

Chapter 8

Importance and significance of patents

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1. Introduction

Patent literature is neglected during university courses in chemistry or chemical engineering. To the contrary, patents receive much attention from researchers in industry because of the relevance for the development of company business.

The scarce interest for this kind of literature in the Universities is explained by:

- * fundamental information, new theories or interpretation of experimental results are missing;

- * low or null importance of patents for reaching academic positions; in fact, patents are almost not considered for career advancement;

- * complicated procedure for a patent application discourages people operating in the universities;

- * and, finally, poor accessibility of patent texts: libraries do not shelve patents and the procedure to purchase a patent copy can be rather complicated.

The situation is completely different in industry, the patents having relationship with the core business of a company are collected in the R&D departments. Great attention is given by the researchers and by the management because:

- * patents are fundamental for the advancement and protection of the technological position of a company;

- * patents are a way of trading and exchanging novelties with the strongest companies operating in the same field;

- * patents are a potential way to earn money selling the rights to apply the invention;

- * patent knowledge allows to be aware of the strength of competitors;

- * patent knowledge allows to be aware of the possibility of competitors right infringement and of prosecution or heavy fines by damaged competitors.

Young people, leaving with a degree from a University, have almost no knowledge of the relevance of patent literature. They have no clear ideas how to approach this literature, how to read a patent, how to distinguish the important parts of a patent text, how to write a patent, what to do for an application, how to extend and to defend a patent in other countries.

All these aspects, now similar in the European countries, are described in a quick way in this paper having in mind that this matter will be of growing importance in the scientific and technical world in the future. There would be no need of patent laws and patents in a world where people are conscious of the rights of the other people. This is not our world and all countries have created laws and reinforced them with authority.

People having the genius of inventiveness would not be willing to communicate their in-

vention to others without law protection; they would develop the invention in great secrecy by themselves. In this way, the possibility to spread the advantages to a large community would be limited and, in some cases, the invention will die with them.

Governments in the past began to face these problems with appropriate laws having in mind:

* The community progress takes advantage from the inventiveness of people; this inventiveness had to be encouraged as much as possible.

* A legal protection of the economical interest of the inventor had to be given; this protection was envisaged as the right for the inventor to commercialise exclusively the results for a certain period of time.

The inventor could be confident, in this way, to be in the position of having an economical return from his invention and was prone to develop it for a wide market. The community receives benefit from the progress and, moreover, knows that, after a certain period of time, the industry of the country could freely take advantage of the invention.

What kind of document is a patent? It is a technical-legal document that claims a new, cheaper solution to an existing problem. On the other side, an article is a technical-scientific document published with the aim to contribute to the advancement of knowledge in a scientific field.

2. Patent law history

The legislation on this matter initiated at different times in the various countries. The laws were, at beginning, approximate and, generally, written to cover specific local situation. Organic legislation was produced centuries after the first rules were given by the authorities. The more prosperous and dynamic communities were the first to face the problem and to be present in the official legislation.

A brief review of these developments indicates chronologically:

* 1474 Venice Republic. A law ("Parte") of March 19 on the privileges of the invention was published. It is relevant the "Privilege" given to Galileo Galilei in the year 1599 for a new system to pump water for irrigation.

* 1623 Great Britain. James II Monopolies Declaration.

* 1790 United States. Patent Act (the first patent was assigned to S. Hopkins the 31st of July 1790 on "Advanced process to obtain potash soaps from wood ashes").

It is remarkable to note that the National French Assembly at the time of the revolution cancelled by law all privileges, but the rights of inventors recognizing in this way the essential role of patents.

While Venice was the first to recognize the rights of inventors the unified Italian Kingdom adopted the first law on this matter just at its constitution in 1859. In fact, the declaration of 1858 of the Sardinian Kingdom was enforced in all Italy as the Savoy ruled the country.

A modification and integration of the law were done in 1939 and, just recently, in 1978, the Italian government approved the adoption of the European Community legislation. In this way, for the first time, the coverage of inventions in the field of pharmaceuticals was introduced in Italy.

3. Invention definition

It is not immediately obvious what matter can be patentable. Between discovery and invention there is a distinction.

3.1. A discovery is a description or recognition of phenomena or law already existing in nature

Examples are:

- The falling down of objects (Newton's law);
- Pendulum movement;
- Elicoidal structure of DNA.

In a more general way, not invention but discoveries are:

(a) Scientific theories and laws, mathematical models;

(b) Plans, principles and methods for developing intellectual activities, for new games and for commercial business. Software for computers;

(c) Presentation of information, ideas of marketing, and so on.

3.2. An invention is a consequence of a human practical or intellectual activity that brings to the creation of something new that changes or improves the preexisting reality through an intuition and original procedure

According to the Italian law (Art. 12 of D.P.R. 338/1978), similar to those of the other industrialised nations, adopted in the country in the year 1978, an object of invention is defined as follows: "Are objects of patent the new invention that are consequence of inventive activity and can be applied industrially."

A patent has the aim to protect a product, a process or a new utilization of a product or process. Obviously, an existing product or process can be object of a new patent if there is the introduction of valuable modification or improvements.

Some time, just a small variation of high economical effect can give raise to the deposition of a new patent. It has to be clear that, in this case, the claims cover just the variation. This means that the owner of the original patent has to pay royalties to the owner of the new patent if he wants to introduce in its process the new invention. The owner of the new patent can use his invention paying royalties to the owner of the main patent that covers the whole process.

To have a valid patentable invention there are some must to be manifest:

The novelty has to be evident (nothing equal is available or known);

The originality has to be apparent, (the invention is not an obvious fall down applying technical, advanced knowledge already available);

The inventions have to be relevant to the industrial market (through the application derives a profit and a technical problem has solution).

4. Patent validity

The invention is protected by law from the moment of the patent application, in all industrialised countries but the USA, where validity starts at the time of the positive result of the patent office exam. This exam can take many years before to be completed (in the case of polypropylene Natta–Montecatini invention over 15 years). In this mean time, competitors can be on the market: they will be subjected to royalties (i.e. a certain amount of money for ton produced or for global damage) when the patent is granted. The validity of USA patent is 17 years. The validity of patents in Italy and in almost all the industrialised countries is 20 years.

The patent application always has a blind period of around 18 months. This because the same invention could be the object of an application in another country, almost at the same time. This can be known only when the application is published, normally, after 18 months. The first applicant will have all the rights. Some limited rights can be obtained by an invention, done almost at the same time of the first one, in well documented cases.

5. Patent text

To write properly a patent is a work for specialists. The language of a patent is a little bothering for a technician because it is rather far from a scientific paper. The structure is a compromise between the style for a technical information and the legal way to defend the invention from those trying to copy it going around the patent.

A well-defined scheme characterizes the text and every part has its standard collocation. This simplifies the lecture to an expert that can go

quickly to the relevant part of the patent and claims. After the title and the abstract the text continues with the following scheme (in the US

patents it is recent practice to have separated chapters headed by a title) reported as an example:

1) Definition of the field covered by the invention,

FIELD OF THE INVENTION

This invention relates to a process for producing fluorine-substituted aliphatic hydrocarbons, and more particularly to a process for producing linear hydrofluorocarbons containing end group hydrogen substituents.

2) Presentation and discussion of the known art,

BACKGROUND

There has been recent concern that completely halogenated chlorofluorocarbons might be detrimental toward the Earth's ozone layer. Consequently, there is a world-wide effort to use halogen-substituted hydrocarbons which contain fewer chlorine substituents. For example, 1,1,1,2-tetrafluoroethane (HFC-134a), a hydrofluorocarbon having zero ozone depletion potential, is being considered as a replacement for dichlorodifluoromethane (CFC-12) in refrigeration systems. The production of hydrofluorocarbons (i.e., compounds containing only carbon, hydrogen and fluorine) has been the subject of renewed interest to provide environmentally desirable products for use as solvents, blowing agents, refrigerants, cleaning agents, aerosol propellants, heat transfer media, dielectrics, fire extinguishants and power cycle working fluids.

3) Description of the object of the invention and of the advantages obtainable through the invention,

An object of the invention is to crack alkanes.
Another object of the invention is to dehydrocyclize alkanes.
Another object of the invention is to crack or dehydrocyclize alkanes using a catalyst.
Still another object of the invention is to provide a catalyst suitable for cracking alkanes or dehydrocyclizing alkanes.
Other objects, aspects, and advantages of the invention will be apparent to those skilled in the art upon studying the specification and the appended claims.

4) Summary of the invention and problem solved through it,
SUMMARY

According to the invention, a composition of matter is provided comprising at least one alkaline earth oxide together with a promoting amount of a compound selected from the group consisting of manganese oxide and rhenium oxide.
Further, according to the invention, alkanes are converted employing a catalyst of the above composition.
Further, according to the invention, alkanes are catalytically cracked employing a catalyst comprising at least one alkaline earth oxide together with a promoting amount of a compound selected from the group consisting of manganese oxide and rhenium oxide wherein said catalyst is treated with a dry oxygen containing gas at a high temperature prior to contacting the alkanes.

- 5) Detailed description of all aspects of the invention (if it is a process, what are all the reactants that can be used, what are the ranges of acceptable operating conditions, what are the performances obtainable, and so on),

DETAILED DESCRIPTION OF THE INVENTION

Alkaline earth oxides, namely the oxides of magnesium, calcium, strontium, and barium, are useful in this invention. Oxides of magnesium, calcium and strontium are especially useful. A single oxide, such as calcium oxide, can be promoted with manganese oxide and/or rhenium oxide; or mixtures of alkaline earth oxides, such as magnesium oxide and calcium oxide or magnesium oxide and strontium oxide, can be promoted with manganese oxide and/or rhenium oxide.

The proportions of the alkaline earth oxides where more than one alkaline earth oxide is employed is not believed to be critical. . . .

Any type of reactor normally used in catalytic cracking to dehydrocyclizing operations can be used with the catalyst system of this invention. For example, fixed bed, fluidized bed, trickle bed, etc., reactors can be

Reaction conditions suitable for catalytic cracking or dehydrocyclization vary widely. The reaction conditions depend to some extent upon the feedstock and the desired products. Temperatures are normally in the range of from about 450° to about 600° C. (842° to about 1112° F.), although temperatures from about 525° to about 575° C. (977° to about 1067° F.) have produced good results. Space velocity of feedstock is dependent to a large extent upon the specific conditions such as feedstock, temperature, diluent, desired products, etc., but a space velocity sufficient to provide a contact time of 0.1–50 seconds is generally desirable. Pressures are ordinarily near atmospheric but pressures in the range of from about 0–200 psig can be used.

- 6) Detailed description of the advantages and field where this invention can be of great utility.

Feedstocks capable of being cracked by the catalyst system of this invention include any of the normal cracking feedstocks containing linear or branched saturated hydrocarbons referred to generally as alkanes. These can be crude oil fractions or other refinery streams. The desired mixture of products will generally determine the selection of feedstock. For example, one feedstock may be more suitable to produce gasoline than another.

Feedstocks capable of undergoing dehydrocyclization in the presence of the catalyst system of this invention include any of the above-described feeds containing substantial quantities of linear or branched saturated alkanes containing 6 or more carbon atoms per molecule. Preferred alkane components of the feedstock contain carbon chains of 6 or more carbon atoms in a chain either unsubstituted or substituted with one or more alkyl side chains. Of course, the products obtained employing either the cracking or dehydrocyclization embodiments of the invention are dependent on the feedstock to a large extent.

- 7) Several examples showing as the author performs the invention (experts in the field have to be able to repeat the experiments and obtain the some results described in the examples). Some other examples compare the old technique with the new one. The author writes always the examples reported in the patent.

EXAMPLE I

In this example *n*-heptane was cracked to produce C₁
 45 to C₃ products employing various catalysts of the inven-
 tion. The amount of catalyst used was varied and so was
 the temperature of the process. Several runs at various
 temperatures were made employing a reactor without a
 50 catalyst and employing a reactor containing only quartz
 to establish a basis for comparison of the results employ-
 ing the inventive catalysts. The reactor was initially
 flushed with dry air at 1000° F. (538° C.) for four hours
 and then with helium at 3–5 psig for 15 minutes prior to
 55 introducing the feed into the reactor.

EXAMPLE IV

This example illustrates the dehydrocyclization
 embodiment of this invention.

A catalyst corresponding to CaO/Mn₂O₃/MgO in
 the weight ratio 3/7/90, respectively, was prepared as
 described earlier by impregnating MgO with aqueous
 solutions of calcium nitrate followed by manganous
 nitrate. After drying, grinding and sieving the catalyst
 was treated with hydrogen gas or dry air at 1000° F.
 (538° C.) for 1 hour followed by nitrogen gas for 5
 minutes. Passing *n*-heptane over the thus-prepared cata-
 lysts at 1022° F. (550° C.) and atmospheric pressure at a

(8) Claims of the authors (patent office experts write generally the claims. They try to give a coverage as large as possible to the invention with the aim to prevent the competitors from finding way to overcome the claims).

What is claimed is:

1. A composition of matter consisting essentially of components selected from the group consisting of:
 - A. two alkaline earth metal oxides wherein the alkaline earth metal is selected from the group consisting of magnesium, calcium, strontium and barium and a promoting amount of a mixture of manganese oxide and rhenium oxide
 - B. at least one alkaline earth metal oxide wherein the alkaline earth metal is selected from the group consisting of magnesium, calcium, strontium and barium and a promoting amount of rhenium oxide
 - C. an alkaline earth metal oxide wherein the alkaline earth metal is selected from the group consisting of strontium and barium, and a promoting amount of a mixture of manganese oxide and rhenium oxide.
2. A composition of matter according to claim 1 wherein the promoting amount of the compound is in the range of from about 0.1 to about 30 parts by weight per 100 parts by weight alkaline earth metal oxide.
3. A composition of matter according to claim 1 wherein the promoting amount of the compound is in the range of from about 1 to about 15 parts by weight per 100 parts by weight alkaline earth metal oxide.

6. Patent objective

The goal to be reached through a patent can be different from case to case. It depends from

the specific industrial situation. The patent legislation has its reason of existence to defend the right of the inventor. The complexity of the actual industrial world and the strong competi-

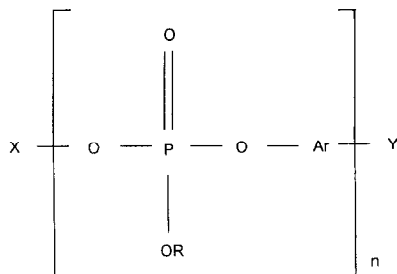


Fig. 1. Where Ar is a divalent radical having up to 20 carbon atoms; R is a monovalent radical having up to 20 carbon atoms; n is a number greater than 1; X is a monovalent radical such as H, alkyl, aryl, haloalkyl, etc.; Y is a radical such as H, OH, PO_4XR .

tion between companies push to apply for patents that constitute just a barrier against competitors. These patents try to prevent others from entering the field with similar products or process.

The claims cover as much as possible of the field but having in mind not to nullify the validity of the patent on the basis of lack of demonstration and falsity.

Often formulas appear in claims. An example is given in Fig. 1. The possible combinations of this formula give millions of compounds. The molecules covered by the patent close the field to competitors. The patent office accepts this policy if it has the technical grounds to do so.

For instance, the claims of four existing patents in the pharmaceutical field, through the description and characterisation of 400 products, give coverage to more than 400 millions of various compounds.

An analysis of patents reported in the Chemical Abstracts from 1970 to 1985 indicates that at least 320 000 new compounds are obtained by synthesis every year; this means 4 800 000 in the period. For the US patent law, a new molecule constitutes an invention and this gives rise to a large number of applications every year.

7. Patent application in Italy

The Patent Office receives the application. A fee has to be paid. A file number identifies the

application. Other identification items are: the filing time and date, the assignee (who will benefit from the invention and has the right to actualise the invention), the names of inventors, the title of the invention, the name of the representative that will follow the bureaucratic advancement of the application. In a large number of countries the application will be subjected to examination by the Patent Office before granting a patent. In some others there will be no examination. This is the case of Italy, for instance. The State acts in the sense to testify that the assignee claims an invention in the terms written, at the time of the application. If somebody will not respect the rights of the inventor or a damage derives from a not true invention, a suit can be started asking for patent rejection and refunding the economic damage.

The application grants the rights just in the country where is presented. The market today is world-wide, so an important invention needs coverage in many countries: this means to ask the extension to other countries. There is one year of time, after the application, to apply for the extension. The large companies have a defined policy: very large extension (i.e. 64 Countries) defends the fundamental inventions; medium extension (i.e. 28 Countries) the good patents; low extension (i.e. 12 of the more industrialised Countries) the defensive patents. If an application is extended just one day after the first year is expired, the original filing date is lost and the coverage starts from this new date. If in the mean time somebody has applied for the same invention he will have the patent granted in his Country and no royalties are due to the first inventor.

To simplify the complicate and expensive procedure of covering around the world patent rights, many Nations agreed in the 1970s to introduce a cooperation Treaty. The scope was to recognise the validity of a patent in the countries signing the treaty. Today, the European community has the European patent recognised valid in 16 countries: Austria, Belgium, Denmark, France, Germany, United Kingdom,

Greece, Ireland, Luxembourg, The Netherlands, Spain, Sweden, Switzerland, Liechtenstein, Portugal, Munich Principedom. Other recently formed nations (Slovenia, Lithuania, Latvia, and progressively the newer recognised internationally countries) have or are reaching agreements to

allow European applications to have validity in their country.

Worldwide, the PCT (Patent Cooperation Treaty) was already accepted in 58 countries in 1993:

Countries in the Patent Cooperation Treaty (PCT) [58 in 1993]

EUROPE

Spain
Austria
Belgium
Bulgaria
Denmark
Finland
France
Germany
Great Britain
Italy
Liechtenstein
Luxembourg
Monaco P.
Netherlands
Norway
Romania
Russia
Czech Republic
Greece
Hungary
Ireland
Poland
Portugal
Slovak Repub.
Sweden
Switzerland
Ukraine

AMERICA

USA
Brazil
Canada
Barbados

Malawi

Mali

Cote d'Ivoire

AFRICA

Benin
Cameroon
Central A.
Chad
Guinea
Zaire
Gabon
Madagascar
Mongolia
Madagascar

Mauritania
Senegal
Sudan
Togo
Niger
Senegal

Belarus
Burkina Faso

ASIA

Australia
Kazakhstan
Japan
Sri Lanka
New Zealand
North Chorea
South Chorea
Viet Nam

8. Rights of inventors

Often the inventor is working for a company; the company will be the assignee of the patent and has the right to commercialize the inven-

tion. The inventor receives no economical benefits, in Italy, if he is acting in the role of researcher: inventions are a natural product of his relationship with the company. The case is different if the inventor is a person not involved

in research; the company will recognize him a bonus proportional to the importance of the invention.

The case of a really relevant invention has often special consideration when a high return comes from the invention to the company; the researcher, as consolidated practice, is entitled to receive a significant bonus.

9. Preliminary to an application

A known literature search on the subject, a specific search on available documents commissioned to specialised international centres, precede an application for a patent. Centres specialised in these search are located in The Netherlands (Den Hague) and in Austria (Wien).

Today, the European patent has a growing reputation and, when obtained, is a sure reference on the validity of a patent. A patent released by the European office has today almost

the same value, as relevance of the claims, as one released by the US Patent Office.

Apart from the literature available, possible interference with the existing patents can be envisaged consulting the whole file (the exchange of letters and the additional experimental support given by the authors to overcome the examiner objections) of those patents. These files can be obtained, paying a certain fee, from the US patent office for the patents issued there.

10. The European patent

A researcher consulting, for instance, the Chemical Abstracts finds a short abstract describing an interesting invention. He likes to read the patent and verify in his laboratory the real consistency of the examples. The document has a publication number: i.e. E.P. 0 435 590 A1 Fig. 2. He can order this document through the right channel (that is not so easy to find for an Italian public institution). When the docu-



	Europäisches Patentamt European Patent Office Office européen des brevets		(11) Publication number: 0 435 590 A1
(12) EUROPEAN PATENT APPLICATION			
(21) Application number: 90314070.5		(51) Int. Cl. ⁵ B01J 12/00, B01J 19/12, C10G 15/08	
(22) Date of filing: 20.12.90			
(30) Priority: 27.12.89 US 457603 (52) Date of publication of application: 03.07.91 Bulletin 91/27 (54) Designated Contracting States: DE FR GB IT NL (71) Applicant: EXXON RESEARCH AND ENGINEERING COMPANY P.O.Box 390, 180 Park Avenue Florham Park, New Jersey 07932(US)	(72) Inventor: Murphy, William John 1913 Craig Court Bright's Grove, Ontario, N0N 1C0(CA) Inventor: Shaw, David Henry 2601 Westgate Crescent Bright's Grove, Ontario, N0N 1C0(CA) (74) Representative: Fletcher Watts, Susan J. et al ESSO Engineering (Europe) Ltd. Patents & Licences Mailpoint 72 Esso House Ermyrn Way Leatherhead, Surrey KT22 8XE(GB)		

Fig. 2. European patent application.



EUROPEAN SEARCH REPORT

Application Number

EP 90 31 4070

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.8)
D,Y	US-A-4 279 722 (C.G. KIRKBRIDE) * Abstract; figure 1; column 2, line 4 - column 10, line 28; claims 1,3,5,8 *	1	B 01 J 12/00 B 01 J 19/12 C 10 G 15/08
D,A Y	US-A-4 786 351 (D.E. HULL et al.) * Abstract; figure; column 2, lines 18-25; column 2, line 40 - column 3, line 35 *	11,12,13 1	
A A	EP-A-0 054 934 (T. YAMASHITA) * Abstract; page 1, line 28 - page 2, line 10; page 2, line 20 - page 4, line 28; figure 1 *	2,9	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.8)
			B 01 J C 10 G H 05 H
Place of search		Date of completion of search	Examiner
The Hague		09 April 91	SIEM T.D.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</p> <p>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons *: member of the same patent family, corresponding document</p>			

Fig. 3. European search report.

ment will be in his hands he must recognize and judge correctly all the information contained.

After the publication number there is a different alphabetical letter: A1, A2, A3, B1, B2. They have the following meanings:

A1: It is an application for a patent that was submitted to a search for novelty and interference by the patent office. A sheet accompanies the application, the European search report Fig. 3, where are reported all the documents that in some way can interfere with the invention in giving anticipation or obviousness to the application.

A2: It is an application published without the European search report. The examiner had some delay in obtaining the report, but the application must appear as publication after six months so it comes out as A2 and it will be followed, as soon as possible, by a new publication (A3) with the report.

A3: It follows A2 and has the search report.

An analysis of the search report can give a first idea if the application has some probability of being confirmed as a patent after the examination and what strong objections from the examiner have to be faced.

B1: It is a European patent released by the European patent office. At this moment, competitors that do not agree with the claims of the patent and believe there are infringements of their rights have nine months to make opposition and the patent office will reconsider the claims debating the argument with the applicant and the opponent. At the end the patent can be confirmed, amended or retired.

B2: It is a new edition of the patent with amended claims that have overcome the opposition.

The first publication that a researcher can consult is an application A1 or A2. He generally believes that it is an invention. This is not true till the B1, and eventually the B2, is published. Generally he does not follow the life of the application and he can lose important information affecting decision on a stop or go of his project.

To clarify and further illustrate an European patent layout document, a comment of the headings of the example in Fig. 2 is given:.

[21] The first two figures recall the year of application presentation and the others the progressive number of registration.

[22] The date of filing can be the day of the beginning of the patent protection unless an other priority is effective because the application is an extension of a patent applied in an other country (it is this the case because an application was already filed in the US the 27.12.89 [see 30] and the extension was asked not later than one year, the 20.12.90 in Europe).

[43] Date of publication, around six months after application.

[84] Twelve Countries have, till now, signed the EP agreement. The protection can be asked for fewer (those judged in competition). In this case: Germany, France, Great Britain, Italy and Netherlands.

[51] The international classification of the matter covered by the patent.

[54] The title of the patent.

[57] A short abstract of the invention.

[71] The owner of the patent.

[72] The inventors.


[74] The patent representative defending the application in front of the patent office.

The search report, accompanying the published application A1 (or issued after as A3), is the result of a search of documents that are relevant for the invention and can give obviousness to the patent application. The sheet is quite clear and contains all the information explaining why an interference is possible. Reading the column "category", the alphabetical letters show what kind of relevance was found and what claim is considered (see the third column). A European search report is in Fig. 3. The reading is self evident.


An example of a European patent first page (B1) is in Fig. 4.

All the application data are reported, with the integrations after examination. These are:

[45] The data of patent granting. Note that, in



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: 0 125 023 B1

EUROPEAN PATENT SPECIFICATION

(1) Date of publication of patent specification: 05.06.91 (5) Int. Cl.⁵ C12N 15/13, C12N 15/63,
 C12N 15/81, C12N 15/85,
 C12P 21.00, A61K 39/395

(2) Application number: 84302368.0

(3) Date of filing: 06.04.84

The file contains technical information submitted after the application was filed and not included in this specification

(4) Recombinant immunoglobulin preparations, methods for their preparation, DNA sequences, expression vectors and recombinant host cells therefor.

<p>(6) Priority: 08.04.83 US 483457</p> <p>(7) Date of publication of application: 14.11.84 Bulletin 84/46</p> <p>(8) Publication of the grant of the patent: 05.06.91 Bulletin 91/23</p> <p>(9) Designated Contracting States: AT BE CH DE FR GB IT LI LU NL SE</p> <p>(10) References cited:</p> <table style="width: 100%;"> <tr> <td>EP-A-0 057 107</td> <td>EP-A-0 068 763</td> </tr> <tr> <td>EP-A-0 073 656</td> <td>EP-A-0 088 994</td> </tr> <tr> <td>EP-A-0 102 634</td> <td>EP-A-0 120 694</td> </tr> </table> <p>Microbiology, 3rd ed., Harper International Ed. (1980), Chapter 17</p> <p>Nucl.Acids Res. vol.8, no.9, 1980, pp. 2055-65</p> <p>Proc.Natl.Acad.Sci. USA 78 (1981), pp. 4250-24</p> <p>Nature 298 (1982), pp. 286-88</p>	EP-A-0 057 107	EP-A-0 068 763	EP-A-0 073 656	EP-A-0 088 994	EP-A-0 102 634	EP-A-0 120 694	<p>(11) Proprietor: GENENTECH, INC. 460 Point San Bruno Boulevard South San Francisco California 94080(US)</p> <p>Proprietor: CITY OF HOPE 1450 East Duarte Road Duarte California 91010(US)</p> <p>(12) Inventor: Cabilly, Shmuel 325 South Second Avenue Arcadia California 91006(US)</p> <p>Inventor: Holmes, William Evans 29 Eastlake Pacifica California 94044(US)</p> <p>Inventor: Wetzel, Ronald Burnell 455 Urbano Drive San Francisco California 94127(US)</p> <p>Inventor: Heyneker, Herbert Louis 2621 Easton Drive Burlingame California 94010(US)</p> <p>Inventor: Riggs, Arthur Dale 4852 St. Andres Avenue La Verne California 91750(US)</p>
EP-A-0 057 107	EP-A-0 068 763						
EP-A-0 073 656	EP-A-0 088 994						
EP-A-0 102 634	EP-A-0 120 694						

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

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Fig. 4. European patent specification B1. Note from the Date of filing and the Date of publication of the grant of the patent that the examination has taken seven years.

this case, there is an elapsed time of 8 years from the application and the patent granting.

[56] The pertinent references, from the search report, remaining after the exam and debate with the representative.

A note advising that there are nine months of time for an opposition. If somebody is strongly interested in knowing about the validity of B1 published patent, he must ask notice to the European patent office of such an opposition and he has to follow the development through the appropriate contacts.

11. Patents as a source of information

People involved in applied research have to look with great attention to the patent literature:

(a) It can give higher rationality and more defined objectives to a starting research project.

(b) It can stimulate a stronger criticism and help inventiveness during the life of a project.

(c) It can suggest new ideas and economical solution to existing problems.

From another point of view, patents give first hand information on new discoveries.

Ziegler–Natta did their outstanding work on olefin polymerization in the early fifties, patents begun to appear from 1953 while scientific papers appeared in the literature only at the beginning of the sixties. The isocyanate and polyurethane technologies are in patents from 1946 and in articles only in the sixties.

The grant of new patents is rapidly traced consulting various publications.

Every Tuesday the Official Gazette (released by the US Office) is issued and it contains around 2000 new patent summaries.

Derwent Publication (London) reports, under various technical sections, the more recent patents issued in at least 24 countries.

Chemical Abstracts, with the physiological delay, is a well documented source of information for the more important patents granted in the chemical field.

12. Patent terminology

A patent can be defined: "A legal contract between the State and the Inventor". As a contract, every word has a significance that should be clear to the reader.

Expressions such as:

* *Comprising* = it must be present, but there can be something else;

* *Consisting of* = those are the true components or unit operations;

* *Consisting essentially* = main components or unit operations that do not exclude other marginal.

* *About, at least about* = expands the range of composition, temperature, time, etc.

* *Reduction to practice, conception, the idea* = try to enlarge the field covered by the invention to preclude others to enter in the field.

New terminology appears in the scientific literature through the patent literature: some examples are telomers, telogens, isotactic, syndiotactic, etc.

13. To patent: yes or no

When an original result comes out from a research activity before to decide to apply for a patent a careful evaluation is good practice.

The main items to be considered are:

1. What really was invented (it is often not so obvious)?

2. How the invention is in line with the core activity of the organization?

3. What can be the economic value?

4. What is the dependence from other patents?

5. What are the products or processes in competition and what advantages can be seen?

6. When the invention was made and are all experiments recorded?

7. Somewhere exists public knowledge of the invention? (For instance in publication, communication in meetings, products already distributed in the market, etc.)

8. The eventual interference with patents already granted to the applicant was considered?

9. What is the state of the art and was it done an exhaustive search in the patent literature for interferences?

10. Are the experiments, already done, sufficient or is it necessary to add other experimental evidence?

14. Conclusion

To be aware of the importance of the patent literature is fundamental for a researcher in applied science. It is equally important to learn how to read a patent and recognize all the important information that can be withdrawn from it.

The knowledge of what the competitors have already found, and through what technology, is helpful to reconsider a project and/or to have new ideas of solution: the patent literature is a sure source of reflection and clarification.

Today data banks are accessible and facilitate the collection of patent information to plan correctly the research lines of a new project.

Not always is it clever to cover an invention with a patent; in many cases, mainly in the presence of technical, sophisticated improvements for a product or a process, it could be more convenient to maintain the secrecy and to introduce, without notice, the modification in your procedure or product. This avoids letting competitors know how to overcome problems. The danger is that the invention will pass to competitors in an improper way and, at this point, there is no protection at all.

15. For further reading

Codice civile italiano, Leggi sulla brevettabilità.

V. Di Cataldo, *Le invenzioni e i modelli*, in A. Giuffrè, Editor, 1990.

G. Ghidini and S. Hassan, *Diritto industriale*, Edit. IPSOA.

P. W. Grubb, *Patents in Chemistry and Biotechnology*, Clarendon Press, Oxford, 1986.