



GERMAN CHEMICAL SOCIETY

How to read patents

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For better readability only the masculine form for people is used in the text. The formulations selected are intended to cover all persons of any gender.

Many research results are published not only as scientific literature, but also in the form of patents and therefore represent an important treasure trove of information.

However, for many who are used to reading scientific publications, patents take some getting used to. This brochure is intended to assist in understanding patents.

The most important basic principle, however, is that patents are not scientific publications.

While the purpose of scientific publications is to present the latest results (and of course also to enhance the name and reputation of the authors), the main aim of patents is not primarily the dissemination of information.

Rather, patents grant protection to inventions, and this is also the only reason why they are applied for. Since important information can nevertheless be found in patents is due to the fact that patent laws¹ require that experts must be able to reproduce the protected invention, otherwise the patent is not legally valid.

In addition, a strict differentiation must be made between patent applications and granted patents. Until a patent has been granted, and this examination often takes years, it is called a patent application. This is published 18 months after filing, unless the patent office was exceptionally so fast that it granted a patent before this time.

Although the scope of protection of patent applications is not fixed and consequently often appears to be very broad, the protection in the case of patents has been examined by a patent office – and only granted for what the office regards as patentable. In practice this usually means a restriction of the protection originally applied for, which is why patent grant proceedings often take so long, since the applicant presents arguments to the patent office in order to achieve the broadest possible protection.

¹ Note: Individual patent laws naturally differ considerably around the world. However, repeatability is required virtually everywhere.

So how do you read a patent?

A patent usually consists of four to seven parts:

- » **Title page** with bibliographic information, often also an abstract and the office's search report (the annex shows an example of the cover page of a European patent specification with an explanation of the information available on it)
- » Firstly an **introduction**, in which the basic area is described and an overview of existing publications is sometimes also given
- » Then a basic **description** of the invention, usually in general form, plus specific examples in the case of chemical and biotechnical patents
- » This is followed by the **patent claims**. These are usually only one or a few pages long, but are the most important part of the document
- » Finally a brief **abstract**, although this is often also on the title page
- » **Figures** are sometimes also attached, especially in the case of mechanical or electro-technological patents. However, these are often omitted in the case of chemical or biotechnological patents.
- » If not already mentioned on the title page, the office's **search report** may also be attached, but this is sometimes also published separately.

For patent experts, the patent claims are the most important part and are usually the first thing that they look at. As mentioned, the claims in patent applications have not been examined and are often very broad (and so tend to be a kind of "wish list"). In addition, they are not under full protection². Nevertheless, the claims in patent applications are very important as they indicate the direction in which the applicant is aiming.

² Note: In some countries, a certain degree of protection is granted after publication of the application. However, discussion of this is beyond the scope of this brochure.

In granted patents, by contrast, the patent claims have been placed under protection, i.e. the public must take them into account. A patent is only valid for the country (sometimes also the region) for which it has been granted. However, a patent document per se does not indicate whether the protective right is in force or whether it has already lapsed. This information can only be obtained from the corresponding official documentation published by the patent offices.

How is it possible to tell whether a document relates to a patent application or a patent? This is shown by the designation. Patents usually have a two- or three-digit code consisting of a two-letter country code, a number, and (optionally) an appendix. The latter indicates whether a patent has been granted or not. How this works is explained below with reference to examples:

In **Germany** applications have the format DE 10 XXXX Y A1, where DE stands for Germany, XXXX is the year of the application, Y is a serial number, recommencing each year, and A stands for application. Granted patents are given the same number, just with B3 instead of A1.

Example:

DE 10 2016 004612 A1 = patent application from Merck

DE 10 2018 108 110 B3 = patent from the University of Paderborn

European applications have the format EP X AY, where EP stands for the European Patent Office, X is a serial number, currently with seven digits, A stands for application and Y stands for the publication format. If the search report has already been completed at the time of publication, it is published at the same time and Y is then 1. Otherwise the application is published without search report as A2 and the search report is later published separately as A3. European patents are given the same number, but with B1 at the end instead of A.

Example:

EP 2 753 168 A1 = patent application from Syngenta

EP 2 771 468 B1 = patent from the Broad Institute

International applications (see page 5 for an explanation of what these are) have the publication format WO XXXX/Y AZ, where WO stands for "World", XXXX is the year of publication and Y is a serial number recommencing each year. A distinction is again made here between A1, A2 and A3, exactly as in the case of European applications.

Example:

WO 2018/021663 A1 = international application from Samsung SDI

In the **USA** applications and patents are numbered differently. Applications have the format US XXXX/Y, where “US” stands for USA, XXXX is the year of publication and Y is a serial number recommencing each year. By contrast, patents are given a serial number, currently with eight digits, after the “US”.

Example:

US 2010/0305257 = application from Rhodia

US 8,312,796 = application from Leica

So what information can be obtained from patents?

Firstly, the basic information on the invention. This can be obtained from the general part of the description and from the claims. However, the patent claims are often written in a relatively unclear way as they constitute a legal text and are frequently only really easy to read for experts in patent law. This is due to the fact that they have been kept as broad and general as possible in order to widen the scope of protection of the patent to the maximum.

However, the examples are also important. They often give very detailed illustrative guidance on how the invention works. If novel chemical compounds are protected, detailed synthesis descriptions are generally also given.

On the other hand, the examples often do not include the optimum forms of the invention, for two reasons:

- » Patent applications and patents are not published immediately, but rather 18 months after the first application (for an explanation of what this is, see the next page). This means that some of the experimental data are already out of date at the time of publication.
- » As mentioned, the purpose of patents is not to disseminate information, but instead to grant protection. Some applicants therefore attempt to avoid divulging their “crown jewels” to the public, but instead describe examples which, although they work, are not optimal. This is allowed so long as the invention as a whole can be carried out by referring to the description. However, the approach varies greatly: some applicants go into great detail in order to prevent their patents from being attacked, while others try to disclose as little as possible

As mentioned above, a patent is only valid for the country in which it was filed. In order to avoid a patent applicant being forced right at the beginning to designate all countries in which he wants protection, some simplifications have been made:

Paris Convention

The “Paris Convention”, which was concluded as long ago as 1883, created the “priority right”. This means that any applicant registering an invention for a patent in one country has 12 months to register the same invention for a patent in another country – but it is then not the actual date of filing in that country that applies with respect to the question of patentability, but instead the earlier date of the original application (which is then also usually called the “first application”).

In these subsequent applications, the application text can be amended so long as it still relates to the same invention. In practice, examples are usually added, but the application is otherwise not altered in order to avoid putting the priority right at risk.

Since all these applications are often published, the text of different patent applications for the same invention may differ in content.

International patent application

Within the 12 months after the priority right, the patent application must, however, be translated into the respective official language of each country concerned. One way of getting round this, at least for some time – and to obtain a central opinion on patentability – is offered by the possibility of filing a so-called “international application”. This application is a way of “buying time”, specifically around one and a half years more, as the applicant only has to decide on the individual countries about two and a half years after the first application.³

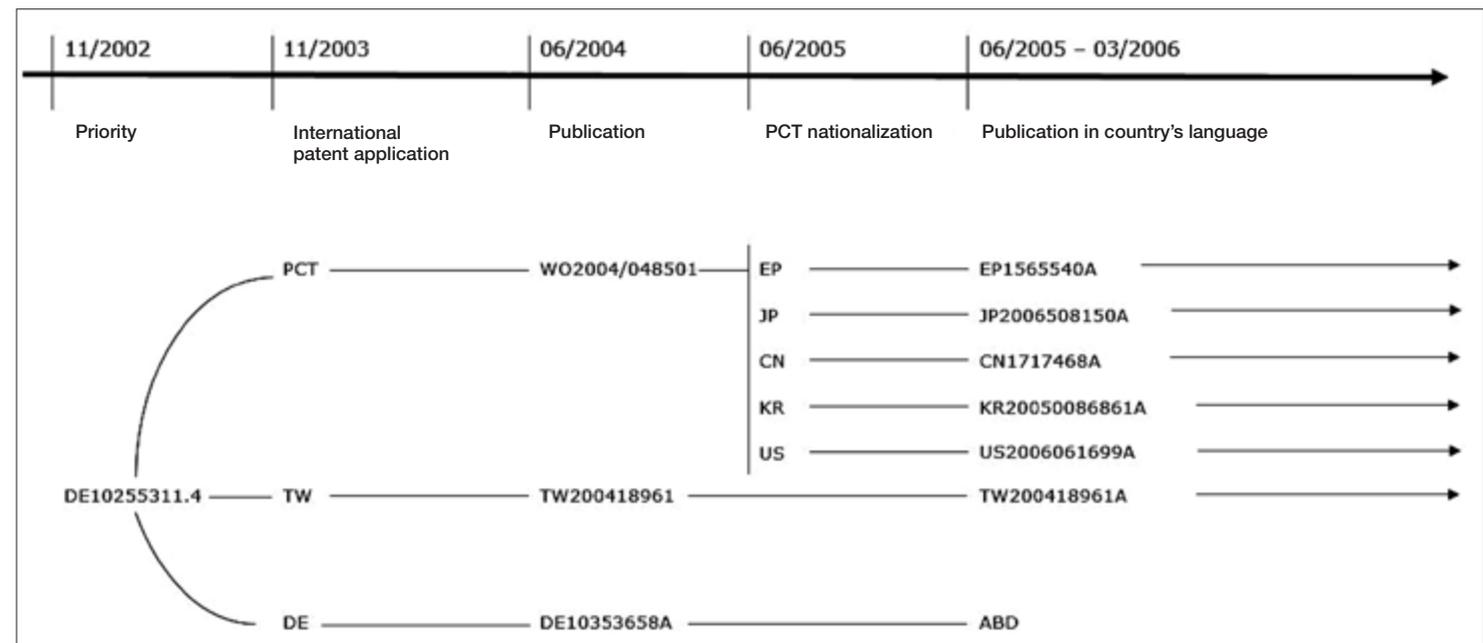
³ Note: Since translations often have to be prepared, this is somewhat earlier in practice

Although this international patent application is published with the country code “WO” for “World”, it is not, however, a “world patent”, as it is sometimes incorrectly called in the media. The actual patent examination is only carried out later in the individual countries.

Patent families

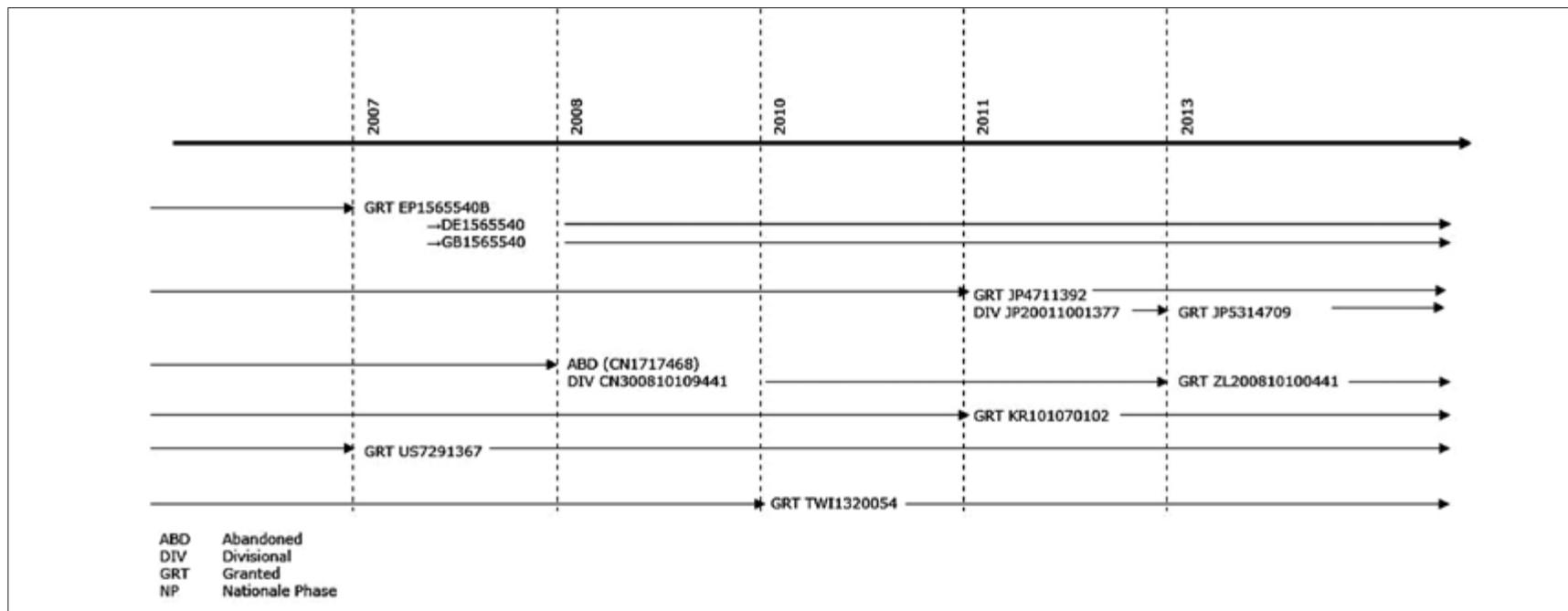
These two possibilities have led to the existence of parallel applications in the respective countries for many patents. In this case, the application text is usually identical, although there are differences in the patent claims. The term “patent families” is also used here. Which applications or patents belong to a family can be ascertained from databases, such as the German Patent and Trademark Office’s DEPATISnet database (at depatissnet.dpma.de) or the European Patent Office’s Espacenet database (at worldwide.espacenet.com), both free to access.

An example of a patent family is shown in the following figures:



Here, a first application was filed at the German Patent and Trademark Office (DPMA) in November 2002. The priority right established by this application was then used to file an international patent application in November 2003, which was then published in June 2004 (18 months after the first application) as WO 2004/048501. In this particular patent family, an application in Taiwan and a further application in Germany, each of which were also published, were filed in parallel with the international application. 30 months after the first application, the international patent application then led to national patent applications in various countries (shown here for China, South Korea, Japan, USA and the European Patent Organization (EP)). As many countries also require that patent applications are also published in an official language of the country, further publications appear under each country's own numbers, but these are identical in content to the WO publication.

The following figure shows when a patent was granted in which country and with what publication number the corresponding patent was published:



There is a special case here in China and Japan, where so-called divisional applications were filed. This is a measure in patent grant proceedings for pursuing patent claims that are usually directed to other subject-matters. A separate publication also appears for the divisional applications, but this does not extend beyond the contents of the first publication.

With the grant of the European Patent EP, this is again divided into national patents. In the present example, however, the patent was only nationalized in Germany and Great Britain.

For someone who is only interested in the technical information (e.g. the experimental descriptions), it is therefore only necessary to read one of these applications in a patent family. In this case, one of the later applications should be chosen, since the text has often been expanded compared with the first application. An obvious choice would be, for example, the WO publication. For legal analysis of protective rights, however, this is not sufficient since the individual patent claims are often very different in the individual countries.

Example of the cover page of a European patent specification:

(19)		
		(11) EP 2 959 472 B1
(12)	EUROPEAN PATENT SPECIFICATION	
(45) Date of publication and mention of the grant of the patent: 17.05.2017 Bulletin 2017/20	(51) Int. Cl.: G10H 1/34 (2006.01)	
(21) Application number: 15765489.8	(86) International application number: PCT/IL2015/050244	
(22) Date of filing: 09.03.2015	(87) International publication number: WO 2015/140783 (24.09.2015 Gazette 2015/38)	
(54) MUSICAL NOTE DETECTING SYSTEM FOR A STRING INSTRUMENT NOTENDETEKTIONSSYSTEM FÜR EIN SAITENINSTRUMENT SYSTÈME DE DÉTECTION DE NOTES MUSICALES POUR UN INSTRUMENT À CORDES		
(84) Designated Contracting States: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR	(74) Representative: Stöckeler, Ferdinand Schoppe, Zimmermann, Stöckeler Zinkler, Schenk & Partner mbB Patentanwälte Radikofenstrasse 2 81373 München (DE)	
(30) Priority: 18.03.2014 US 201461954937 P	(56) References cited: EP-A2- 0 340 734 US-A- 3 902 395 US-A- 4 336 734 US-A- 4 630 520 US-A1- 2013 247 744	
(43) Date of publication of application: 30.12.2015 Bulletin 2015/53	• M K Mandal ET AL: "Ring oscillators: Characteristics and applications", Indian Journal of Pure & Applied Physics, 28 February 2010 (2010-02-28), pages 136-145, XP055282128, Retrieved from the Internet: URL: http://nopr.niscair.res.in/bitstream/123456789/7244/1/IJPA%2048%282%29%20136-14%205.pdf [retrieved on 2016-06-20]	
(73) Proprietor: O.M.B. Guitars Ltd. 90435 Efrat (IL)		
(72) Inventors: • MIZRAHI, Shimon 99081 Bet Shemesh (IL) • THEE, Ben Zion 9043500 Efrat (IL)		
<p>Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).</p>		
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The individual pieces of information on the cover page of this European patent specification have the following meanings as defined in WIPO standard ST.9 (INID codes):

- (11) Number of the patent
- (12) Designation of the kind of document
- (19) Designation of the office or organization publishing the document
- (21) Number(s) assigned to the application
- (22) Date of filing
- (30) Priority date under the Paris Convention with number(s) assigned to the priority application
- (43) Date of publication of the application
- (45) Date of publication and mention of the grant of the patent
- (51) International patent classification
- (54) Title of the invention
- (56) List of prior-art documents cited, if not mentioned in the description (search report)
- (72) Name(s) of the inventor(s)
- (73) Name of the patent proprietor
- (74) Name of the patent attorney or representative
- (84) Designated contracting states under the European Patent Convention (EPC)
- (86) Application data of the original international patent application
- (87) Publication data of the original international patent application



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Division Patent Law

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