and at a rate of 75% after that date but before substantive examination has begun.

Art. 11 RFees
Guid. A-VI, 2.2, 2.5
Guid. C-II, 1.1
OJ 2013, 153

- 157** If you validly file the request for examination before receiving the European search report, pursuant to Rule 70(2) the Receiving Section invites you to indicate, within six months of the date when the European Patent Bulletin mentions publication of the search report, whether you wish to proceed further with the application. If you do not reply to this invitation in due time, the application is deemed to be withdrawn.

R. 70
Guid. A-VI, 2.3
Guid. C-II, 1.1

In this case, too, further processing is available (see point 225).

- 158** To speed up proceedings, you can also, for example in the request for grant form, simply waive your right to the invitation to confirm the request for examination. In that case, when you receive the search report you are deemed to have indicated that you wish to proceed further with the application, and the examining division then assumes responsibility for the procedure (see point 144 and Annex II, Programme for accelerated prosecution, point 10).

Art. 18(1)
R. 70(2)
Guid. C-VI, 3
OJ 2010, 356

- 159** You will be invited to comment on the extended European search report and/or to correct any deficiencies noted in the opinion accompanying it, and to amend the description, claims and drawings as appropriate, within the same six-month time limit as applies to filing or confirming the request for examination. If you fail to comply with the invitation in due time, the application will be deemed withdrawn (for further processing, see point 225).

R. 70a
R. 137

However, if no objections were raised in the opinion accompanying the European search report, no invitation will be issued. Instead, you will be informed about the possibility of filing comments or making amendments within the same period (see point 172).

Stages of the procedure

- 160** Once you have filed the request for examination, the EPO examines, in the light of the search report, the preliminary report on patentability and your response to them, whether the application and the invention to which it relates meet the requirements of the Convention, and in particular whether the invention is patentable (see points 27-37).

Art. 94(1)
Guid. C-II

After receiving the search report and before receiving the examiner's first communication, you must file substantive observations on any objections raised in the search report; you may also amend the description, claims and drawings (see points 159 and 172).

R. 137(2), (3)
Guid. C-III 2

- 161** If the examiner responsible within the examining division has objections to the application, he sends you a first reasoned communication inviting you to file your observations and, if necessary, to submit amendments to the description, claims and drawings (see points 171-176). *R. 71(1), 137(3)
Guid. C-IV, 3,
C-V, 14
Guid. C-II and C-III
Guid. E-I, H-III*
- If you fail to reply in due time to this or any further communication, the application is deemed to be withdrawn (but see point 225). *Art. 94(4)*
- If your actions are clearly indicative of an interest in speedy substantive examination, the examiner will make every effort to issue the first communication within three months of the examining division's receipt of the application or the request for accelerated examination (see Annex II, point 9). *OJ 2010, 352*
- You might also be invited to provide information on prior art taken into consideration in the examination of national or regional patent applications and concerning an invention to which the European patent application relates. If you do not provide this information within a specified time limit, the application is deemed withdrawn (but see point 225). It is recommended that you file any search results relating to a previous application from which priority is claimed as soon as they are available. *Art. 124(2)
R. 141
Guid. C-III, 5*
- 162** You must try to deal with all the examiner's objections, the guiding principle of the examination procedure being that the decision to grant a patent or refuse the application should be reached in as few actions as possible. *Guid. C-V, 1*
- If, after examining your response, the examiner considers that the application is not yet grantable, he will continue with the examination procedure by issuing a further written communication or talking to you in person or on the telephone. *Guid. C-IV
Guid. C-VII*
- You may at any time request oral proceedings. *Art. 116
Guid. E-II*
- 163** The examiner may seek the advice of other members of the examining division whenever he sees fit. At the latest he will refer the application to them when a decision has to be taken. *Guid. C-IV, 4
Guid. C-VIII*
- If the examining division is of the opinion that a European patent cannot be granted, it will refuse the application. The decision is issued by the examining division as a whole, and the grounds of refusal must be stated. Refusals may be based only on grounds on which you have had an opportunity to comment. *Art. 97(1)
Guid. C-V, 14, and
C-VIII, 6
Art. 113(1)*
- 164** If the application and the invention to which it relates meet the requirements of the Convention, the examining division will proceed to the grant stage. *Art. 97(2)
R. 71(3)-(7)
Guid. C-V*
- 165** The examining division informs you of the text in which it intends to grant the European patent, and invites you to pay the fee for grant and publishing and any claims fees for claims in excess of 15 which have *Art. 97
R. 71(3)
Guid. C-V, 1, 3*

not yet been paid, as well as to file a translation of the claims into the two official languages of the EPO other than the language of the proceedings within a non-extendable period of four months. You are also recommended to check the bibliographic data at this stage.

If you pay the prescribed fees and file the necessary translations of the claims in due time, you are deemed to have approved the text intended for grant. If you do not respond to the invitation, the application is deemed to be withdrawn (but see point 225).

R. 71(3), (7)

- 166** Upon reviewing the proposed text for grant, you may wish to make minor amendments, and/or you may discover mistakes. In that case you have an opportunity to file amendments or corrections within the period set under Rule 71(3) (see point 165). If the examining division consents to the amendments or corrections, it will issue a new communication under Rule 71(3). It can then proceed to grant, provided you have filed the translations of the claims and paid the fees for grant and publishing within the time limit set. If you file amendments or corrections and translations of the claims in due time, but do not pay the fees or file the translations, the application is deemed to be withdrawn (but see point 225).

*R. 71(4), R. 137(3),
R. 139
Guid. H-II
Guid. C-V, 4
OJ 2010, 637
OJ 2012, 52*

- 167** If the examining division does not consent to the requested amendments or corrections, it will resume the examination proceedings. Depending on the circumstances of the individual case, the examining division may for example issue a communication under Art. 94(3) and Rule 71(1),(2), summon you to oral proceedings or refuse the application.

*R. 71(6)
Guid. C-V, 4, H-II*

- 168** If you fail to meet the objections raised, the examining division will refuse the application under Article 97(2) because it does not meet the requirements of the Convention. If you fail to pay the fee for grant and publishing and any claims fees due, the application is deemed to be withdrawn (but see point 225). If you have paid said fees but ultimately no patent is granted, the fee for grant and publishing will be refunded.

*Art. 97(1)
R. 71
OJ 2012, 52*

Before a patent can be granted, you must also have paid any renewal fee and, if applicable, any additional fee due (see point 213 et seq.). If a renewal fee falls due before the expected date of publication of the mention of grant of the European patent, you will be informed accordingly. The mention of grant will not be published until you have paid the renewal fee. If you fail to pay the renewal fee and any additional fee in due time, the application is deemed to be withdrawn.

*Art. 86(1)
R. 71a(3) and (4)
Guid. C-V, 2*

- 169** If you overrun the period set under Rule 71, you may request further processing under Article 121 (see point 225).

*Art. 121
R. 135
Guid. C-V, 8-9*

- 170** The grant does not take effect until the date on which it is mentioned in the European Patent Bulletin. At the same time as it publishes this mention, the EPO publishes a European patent specification containing the description, the claims and any drawings. The

*Art. 97(3), 98
Guid. C-V, 10-13*

European Patent Bulletin is published electronically on the EPO's publication server (www.epo.org).

The certificate issued for a European patent shall be communicated to the proprietor in paper form. Certified copies of the certificate with the specification annexed, will be issued to the proprietor upon request and payment of an administrative fee.

*R. 74
OJ 2013, 418*

Amending applications before and during examination proceedings

- 171** You are not allowed to amend the description, claims or drawings before you receive the European search report. You should always indicate any amendments made and identify their basis in the application as filed.
- R. 137(1), (5)
Guid. A-V, 2
Guid. H-IV, 2.1 and 3
Guid. H-II, H-III*
- 172** Within the time limit for requesting examination or confirming that request (i.e. when replying to the invitation to comment on the objections raised in the search opinion), you may of your own volition amend the description, claims and drawings (see points 149, 159, 160 and 175).
- R. 137(2)
Guid. C-VI, 2, C-II, 3.1, C-III, 2*
- 173** No further amendments are allowed without the examining division's consent. Amended claims may not relate to unsearched subject-matter which does not combine with the originally claimed invention to form a single general inventive concept. In deleting subject-matter from an application, you should avoid any statement which could be interpreted as abandonment of that subject-matter. Otherwise the subject-matter cannot be reinstated.
- R. 137(3), (5)
Guid. C-IV, 6
Guid. H-II
Guid. H-IV, 2.1 and 4.2*
- 174** The Guidelines provide information about the limits to the amendments that you can make to the description, claims and drawings after receiving the communication under Rule 71(3). Once you have received the text communicated to you pursuant to Rule 71(3) (including minor amendments and/or corrections of errors, see point 165), further amendments will only be allowed under the discretionary power given to the examining division by Rule 137(3).
- R. 137(3)
Guid. C-V, 4-5
Guid. H-II, 2.5, 2.6
OJ 2010, 637*
- 175** The application may on no account be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (which does not include the priority document). However, subsequently filed examples or statements of advantage may be considered by the examiner as evidence in support of the invention's patentability.
- Art. 123(2)
Guid. F-II, 4.3
Guid. H-IV, 2.1, 2.3*

This technical information is generally added to the part of the file that is open to public inspection (see point 154). From the date on which it is added, it forms part of the state of the art within the meaning of Article 54(2) (see point 32). A note is printed on the cover page of the patent specification to alert the public that information submitted after the application was filed is not included in the specification (see point 170).

Guid. H-V, 2.3

176 You can make amendments to the European patent application in one of the following ways:

Guid. H-III

- (a) By filing replacement pages. You should use this method only if the amendments are extensive and complicated. If it is not immediately clear how or why an amendment is to be made, you should provide explanatory notes in the margin of the replacement pages or on separate sheets. You must comply with the provisions governing application document presentation (see point 70).
- (b) By annotating a copy of the relevant page(s) of the application. This is the preferred method if the amendments are not too extensive, as it simplifies checking. The amendments should preferably be typewritten.
- (c) By indicating the changes in a letter. This method is suitable if, for example, you wish to delete whole pages, paragraphs or drawings.

National requirements governing translations of European patents

177 Any contracting state may make the protection conferred by a European patent granted (or amended or limited) in a language that is not one of its official languages contingent upon your filing a translation into one of its official languages or its prescribed official language. It may also require you to bear some or all of the cost of publishing the translation. The same applies to extension states.

Art. 65

For more details refer to "**National law relating to the EPC**" and to the key points of the London Agreement, to be found on the EPO website at www.epo.org.

You should take great care to comply with these requirements, especially those governing time limits for filing translations, so as not to undermine the protection conferred by the patent in the designated contracting states.

Art. 65(3)

V. Opposition procedure

*Art. 99-105
R. 75-89
Guid. D
OJ 2001, 148*

Opposition period

178 Up to nine months after publication of the mention that a European patent has been granted, anyone may give the EPO notice of opposition to the patent, except for the proprietor, who is not allowed to oppose his own patent.

*Art. 99
OJ 1994, 891*

Notice of opposition is not deemed to have been filed until the opposition fee has been paid.

Grounds for opposition

179 Opposition may only be filed on the grounds that:

- the patent's subject-matter is not patentable within the terms of Articles 52-57
- the patent does not disclose the invention clearly and completely enough for it to be carried out by a person skilled in the art
- the patent's subject-matter extends beyond the content of the application as filed.

Art. 99(1)
Art. 100
Guid. D-III, 5

Form and content of the notice of opposition

180 Notice of opposition must be filed in one copy only within the opposition period in a reasoned statement. That means that the opponent must state at least one ground for opposition under Article 100 and indicate the facts, evidence and arguments presented in support of the ground(s). Otherwise the notice of opposition will be rejected as inadmissible. It is advisable to use the EPO opposition form (Form 2300), which provides all the information needed to ensure that an opposition is admissible. This form is available free of charge from the EPO and the central industrial property offices of the contracting states as well as via the EPO website (www.epo.org).

Art. 99(1)
R. 76
Guid. D-III, 3
Guid. D-III, 6

Notice of opposition may also be filed by fax or electronically with the Online filing software (see points 123-128).

R. 2
Guid. D-III, 3.2
OJ 2009, 182

Examination of the notice of opposition for admissibility

181 Immediately after receiving the notice of opposition, the EPO will forward it to the proprietor. Then the admissibility of the opposition is checked. Deficiencies in the notice are communicated to the opponent. Deficiencies under Rule 77(1) must be remedied within the opposition period. Other remediable deficiencies must be corrected within a period specified by the EPO (generally two months). If the deficiencies noted are not corrected in due time, the notice of opposition is rejected as inadmissible.

R. 77
Guid. D-IV, 1.2

Documents cited in support of the opposition or as evidence must be specified in the notice of opposition and should be filed at the same time. If not filed with the initial notice of opposition, newly cited documents will be requested from the opponent within an additional time limit of two months. If the opponent fails to do so in due time, the opposition division may decide not to take any arguments based on them into account.

R. 83
Guid. D-IV, 1.2.2.1

182 Immediately after expiry of the opposition period or the period laid down for remedying deficiencies or presenting evidence, the patent proprietor is invited to file observations and, where appropriate, amendments within a period specified by the EPO (generally four months). Amendments are allowed only if they are occasioned by grounds for opposition under Article 100, including grounds not invoked by the opponent.

R. 79
Guid. D-IV, 5.2
R. 80
Guid. D-IV, 5.3

Substantive examination of the opposition

- 183** Once these preliminaries have been completed, the opposition division examines whether the grounds for opposition prejudice the maintenance of the European patent. If necessary it will invite the parties to file observations on its or other parties' communications within a period which it specifies.
- Art. 101
R. 81
Guid. D-V, VI
- Upon receipt of a communication sent to him in this way, the proprietor may file the description, claims and drawings in amended form where necessary. Late-filed proposals for amendment may not be considered.
- R. 81(3)
Guid. D-VI, 4.2
Guid. H-III
E-VII, 1.2
- If oral proceedings have to be arranged at the request of a party or at the instance of the EPO where it considers them expedient, the summonses are issued as soon as possible.
- Art. 116(1)
R. 115
Guid. D-VI, 1
- In a note annexed to the summons, the opposition division lists and explains the points that in its view need to be discussed for the purpose of the decision that has to be taken. The note generally also includes the opposition division's provisional and non-binding opinion on the positions adopted by the parties, and in particular on amendments to the patent filed by its proprietor. At the same time, the opposition division fixes a final date for filing written submissions or amendments in preparation for the oral proceedings. New facts and evidence presented after that date may not be considered, unless admitted on the grounds that the subject of the proceedings has changed.
- R. 116
Guid. D-VI, 3.2
Guid. E-II, 8.6
- 184** If the opposition division finds that the grounds for opposition prejudice the maintenance of the European patent, it revokes the patent. If it finds that the grounds do not prejudice the maintenance of the patent as granted, it rejects the opposition.
- Art. 101
R. 81
Guid. D-VIII
- 185** If the opposition division finds that the patent can be maintained in amended form, it delivers an interlocutory decision stating that, with the amendments made by the proprietor, the patent and the invention to which it relates meet the requirements of the EPC. A separate appeal is allowed against such an interlocutory decision.
- Art. 101(3)(a)
R. 82
Guid. D-VI, 7.2
- 186** Once the interlocutory decision under point 185 becomes final, the proprietor is given three months in which to pay the fee for publishing a new specification and file a translation of any amended claims in the two official languages other than the language of the proceedings.
- R. 82(2)
Guid. D-VI, 7.2.3
- 187** If these acts are not performed in due time, they may still be validly performed within two months of notification of a communication pointing out the failure to observe the time limit, provided that a surcharge is paid within this period.
- R. 82(3)
- If either of the acts is not performed within this period either, the patent is revoked.
- Art. 101(3)

188	The contracting states make the amended text subject to the same translation requirements as the patent specification (see point 177 and Annex V).	Art. 65
VI.	Limitation and revocation procedure	Art. 105a-c R. 90-96
189	As patent proprietor you may request the revocation or limitation of your own patent. You can file the request at any time after grant, after opposition proceedings or even after expiry of the patent. However, a request for revocation or limitation filed while opposition proceedings in respect of the European patent are pending is deemed not to have been filed, since the opposition proceedings have precedence. In case of revocation, the requester will be informed that the request will be handled in the pending opposition proceedings without payment of a fee. Subsequently, the Art. 105a proceedings will be terminated. If a revocation request is pending at the time of filing an opposition, the revocation procedure will be continued for reasons of procedural efficiency. If limitation proceedings are pending at the time of filing an opposition, the limitation proceedings are terminated and the limitation fee is reimbursed. Opposition proceedings will be continued.	Art. 105a(2) R. 93 Guid. D-X, 2.1.
190	Requests must be filed direct with the EPO. The general provisions for filing a European patent application (see Rules 35 ff) and the need for professional representation for non-resident patent proprietors apply (see points 58-59). Furthermore, the request is deemed to be filed only when the limitation or revocation fee is paid.	Art. 105a(1) R. 35 ff Art. 2 No. 10a RFees
191	The subject of limitation or revocation proceedings is the European patent as granted or as amended in opposition or (earlier) limitation proceedings. Since limitation is effected by means of amendment of the claims, the request must include a complete set of the amended claims (and the description and drawings if applicable). If these or the general requirements regarding languages and representation (see points 42-45 and 58-66) are not met, the Office invites you to correct any deficiencies within a period to be specified, normally of two months. If you do not correct the deficiencies within this period, the request is rejected as inadmissible. Re-establishment of rights is however available. The decision rejecting the request is open to appeal.	R. 90 R. 92(2) R. 94 Guid. D-X, 2 Art. 122
192	If the request is for revocation and is admissible, then the examining division revokes the patent and communicates this to the requester.	Art. 105b(2) R. 95(1) Guid. D-X, 3
	The decision takes effect on the date on which it is published in the European Patent Bulletin.	Art. 105b(3)
	It applies ab initio to all contracting states in respect of which the patent was granted. It is not possible for the patent to be revoked for some contracting states and not for others.	Art. 64 Art. 67

- 193** If the request for **limitation** is admissible, the examining division proceeds with its examination of the request. The basis for the examination is the patent as granted or amended in opposition or limitation proceedings. Where there have already been both opposition and limitation proceedings, then the basis for the examination is the patent as amended in the most recent of the procedures. The examining division only examines whether the amended claims constitute a limitation with respect to the claims as granted or amended and whether they are clear and concise and supported by the description and do not contain subject-matter which extends beyond the application as filed.
- R. 90
Art. 84
Art. 123(2), (3)
Guid. D-X, 4*
- 194** The term ‘limitation’ means a reduction in the scope of protection of the claims. Clarifications or changes made simply to protect different subject-matter are not considered to be limitations. If there are any deficiencies, you will be invited to correct them within a period generally set to two months.
- Art. 105b(1)
R. 95
R. 132(2)
Guid. D-X, 4.3-5*
- 195** If the request for limitation is allowable, you will be informed accordingly and invited to pay the prescribed fee for an amended specification and to file a translation of the amended limited claims into the other two official languages within a non-extendable period of three months. If considered necessary, the description and drawings have to be adapted additionally. If these acts are not performed in due time, they may still be validly performed within two months of notification of a communication pointing out the failure to observe the time limit, provided that a surcharge is paid within this period.
- Art. 105b(2)
R. 95(3), (4),
R. 82(3)
Art. 2, No. 8 RFees
Guid. D-X, 5
Art. 105c
R. 96, 74*
- The procedure for this is the same as in opposition proceedings. If you pay the fees and file the translations as set out above in due time, then the examining division will limit the patent. Subsequently an amended specification as limited will be published and a new certificate will be issued. If not, the request will be refused.
- 196** The decision to limit the European patent takes effect on the date on which it is published in the Bulletin. Its effect is to limit the patent *ab initio*.
- Art. 105b(3)
Art. 68
Art. 21(3)(a)*
- VII. Appeals procedure**
- Art. 106-112
R. 99-103
Guid. E-X*
- Filing an appeal**
- 197** Appeals may be filed against decisions of the Receiving Section, the examining divisions, the opposition divisions and the Legal Division. An appeal has suspensive effect, which means that the contested decision is not yet final (no formal *res judicata*) and its effects are suspended.
- Art. 106*
- 198** Notice of appeal must be filed in written form within two months after the date of notification of the contested decision. It is not deemed to have been filed until the appeal fee has been paid. Within four months after the date of notification of the decision, a written statement setting out the grounds of appeal must be filed. The above time limits
- Art. 108
R. 126
Art. 2, No. 11 RFees*

cannot be extended. Further processing under Article 121 is excluded.

- 199** The notice of appeal and the statement of grounds may also be filed by fax, or electronically using the Online filing software. The Registry of the boards of appeal as a rule requests written confirmation only if the quality of the document filed is deficient. Information about valid electronic signature can be obtained from the EPO.

*R. 2
OJ 2003, 419
OJ 2009, 182*

- 200** The notice of appeal must contain:

*Art. 107
R. 99, 100
R. 41(2)(c)*

- (a) the name and address of the appellant
- (b) an indication of the appealed decision, and
- (c) a request defining the subject of the appeal.

- 201** In the statement of grounds the appellant should indicate the reasons why the decision should be set aside, or the extent to which it is to be amended. Similarly, the facts and evidence on which the appeal is based should also be filed. All arguments should be presented in writing and not reserved for possible oral proceedings.

The Registry gives each appeal its own reference number, which must be used throughout the appeal proceedings.

Interlocutory revision

- 202** If the department whose decision is contested considers an appeal to be admissible and well founded, it must rectify its decision within three months of receiving the statement of grounds. If the appeal is not allowed within that period, it must be remitted to the board of appeal without delay.

*Art. 109
Guid. E-X, 7*

Interlocutory revision is not possible where the appellant is opposed by another party to the proceedings (in particular in opposition proceedings).

Stages of the procedure before the boards of appeal

- 203** The boards decide on appeals at second and final instance. Their members are independent. In their decisions they are not bound by any instructions, and they must comply only with the EPC. The procedure before the boards is laid down in their Rules of Procedure, published in the Official Journal.

*Art. 23(3)
Supplement to OJ
No. 1/2013*

The technical boards of appeal are responsible for appeals against decisions of the examining divisions concerning the refusal of European patent applications or the granting of European patents and for appeals against decisions of the opposition divisions.

Art. 21(3)(a), (4)

The technical boards normally consist of three members (two technically qualified and one legally qualified). This is increased to five (three technically qualified and two legally qualified) if a legally qualified member was added to the department of first instance or if

Art. 21(3)(a), (b)

the board considers that the nature of the appeal so requires (enlarged composition - Article 21(3)(a) and (b)).

Where the technical boards of appeal are not competent - particularly in the case of appeals against decisions of the Receiving Section or the Legal Division - a legal board of appeal consisting of three legally qualified members deals with such procedures. Art. 21(3)(c)

204 To ensure uniform application of the law or if an important point of law arises, referrals may be submitted to the Enlarged Board of Appeal. During proceedings on a case and either of its own motion or following a request from a party, a board of appeal may refer any question to the Enlarged Board if it considers that a decision is required for the above purposes. The Enlarged Board's decision is binding on the referring board. The President of the EPO may refer a point of law to the Enlarged Board if two boards of appeal have given different decisions on the issue. Art. 22
Art. 112
OJ 2007, 303

205 The provisions relating to proceedings before the department which took the appealed decision are essentially applicable *mutatis mutandis* to appeal proceedings and proceedings for petition for review. In the examination of the appeal, the board of appeal invites the parties to file, within a specified period, observations on communications issued by itself or observations submitted by another party. Art. 110
R. 100

Oral proceedings may be held at the request of a party or at the instance of the EPO. Art. 116

206 In deciding on the appeal, the board may either exercise any power within the competence of the department which took the appealed decision or remit the case to that department for further prosecution. In the latter case, the department is bound by the board's *ratio decidendi*, in so far as the facts are the same. Art. 111

Petition for review

207 Any party to appeal proceedings adversely affected by the decision of the board of appeal can file a petition for review of the decision by the Enlarged Board of Appeal. However, such petitions may only be filed on the grounds either that the composition of the board was not correct, or that a fundamental violation or any other fundamental procedural defect of the right to be heard had occurred, or that a criminal act may have had an impact on the decision. The objections must have been brought up during the appeal proceedings. Art. 112a
R. 104-107
Art. 113

As a rule, petitions must be filed within two months of notification of the decision of the board of appeal. A petition is not deemed to be filed until the prescribed fee has been paid. Art. 112a(4)
Art. 2 No. 11a RFees

If a petition for review is admissible and allowable, the Enlarged Board of Appeal sets aside the decision of the board of appeal and orders re-opening of the proceedings before the responsible board of appeal as well as the reimbursement of the fee for petition for review. Art. 112a(5)
R. 108
R. 110

VIII. Divisional applications

- 208** The usual reason for filing a European divisional application is that the parent application does not satisfy the requirements as to unity of invention (see point 69) and the applicant is not content with limiting it. *Art. 82
Art. 76
R. 36
Guid. A-IV, 1
Guid. C-IX, 1*
- 209** A divisional application may be filed only for subject-matter which does not extend beyond the content of the parent application as filed. If it complies with this provision and with the formal requirements for according a date of filing (see point 136 et seq.), it is deemed to have the same date of filing and priority date as the parent application. *Art. 76(1), 2nd sentence
Art. 80
Guid. A-IV, 1.2
Guid. C-IX, 1.1*
- All the designated in the parent application at the time of filing of the divisional application are deemed to be designated in the latter. However, contracting states the designations of which have been withdrawn or are deemed to be withdrawn in respect of the parent application at the time of filing the divisional application cannot be designated in respect of the divisional application. *Art. 76(2)
Guid. A-IV, 1.3.4*
- 210** A divisional application may be filed in respect of any pending earlier European patent application. An application is pending up to (but not including) the date on which the European Patent Bulletin mentions the grant of the European patent or the date on which the application is finally refused, withdrawn or deemed to be withdrawn. After an application has been refused, a divisional application may be validly filed until the expiry of the appeal period, regardless of whether an appeal has been filed or not. A divisional application must be filed within 24 months from the examining division's first communication under Article 94(3) and Rule 71(1), (2) or Rule 71(3) in respect of the earliest application in sequence for which a communication has been issued. A divisional application may, however, also be filed within 24 months from any communication in which the examining division has raised a specific objection of lack of unity in the earlier (or, in the case of a second or subsequent-generation divisional application, the relevant preceding) application for the first time. Re-establishment in respect of the time limits is available (see point 226). *R. 36(1)
Art. 82
Guid. A-IV, 1.1.1
OJ 2002, 112
OJ 2009, 481*
- 210a** An amendment to the provisions of the EPC dealing with the requirements for the filing of divisional applications has been adopted by the Administrative Council. Following this decision, which enters into force on 1 April 2014 divisional applications can be filed as long as the earlier (parent) application is pending. The 24-month time limits for the filing of divisional applications are thus repealed. The decision will apply to divisional applications filed on or after 1 April 2014. Further information will be published in the Official Journal of the EPO at <http://www.epo.org/law-practice/legal-texts/official-journal.htm>.
- 211** Divisional applications must be filed direct with the EPO in Munich, The Hague or Berlin. They may also be filed using the EPO's Online filing software. They must be filed in the language of the proceedings for the earlier (parent) application. If the parent application was not filed in the language of the proceedings, the divisional application may also *R. 36(2)
R. 57(a)
Guid. A-IV, 1.3*

be filed in the language of the parent application and a translation must be filed within two months.

- 212** For the fees payable in respect of a European divisional application, and also for the time limits for payment and the legal consequences of missing them, see points 119-122.

Art. 9 RFees

The search fee is refunded in full or in part, depending on the extent to which the search can be based on the search report for the parent (or, in the case of a sequence of applications, any preceding) application.

If the divisional application is filed more than two years after the date of filing of the parent application, the applicant must pay outstanding renewal fees (see points 213-216) no more than four months after filing the divisional application. If these are not paid in due time, they may still be validly paid within six months of the due date, provided that the additional fee is paid within the time limit (see point 215).

*R. 51(3)
Art. 86(1)*

After filing, each divisional application is treated as an independent patent application.

IX. Renewal fees

- 213** You are required to pay renewal fees to the EPO in respect of your European patent application. These are due in respect of the third and each subsequent year, calculated from the date of filing.

*Art. 86
Art. 2 No. 4 RFees
R. 51
OJ 1984, 272*

- 214** Renewal fees in respect of the coming year are due on the last day of the month in which the anniversary of the date of filing falls. For fee amounts and payment methods see points 121 and 122.

R. 51(1)

- 215** Payment may still be validly made up to six months after the due date, provided that an additional fee equal to 50% of the belated renewal fee is paid within the same period. The EPO will normally send you a reminder; you are not, however, entitled to base any claims on the omission of this courtesy service. Renewal fees may not be validly paid more than three months in advance of the date on which they fall due.

*R. 51(2)
Art. 2 No.5 RFees
Guid. A-X, 5.2.4*

- 216** If you fail to pay the renewal fee and any additional fee in due time, the application is deemed to be withdrawn. Further processing under Article 121 is not available, but you may request re-establishment of rights under Article 122 (see also point 226).

*Art. 86(1)
R. 135
R. 136*

- 217** The last renewal fee payable in respect of a European patent application covers the patent year in which the mention of the grant of the patent is published (see point 168 ff).

Art. 86(2)

- 218** Renewal fees for subsequent years during the term of the European patent (see point 5, last paragraph) are payable to the central industrial

*Art. 63
Art. 141*

property offices of the designated states. For more details refer to **"National law relating to the EPC"** (see point 4).

X. General provisions governing periods

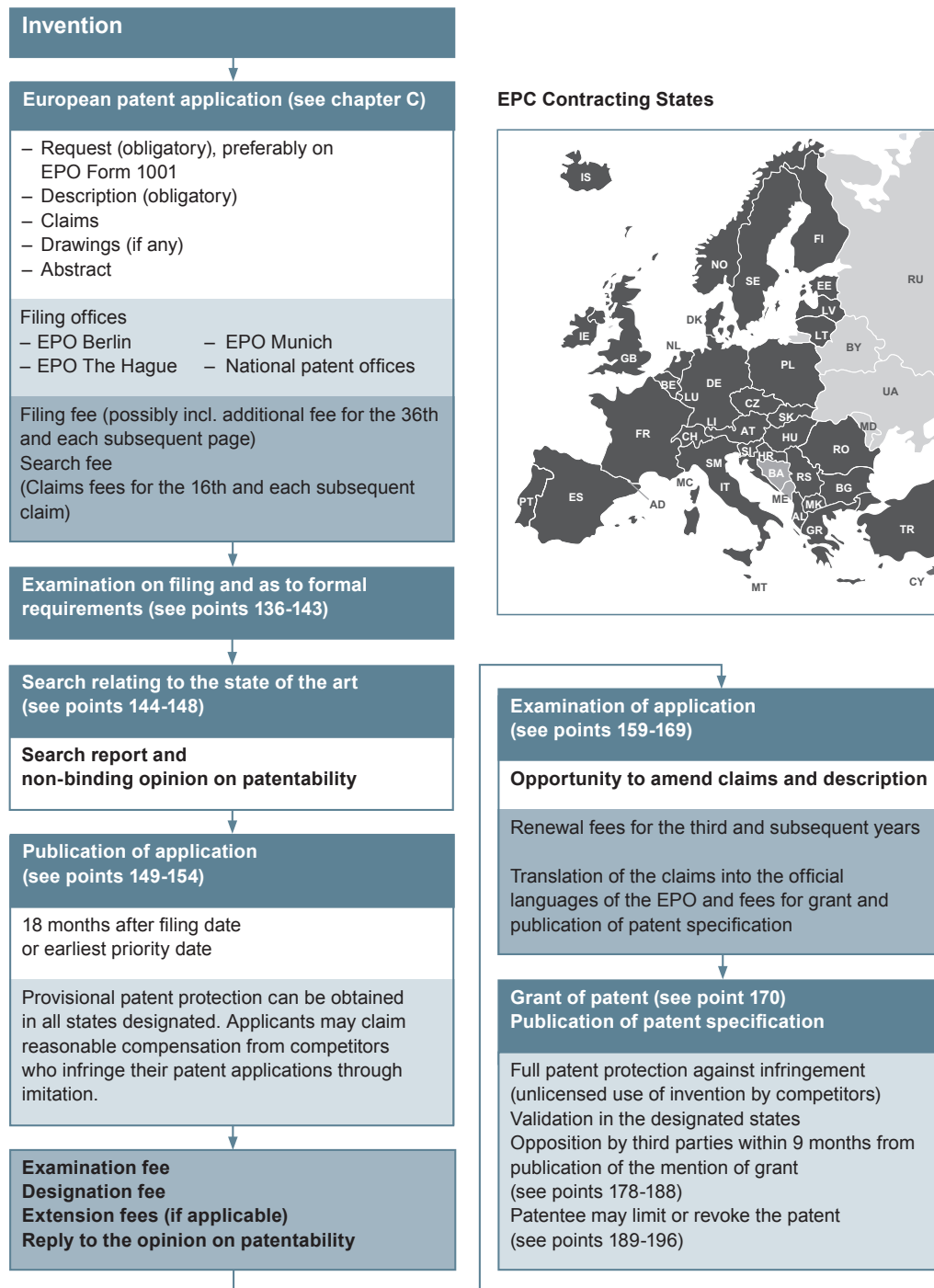
- 219** Annex VI contains charts illustrating actions applicants have to take within periods laid down in the EPC. *Art. 120-122
R. 131-136
Guid. E-VII*
- The principle is that a period is calculated from the day after the date on which the relevant event occurred. In the case of a notification, the event considered is the receipt of the document notified, subject to the provisions governing notification. The generally applicable procedure for notifications is indicated below. Period expiry is regulated in Rule 131(3)-(5). In certain special cases a period may be extended in accordance with Rule 134. *R. 131
Guid. E-VII, 1.4*
- A period will be deemed to have been observed if a document received late was posted, or delivered to a delivery service recognised by the President of the EPO (Chronopost, DHL, Federal Express, flexpress, TNT, SkyNet or UPS), at least five calendar days before the relevant period expired, unless the document was received later than three months after the period expired. *R. 133
Special edition
No. 3, OJ 2007, I.1*
- 220** A period set by the EPO may also be extended provided that a request for extension is submitted before it expires. However, a request for extension which would make the total period over six months long will be allowed only in special cases. *R. 132(2)
Guid. E-VII, 1.6
OJ 1989, 180
OJ 1994, 229*
- 221** All decisions, summonses, notices and communications from which a period is reckoned are delivered as notifications. *Art. 119
R. 125-129
Guid. E-I*
- As a rule, notification is effected by registered letter, which is deemed to be delivered on the tenth day following its posting unless it fails to reach the addressee or reaches him at a later date. *R. 127*
- Missed time limits**
- 222** By missing a time limit, you make yourself liable to **legal sanctions**, such as refusal of the application or total or partial loss of rights occurring without the Office taking a decision. Cases where the latter applies include loss of the right of priority due to late filing of the priority document, or the application being deemed withdrawn due to failure to reply to a communication from the EPO in due time. *Guid. E-VII, 1.8*
- 223** Whenever the EPO finds that rights have been lost without taking a decision, it communicates this to you. *R. 112(1)
Guid. E-VII, 1.9.1, 1.9.2*
- If you consider that the EPO's finding is inaccurate, you may, within two months after receiving the communication, apply for a decision on the matter. A decision will be taken only if the EPO stands by its opinion, and any decision taken is subject to appeal. If no decision is taken, the EPO will inform you that the loss of rights is cancelled. *R. 112(2)
Guid. E-VII, 1.9.3*

Completion of an omitted act

- 224** The EPC makes provision for omitted acts to be completed, depending on the nature of the missed time limit. *Guid. E-VII, 2*
- 225** If you miss a time limit vis-à-vis the EPO, it is generally sufficient to request further processing of the application. Further processing should be requested by payment of the fee within two months of the date on which the communication concerning either the failure to observe a time limit or a loss of rights is notified. The omitted act must be completed within that period. No reasons need to be given for the request. Further processing is ruled out in respect of certain time limits as listed in Article 121 and Rule 135(2). *Art. 121
R. 135
Guid. E-VII, 2.1*
- 226** Re-establishment of rights (*restitutio in integrum*) is available for those time limits for which further processing is ruled out. However, this will be granted only if you were unable to meet the time limit despite taking all due care required by the circumstances. *Art. 122
R. 136
Guid. E-VII, 2.2*
- If you act through a representative, your application for re-establishment will be granted only if the representative has also taken the care demanded of the applicant in Article 122(1).
- 227** Re-establishment of rights is excluded in respect of time limits for which further processing is available and in respect of the period for requesting re-establishment of rights. Re-establishment of rights is however available in respect of the time limit for requesting further processing. Further processing and re-establishment of rights are not available for missed periods for payment of extension fees, as these are not EPC periods. *Art. 122(4)
R. 136(3)
Guid. E-VII, 2.2.4*
- 228** Applications for re-establishment of rights must be filed within two months from removal of the cause of non-compliance. The omitted act must be completed within the same period. Applications are admissible only within the year immediately following the missed time limit. Requests for re-establishment of rights in respect of any of the periods specified in Article 87(1) and in Article 112a(4) must however be filed within two months of expiry of that period. *R. 136
Guid. E-VII, 2.2.5*
- The application must state the grounds on which it is based, and must set out the facts on which it relies. It is not deemed to have been filed until the fee for re-establishment of rights has been paid.

Annex I

Overview of the procedure for the grant of a European patent



Any party adversely affected by a decision may appeal against that decision (see points 197-207).

Annex II

Notice from the European Patent Office dated 4 May 2010 concerning the programme for accelerated prosecution of European patent applications – "PACE"

The entry into force of new Rule 70a and amended Rule 161 EPC means updating the PACE programme. The revised PACE programme¹ takes account in particular of the changes to the European grant procedure which entered into force on 1 April 2010 concerning the applicant's obligation to file a substantive response under Rule 70a or Rule 161(1) EPC to

- the extended European search report (EESR),
- the written opinion of the International Search Authority (WO-ISA) drawn up by the EPO,
- the international preliminary examination report (IPER) drawn up by the EPO, or
- the explanations under Rule 45*bis*.7(e) PCT contained in the supplementary international search report (SISR) drawn up by the EPO.²

As in the past, PACE enables applicants who want their applications processed rapidly to obtain the European search report plus opinion under Rule 62(1) EPC, the first examination report and any communication under Rule 71(3) EPC within tight deadlines.

More details of the revised PACE programme, including any peculiarities for Euro-PCT applications, are given below.

General remarks

1. Accelerated prosecution of European patent applications occurs on written request. The EPO does not publish requests for accelerated search and/or examination (PACE requests) and, by decision of the President dated 12 July 2007,³ they are excluded from file inspection, provided they are made using EPO Form 1005⁴ or on a separate sheet of paper.

2. Accelerated prosecution under the PACE programme can be provided only where practically feasible and subject to the workload of search and examining divisions. In certain technical fields there may be constraints due to the numbers of incoming PACE requests. Applicants requesting accelerated prosecution for all or most of their applications will, as a rule, be required by the Office to limit the number of their PACE requests by making a selection.

Search

3. For European patent applications claiming no priority (first filings),⁵ the Office always performs an accelerated search; no separate request is needed. In such cases, the Office ensures that as a rule applicants obtain their extended search reports within six months of the filing date.

4. For European patent applications which do claim priority (second filings), if accelerated search is requested on filing the Office makes every effort to issue the extended search report as soon as possible.

5. In either case, however, an accelerated search is possible only if the application documents on filing are complete enough for the extended search report to be drawn up. That means, in particular, providing the Office at that time with the claims, the description, the translations required and, where applicable, the drawings and a sequence listing conforming to the rules for the standardised representation of nucleotide or amino acid sequences. Prosecution under PACE will not be feasible if use is made of the possibility of referring to an earlier application (see Rule 40(1)(c) in conjunction with (2) EPC) or of subsequently filing parts of the description or drawings under Rule 56 EPC, or if the claims are filed subsequently.

6. Applicants should bear in mind that if a communication under Rule 62a, 63 or 64 EPC is necessary a search report plus opinion can be drawn up only after receipt of the applicant's response or expiry of the respective time limit.

¹ Revised version of the notice last published in Special edition No. 3, OJ EPO 2007, F.1.

² See notice of the EPO of 24 March 2010 concerning the carrying out of supplementary international searches under the PCT, OJ EPO 2010, 316.

³ See Special edition No. 3, OJ EPO 2007, J.3.

⁴ EPA/EPO/OEB Form 1005 is available from the EPO website at www.epo.org. It is also obtainable free of charge from the EPO (preferably from Vienna, but also from Munich, The Hague and Berlin) and the central industrial property offices of the contracting states.

⁵ The Office treats European patent applications as "first filings" only if the applicant indicates on filing that he does not intend to claim priority.

Examination

7. Accelerated examination can, in principle, be requested in writing at any time. However, to be as effective as possible, it should preferably be requested

- when filing the European patent application, provided examination is bindingly requested⁶ at the same time, or
- after receipt of the extended search report and together with the applicant's response to the search opinion under Rule 62 EPC.

8. For Euro-PCT applications too, accelerated examination can, in principle, be requested at any time. However, to be as effective as possible, it should preferably be requested

- on entry into the European phase before the EPO,⁷ or
- together with any response to the WO-ISA, IPER or SISR required under Rule 161(1) EPC.

If requested on entry into the European phase, accelerated prosecution covers formalities examination, the supplementary European search report and/or substantive examination, as applicable.

9. When accelerated examination is requested, the Office makes every effort to issue the first examination communication within three months of receipt by the examining division of the application, the applicant's response under Rule 70a or 161(1) EPC or the request for accelerated examination (whichever is later).

The Office aims to produce subsequent examination communications within three months of receipt of the applicant's reply, provided it is received within the time limit set by the examining division in its previous communication and deals with all the points raised. Accelerated examination can be carried out efficiently only if the applicant co-operates with the Office.

Other ways of accelerating the European grant procedure

10. Before the applicant receives the search report, he can waive the invitation under Rule 70(2) EPC and request examination unconditionally, irrespective of the results of the search. In this case, under Rule 62 EPC the European search report is issued together with a first examining communication under Article 94(3) and Rule 71(1) EPC instead of the opinion on patentability under Rule 62 EPC. A prompt and full response from the applicant then ensures that the proceedings can continue quickly.

11. The applicant can accelerate the processing of an international application by explicitly waiving his right to the communication under Rules 161(1) and 162 EPC. Provided that, on entry into the European phase, he has already taken all necessary steps such as filing amendments or corrections in response to the WO-ISA, the IPER or the explanations contained in the SISR and paying the claims fees, the Office will not issue a communication under Rules 161 and 162 EPC, and can thus start the supplementary European search or examination without having to wait until the time limit under Rule 161 EPC expires.

⁶ I.e. the applicant has paid the requisite fee and unconditionally waived the invitation from the Office under Article 94 in conjunction with Rule 70(2) EPC).

⁷ With Euro-PCT applications, the applicant can speed up entry into the European phase by expressly requesting early processing under Articles 23(2) or 40(2) PCT. However, accelerated examination in the European phase will not be performed unless requested separately under the PACE programme.

Annex III

Examples of European patent applications

This section contains three sample European patent applications (description, claims, drawings and abstract), one for each of the following technical fields:

- chemistry
- mechanics
- computers

These examples comply with the provisions governing European patent applications. However, because of the need to include explanatory notes, the margins could not be left blank (see point 71). For the requirements governing disclosure of the invention see points 67 and 68. The content of these examples is not necessarily patentable.

Chemistry

Art. 78, 83
R. 42
*Description of
invention*

5 Method for chemical synthesis of oligonucleotides

*Title of invention
(designation in
request for grant
suffices)*

Field of the Invention

10 The present invention relates to a method for chemical
synthesis of oligonucleotides. In particular, the present
invention relates to a novel method capable of chemically
synthesizing a long-chain DNA or RNA fragment easily and
reliably from a base moiety-unprotected nucleotide
phosphoroamidite as a unit, as well as to a novel
15 compound used in said method.

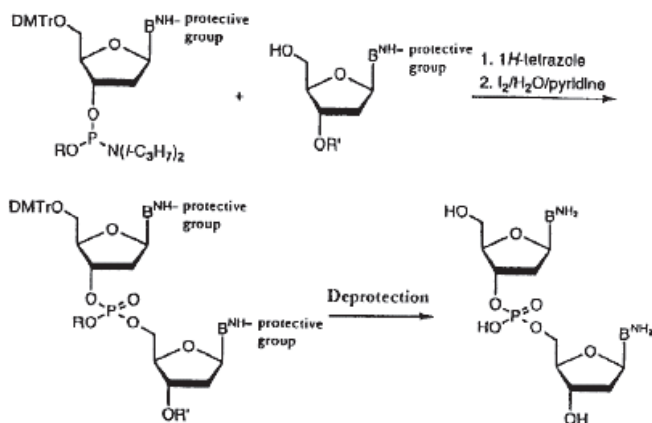
*R. 42(1)(a)
Technical field to
which invention
relates*

Background of the Invention

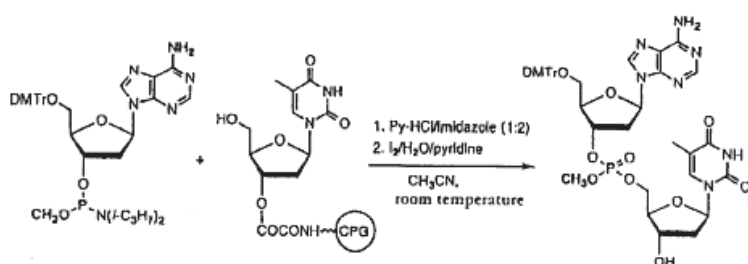
20 The phosphoroamidite method is used most widely at
present as a method of chemically synthesizing
oligonucleotides such as DNA fragments and RNA fragments
(Nucleic Acids Research, 17:7059-7071, 1989). In
general, this phosphoroamidite method makes use of a
condensation reaction between a nucleoside
25 phosphoroamidite and a nucleoside as a key reaction
using tetrazole as an accelerator. Because this reaction
usually occurs competitively on both the hydroxyl group
in a sugar moiety and the amino group in a nucleoside
base moiety, the selective reaction on only the hydroxyl
30 group in a sugar moiety is required to synthesize a
desired nucleotide. Accordingly, the side reaction on
the amino group was prevented in the prior art by
protecting the amino group, as illustrated in the
following reaction scheme:

*R. 42(1)(b)
Relevant prior art*

35



However, the protective group should be removed when synthesis was finished, and operationally complicated organic reactions and a large amount of expensive and harmful reagents are required to introduce and remove said protective group, which in view of practical usability, economical efficiency, environmental protection etc., is a great problem in carrying out this prior method. Accordingly, there is demand for a method of chemically synthesizing an oligonucleotide from an amino group-unprotected nucleoside phosphoroamidite as a unit, and the method of Letsinger et al., as shown in the following reaction scheme, is known as a pioneering method (Nucleic Acids Research, 20:1879-1882, 1992):



However, the method of Letsinger et al. is not practical, not universal and is not used in practice since there are following disadvantages:

- (1) condensation yield in each step is low (about 97%: at least 99% yield is required for synthesis of a 50-mer or more long-chain oligonucleotide) and a commercial automatic DNA synthesizer cannot be used for this method, so a long-chain

Assessment of prior art

oligonucleotide consisting of 50 to 100 nucleotides generally required in chemical synthesis of DNA etc. cannot be synthesized;

(2) highly reactive, specific nucleoside phosphoroamidites only can be used, and thus this method has a limited scope of application and is not practical; and

(3) pyridine hydrochloride used as an accelerator is an unstable compound with very high moistureproofness, and thus its handling is difficult.

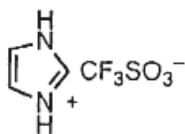
Summary of the Invention

The present invention was made in view of the prior art described above, and the object of the present invention is to provide a practical method capable of chemically synthesizing a 100-mer or more long-chain oligonucleotide easily and reliably as well as a novel compound used in said method.

*R. 42
Technical Problem*

To solve the problem, the present invention provides a method for chemical synthesis of an oligonucleotide by the phosphoroamidite method, which comprises preparing a base moiety-unprotected nucleoside phosphoroamidite from a base moiety-unprotected nucleoside by use of an imidazole trifluoromethanesulfonate represented by the following chemical formula, and coupling said base moiety-unprotected nucleotide phosphoroamidite in a predetermined order in the presence of said imidazole trifluoromethanesulfonate to chemically synthesize an oligonucleotide consisting of a specific nucleotide sequence.

*R. 42(1)(c)
Disclosure of
invention
R. 42(1)(c)
Advantageous
effects of invention*



In a preferable embodiment of the method of this invention, the coupled, base moiety-unprotected nucleoside phosphoroamidite is treated with a benzimidazole trifluoromethanesulfonate solution.

5

That is, the present inventors found that a base moiety-unprotected nucleoside phosphoroamidite prepared by use of the compound, imidazole trifluoromethanesulfonate (referred to hereinafter as imidazolium triflate) in

*Advantageous
effects of invention*

10

place of the conventionally used tetrazole as an accelerator for condensation reaction between nucleoside phosphoroamidite and nucleotide is free of the side reaction on the amino group in the nucleotide base moiety thereof, and as a result, they found that

15

complicated procedures such as, for example, introduction and removal of a protective group are not required, and also that its synthesis can be conducted by a commercial synthesizer, thereby completing this invention. Further, the present inventors found that the

20

side reaction on the amino group in the base moiety can be completely inhibited by treating the above-described coupled, base moiety-unprotected nucleoside phosphoroamidite with a methanol solution of a

25

benzimidazole trifluoromethanesulfonate (referred to hereinafter as benzimidazolium triflate) whereby a more perfect oligonucleotide is synthesized, and the present invention was thereby completed.

Brief Description of the Drawings

*R. 42(1)(d)
Brief description of
drawings*

30

Fig. 1 is a schematic drawing of each reaction step in the method of this invention.

Fig. 2 is a schematic drawing of each reaction step in the method of the present invention where ammonia treatment was performed.

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Fig. 3 is a HPLC profile of DNA fragments synthesized in the method of this invention.

Detailed Description of the Invention

Hereinafter, the best mode for carrying out the present invention is described in detail.

*R. 42(1)(e)
Description of at
least one way of
carrying out the
invention with
reference to
drawings*

The imidazolium triflate of the present invention can be prepared by mixing imidazole with trifluoromethanesulfonic acid in 1 : 1 equivalents in dichloromethane, as illustrated below in its preparation example in Example 1.

The imidazolium triflate thus obtained does not absorb moisture as also shown in Example 1 and is extremely stable under usual conditions for use, so it can be easily handled.

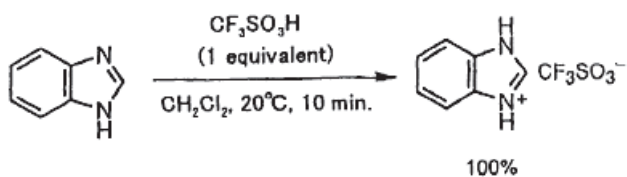
In the chemical synthetic method of this invention, a base moiety-unprotected nucleoside phosphoroamidite is prepared from a base moiety-unprotected nucleotide by use of the imidazolium triflate as described above, and this base moiety-unprotected nucleoside phosphoroamidite is used as a unit and each nucleoside phosphoroamidite is coupled in a predetermined order thereby chemically synthesizing an oligonucleotide consisting of a specific nucleotide sequence.

The base moiety-unprotected nucleoside phosphoroamidite can be prepared by reacting the base moiety-unprotected nucleoside phosphoroamidite with cyanoethyl-bis-amidite in the presence of the imidazolium triflate as a catalyst as illustrated e.g. in Example 2 below. In this case, the reaction occurs selectively on the hydroxide group in the sugar moiety of the nucleoside, so four kinds of N-unprotected nucleoside phosphoroamidites used in DNA synthesis, that is, deoxyadenosine, deoxythymidine, deoxyguanosine and thymidine phosphoroamidites can be obtained quantitatively.

The four kinds of N-unprotected nucleoside phosphoroamidites thus obtained are used as units to synthesize an oligonucleotide consisting of a desired nucleotide sequence by the solid-phase synthetic method etc. known in the art. Further, this synthetic reaction can also be conducted in a commercial DNA synthesizer by a method according to its protocol.

- 5
- 10 In the method of this invention, each coupled N-unprotected nucleoside phosphoroamidite is preferably subjected after each coupling to treatment with a solution (e.g. an ethanol solution) of benzimidazolium triflate. By this treatment, the side reaction on the
- 15 amino group in the base moiety is completely inhibited, and a more perfect oligonucleotide is thus synthesized.

The benzimidazolium triflate can be synthesized in the following reaction scheme:



5

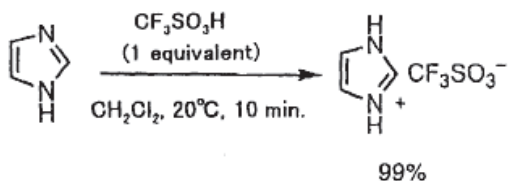
Examples

Hereinafter, the present invention is described in more
 10 detail and specifically with reference to the Examples,
 which however are not intended to limit the present
 invention.

Example 1: Preparation of imidazolium triflate

15

Imidazole and trifluoromethanesulfonic acid were mixed
 in 1 : 1 equivalents in dichloromethane and reacted at
 25° C for 10 minutes as shown in the reaction scheme
 below, whereby the imidazolium triflate of this
 20 invention was prepared.



25

As a result of analysis in conventional methods, the
 resulting imidazolium triflate had the characteristics
 shown in Table 1.

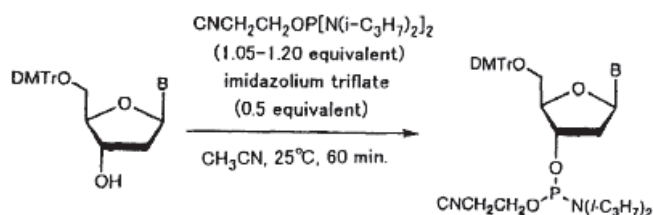
30

Table 1

Colorless crystal
Melting point: 197-198 °C
Elementary analysis
Theoretical: C ₄ H ₅ F ₃ N ₂ O ₃ S: C, 22.02; H, 2.31; N, 12.84
Found: C, 21.96; H, 2.30; N, 12.74
No moistureproofness

Example 2: Preparation of base moiety-unprotected nucleoside phosphoroamidite

The imidazolium triflate obtained in Example 1 was used as the catalyst so that a base moiety-unprotected nucleoside was reacted with cyanoethyl-bis-amidite, as shown in the following reaction scheme:



By this reaction, the four kinds of N-unprotected nucleoside phosphoroamidites shown in Table 2, that is, deoxyadenosine, deoxythymidine, deoxyguanosine and thymidine phosphoroamidites were prepared respectively. As also shown in Table 2, the respective nucleoside phosphoroamidites were obtained almost quantitatively.

Table 2

B:				
yield, %:	96	98	97	99
purity, %:	>98	>98	>96	>99
³¹ P NMR, ppm:	149.0, 149.1	149.2, 149.3	149.1, 149.2	149.0, 149.1

Example 3: Synthesis of DNA fragment

From the 4 kinds of N-unprotected nucleoside phosphoroamidites as units obtained in Example 2, a 60-mer DNA fragment consisting of the nucleotide sequence of SEQ ID NO: 1 was synthesized by the solid-phase synthetic method using a commercial DNA synthesizer. The reaction cycle was as shown in Table 3.

Table 3

Step	Operation	reagents(s)	time, min
1	washing	CH ₃ CN	0.50
2	dinitrilylation	3 % CCl ₃ COOH/CH ₂ CH ₂	1.0×3
3	washing	CH ₃ CN	2.0
4	coupling	0.1 M amidite/CH ₃ CN + 0.1 M IMT/CH ₃ CN	0.25
5	wait		1.0
6	N-P cleavage	0.3 M BIT/CH ₃ CN	0.50
7	wait		2.0
8	washing	CH ₃ CN	0.50
9	oxidation	1 M I-C ₄ H ₉ OOH/CH ₂ Cl ₂	0.25
10	wait		1.0

BIT = benzimidazolium triflate, IMT = imidazolium triflate

5

10 In this synthetic reaction, each step (condensation reaction) in the chain-elongation shown in Table 1 proceeded in almost 100% yield, and a phosphate moiety-protected 60-mer oligonucleotide was obtained usually in 100% yield. This yield was extremely high in considering
15 that the yield of a 60-mer oligonucleotide by generally conducted conventional methods is about 20 to 40%.

Further, as shown in Fig. 2, deprotection and elimination by treatment with an ammonia solution
20 (25° C, 60 minutes) were carried out whereby the unprotected 60-mer DNA was obtained in quantitative yield.

Analysis of the resulting crude unprotected 60-mer DNA
25 by high performance liquid chromatography under the conditions shown in Table 4 indicated that its purity was 95% or more as shown in Fig. 3.

Table 4

Analytical conditions	
Column	DEAE-2.5 μ (250 mm)
Flow rate	0.5 mL/min
Temperature	25 °C
Eluent: A	20 mM Tris-HCl (pH 9.0)
B	A + 1 M NaCl
Gradient	A : B (100 : 0) → (50 : 50) linear gradient

30

35 As described above in detail, the method of synthesizing oligonucleotides by use of this imidazolium triflate have the following advantages:

(1) condensation yield in each step is as high as 100%, and the present method can also be applied to an automatic synthesizer by merely changing a program for synthesis and reagents used, so synthesis of a long-chain oligonucleotide consisting of 50 to 100 nucleotides generally required in chemical synthesis of DNA etc. is feasible in 1/10 or less costs as compared with those of conventional methods;

(2) because unspecified nucleotide phosphoroamidites can be used, the present method has a broad scope of application and is practical; and

(3) the imidazolium triflate of this invention used as an accelerator is a stable compound which does not absorb moisture, so its handling under usual conditions for use is very easy.

SEQUENCE LISTING

SEQ ID NO: 1

LENGTH: 60 bases

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULAR TYPE: synthetic DNA

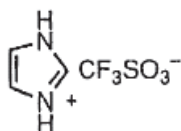
SEQUENCE:

TATGGGCCTT TTGATAGGAT GCTCACCGAG CAAAACCAAG AACAACCAGG AGATTTTATT 60

Claims

1. A method for chemical synthesis of an oligonucleotide
by the phosphoroamidite method, which comprises
5 preparing a base moiety-unprotected nucleoside
phosphoroamidite from a base moiety-unprotected
nucleoside by use of an imidazole
trifluoromethanesulfonate represented by the
following chemical formula, and coupling said base
10 moiety-unprotected nucleotide phosphoroamidite in a
predetermined order in the presence of imidazole
trifluoromethanesulfonate to chemically synthesize
an oligonucleotide consisting of a specific
nucleotide sequence.

R. 43(1)(a)
Independent claim



- 20 2. A method according to claim 1, wherein the coupled
base moiety-unprotected nucleoside phosphoroamidite is
treated with a benzimidazole
trifluoromethanesulfonate solution.

R. 43(3), (4)
Dependent claim

Abstract

Art. 85

Method for chemical synthesis of oligonucleotides

R. 47(1)
Title of invention

The present invention provides a practical method capable of chemically synthesizing a 100-mer or more long-chain oligonucleotide easily and reliably and a novel compound used in said method. The present invention relates to a method for chemical synthesis of an oligonucleotide by the phosphoroamidite method, which comprises preparing a base moiety-unprotected nucleoside phosphoroamidite from a base moiety-unprotected nucleoside by use of an imidazole trifluoromethanesulfonate represented by the following chemical formula, and coupling said base moiety-unprotected nucleotide phosphoroamidite in a predetermined order to chemically synthesize an oligonucleotide consisting of a specific nucleotide sequence, as well as to an imidazole trifluoromethanesulfonate represented by the chemical formula.

R. 47(2), (3), (5)
Content of abstract

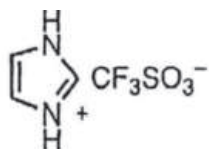


Fig. 1

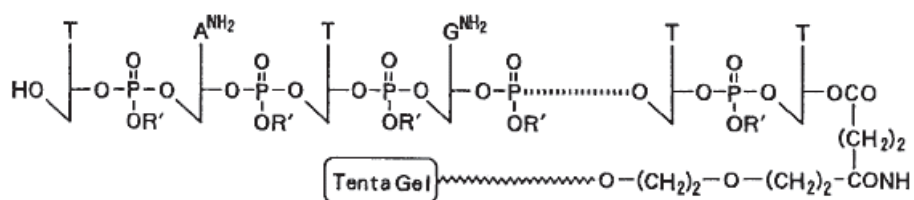


Fig. 2

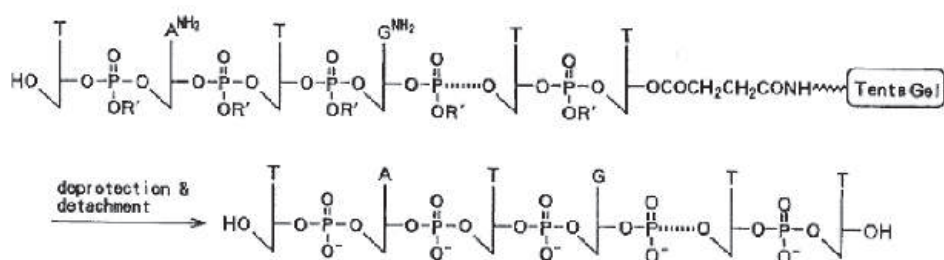
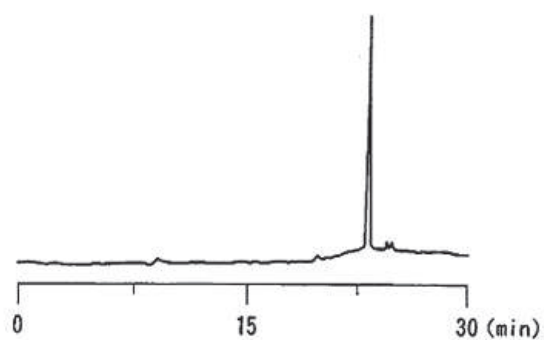


Fig. 3



Mechanics

Art. 78, 83
R. 42
Description of
invention

Pedalling device for bicycle

Title of invention
(designation in
Request for Grant
suffices)

5 The present invention relates to a pedalling device and,
more particularly, to a pedalling device for a bicycle.

R. 42(1)(a)
Technical field to
which invention
relates

A conventional pedalling device for a bicycle in
accordance with the prior art shown in Fig. 10 comprises
10 a crank 60, two pedals 61, a chainwheel 62, and a chain
64. Thus, when the crank 60 is driven by the pedals 61,
the chainwheel 62 is rotated by the crank 60 to drive
the chain 64 so as to move the bicycle. However, the
force arm defined between the center of the chainwheel
15 62 and each of the pedals 61 has a smaller length, so
that the rider has to exert a larger stepping force on
the pedals 61 so as to move the bicycle, thereby greatly
wasting the rider's energy and manual work.

R. 42(1)(b)
Indication of the
background art

20 The objective of the present invention is to provide a
pedalling device, and more particular a pedalling device
for a bicycle, wherein the rider can step the pedals in
an energy-saving manner.

R. 42(1)(c)
Technical problem to
be solved

25 In accordance with the present invention, there is
provided a pedalling device, comprising a support seat, a
rotation shaft rotatably mounted on a first end of the
support seat, a chainwheel secured on and rotated by the
rotation shaft, two opposite oneway ratchet wheels each
30 mounted on the rotation shaft to rotate the rotation
shaft, two opposite drive members each having a first end
formed with a ratchet socket mounted on a respective
ratchet wheel to rotate the respective ratchet wheel in
a oneway manner and a second end formed with an elongate

R. 42(1)(c)
Disclosure of
invention

slide track, a crank pivotally mounted on a second end of the support seat, two opposite drive shafts secured on two opposite sides of the crank to rotate the crank, two pedals each rotatably mounted on a respective drive
5 shaft, and two opposite slide seats each pivotally mounted on a respective drive shaft to move therewith and each slidably mounted in the slide track of a respective drive member.

10 Advantageously, the drive members have a longer force arm between the crank and the chainwheel so as to increase the force moment of the pedalling device, thereby saving the rider's energy and manual work.

15 Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

20 In the drawings:

R. 42(1)(d)
Brief description of
drawings

Fig. 1 is a perspective view of a pedalling device in accordance with the preferred embodiment of the
25 present invention.

Fig. 2 is an exploded perspective view of the pedalling device as shown in Fig. 1.

Fig. 3 is a plan view of the pedalling device for a bicycle as shown in Fig. 1.

30 Fig. 4 is a plan cross-sectional view of the pedalling device as shown in Fig. 1.

Fig. 5 is a plan cross-sectional view of the pedalling device as shown in Fig. 1.

35 Fig. 6 is a plan cross-sectional operational view of the pedalling device as shown in Fig. 1.

Fig. 7 is a locally enlarged view of the pedalling device as shown in Fig. 6.

Fig. 8 is a schematic operational view of the pedalling device as shown in Fig. 6.

Fig. 9 is a schematic operational view of the pedalling device as shown in Fig. 7.

5 Fig. 10 is a perspective view of a conventional pedalling device for a bicycle in accordance with the prior art.

10 Referring to the drawings and initially to Figs.1-7, a pedalling device 20 for a bicycle 10 in accordance with the preferred embodiment of the present invention comprises a support seat 13, a rotation shaft 111 rotatably mounted on a first end of the support seat 13, a chainwheel 11 secured on and rotated by the rotation
15 shaft 111, two opposite oneway ratchet wheels 40 each mounted on the rotation shaft 111 to rotate the rotation shaft 111, two opposite drive members 30 each having a first end formed with a ratchet socket 31 mounted on a respective ratchet wheel 40 to rotate the respective
20 ratchet wheel 40 in a oneway manner and a second end formed with an elongate slide track 35, a crank 12 pivotally mounted on a second end of the support seat 13, two opposite drive shafts 141 secured on two opposite sides of the crank 12 to rotate the crank 12,
25 two pedals 14 each rotatably mounted on a respective drive shaft 141, and two opposite slide seats 50 each pivotally mounted on a respective drive shaft 141 to move therewith and each slidably mounted in the slide track 35 of a respective drive member 30.

30 The rotation shaft 111 has two opposite ends each formed with 5 hexagonal fixing stud 112 and a threaded rod 113.

Each of the ratchet wheels 40 includes an inner part 45
35 formed with a hexagonal fixing hole 42 secured on the fixing stud 112 of the rotation shaft 111 to rotate the rotation shaft 111, an outer part 43 rotatably mounted

*R. 42(1)(e)
Description of at
least one way of
carrying out the
invention*

on the inner part 45 and having an outer wall formed with a driven gear 41 and an inner wall formed with a plurality of locking grooves 430, and a plurality of oneway detents 44 each having a first end pivotally
5 mounted on the inner part 45 and a second end engaged in the respective locking groove 430 of the outer part 43.

The ratchet socket 31 of each of the drive members 30 has an inner wall formed with a drive gear 311 meshing
10 with the driven gear 41 of the respective ratchet wheel 40 to rotate the respective ratchet wheel 40. The ratchet socket 31 of each of the drive members 30 is combined with the respective ratchet wheel 40 by two opposite seal rings 32 which are located at two opposite sides of
15 the ratchet socket 31 of each of the drive members 30 and are fastened by a plurality of rivets 33.

The pedalling device 20 further comprises two washers 37 each mounted on a respective threaded rod 113 of the
20 rotation shaft 111 and each rested on a respective ratchet wheel 40, and two nuts 34 each screwed onto a respective threaded rod 113 of the rotation shaft 111 and each rested on a respective washer 37.

25 The second end of the support seat 13 is formed with a pivot hole 131. The crank 12 is pivotally mounted in the pivot hole 131 of the support seat 13. Each of the two sides of the crank 12 has a distal end formed with a screw bore 121. Each of the two drive shafts 141 has a
30 threaded distal end screwed into the respective screw bore 121 of the crank 12 to secure each of the drive shafts 141 to the crank 12.

Each of the two slide seats 50 has a first end provided
35 with two first bearings 51 slidably mounted in the slide track 35 of the respective drive member 30 and a second end provided with a sleeve 52 for mounting two second

bearings 53 which are pivotally mounted on the respective drive shaft 141. The first bearings 51 of each of the two slide seats 50 are limited in the slide track 35 of the respective drive member 30 by an end cap 36 which is mounted on an opened end of the slide track 35 to prevent the first bearings 51 of each of the two slide seats 50 from being detached from the slide track 35 of the respective drive member 30.

10 In operation, referring to Figs. 1-9, when the pedals 14 are stepped by the rider, the crank 12 is rotated to move the two slide seats 50 which are moved upward and downward to drive the drive members 30 to pivot upward and downward as shown in Fig. 6, so that the ratchet
15 socket 31 of each of the drive members 30 is rotated to rotate the respective ratchet wheel 40.

As shown in Fig. 7, when one of the drive members 30 is pivoted downward, the respective ratchet wheel 40 is
20 rotated clockwise to rotate the outer part 43. At this time, the oneway detents 44 of each of the ratchet wheels 40 are engaged in the locking grooves 430 of the outer part 43, so that the inner part 45 is driven and rotated by the outer part 43 to rotate the fixing hole
25 42 which rotates the fixing stud 112 of the rotation shaft 111 so as to rotate the rotation shaft 111. Thus, when the ratchet wheel 40 is rotated clockwise, the rotation shaft 111 is rotated to rotate the chainwheel 11 so as to move the bicycle.

30 On the contrary, when one of the drive members 30 is pivoted upward as shown in Fig. 8, the respective ratchet wheel 40 is rotated counterclockwise to rotate the outer part 43 as shown in Fig. 9. At this time, the oneway detents 44 of each of the ratchet wheels 40 are
35 disengaged from the locking grooves 430 of the outer part 43, so that the inner part 45 is not rotated by the outer part 43, and the outer part 43 performs an idle

rotation. Thus, when the ratchet wheel 40 is rotated counterclockwise, the rotation shaft 111 stops rotating, so that the chainwheel 11 stops rotating.

5 In such a manner, when one of the drive members 30 is pivoted upward as shown in Fig. 8, the other one of the drive members 30 is pivoted downward as shown in Fig.6, so that the chainwheel 11 is rotated successively so as to move the bicycle successively.

10 Accordingly, the drive members 30 have a longer force arm between the crank 12 and the chainwheel 11 so as to increase the force moment of the pedalling device 20 so that the rider can step the pedals 14 in an energy-
15 saving manner, thereby saving the rider's energy and manual work.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to
20 be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such
modifications and variations that fall within the true
25 scope of the invention.

Claims

Art. 84
R. 43

1. A pedalling device, comprising:

- 5 a support seat (13);
a rotation shaft (111) rotatably mounted on a first
end of the support seat (13);
a chainwheel (11) secured on and rotated by the
rotation shaft (111);
10 two opposite oneway ratchet wheels (40) each
mounted on the rotation shaft (111) to rotate the
rotation shaft (111);
two opposite drive members (30) each having a first
end formed with a ratchet socket (31) mounted on a
15 respective ratchet wheel (40) to rotate the
respective ratchet wheel (40) in a oneway manner
and a second end formed with an elongate slide
track (35);
a crank (12) pivotally mounted on a second end of
20 the support seat (13);
two opposite drive shafts (141) secured on two
opposite sides of the crank (12) to rotate the
crank (12);
two pedals (14) each rotatably mounted on a
25 respective driveshaft (141);
two opposite slide seats (50) each pivotally
mounted on a respective drive shaft (141) to move
therewith and each slidably mounted in the slide
track (35) of a respective drive member (30).

- 30
2. The pedalling device in accordance with claim 1,
wherein:

R. 43 (3), (4)
Dependent claim

- 35 the rotation shaft (111) has two opposite ends each
formed with hexagonal fixing stud (112) and a
threaded rod (113);
each of the ratchet wheels (40) includes an inner
part (45) formed with a hexagonal fixing hole (42)

secured on the fixing stud (112) of the rotation shaft (111) to rotate the rotation shaft (111), and an outer part (43) rotatably mounted on the inner part (45) and having an outer wall formed with a driven gear (41);

the ratchet socket (31) of each of the drive members (30) has an inner wall formed with a drive gear (311) meshing with the driven gear (41) of the respective ratchet wheel (40) to rotate the respective ratchet wheel (40).

3. The pedalling device in accordance with claim 2, further comprising two washers (37) each mounted on a respective threaded rod (113) of the rotation shaft (111) and each rested on a respective ratchet wheel (40), and two nuts (34) each screwed onto a respective threaded rod (113) of the rotation shaft (111) and each rested on a respective washer (37).

4. The pedalling device in accordance with claim 2, wherein the ratchet socket (31) of each of the drive members (30) is combined with the respective ratchet wheel (40) by two opposite seal rings (32).

5. The pedalling device in accordance with claim 4, wherein the seal rings (32) are located at two opposite sides of the ratchet socket (31) of each of the drive members (30) and are fastened by a plurality of rivets (33).

6. The pedalling device in accordance with claim 1, wherein the each of the two slide seats (50) has a first end provided with two first bearings (51) slidably mounted in the slide track (35) of the respective drive member (30) and a second end provided with a sleeve (52) for mounting two second bearings (53) which are pivotally mounted on the respective drive shaft (141).

7. The pedalling device in accordance with claim 6,
wherein the first bearings (51) of each of the two slide
seats (50) are limited in the slide track (35) of the
5 respective drive member (30) by an end cap (36) which is
mounted on an opened end of the slide track (35) to
prevent the first bearings (51) of each of the two slide
seats (50) from being detached from the slide track (35)
of the respective drive member (30).

10 8. The pedalling device in accordance with claim 1,
wherein the second end of the support seat (13) is
formed with a pivot hole (131), and the crank (12) is
pivotally mounted in the pivot hole (131) of the support
seat (13).

15 9. The pedalling device in accordance with claim 1,
wherein each of the two sides of the crank (12) has a
distal end formed with a screw bore (121), and each of
the two drive shafts (141) has a threaded distal end
20 screwed into the respective screw bore (121) of the
crank (12) to secure each of the drive shafts (141) to
the crank (12).

25 10. The pedalling device in accordance with claim 1,
wherein the outer part of each of the ratchet wheels
(40) has an inner wall formed with a plurality of
locking grooves (430), and each of the ratchet wheels
(40) further includes a plurality of oneway detents (44)
each having a first end pivotally mounted on the inner
30 part and a second end engaged in the respective locking
groove (430) of the outer part (43).

Abstract

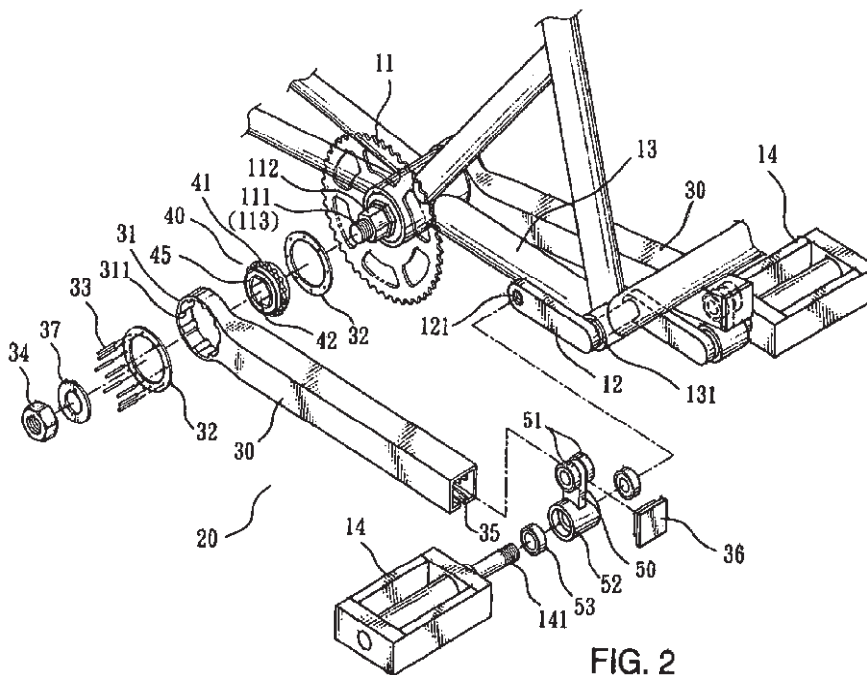
Art. 85

Pedalling device for bicycle

R. 47(1)
Title of invention

A pedalling device for a bicycle includes a support seat (13), a rotation shaft (111), a chainwheel (11), two opposite oneway ratchet wheels (40), two opposite drive members (30), a crank (12), two opposite drive shafts (141), two pedals (14), and two opposite slide seats (50). Thus, the drive members have a longer force arm between the crank and the chainwheel so as to increase the force moment of the pedalling device so that the rider can step the pedals in an energy-saving manner, thereby saving the rider's energy and manual work.

R. 47(2), (3), (5)
Content of abstract



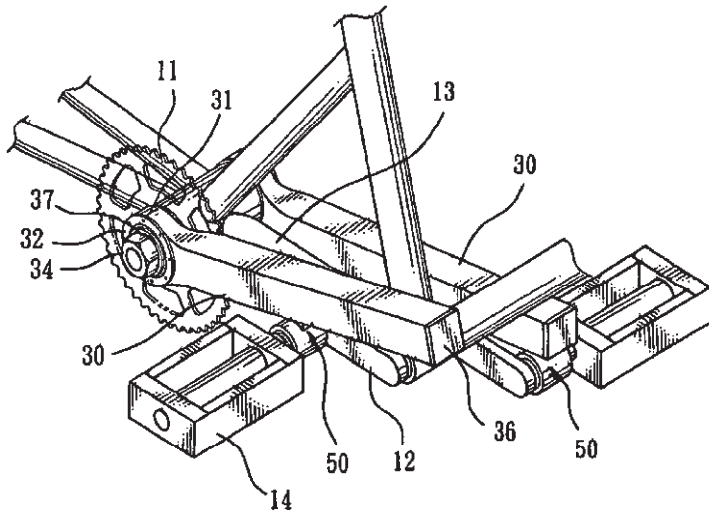


FIG. 1

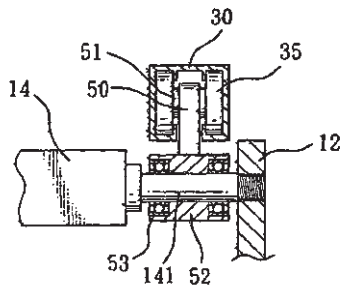


FIG. 4

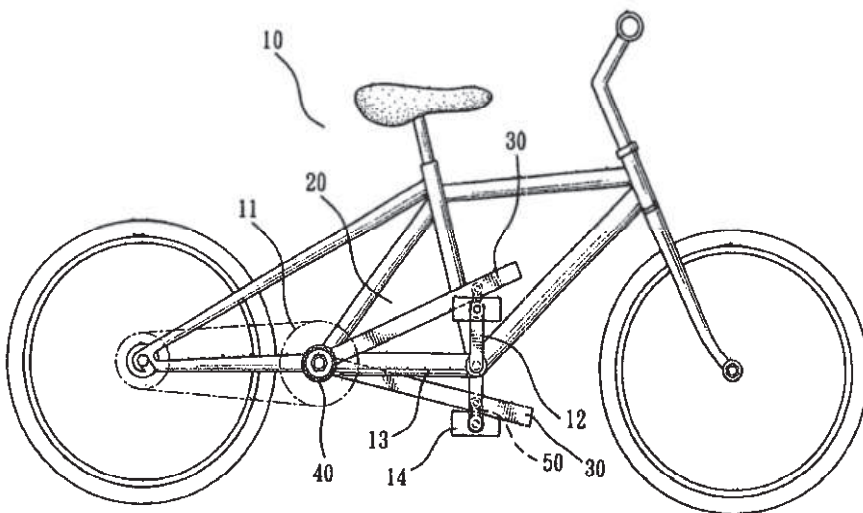


FIG. 3

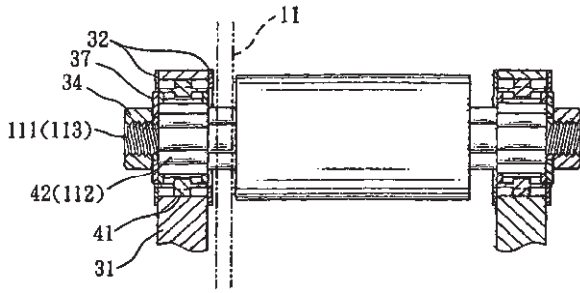


FIG. 5

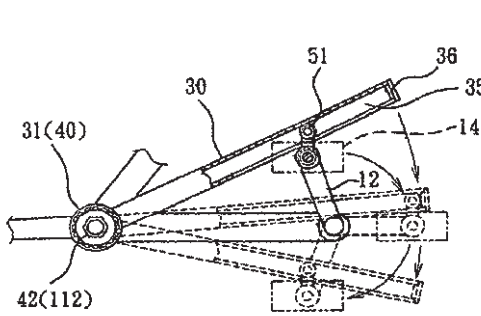


FIG. 6

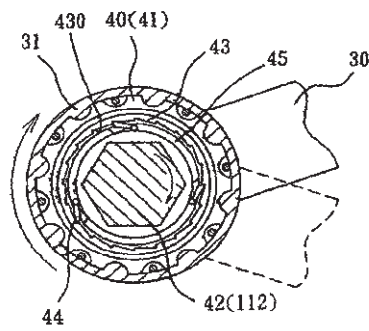


FIG. 7

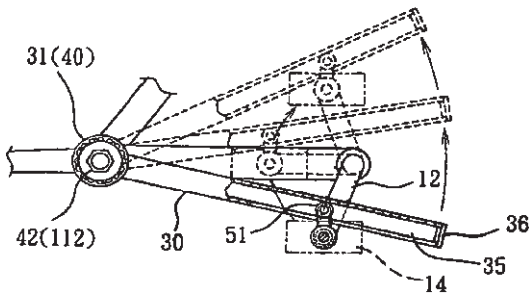


FIG. 8

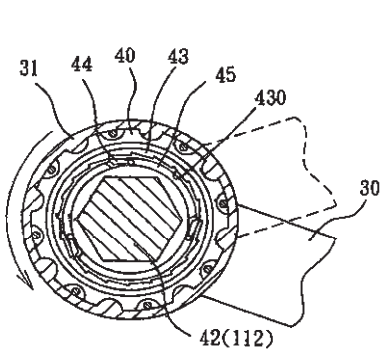


FIG. 9

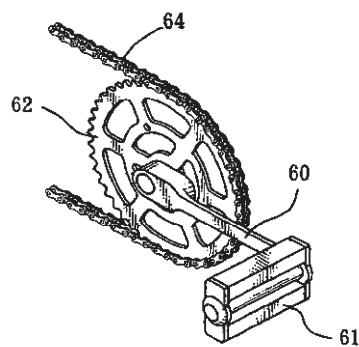


FIG. 10
PRIOR ART

Computers

Art. 78, 83
R. 42
*Description of
invention*

Method and apparatus for switching touch screen of
handheld electronic apparatus

*Title of invention
(designation in
request for grant
suffices)*

BACKGROUND OF THE INVENTION

5 Field of the Invention

The present invention relates to a touch screen, and more
particularly to a method and an apparatus for switching
a touch screen of a handheld electronic apparatus.

*R. 42(1)(a)
Technical field to
which invention
relates*

10

Description of Prior Art

An input operation interface is a necessary hardware
device for a handheld electronic apparatus. There are
15 numbers, characters, phonetic symbols, roots of input
methods, and various functional patterns are marked on
the input operation interface. Hence, users can input
data or operate many functions of the electronic
apparatus by using the input operation interface.

*R. 42(1)(b)
Indication of the
background art*

20

In the past, most of the input operation interfaces of
the handheld electronic apparatus are implemented by
touch-button structure. At present, however, in order to
enlarge surface area of a liquid crystal display, a
25 number of keys are replaced by a touch panel installed
on the liquid crystal display. Hence, both the touch-
button interface and touch-panel interface are used.

30

However, user usually needs to operate a number of keys
or touch the touch panel several times to switch a few

*R. 42(1)(c)
Technical problem to
be solved*

pages on the screen. That is inconvenient to operate an action requiring some steps, and particularly for the user driving a car.

5 SUMMARY OF THE INVENTION

Accordingly, a primary object of the present invention is to provide a touch panel that is installed on a liquid crystal display, and a surface area of the touch panel is larger than one of the liquid crystal display. A primary touch area is defined as an overlapped portion of the touch panel and the liquid crystal display, and a secondary touch area is defined as a non-overlapped portion of the touch panel and the liquid crystal display. Moreover, a page switching action is determined whether a touch-drag action is operated by sliding a finger from the primary touch area to the secondary touch area or the touch-drag action is operated by sliding the finger from the secondary touch area to the primary touch area. Hence, the page switching action can be operated quickly by users.

*R. 42(1)(c)
Disclosure of
invention*

In order to achieve the objective mentioned above, the present invention provides an apparatus for switching a touch screen of a handheld electronic apparatus. The switch apparatus comprises a liquid crystal display and a touch panel. A surface area of the touch panel is larger than one of the liquid crystal display. A primary touch area is defined as an overlapped portion of the touch panel and the liquid crystal display, and a secondary touch area is defined as a non-overlapped portion of the touch panel and the liquid crystal display.

In order to achieve the objective mentioned above, the present invention provides a method for switching a touch screen of a handheld electronic apparatus. The

switch method comprises: firstly, the method determines whether a touch-drag action is initially operated by sliding the finger from the primary touch area or the secondary touch area when the touch panel is touched.

5 Afterward, the method executes a page switching action when the touch-drag action is initially operated by sliding the finger from the primary touch area and the touch-drag action is operated by sliding the finger from the primary touch area to the secondary touch area.
10 Finally, the method switches the page to go back to the previous page when the touch-drag action is operated by sliding the finger from the secondary touch area to go back to the primary touch area. Hence, the page switching action can be operated quickly by users.

15 It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed. Other
20 advantages and features of the invention will be apparent from the following description, drawings and claims.

BRIEF DESCRIPTION OF DRAWING

25 The features of the invention believed to be novel are set forth with particularity in the appended claims. The invention itself, however, may be best understood by reference to the following detailed description of the
30 invention, which describes an exemplary embodiment of the invention, taken in conjunction with the accompanying drawings, in which:

R. 42(1)(d)
Brief description of
drawings

35 Fig. 1A is a schematic view of a handheld electronic apparatus according to the present invention;

Fig. 1B and Fig. 1C are schematic views of switching pages of the handheld electronic apparatus;

Fig. 2 is a flowchart of operating a touch panel of the handheld electronic apparatus;

Fig. 3 is a schematic view of executing a touch-drag action by a user's finger on the touch panel;

Fig. 4 is another schematic view of executing a touch-drag action by a user's finger on the touch panel;

Fig. 5 is a schematic view of a coordinate setting of the touch panel;

Fig. 6 is a schematic view of distinct operated coordinate points; and

Fig. 7 is a schematic view of dragging the finger from a start coordinate point to an end coordinate point.

DETAILED DESCRIPTION OF THE INVENTION

In cooperation with attached drawings, the technical contents and detailed description of the present invention are described thereafter according to a preferable embodiment, being not used to limit its executing scope. Any equivalent variation and modification made according to appended claims is all covered by the claims claimed by the present invention.

*R. 42(1)(e)
Description of at
least one way of
carrying out the
invention*

Reference will now be made to the drawing figures to describe the present invention in detail.

Reference is made to Fig. 1A which is a schematic view of a handheld electronic apparatus according to the present invention. The handheld electronic apparatus 1 has a liquid crystal display 2 and a touch panel 3. A surface area of the touch panel 3 is larger than that of the liquid crystal display 2. A primary touch area 31 is

defined as an overlapped portion of the touch panel 3 and the liquid crystal display 2, and a secondary touch area 32 is defined as a non-overlapped portion of the touch panel 3 and the liquid crystal display 2. The
5 primary touch area 31 is separated from the secondary touch area 32 by a sideline and the sideline is set as a boundary line 311 between the primary touch area 31 and the secondary touch area 32. The secondary touch area 32 has a first touch area 321, a second touch area 322, a
10 third touch area 323, and a fourth touch area 324, and the four touch areas (321, 322, 323, and 324) are surrounded the primary touch area, respectively The first touch area 321, the second touch area 322, the third touch area 323, and the fourth touch area 324 are
15 set on upper side, lower side, left side, and right side of the secondary touch area 32, respectively. A page switching action is executed when a touch-drag action is operated by sliding a finger from the secondary touch area 32, (any one of the four touch areas) to the
20 primary touch area 31 or from the primary touch area 31 to the secondary touch area 32. Hence, the page switching action can be operated quickly by users.

References are made from Fig. 1B and Fig. 1C which are
25 schematic views of switching pages of the handheld electronic apparatus. For example, a page A is displayed on the liquid crystal display 2 (shown in Fig. 1B). The page A will be switched to a page B (shown in Fig. 1C) when the touch-drag action is operated by sliding the
30 finger from the primary touch area 31 to the second touch area 322 of the secondary touch area 32. On the contrary, the page B will be switched to go back to the page A when the touch-drag action is operated by sliding the finger from the second touch area 322 to go back to
35 the primary touch area 31. In the preferred embodiment, the pages can be directories of different layers, web-pages or graphic files.

References are made from Fig. 2 to Fig. 4 which are a flowchart of operating a touch panel of the handheld electronic apparatus, a schematic view of executing a touch-drag action by a user's finger on the touch panel, and another schematic view of executing a touch-drag action by a user's finger on the touch panel, respectively. Firstly, the method detects whether a finger 4 touches the touch panel 3 (100) when the user operates the handheld electronic apparatus. Afterward, the method detects whether the primary touch area 31 is touched or the secondary touch area 32 (any one of the four touch areas) is touched (102) when the finger 4 touches the touch panel 3. After the step 102, the primary touch area 31 is touched (104). Afterward, the method detects whether a touch-drag action is operated by sliding a finger from the primary touch area 31 to the secondary touch area 32 (106). Afterward, a page switching action is executed (108) when the touch-drag action is operated by sliding the finger from the primary touch area 31 to the secondary touch area 32. Afterward, the method detects whether the touch-drag action is operated by sliding the finger from the secondary touch area 32 to go back to the primary touch area 31 (110). The step 108 is re-executed when the touch-drag action is not operated by sliding the finger from the secondary touch area 32 to go back to the primary touch area 31. If not so, the page is switched back to the previous page (112) when the touch-drag action is operated by sliding the finger from the secondary touch area 32 to go back to the primary touch area 31. In addition, a touch action is executed (114) when the touch-drag action is not operated by sliding the finger from the primary touch area 31 to the secondary touch area 32.

In addition, the secondary touch area 32 is touched (116) after the step 102. Afterward, the method detects whether the touch-drag action is operated by sliding the finger from the secondary touch area 32 to the primary touch area 31 (118). Afterward, a page switching action is executed (120) when the touch-drag action is operated by sliding the finger from the secondary touch area 32 to the primary touch area 31. Afterward, the method detects whether the touch-drag action is operated by sliding the finger from the primary touch area 31 to go back to the secondary touch area 32 (122). The step 120 is re-executed when the touch-drag action is not operated by sliding the finger from the primary touch area 31 to go back to the secondary touch area 32. If not so, the page is switched back to the previous page (124) when the touch-drag action is operated by sliding the finger from the primary touch area 31 to go back to the secondary touch area 32.

Reference is made to Fig. 5 which is a schematic view of a coordinate setting of the touch panel. In this example, a liquid crystal display 2 with 240*320 pixels and a touch panel 3 with 280*360 pixels are exemplified to further demonstrate the present invention. The touch panel 3 is installed on the liquid crystal display 2. A primary touch area 31 is defined as an overlapped portion of the touch panel 3 and the liquid crystal display 2, and a secondary touch area 32 is defined as a non-overlapped portion of the touch panel and the liquid crystal display. A first touch area 321, a second touch area 322, a third touch area 323, and a fourth touch area 324 are set on upper side, lower side, left side, and right side of the secondary touch area 32, respectively, and each of the four touch areas (321, 322, 323, and 324) has a 20-pixel width. Furthermore, four corner coordinates of the secondary touch area 32 are set as (-20, -20), (260, -20), (-20, 340), and (260,

340), respectively, and four corner coordinates of the primary touch area 31 are set as (0, 0), (240, 0), (0, 320), and (240, 320), respectively.

5 Reference is made to Fig. 6 which is a schematic view of distinct operated coordinate points. A touch point 30 is generated when a user's finger touches on the touch panel 3, and the touch point 30 is represented in a coordinate point (X, Y).

10

The touch point 30 is detected to be on the primary touch area 31 when $(0 \leq X \leq 240 \text{ and } 0 \leq Y \leq 320)$. For example, $(X, Y) = (1, 1)$ is detected to be on the primary touch area 31, because of $0 \leq (X=1) \leq 240$ and

15 $0 \leq (Y=1) \leq 320$.

The touch point 30 is detected to be on the third touch area 323 of the secondary touch area 32 when $(0 < X \text{ and } 0 \leq Y \leq 320)$. For example, $(X, Y) = (-5, 5)$ is detected to be on the third touch area 323, because of $0 < (X=-5)$ and $0 \leq (Y=5) \leq 320$.

20

The touch point 30 is detected to be on the fourth touch area 324 of the secondary touch area 32 when $(X > 240 \text{ and } 0 \leq Y \leq 320)$. For example, $(X, Y) = (250, 5)$ is detected to be on the fourth touch area 324, because of $(X=250) > 240$ and $0 \leq (Y=5) \leq 320$.

25

The touch point 30 is detected to be on the first touch area 321 of the secondary touch area 32 when $(Y < 0)$. For example, $(X, Y) = (120, -5)$ is detected to be on the first touch area 321, because of $(Y=-5) < 0$.

30

The touch point 30 is detected to be on the second touch area 322 of the secondary touch area 32 when $(Y > 320)$. For example, $(X, Y) = (120, 325)$ is detected to be on the second touch area 322, because of $(Y=325) > 320$.

35

Reference is made to Fig. 7 which is a schematic view of dragging the finger from a start coordinate point to an end coordinate point. For example, the start coordinate point is detected initially on the second touch area 322 of the secondary touch area 32 when the user's finger 4 touches first on a coordinate point $(X, Y) = (120, 330)$. Moreover, the start coordinate point $(X, Y) = (120, 330)$ is also recorded. A coordinate point $(X, Y) = (120, 325)$ of the touch point 30 is detected and returned when the finger 4 moves upwardly and touches on the coordinate point $(X, Y) = (120, 325)$. Any page switching action is not executed because the coordinate point $(X, Y) = (120, 325)$ is still detected on the second touch area 322.

The coordinate point $(X, Y) = (120, 319)$ of the touch point 30 is detected and returned when the finger 4 continuously moves upwardly and touches on the coordinate point $(X, Y) = (120, 319)$. An end coordinate point $(X, Y) = (120, 319)$ is recorded when the finger 4 stops moving and then leaves the touch panel 3.

Afterward, a touch-drag action is detected from the secondary touch area 32 to the primary touch area 31 according to the start coordinate point $(X, Y) = (120, 330)$ and the end coordinate point $(X, Y) = (120, 319)$. Hence, a page switching action is executed.

Claims

Art. 84
R. 43

R. 43(1)(a)
Prior art portion of
independent claim
wherever appropriate

1. A method for switching a touch screen of a handheld
5 electronic apparatus (1) and the handheld electronic
apparatus (1) has a liquid crystal display (2) and a
touch panel (3); a surface area of the touch panel
(3) is larger than one of the liquid crystal display
10 (2); a rectangular primary touch area (31) is
defined as an overlapped portion of the touch panel
(3) and the liquid crystal display (2), and a
secondary touch area (32) is defined as a non-
overlapped portion of the touch panel (3) and the
15 liquid crystal display (2), the switch method
comprising:

- (a) determining whether a touch-drag action is
initially from the primary touch area (31) or the
secondary touch area (32) when the touch panel (3)
is touched;
- 20 (b) executing a page switching action when the touch-
drag action is initially operated by sliding a
finger (4) from the primary touch area (31) and then
the touch-drag action is operated by sliding the
finger (4) further from the primary touch area (31)
25 to the secondary touch area (32); and
- (c) executing a page switching action when the touch-
drag action is initially operated by sliding the
finger (4) from the secondary touch area (32) and
then the touch-drag action is operated by sliding
30 the finger (4) further from the secondary touch area
(32) to the primary touch area (31).

2. The switch method in claim 1, further comprising:
switching the page to go back to the previous page
35 when the touch-drag action is operated by sliding
the finger (4) from the secondary touch area to (32)

go back to the primary touch area (31) after the step (b).

3. The switch method in claim 1, further comprising:

switching the page to go back to the previous page when the touch-drag action is operated by sliding the finger (4) from the primary touch area (31) to go back to the secondary touch area (32) after the step (c).

4. The switch method in claim 1, further comprising:

executing a touch action when the touch-drag action is operated by sliding the finger (4) on the primary touch area (31) during the step (b).

5. The switch method in claim 1, wherein the secondary touch area (32) has a first touch area (321), a second touch area (322), a third touch area (323), and a fourth touch area (324).

6. The switch method in claim 5, wherein the first touch area (321), the second touch area (322), the third touch area (323), and the fourth touch area (324) are surrounded the primary touch area (31), respectively.

7. The switch method in claim 6, further comprising: setting coordinate points of the primary touch area (31), the first touch area (321), the second touch area (322), the third touch area (323), and the fourth touch area (324), respectively.

8. The switch method in claim 7, wherein the touch-drag action is such defined that a touch is performed on the touch panel (3) and dragged continuously from a start coordinate point to an end coordinate point of the touch panel (3).

9. The switch method in claim 7, wherein the touch-drag action is judged to be completed according to the start coordinate point and the end coordinate point.

5 10. An apparatus for switching a touch screen of a handheld electronic apparatus (1), the apparatus comprising:
a liquid crystal display (2); and
a touch panel (3), a surface area of the touch panel
10 (3) is larger than that of the liquid crystal display (2); a primary touch area (31) is defined as an overlapped portion of the touch panel (3) and the liquid crystal display (2), and a secondary touch area (32) is defined as a non-overlapped portion of
15 the touch panel (3) and the liquid crystal display (2);
wherein a switch action is determined by judging whether a touch-drag action is operated by sliding the finger (4) from the primary touch area (31) to
20 the secondary touch area (32) or the touch-drag action is operated by sliding the finger (4) from the secondary touch area (32) to the primary touch area (31).

25 11. The switch apparatus in claim 10, wherein the primary touch area (31) is separated from the secondary touch area (32) by a sideline and the sideline is set as a boundary line (311) between the primary touch area (31) and the secondary touch area
30 (32).

12. The switch apparatus in claim 10, wherein the primary touch area (31) and the secondary touch area (32) are both parts of the touch panel (3).

13. The switch apparatus in claim 10, wherein the secondary touch area (32) has a first touch area (321), a second touch area (322), a third touch area (323), and a fourth touch area (324).

Abstract

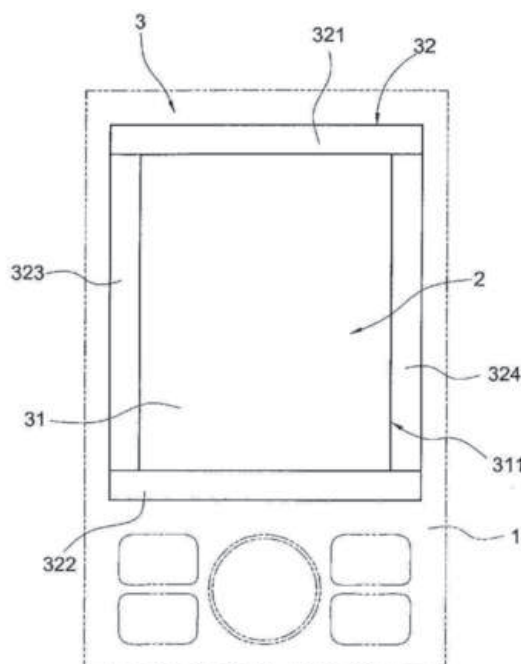
Art. 85

Method and apparatus for switching touch screen of handheld electronic apparatus

R. 47(1)
Title of invention

A method and an apparatus for switching a touch screen of a handheld electronic apparatus (1) is to provide a touch panel (3) that is installed on a liquid crystal display (2), and a surface area of the touch panel is larger than that one of the liquid crystal display. A primary touch area (31) is defined as an overlapped portion of the touch panel and the liquid crystal display, and a secondary touch area (32) is defined as a non-overlapped portion of the touch panel and the liquid crystal display. A touch-drag action is determined to be operated by sliding a finger initially from the primary touch area or the secondary touch area. Afterward, a corresponding page switching action or a touch action is executed according to a switching sequence between the primary touch area and the secondary touch area. Hence, the page switching action can be operated quickly by users.

R. 47(2), (3), (5)
Content of abstract



Art. 78
R. 46

FIG.1A

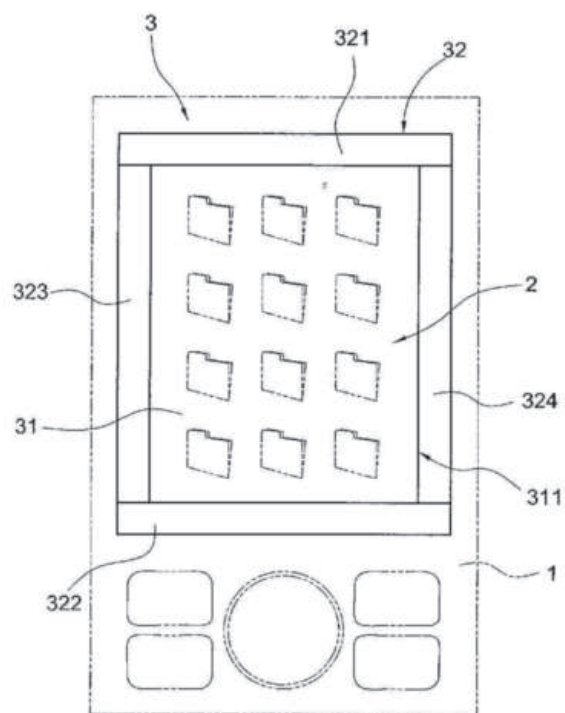


FIG. 1B

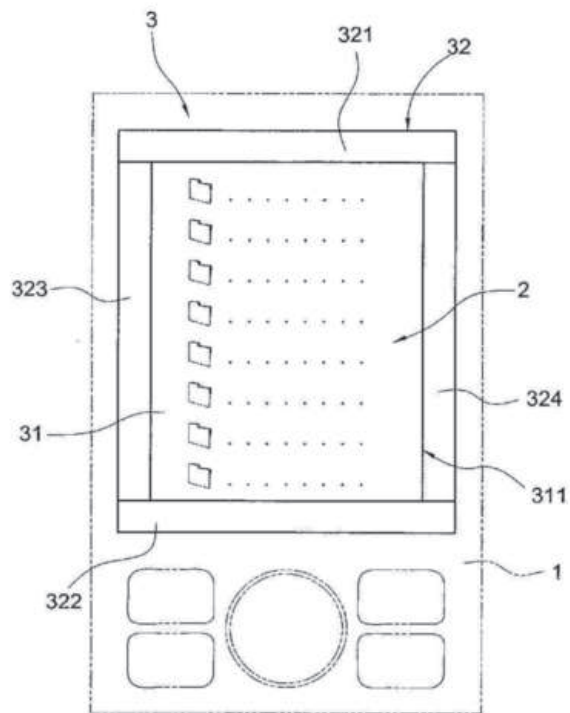
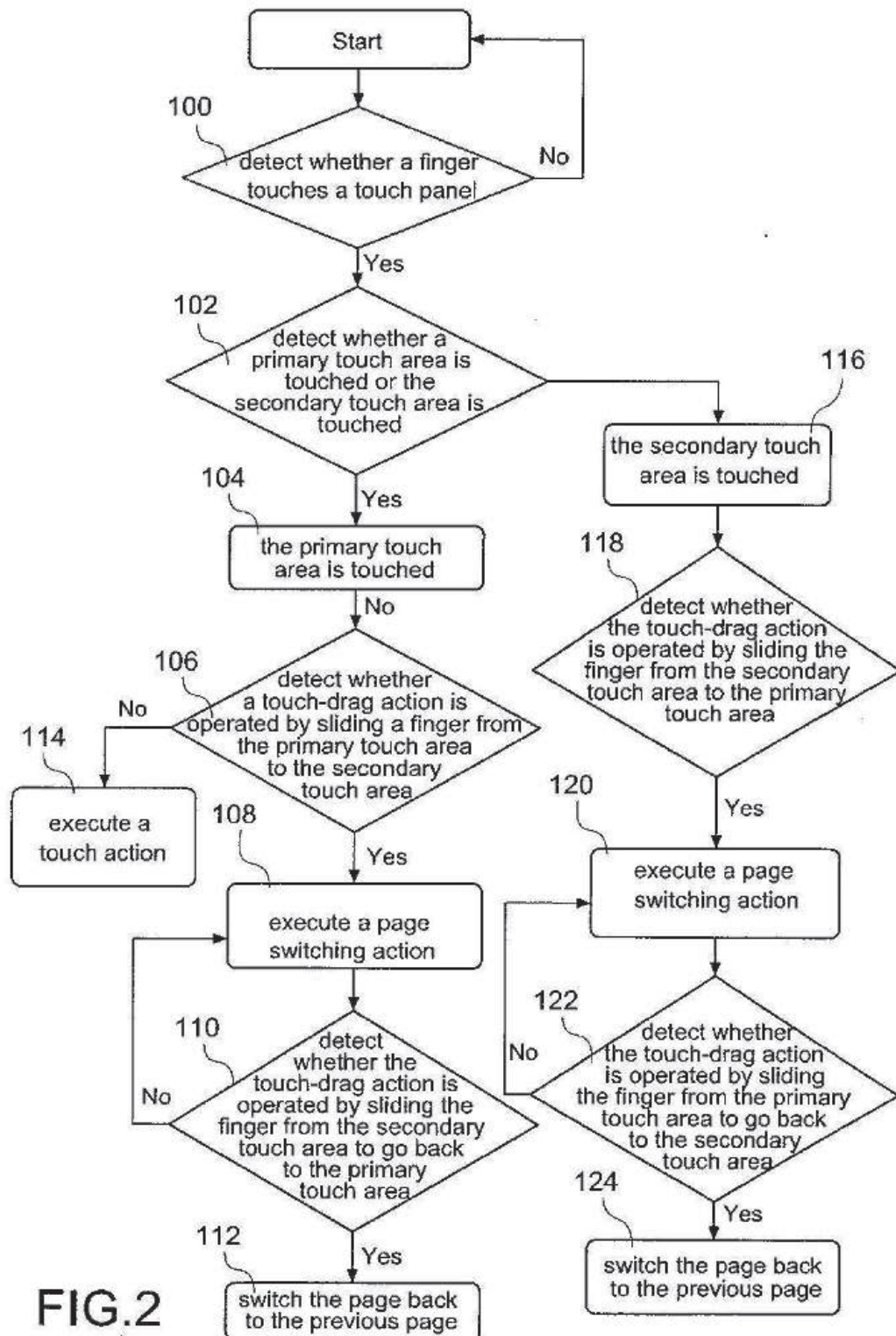


FIG. 1C



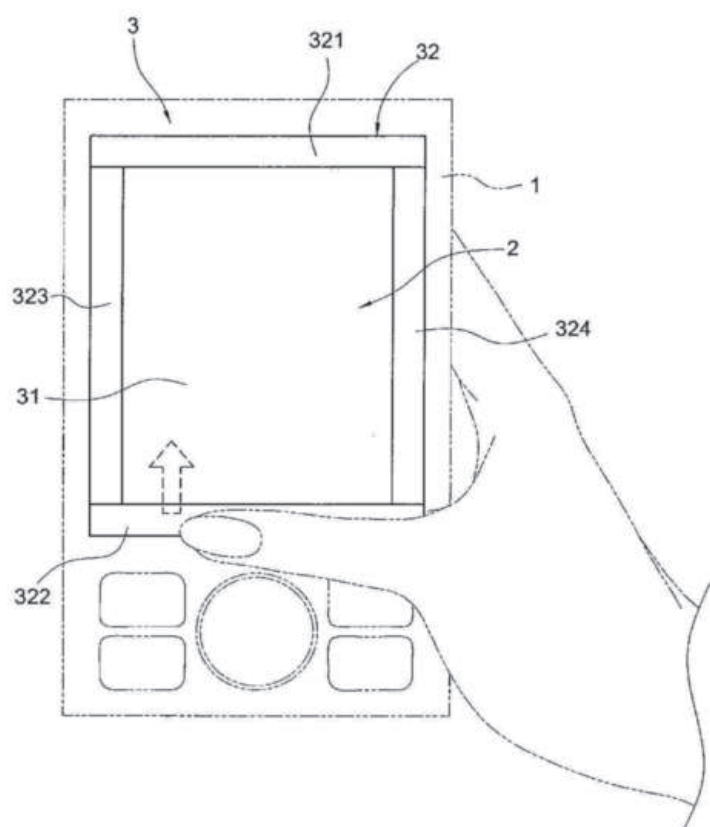


FIG.3

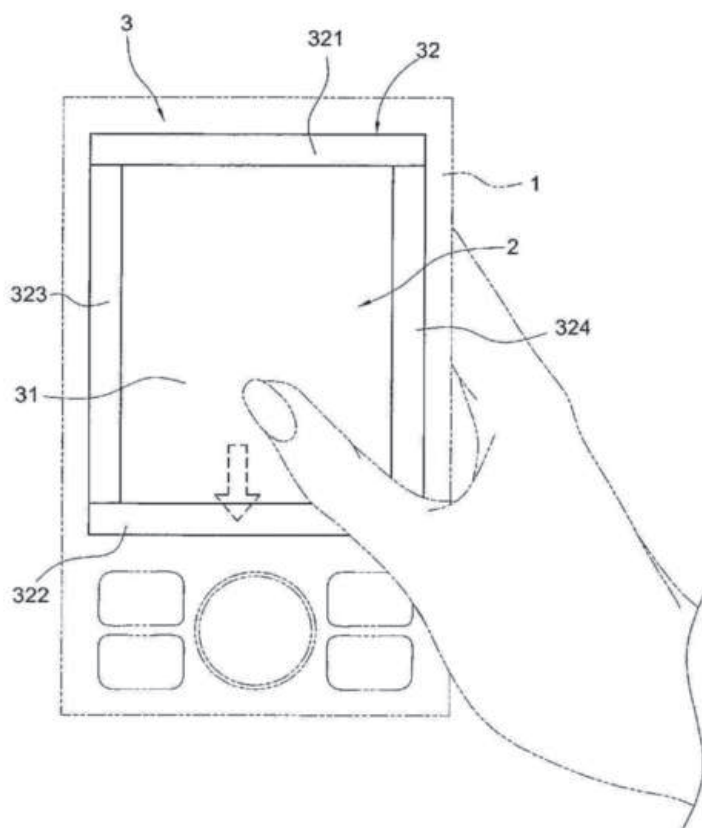


FIG.4

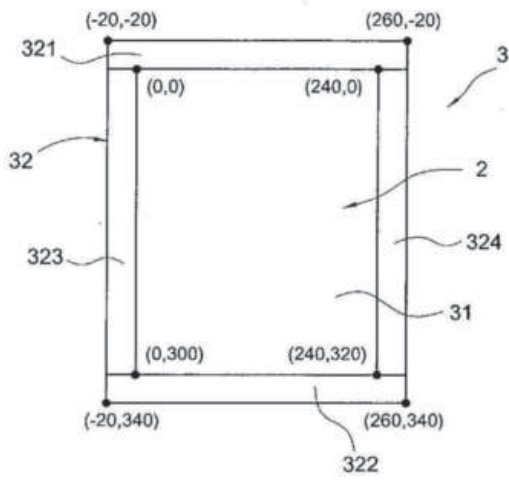


FIG. 5

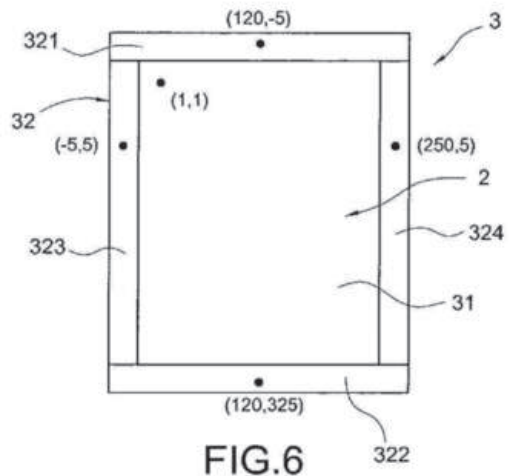


FIG. 6

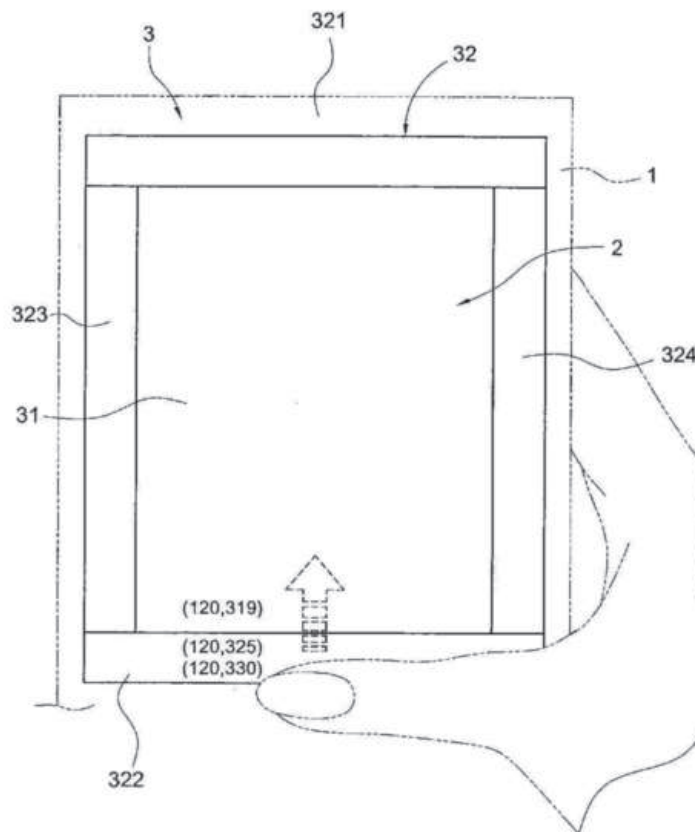


FIG. 7

Annex IV

Authorities with which European patent applications may be filed

I. European Patent Office

(a) Munich headquarters

European Patent Office
Bob-van-Bentheim-Platz 1
(formerly Erhardtstrasse 27)
80469 Munich
Germany
Tel.: +49 (0)89 2399-4500
Fax: +49 (0)89 2399-4465

Postal address:
European Patent Office
80298 Munich
Germany

(b) The Hague

European Patent Office
Branch at The Hague
Patentlaan 2
2288 EE Rijswijk
Netherlands
Tel.: +31 (0)70 340-4500
Fax: +31 (0)70 340-3016

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Postfach 5818
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Netherlands

(c) Berlin

European Patent Office
Gitschiner Strasse 103
10969 Berlin
Germany
Tel.: +49 (0)30 25901-4500
Fax: +49 (0)30 25901-840

Postal address:
European Patent Office
10958 Berlin
Germany

II. National authorities

For a summary of the contracting states' chief national provisions governing compulsory and optional filing of patent applications with central industrial property offices and other competent authorities, see Table II in "**National law relating to the EPC**" (see point 4). This table also contains the addresses of the central industrial property offices.

Note: European divisional applications must always be filed with the EPO (see point 208 ff).

Annex V

The requirements of the contracting states regarding translations of European patent specifications

I. Article 65 EPC

Under Article 65(1) EPC, any contracting state may prescribe that if the text in which the European Patent Office intends to grant a European patent or limit or maintain a European patent as amended for that state is not drawn up in one of its official languages, the applicant for or proprietor of the patent must supply its central industrial property office with a translation of this text in one of its official languages at his option or, where that state has prescribed the use of one specific official language, in that language.

II. Requirements of the contracting states

The legal position in the contracting states is given in **"National law relating to the EPC"**, Table IV (see point 4).

Note: all those states which require a translation of the European patent specification have prescribed that, in the event of failure to observe the relevant national provisions, the European patent will be deemed to be void ab initio.

Annex VI

Time limits

Charts showing time limits to be met by applicants

The EPC provides for three types of time limit:

1. Time limits computed from the actual or deemed date of filing or the date of priority
2. Time limits of a duration laid down in the EPC which are computed from an event other than the date of filing or priority
3. Time limits laid down by the EPO in the course of the grant procedure

The EPO reminds applicants of all time limits of types 2 and 3 above, apart from those for further processing (see point 225) and re-establishment of rights (see points 226-227).

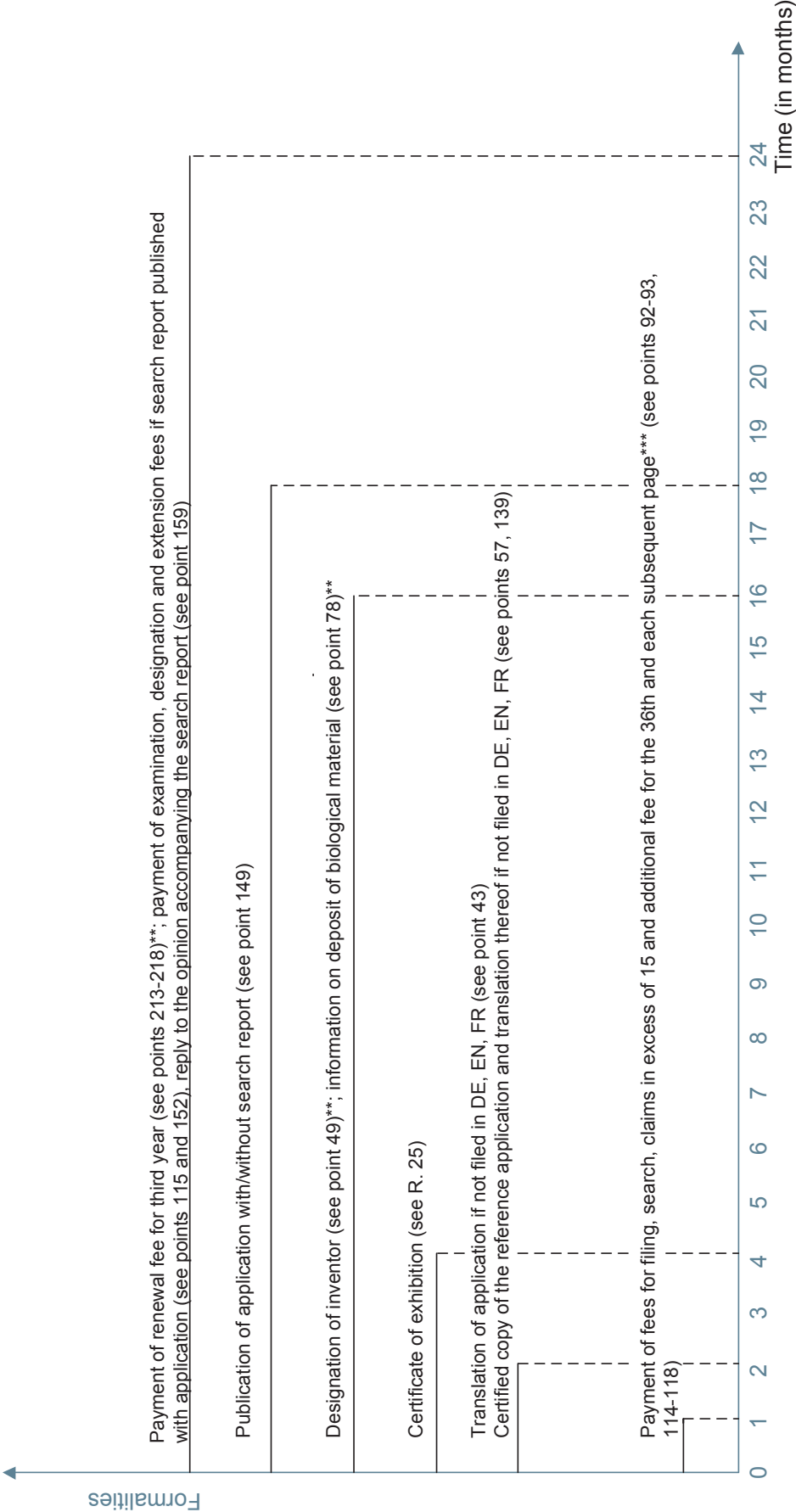
The charts below are particularly designed to help applicants keep track of time limits of type 1.

Chart A relates to a European patent application which is a first filing.

Chart B relates to a European patent application which claims the priority of an earlier application and is assumed to have been filed ten months after the earlier application.

The charts do not take into account the special time limits which apply to European divisional applications and new European patent applications filed in accordance with Article 61(1)(b) (see Rules 15(2), 36(2), 51(3) and (6) and 60(2)).

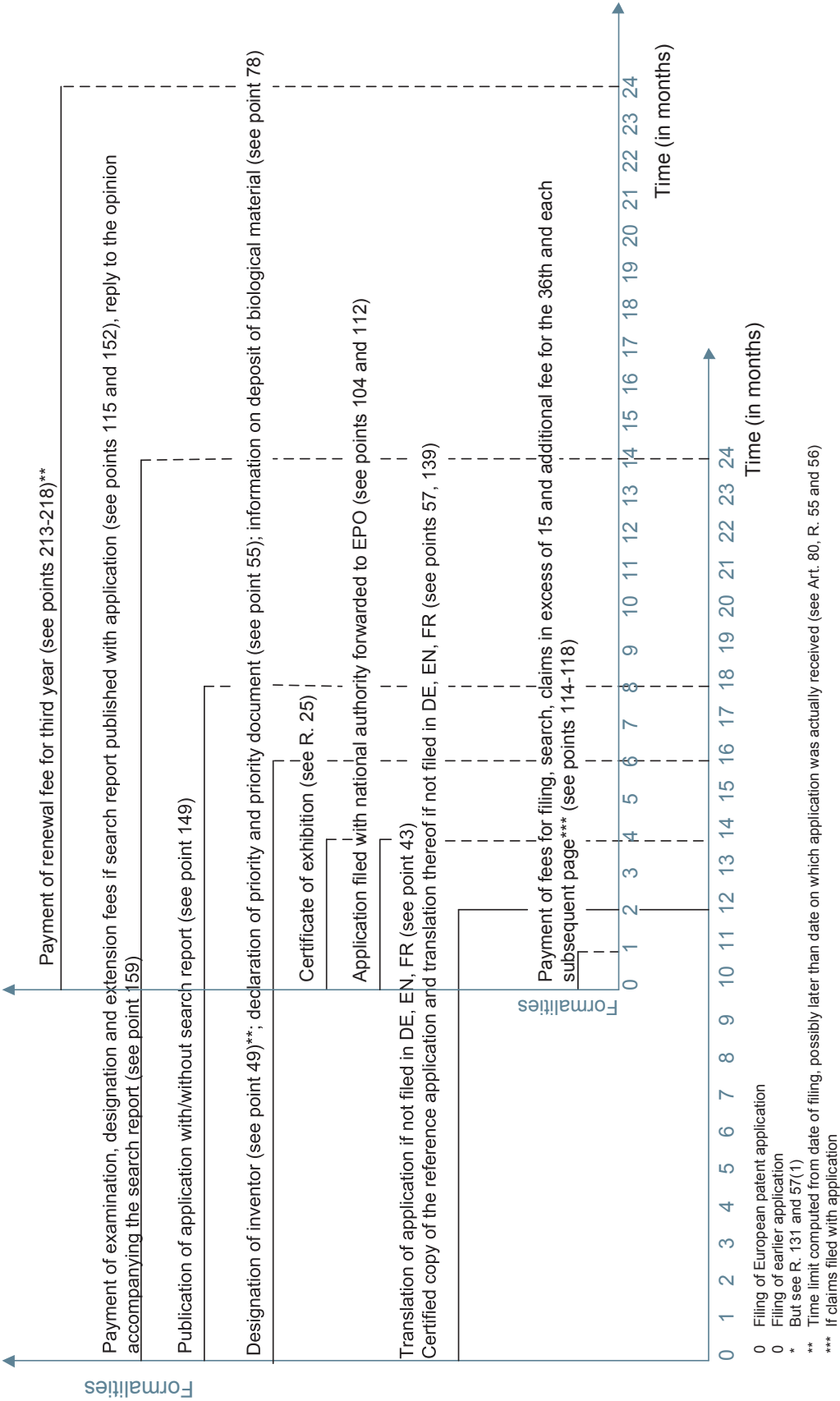
Chart A Important time limits laid down in the EPC where **no priority** is claimed in the European patent application*



0 Filing of European patent application
* But see R. 131 and 57(1)
** Time limit computed from date of filing, possibly later than date on which application was actually received (see Art. 80, R. 55 and 56)
*** If claims filed with application

Chart B

Important time limits laid down in the EPC
where **priority is claimed** in the European patent application*



Annex VII

Fees

I. Fees provided for in the EPC

The guidance for the payment of fees published periodically in the Official Journal enables you to find out at any time which rules relating to fees are currently applicable and whether any information given in this Guide has changed since it was published. You are advised to check the current fee amounts in the schedule of fees, costs and prices, which is available on the EPO website (www.epo.org) and from the EPO's Customer Desk.

II. Form for the payment of fees and costs

The form for the payment of fees and costs (Form 1010) can be downloaded from the EPO website.

III. Further information on fees

Further information on fees, such as the schedule of fees, costs and prices of the EPO and the list of bank accounts of the European Patent Organisation, is published on the EPO website.

Annex VIII

Patent information services

File inspection and communication of information from files

1. The files relating to published European patent applications and patents are available for online inspection. Access to online file inspection is provided via the EPO website (www.epo.org) under "European Patent Register".

*Art. 128(4)
R. 145
Guid. A-XI
OJ 2009, 598*

On request, copies of the files can be made available for inspection. This is subject to payment of a fee.

European Patent Register and European Patent Bulletin

2. The EPO offers access to the Online European Patent Register. Users of the European patent system can go to www.epo.org to look up procedural data on European patents and patent applications.

*Art. 127
R. 143
OJ 2001, 249
OJ 2003, 23, 69
OJ 2009, 598*

The Online Register provides bibliographic data together with procedural data from the date of publication to the grant of the patent, plus any data concerning opposition and appeal proceedings.

Internet access to the Online Register is free of charge.

3. The data in the European Patent Register is published weekly in the European Patent Bulletin, where the bibliographic data relating to published European patent applications and granted European patents is arranged according to a number of reference criteria, including

Art. 129(a)

- the International Patent Classification,
- European publication numbers,
- names of applicants/proprietors.

The European Patent Bulletin is available online at www.epo.org.

Patent documents

4. The EPO also publishes:
 - European patent applications (A documents) online and on CD-ROM
 - European patent specifications (B documents) online and on CD-ROM

*Art. 93
Art. 98, 103
Special edition No. 3
OJ 2007, D.2, D.3,
D.4*

Published documents are available online via the publication server at

<https://data.epo.org/publication-server/?hp=stages>

Information on other EPO CD-ROM products can be downloaded from the EPO website at

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Official Journal and Guidelines for Examination

5. The EPO's other standard publications include

Art. 129(b)
Art. 10(2)(a)

- the Official Journal (OJ), containing in particular the legislative acts of the Organisation's Administrative Council, the decisions and notices of the President of the EPO, information about fees and costs, and selected decisions of the boards of appeal, and
- the Guidelines for Examination in the European Patent Office.

These publications are also available online on the EPO's website (www.epo.org).

Terms and conditions

6. The EPO's sub-office in Vienna is responsible for all patent information services (document dispatch, online access, etc.).

Vienna sub-office
Postfach 90
1031 Vienna
Austria
Tel.: +43 (0)1 521 26 4500
Fax: +43 (0)1 521 26 3591

Questions?

Further information about the European Patent Office and the procedures involved in applying for a European patent is available from the EPO website at www.epo.org:

- Applying for a patent at www.epo.org/guide
- Patent search at www.epo.org/espacenet
- European Patent Register at www.epo.org/register
- Online filing services at www.epo.org/online-services
- Job vacancies at www.epo.org/jobs
- Quick access to FAQs, publications, forms and tools at www.epo.org/service-support
- Learning and events at www.epo.org/learning-events

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Imprint

Edited and published by

European Patent Office
Munich
Germany
© EPO 2013

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Directorate 5.2.1

Printed by

Imprimerie Centrale S.A.
1024 Luxembourg
Luxembourg