



Filing a successful patent application

- advice from a patent examiner's perspective

Lutz Mailänder

Head, International Cooperation on Examination and Training Section

PCT International Cooperation Division

Cyberland
26 April 2022

World IP day

Agenda

- Patentsystem: Protection <> Sharing of knowledge

- Patent applications
 - Protection: Claims
 - Sharing of knowledge: Description
- Patentability and examination: conditions of success
- What to do if not new or inventive
 - Admissible amendments
 - Initial disclosure
- Retrieving shared knowledge: Patent databases and search methodologies
- Hints for drafting patent applications

Intellectual Property Rights related to product



- Patents, Utility Models:
Protection of innovative technology
- Design
- Trademarks, e.g. “Apple”, “iPhone”
- Trade secrets?

World Intellectual Property Organization

- One out of 16 specialized agencies (SA) of the United Nations:

SA for Intellectual Property (IP)

- Based in Geneva, Switzerland
- 193 [Member States](#)



WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

World Intellectual Property Organization

WIPO's Mission: Developing a **balanced and accessible international IP system**

- Administration of 26 international treaties on IP
- IP Services (generating income):
 - PCT (patents)
 - Madrid Treaty (trade marks)
 - The Hague Treaty (designs), ..
- Support for member countries for developing their IP infrastructure:
 - Committee for Development and Intellectual Property (CDIP)



WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

WIPO services for IP rights

■ PCT (Patent Cooperation Treaty) system	Patents
■ Madrid system	Trademarks
■ Hague system	Designs
■ Lisbon system	Appellation of Origin
■ (Budapest)	Microorganisms

WIPO administers 26 treaties including the [WIPO Convention](#).

► IP Protection

Beijing Treaty on Audiovisual Performances

Berne Convention

Brussels Convention

Madrid Agreement (Indications of Source)

Marrakesh VIP Treaty

Nairobi Treaty

Paris Convention

Patent Law Treaty

Phonograms Convention

Rome Convention

Singapore Treaty on the Law of Trademarks

Trademark Law Treaty

Washington Treaty

WIPO Copyright Treaty (WCT)

WIPO Performances and Phonograms Treaty (WPPT)

► Global Protection System

Budapest Treaty

Hague Agreement

Lisbon Agreement

Madrid Agreement (Marks)

Madrid Protocol

Patent Cooperation Treaty (PCT)

► Classification

Locarno Agreement

Nice Agreement

Strasbourg Agreement

Vienna Agreement

Sri Lanka member to 8 of the treaties

WIPO administered treaties **related to patents**

Treaties	Members (2022)
Paris Convention for the Protection of Industrial Property (1883)	176 (LK)
Patent Cooperation Treaty (1970)	155 (LK)
Strasbourg Agreement Concerning the International Patent Classification (IPC) (1971)	64
Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (1977)	86
Patent Law Treaty (2000)	43

What is a patent?

- A **patent** is an exclusive right (monopoly) granted for an **invention**, i.e. the invention cannot be used by others for commercial purposes without permission of the owner

Section 84

- An **invention** offers a **technical solution to a problem**

Problem-Solution approach

Section 62 (1)

- Not any solution (invention) deserves a patent right!
- Criteria for **patentable and non-patentable** inventions
- > **Substantive examination**

Section 63

Requirements of patentability

■ Substantive patent examination has to check

■ **Novelty**

■ **Inventive step (obviousness)**

■ Industrial applicability

■ Unity

■ Technical nature

■ No case of exclusion/exemption

■ **Sufficient disclosure**

■ **Legal certainty of claims (clarity)**

■ **Additions to initial disclosure**

■ Deposit of novel micro-organisms

■ Disclosure of origin of genetic resources & traditional knowledge

Section 63, 64, 65, 66

Section 74

Section 62 (1)

Section 62 (3)

Section 71 (3)

Section 71 (4)

Section 75

none

none

What does this imply?

- You may raise the probability for obtaining a patent when you draft your application with a view to later examination
- Conduct your own “preliminary substantive examination” and amend your application **prior** to filing it if you encounter issues
- **Why prior to filing?**
- Because no substantial amendments of disclosure (description & drawings) are permitted after filing date is allocated: **Initial Disclosure**

Section 75 (1)

The Patent System

- ▶ Different stakeholders / interests

Section 84

Protection of innovative idea
Reward for investment

Inventor

Investor



Sharing of technological knowledge
(**Disclosure**) for further innovations
as reward for granting protection

Public

Section 71 (3)

Role of patent information (patent applications)

Patent system: **Protection** <> **Disclosure**

Correspondingly, patent information and its publication serves two purposes:

- ▶ Informing of existing protection rights
 - What? Where? When?
- ▶ Sharing (publication and dissemination) of knowledge
 - How was the problem solved ?

Content of patent information

- ▶ Informing of existing protection rights

 - What?

 - > see **claims** of granted (!) patent

 - Where?

 - > research patent family

 - When?

 - > verify status in National Patent **Register(s)**

- ▶ Disclosure and dissemination of knowledge

 - How was the problem solved ? > see **descriptions** and **drawings**

What is protected ?

- Patents protect any **commercial use**

Section 84

(e.g. manufacturing, copying, importing, selling, transporting,...)

- Non-commercial use is usually not protected

Section 86

- e.g. many jurisdictions have an explicit exemption for academic research

Section 86 (1)(i)

- **Scope of protection** is defined by the **claims of a granted patent**, i.e. not anything described in a patent or shown in an illustration is protected

more on claims later on

Section 71 (6)

- Protection is in force as long as a granted patent is **valid**

- Maximum of **20 years** from filing date

Section 83

Protecting and sharing knowledge

- The patent system creates a balance between sharing of knowledge and the protection of the commercial exploitation of knowledge
- Free access to and dissemination of the technical disclosure is an essential concept of the patent system
 - **National legislation and its implementation should assure free access**
- Patents do therefore not protect the dissemination of the publications and the technical knowledge disclosed therein
- **No copyright protection** on patent publications!
 - Contrary to scientific publications which are (often) copyright protected
- The free access to this wealth of technology information fosters innovation

more on free patent databases later on

Geography of protection

- Patent granted on a **territorial** basis, i.e.
 - country-by-country, e.g. Korea, US, India, etc. or
 - per region, e.g. Europe (EPO), Africa (ARIPO or OAPI), Eurasian Patent Office (EAPO), etc.
 - no global patent yet; only international application through PCT system (administered by WIPO)
- E.g. an Indian patent does not provide protection outside India

Obtaining patent protection abroad

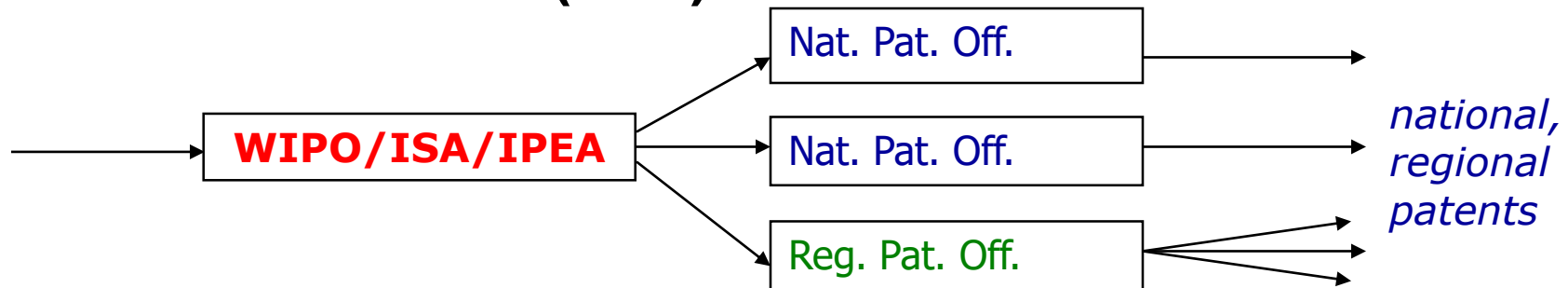
1. National Routes



2. Regional Route



3. International Route (PCT)



[International phase]

[National phases]

Patent Cooperation Treaty - PCT

- „One-stop shop“ for parallel filing in several jurisdictions
- Filing with „Receiving Office“
- Paris Convention priority may be claimed or not
- **International phase** administered by WIPO: **preliminary search and examination** by selected ISAs; optionally, preliminary examination of amended claims by IPEA
- **National phases** administered by national IPOs:
 - Decision on entry into national phase at the latest 30/31 months after filing/priority date
 - National granting procedures/laws/regulations apply
 - Fully sovereign national phase examination
 - No obligation to adopt examination decisions of other offices

Enriched prior art search reports



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 8955

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	EP 0 813 338 A2 (ROCKWELL INTERNATIONAL CORP [US]) 17 December 1997 (1997-12-17) * column 6, line 12 - column 8, line 26 * * column 8, line 52 - column 9, line 4; figure 1 *	1-13
Y	US 6 128 039 A (CHEN DATONG [US] ET AL) 3 October 2000 (2000-10-03) * column 3, line 57 - column 4, line 28; figure 2 *	1,3-7
Y	US 6 163 029 A (YAMADA SHINICHI [JP] ET AL) 19 December 2000 (2000-12-19) * column 15, line 30 - column 16, line 45; figures 2,15,16 *	1,3-7
A	FR 2 864 628 A1 (COMMISSARIAT ENERGIE ATOMIQUE [FR]) 1 July 2005 (2005-07-01) * page 4, line 18 - page 6, line 15; figure 3 *	1-13
A,D	WO 2004/064168 A1 (SCHERRER INST PAUL [CH]; BROENNIMANN CHRISTIAN [CH]; SCHMITT BERND [CH]) 29 July 2004 (2004-07-29) * the whole document *	1-13
E	WO 2009/131151 A1 (HAMAMATSU PHOTONICS KK [JP]; MORI HARUMICHI [JP]; KYUSHIMA RYUJI [JP];) 29 October 2009 (2009-10-29) * figure 12 *	1
The present search report has been drawn up for all claims		
1	Place of search The Hague	Date of completion of the search 23 March 2010
		Examiner Wulveryck, J
<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</p> <p>T : theory or principle underlying the invention 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>		

International Patent Classification

Category X, Y, A, etc.

Relevant to Claim ...

Cited documents

Technical Fields Searched

Searching Authority

Date of Completion of the Search

Examiner

Timelines to be observed for 2nd filing

Options for extension to other jurisdiction, i.e. to Offices of Second Filing (OSF):

- Paris Convention & TRIPS: 12 months
- **PCT: 30 months**
- Without priority claim: anytime,
but effectively impossible after first publication by first filing office
because published **first filing becomes prior art**:
 - many offices publish applications 18 months after filing (priority) date

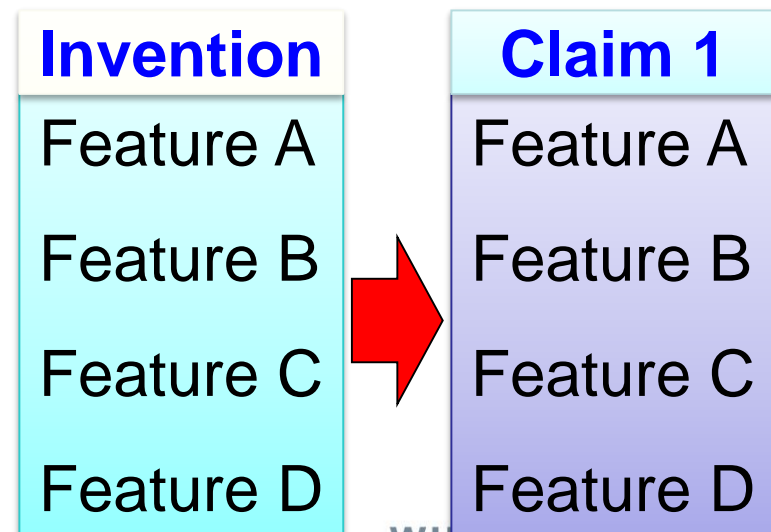
Substantive examination: Determining the patentable invention

What is a patent claim?

- A patent is an exclusive right granted for an **invention**, i.e. the invention cannot be used by others for commercial purposes without permission of the owner
- An invention offers a **technical solution** to a **problem**

■ Each invention can be defined by the **features** that are **essential** to solve the problem

■ Main claim includes these features



Claim sample – application

Problem?

New?

1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.
2. A method as claimed in Claim 1, in which the acidic aqueous solution has a **pH of between about 2,0 and 5,5**.
3. A method as claimed in Claim 1 or Claim 2, in which the soya beans are **whole beans**.
4. A method as claimed in any one of the preceding claims, which includes the prior step of dissolving an **organic acid** in water to produce the aqueous acidic solution.
5. A method as claimed in Claim 4, in which the organic acid is **citric acid**.

[WO2005055733](#)

The biological activity of the oxidizing enzymes may be at least partially decreased by exposing the soya beans to an acidic aqueous solution.

A pH of between about 2,0 and 5,5 inhibits the lipoxygenase reaction which generally causes off flavours and off colours in soya products such as soya milk. In prior art processes, soya beans have generally been processed by a wet method which involves de-hulling of the beans. Because the lipoxygenase enzyme is concentrated in the hull of the bean, it is believed that, when de-hulling and wet processing takes place, the biological activity of the enzyme is increased when it comes into contact with oxygen and water when the hull is ruptured. The enzyme then oxidizes lipids in the bean. This is believed to lead to the formation of "grassy", "beany" or "paint-like" off flavours and off odours in the soya product and particularly in the soya milk which is produced. The method of the invention requires no prior de-hulling of the beans and substantially reduces the problem of off flavours and off odours to the extent that they present little or no problem.

PCT search report

WO2005055733

X > not new



X	<p>CHE MAN Y B ET AL: "ACID INACTIVATION OF SOYBEAN LIPOXYGENASE WITH RETENTION OF PROTEIN SOLUBILITY" JOURNAL OF FOOD SCIENCE, INSTITUTE OF FOOD TECHNOLOGISTS. CHICAGO, US, vol. 54, no. 4, 1 July 1989 (1989-07-01), pages 963-967, XP000048766 ISSN: 0022-1147 pages 963-965</p>	1, 2, 4, 21-26, 44
X	<p>DATABASE FSTA 'Online! INTERNATIONAL FOOD INFORMATION SERVICE (IFIS), FRANKFURT-MAIN, DE; ALI A BIN: "Kinetics of acid inactivation of soybean lipoxygenase and its effects on the functional properties of soy protein." XP002288631 Database accession no. 90-1-07-j0120 abstract</p> <p style="text-align: center;">-/--</p>	1-4, 21-26, 44

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

INTERNATIONAL SEARCH REPORT		18 03/05958
A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A23C11/10 A23L1/20 A23L1/211		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Machinery classification searched (classification system followed by classification symbols) IPC 7 A23C A23L		
Documentation searched other than minimum documentation to the extent that such documents are included in the facts searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, FSTA, PAJ, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHE MAN Y B ET AL: "ACID INACTIVATION OF SOYBEAN LIPOXYGENASE WITH RETENTION OF PROTEIN SOLUBILITY" JOURNAL OF FOOD SCIENCE, INSTITUTE OF FOOD TECHNOLOGISTS, CHICAGO, US, vol. 54, no. 4, 1 July 1989 (1989-07-01), pages 963-967, XP000048766 ISSN: 0022-1147 pages 963-965	1, 2, 4, 21-26, 44
X	DATABASE FSTA 'Online! INTERNATIONAL FOOD INFORMATION SERVICE (IFIS), FRANKFURT-MAIN, DE; ALI A BIN: "Kinetics of acid inactivation of soybean lipoxygenase and its effects on the functional properties of soy protein." XP002288631 Database accession no. 90-1-07-j0120 abstract	1-4, 21-26, 44
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		<input checked="" type="checkbox"/> Patent family members are listed in annex.
* Special categories of cited documents:		
** document defining the general state of the art which is not considered to be of particular relevance		
*** document published after the international filing date or priority date and not to be taken into account for the purposes of determining the state of the art		
**** document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to be obvious in view of the prior art		
***** document of particular relevance: the claimed invention cannot be considered to be novel or inventive, even when the document is combined with one or more other such documents, each contribution being taken to a person skilled in the art		
A document number of the same patent family		
Date of mailing of the international search report	02/08/2004	
Address of the ISA Epo Patent Office, P.O. Box 5818 Patentzen 2 CH-7001 Yverdon	Authorized officer: De Jong, E	
© WIPO January 2004		

PCT search report p.2

INTERNATIONAL SEARCH REPORT		IB 03/05958
C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	& DISSERTATION ABSTRACTS INTERNATIONAL, vol. 50, no. 2, 1989, UNIV. OF ILLINOIS, URBANA, IL 61801, USA	
X	US 5 068 117 A (MCCABE EDWARD M) 26 November 1991 (1991-11-26) claims 1-12	1-4, 17, 18, 21-26, 39, 40, 44
X	US 4 855 159 A (NAKASHIMA HIROSHI ET AL) 8 August 1989 (1989-08-08) claims 1-3; example 1	1-5
X	SNYDER H.E.; KWON T.W.: "Passage Text: Soybean Utilization" 1987, SOYBEAN UTILIZATION, NEW YORK, VAN NOSTRAND REINHOLD, US , XP002288630 pages 149-150	21-23, 44
X	US 4 855 159 A (NAKASHIMA HIROSHI ET AL) 8 August 1989 (1989-08-08) claims 1-3; example 1	21-23, 44 21-23, 44 21-23, 44 21-23, 44
X	SNYDER H.E.; KWON T.W.: "Passage Text: Soybean Utilization" 1987, SOYBEAN UTILIZATION, NEW YORK, VAN NOSTRAND REINHOLD, US , XP002288630 pages 149-150	21-23, 44 28, 30 45 6-8, 11-13, 28-30, 33-35

WO2005055733 was never granted anywhere!

Was it worth filing this patent?

US4855159A

Claim sample – as filed

1. A method of determining the torque induced in a rotating shaft (51),
 - A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
 - B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),characterized in that
 - C the torsional oscillation frequency of the rotating shaft (51) is measured (35);
 - D the twist induced in the rotating shaft (51) by the torque is measured (39); and
 - E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

Claim sample - after grant

1. A method of determining the torque induced in a rotating shaft (51),
A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),

the method comprising:

- C** measuring (35) the torsional oscillation frequency of the rotating shaft (51);
- D** measuring (39) the twist induced in the rotating shaft (51) by the torque; and
- E** using (41) the measured value of the torsional oscillation frequency and the measured value of the induced twist to determine the torque induced in the shaft (51);

F the torsional oscillation frequency of the shaft (51) and the induced twist are measured (35) at the second set of operating conditions;

the method is **characterized by**

- G** determining the torsional oscillation frequency of the shaft (51) at a second set of operating conditions at which the stiffness of the shaft (51) can be determined (33) and
- H** determining the stiffness of the shaft (51) at the second set of operating conditions;
- I** the torque induced in the shaft (51) at the first set of operating conditions is determined (41) using the measured torsional oscillation frequency and the induced twist at the first set of operating conditions, and the measured torsional oscillation frequency and the stiffness at the second set of operating conditions

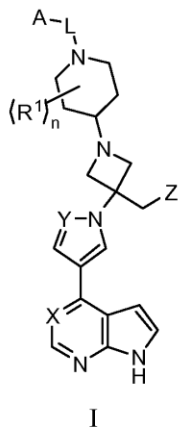
Added during examination

EP 2006651 A2

Claim sample – as filed

WHAT IS CLAIMED IS:

1. A compound of Formula (I):



Markush formula

or a pharmaceutically acceptable salt thereof; wherein:

X is N or CR²;

Y is N or CR³;

Z is H, cyano, halo, C₁₋₃ alkyl, or C₁₋₃ haloalkyl;

L is C(R⁴)₂, C(=O), C(=O)N(R^{4a}), C(=O)C(R^{4b})₂, S(=O)₂, C(=O)O, C(=O)OC(R^{4b})₂ or C(=O)N(R^{4a})C(R^{4b})₂;

A is C₁₋₆ alkyl, C₃₋₁₄ cycloalkyl, C₂₋₁₃ heterocycloalkyl, C₆₋₁₄ aryl, or C₁₋₁₄ heteroaryl; wherein said C₁₋₆ alkyl, C₃₋₁₄ cycloalkyl, C₂₋₁₃ heterocycloalkyl, C₆₋₁₄ aryl, and C₁₋₁₄ heteroaryl are each optionally substituted with 1, 2, 3, 4, 5, or 6 independently selected R⁵ groups;

each R¹ is, independently, C₁₋₄ alkyl, hydroxyl, C₁₋₄ alkoxy, fluoro, hydroxyl-C₁₋₄

Claim sample – as granted

2 distinct compounds of the range of compounds covered by the Markush formula

What is claimed is:

1. A compound, which is $\{1-\{1-[3\text{-Fluoro-2-(trifluoromethyl)isonicotinoyl]piperidin-4-yl}\}-3[4-(7\text{H-pyrrolo}[2,3\text{-d}]pyrimidin-4-yl)-1\text{H-pyrazol-1-yl}]azetidin-3-yl\}$ acetonitrile, or a pharmaceutically acceptable salt thereof.

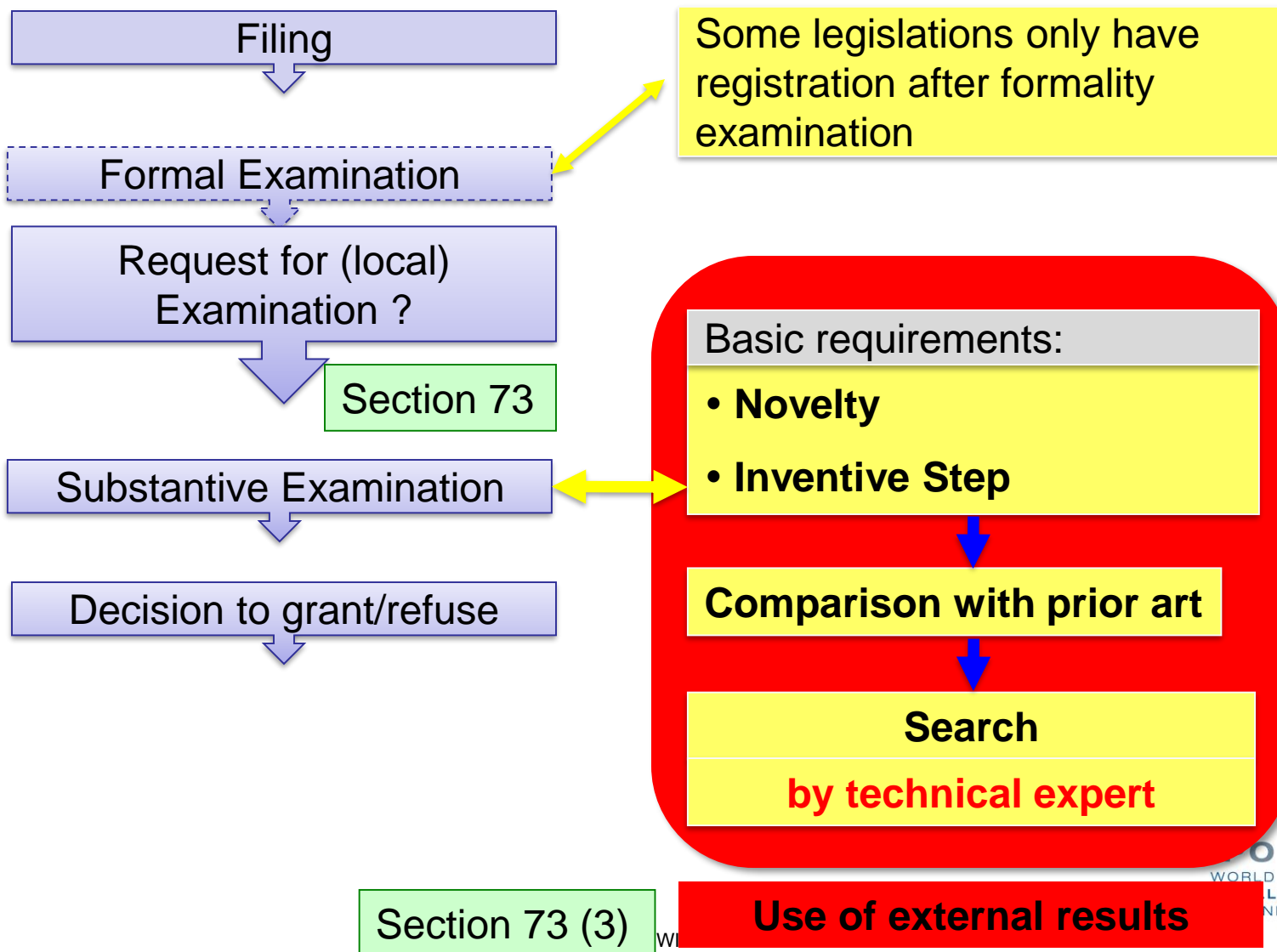
2. A salt, which is $\{1-\{1-[3\text{-Fluoro-2-(trifluoromethyl)isonicotinoyl]piperidin-4-yl}\}-3-[4-(7\text{H-pyrrolo } [2,3\text{-d}]pyrimidin-4-yl)-1\text{H-pyrazol-1-yl}]azetidin-3-yl\}$ acetonitrile adipic acid salt.

Examination and evolution of claims

- Examination is mostly about claims (claimed subject matter)
- Greatest challenge in patent drafting is proper claim drafting
 - Clear claims enabling a meaningful search
 - Clear claims providing legal certainty
 - Claimed subject matter sufficiently restricted to be novel and inventive
- Initial claims (as filed) are hardly ever granted, usually amended during examination by restricting claimed subject matter
- Description comprehensive enough to enable claim amendments
- Claims need to be supported by description

Section 71 (4)

Elements of pre-grant prosecution



Novelty

Section 64 (1):

- "An invention is new, if it is not anticipated by **prior art**"

Invention

Feature A

Feature B

Feature C

Feature D

„Has not been
invented before“ ?

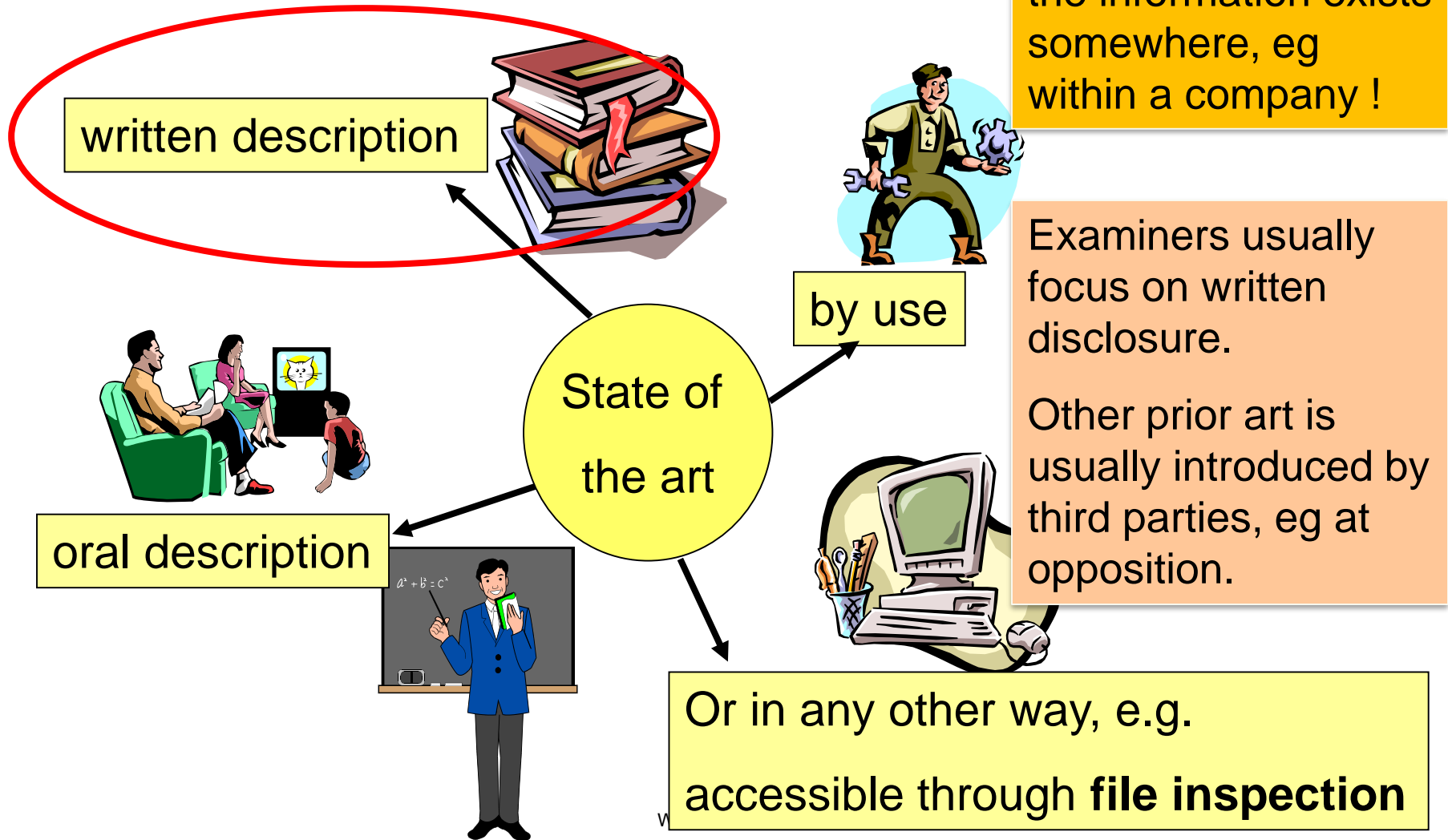
Prior Art

Section 64 (2) (a):

- Prior art shall consist of **everything disclosed to the public, anywhere in the world**,
by publication in tangible form or by oral disclosure, by use or in any other way,
prior to the filing date or, where appropriate, the **priority date**, of the application claiming the invention.

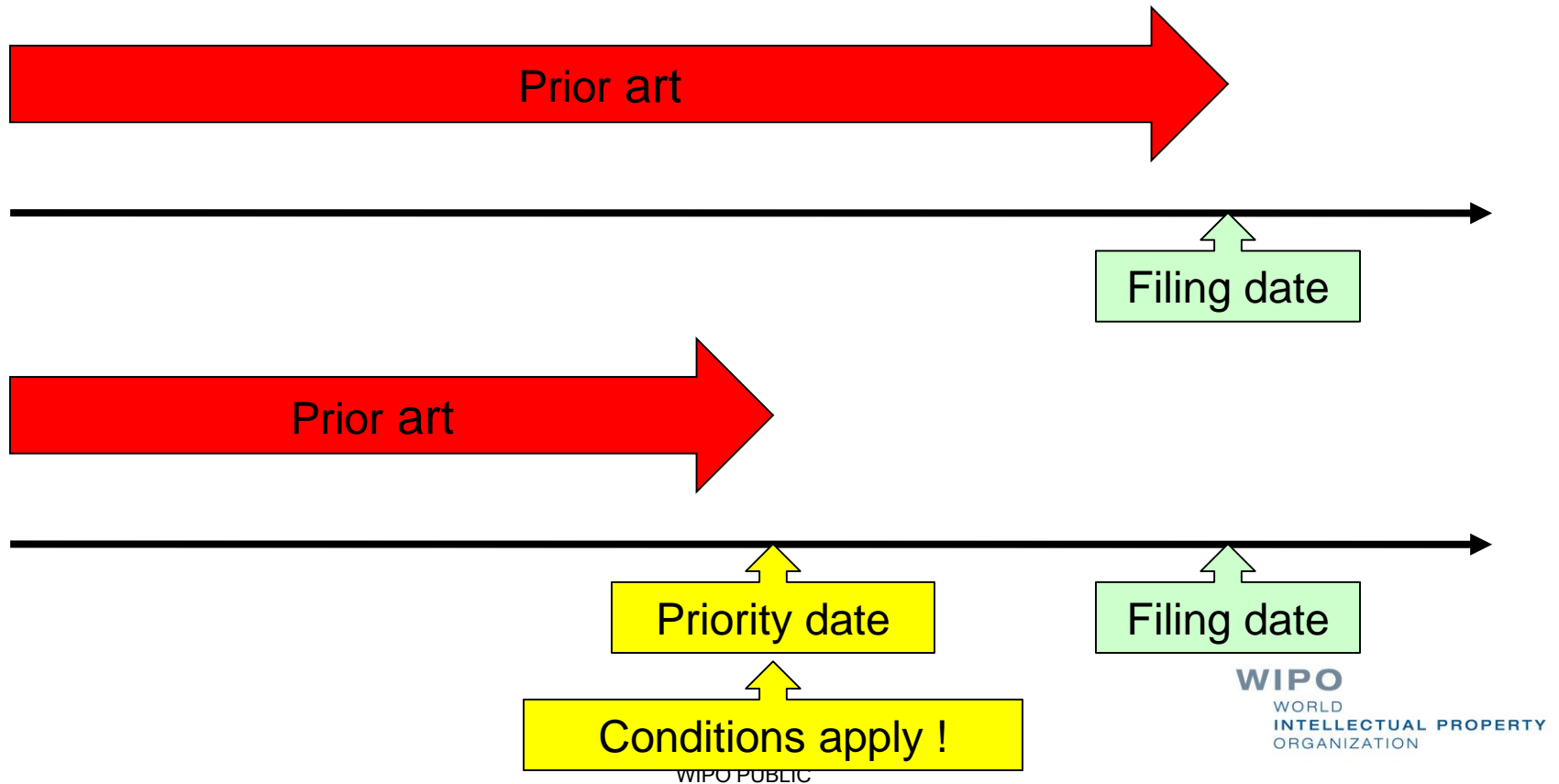
Prior art / state of the art

Disclosure made available to public by



Prior art

- Any information that is made **available to the public** until the application date or the priority date (provided priority is acknowledged)



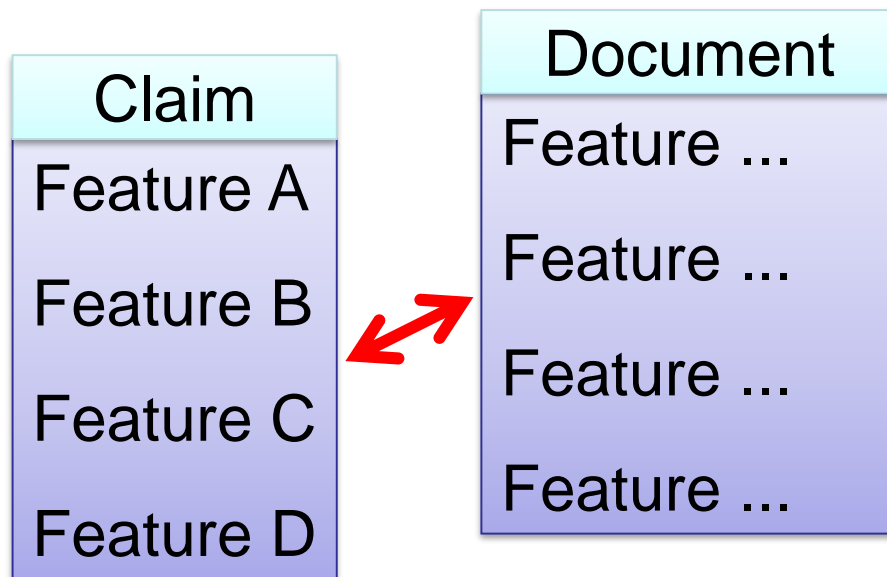
Prior art – grace period

- Many legislations grant to the inventor and applicant a grace period of 12 months for disclosures of her/his invention, e.g. scientific publications, presentations at conferences, fairs
- I.e. after the disclosure, she/he has 12 months time to file for a patent

Section 64 (3)

- **Don't delay your patent application unduely!**

Novelty



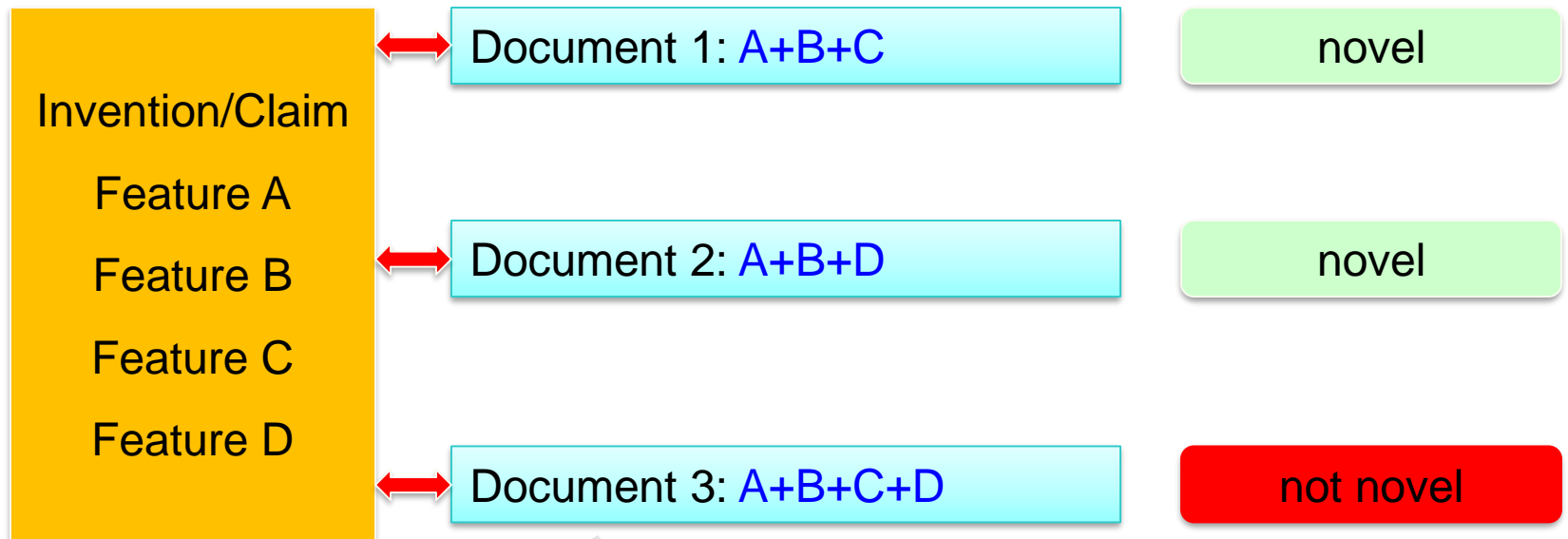
- **Claimed subject matter** is not novel if

all features are known

from a **single** piece of **prior art**, e.g. another patent

Checking novelty

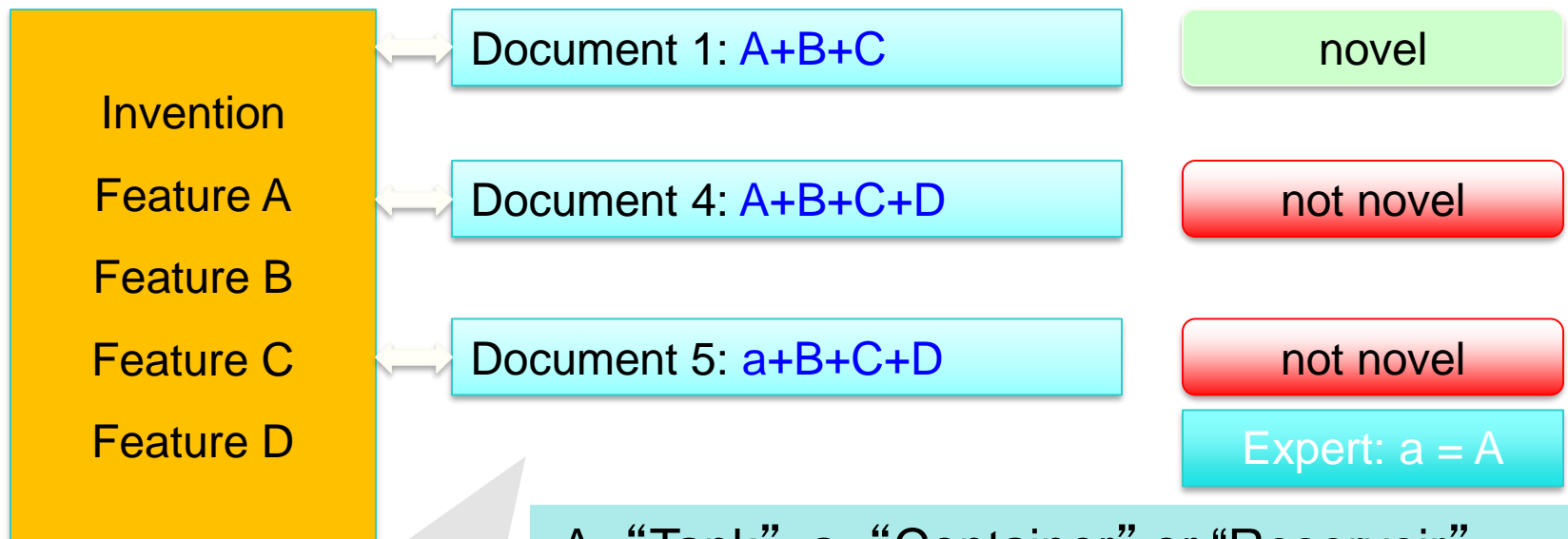
- ▶ Compare claimed inventive subject matter (e.g. claim 1) **individually** with each prior art document



All features (A, B, C, D) known explicitly from single document

Checking novelty (equivalent features)

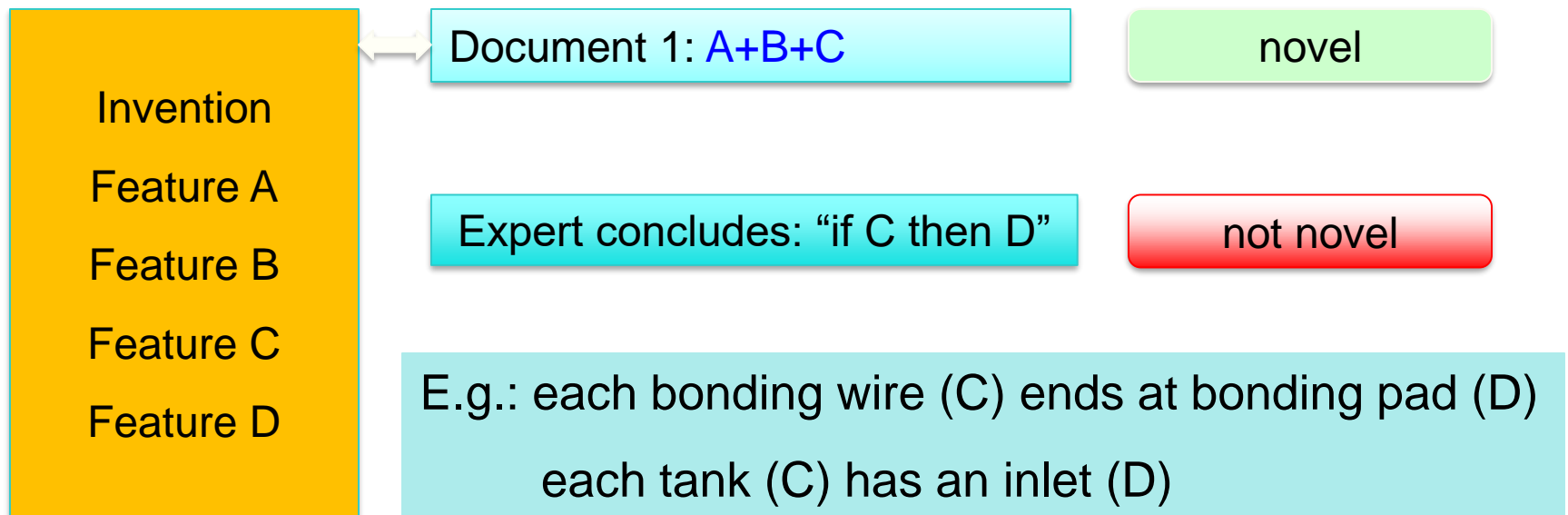
- ▶ Compare claimed inventive subject matter (e.g. claim 1) individually with each prior art document



All features (A, B, C, D) known from single document 5 plus **expert** knowledge ("a=A")

Checking novelty (implicit features)

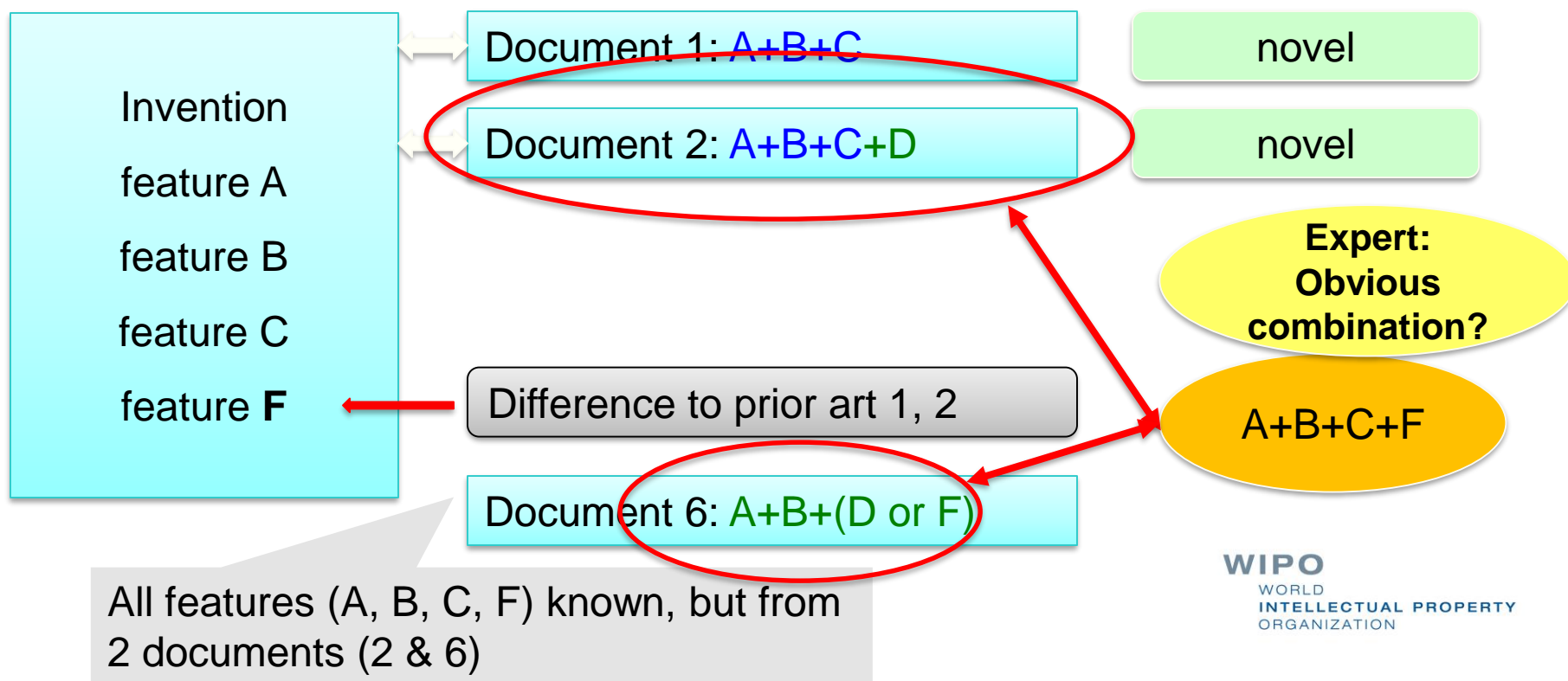
- ▶ Compare claimed inventive subject matter (e.g. claim 1) individually with each prior art document



All features (A, B, C, D) known from single document 1 plus **expert** knowledge (“if C then D”)

Examine inventive step

- ▶ **If new:** Is modification (difference), e.g. of "closest" prior art **obvious for someone skilled in the art** ?



From 'not novel' to 'novel'?

Initial Claim

feature **A**
feature **B**
feature **C**
feature **D**

not novel

Document 3: **A+B+C+D**

Amended Claim

feature **A**
feature **B**
feature **C**
feature **F**

Amended Claim

feature **A**
feature **B**
feature **C**
feature **D**
feature **E**

Amended Claim

feature **A**
feature **B**
feature **G**
feature **H**

Actions and communications

Search and examination report by examiner
with or without proposal for patentable claims

Included in file wrapper
Accessible through file inspection

Applicant's reply or withdrawal
with or without proposal for **amended claims**

Examiner to check:

- whether **amended claims** are within **initial disclosure**
- whether claims are properly worded

Top-up search if amended claims include features disclosed only in initial description and not in searched claims

If no withdrawal
Examiner to reject with detailed reasoning
Examiner to grant and check publication (nothing added to initial disclosure)

Evolution of claims

- Claims of a patent application are usually different at different publication and prosecution stages of the application
- Before examination, the initially filed independent claims have a broader scope because applicants seek to get as much protection as possible
- Claims of granted patents are, in comparison to the initially filed claims,
 - Usually narrower, i.e. include additional features/limitations, or
 - May be totally different

Admissible claim amendments

Section 75 (1)

Applicant may usually amend/narrow claims anytime during examination, e.g. if originally filed claims are not patentable:

- Adding further features taken **from description** or other claims
- Replacement of features
- Completely reworded claims



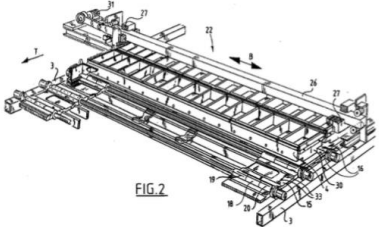
Section 71 (4)

- All features have to be **supported by the original description**
- Features from drawings not supported by the description are not permitted, i.e. they have to be mentioned explicitly in description
- Remember: Initial description may not be amended such that technical details are added
- **Initial description (disclosure) has to be comprehensive and complete enough to enable amendments**

What to do if description lacks details?

- File **new application** including amended description/drawings
- Claim priority of earlier application
- Priority right applies only for parts of the new description already disclosed in earlier application!

Patent documents and drafting

		Europäisches Patentamt European Patent Office Office européen des brevets	
(19)		(11)	EP 1 000 000 A1
(12) EUROPEAN PATENT APPLICATION			
(43) Date of publication: 17.05.2000 Bulletin 2000/20	(51) Int. Cl. 7: B28B 5/02, B28B 7/00, B28B 1/29		
(21) Application number: 99203729.1			
(22) Date of filing: 08.11.1999			
(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE Designated Extension States: AL LT LV MK RO SI	(72) Inventor: Kosman, Wilhelmus Jacobus Maria 6562 DA Groesbeek (NL)		
(30) Priority: 12.11.1998 NL 1010536	(74) Representative: Schumann, Bernard Herman Johan et al Arnold & Siedsma, Advocaten en Octrooigemachtigden, Sweelinckplein 1 2517 GK Den Haag (NL)		
(71) Applicant: Beheermaatschappij De Boer Nijmegen B.V. 6541 BS Nijmegen (NL)			
(54) Apparatus for manufacturing green bricks for the brick manufacturing industry			
(57) The invention relates to an apparatus (1) for manufacturing green bricks from clay for the brick manufacturing industry, comprising a circulating conveyor (3) carrying mould containers combined to mould container parts (4), a reservoir (5) for clay arranged above the mould containers, means for carrying clay out of the reservoir (5) into the mould containers, means (9) for pressing and trimming clay in the mould containers,		means (11) for supplying and placing take-off plates for the green bricks (13) and means for discharging green bricks released from the mould containers, characterized in that the apparatus further comprises means (22) for moving the mould container parts (4) filled with green bricks such that a protruding edge is formed on at least one side of the green bricks.	
			
FIG. 2			
<small>Printed by Xerox (UK) Business Services 2 14 7 9400/04</small>			

EP 1 000 000 A1

Components of patent documents

- ▶ Bibliographic data (front page, meta data)

Sample

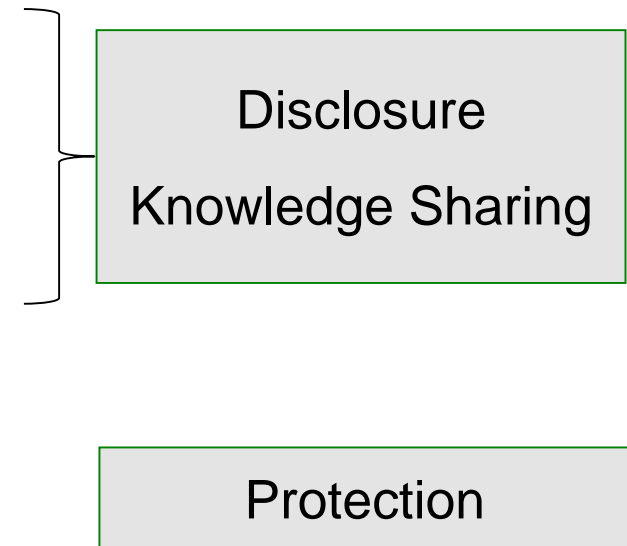
- title, applicant(s), inventor(s), filing date, priorities,..

- ▶ **Description**

- problem to be solved, prior art, inventive idea, embodiments

- ▶ **Drawings**

- ▶ **Claims**

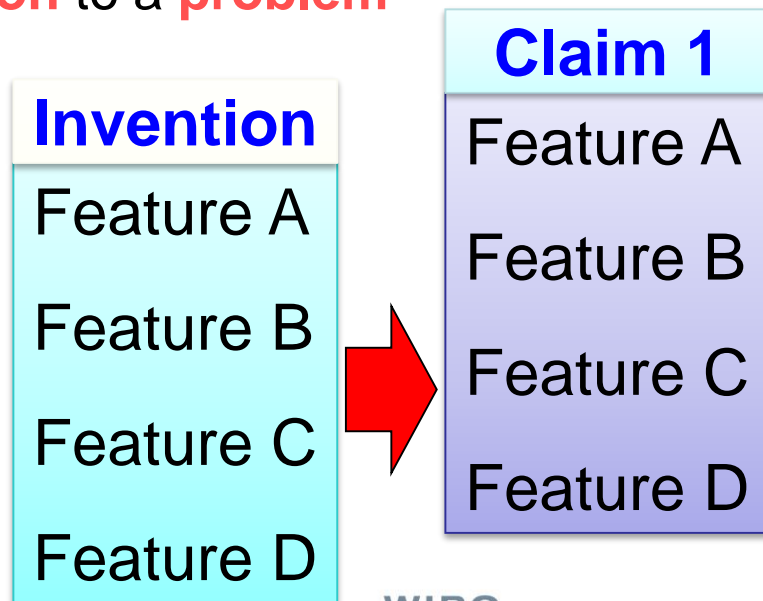


What is a patent claim?

- A patent provides **protection** for an **invention**, i.e. the invention cannot be used by others for commercial purposes without permission of the owner
- An invention offers a **technical solution** to a **problem**

■ Each invention can be defined by the **features** that are **essential** to solve the problem

■ **Main claim** includes these features



Drafting of claims

- Claims define the **scope of protection**
 - Claims have to be clear and concise
 - Claim wording should not permit ambiguous interpretation
 - > Principle of **Legal Certainty**
- Claims are always worded in a rather abstract way
- Need not be self explanatory
- Description and drawings are used to interpret the claims
- Claims are worded as one sentence with heavy punctuation

Claim sample

1. A method of determining the torque induced in a rotating shaft (51),
 - A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
 - B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),characterized in that
 - C the torsional oscillation frequency of the rotating shaft (51) is measured (35);
 - D the twist induced in the rotating shaft (51) by the torque is measured (39); and
 - E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

EP 2006651 A2

Categories of claims

- Two categories of claims according to the two categories of inventions:
 - Claims for methods, processes (intangible)
 - Claims for products (tangible)
 - Devices, apparatus, compositions,...

Section 62 (2)

Types of claims

- Independent claims
 - One part claim
 - Two part claim
- Dependent claims

Sample: Main claim & dependent claims

1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.
2. A method **as claimed in Claim 1**, in which the acidic aqueous solution has a pH of between about 2,0 and 5,5.
3. A method **as claimed in Claim 1 or Claim 2**, in which the soya beans are whole beans.
4. A method **as claimed in any one of the preceding claims**, which includes the prior step of dissolving an organic acid in water to produce the aqueous acidic solution.

Claims 2-4 are dependent claims since they refer to claim 1.

[WO2005055733](#)

Dependent claims

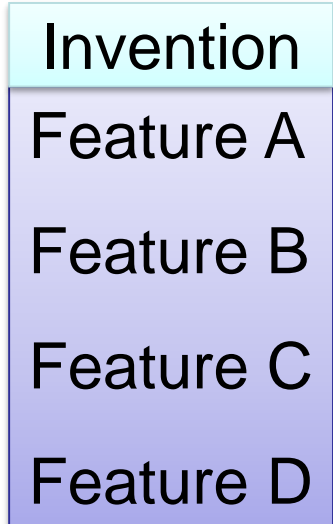
- A **dependent claim** refers to at least one other claim, e.g.
 2. Apparatus according claim 1 where
 3. Apparatus according claim 1 **or** 2 where
 6. Apparatus according claim 1 **and** 2 where
 7. Apparatus according any of the preceding claims where
- By way of reference the features/elements of the referenced claim(s) are included, i.e. combined with the other features/elements
- References are therefore admissible only to claims of **same category** (method, product)

Why dependent and independent claims?

■ Main claim (1st independent claim):

Includes **all** the features/elements of the invention which are **essential** to solve the problem, and **only** those features!

“1. Apparatus/process with {feature A}, {feature B}, {feature C}, {feature D}.”



■ Dependent claims:

additional features which are not essential but describe options for various embodiments, or for additional advantages

Several independent claims?

Further **independent claims** for

- Two categories: product and process
- Alternative similar solutions for **same problem** linked through the same inventive concept (**unity of invention!**)

Section 74

Invention
Feature A
Feature B
Feature C
Feature E

Claim sample - one part claim

Introducing part (category, purpose) (preamble)

1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.

Body of claim

Types of independent claims

- **One part claim:**

includes just list of the essential features

“1. Apparatus {with, where, comprising} A,B,C,D”

Invention

Feature A

Feature B

Feature C

Feature D

Claim sample – two part claim

Introducing part (category, purpose) (preamble)

1. A method of determining the torque induced in a rotating shaft (51),
A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),

characterized in that

generic expression, transitional phrase

- C** the torsional oscillation frequency of the rotating shaft (51) is measured (35);
D the twist induced in the rotating shaft (51) by the torque is measured (39);
and
E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

Sequence of 5 features A – E (added)

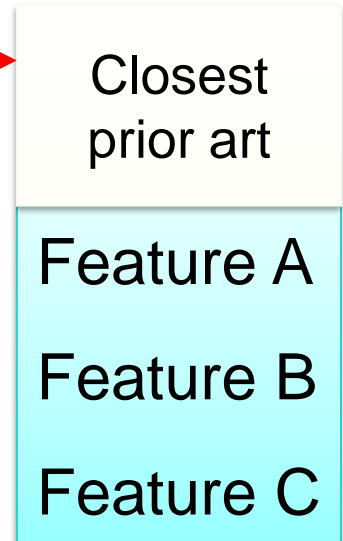
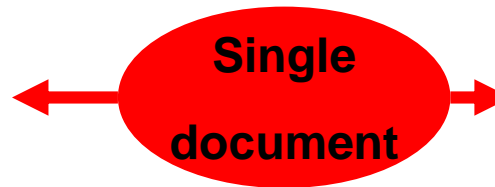
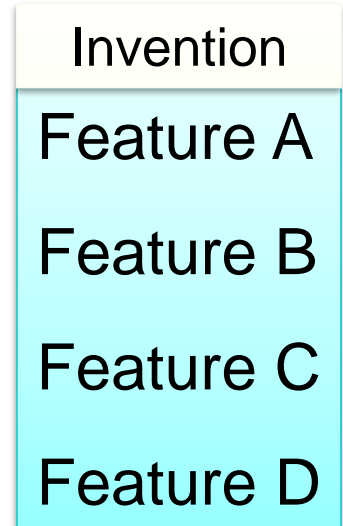
EP 2006651 A2

Types of claims

■ Two part claim:

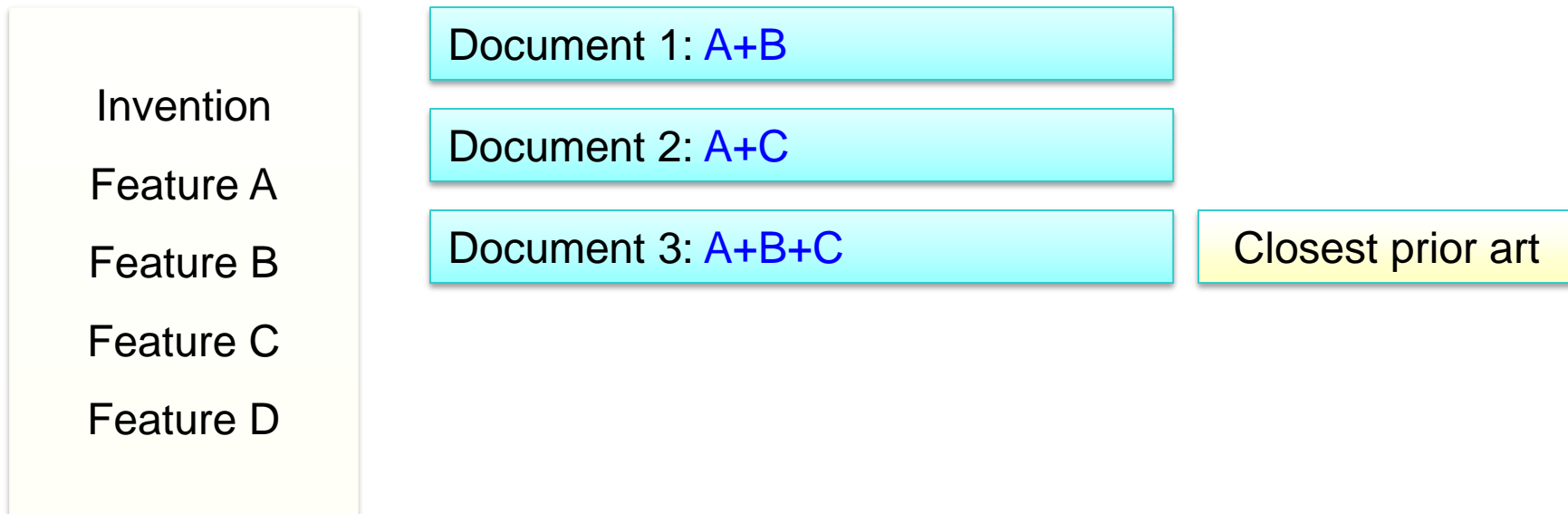
“1. Apparatus with A, B and C,
characterized in that D”

- > first part (preamble) describes closest prior art
- > second part describes difference(s) between invention and closest prior art:
 - > ‘special technical features’



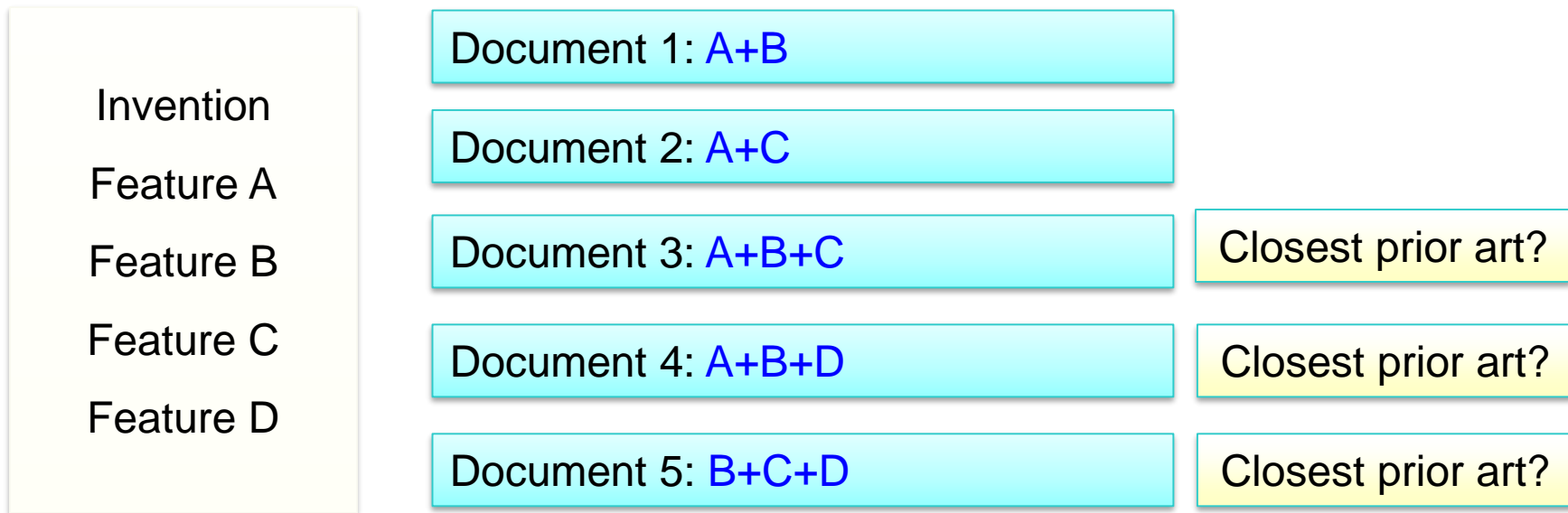
Closest prior art

- ▶ State of the art published prior to filing/priority date



Closest prior art ?

- ▶ State of the art published prior to filing/priority date



Potential claim wordings

Document 3 is closest prior art:

Apparatus with A, B and C, characterized in that D

Document 4 is closest prior art:

Apparatus with A, B and D, characterized in that C

Document 5 is closest prior art:

Apparatus with B, C and D, characterized in that A

One part claim: Apparatus with A, B, C and D.

Preparing a patent application

Do

- Put in writing the problem that you sought to solve
- Note down the prior art that you are aware of, without searching any database
- Put in writing the solution(s) that you found
- List all features/elements of the solution individually
 - Which are **essential**?
 - Which are optional, which are alternatives?
- Draft a tentative main claim
- Conduct a prior art search on this claim
- Identify relevant prior art documents
- Conduct a tentative novelty analysis of your main claim

Preparing a patent application

- If your claim appears to be new
 - Additional independent claims are warranted?
 - Prepare drawings
 - Draft description
 - Draft dependent claims based on varied embodiments of the inventive concept, e.g. as described in the detailed description
 - Is there a closest prior art document?

- If your claim is not new:
 - Restrict the claim by adding further features/elements
 - Determine differences of your invention and the prior art?
 - Which ones could be seen as essential or important?

Drafting claims

■ Do not

- include process steps in product/device claims and vice versa
- mention benefits, advantages, alleged positive effects
- mention the problem that was solved
- refer in a general way to the description or drawings ('as shown in Fig. 1')
- include in the main claim optional features
- use ambiguous expression (about, nearly, perfectly, almost,...)

■ Do

- Include in main claim **only** essential features but **all** essential features to solve the problem, to achieve the benefits, advantages of the invention
- Refer to elements in drawings by using reference numerals in brackets

Drafting description

■ Introduction: Background

- Explain the problem that you sought to solve
- Indicate prior art
- Explain why the prior art did not sufficiently solve the problem
- Explain why and how the inventive concept better solves the problem

■ Brief description of drawings

■ Detailed embodiments

- Enabling someone skilled in the art to put the invention to work
- Best mode of carrying out the invention
- Utilize and refer to drawings whenever possible

Drafting description

Dont

- Include derogatory statements
- Promise benefits which the invention doesn't deliver

Amending the description and drawings

- Not possible, filing date fixes the initial disclosure!
- Only clerical errors, faint lines,...
- If something essential is missing, a new application need to be filed, usually by claiming the priority of the previous one.

The background of the cover is a complex technical drawing in green lines on a white background. It features various mechanical components, including a large curved structure at the top with several bolts, a gear-like structure at the bottom left, and various shafts and bearings. The drawing includes dimension lines, arrows, and alphanumeric labels such as 'B', 'E', 'F', 'C', and '3'.

WIPO Patent Drafting Manual

Second edition

<https://www.wipo.int/publications/en/details.jsp?id=4584&plang=EN>

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

WIPO PUBLIC

Searching prior art

Patent Databases

■ WIPO patent information brochures

<http://www.wipo.int/patentscope/en/publications/>

ACCESS TO THE WORLD OF TECHNOLOGY



This publication is designed to familiarize users with the features of the PATENTSCOPE® search service and related resources. [\[PDF\]](#)

This publication is also available in:

- French [\[PDF\]](#)
- Japanese [\[PDF\]](#)
- Korean [\[PDF\]](#)
- Polish [\[PDF\]](#)
- Spanish [\[PDF\]](#)

FINDING TECHNOLOGY USING PATENTS

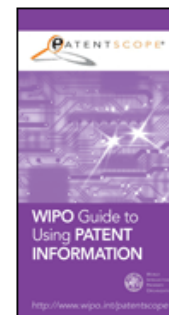


This introduction to finding technology using patents provides a general overview of the information contained in patent documents and sources from which patent information can be obtained. [\[PDF\]](#)

This introduction is also available in:

- French [\[PDF\]](#)
- Japanese [\[PDF\]](#)
- Polish [\[PDF\]](#)
- Spanish [\[PDF\]](#)

WIPO GUIDE TO USING PATENT INFORMATION



This guide is intended to assist users in using patent information, describing different search strategies and techniques as well as approaches for analyzing search results. [\[PDF\]](#)

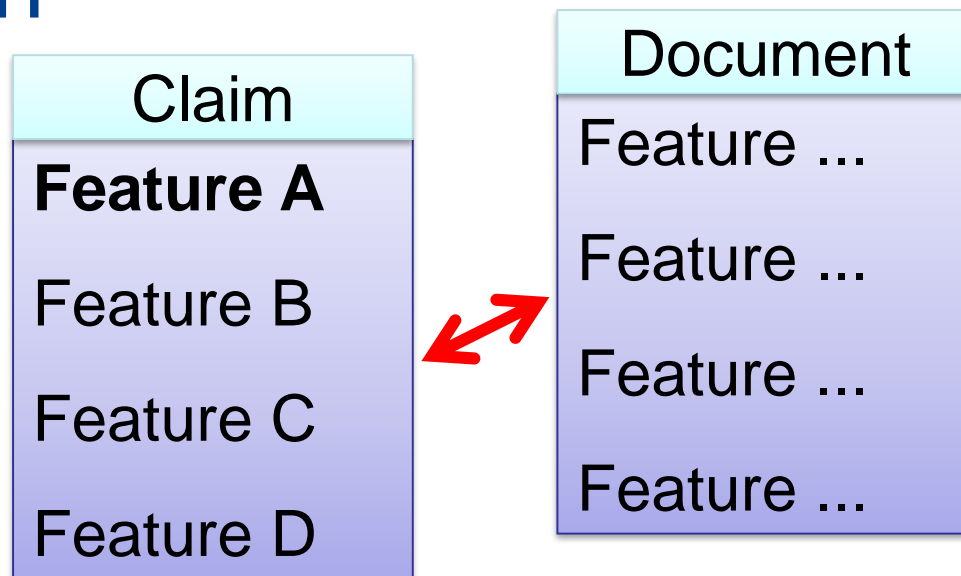
This guide is also available in:

- French [\[PDF\]](#)
- Spanish [\[PDF\]](#)

■ WIPO Guide to Technology Databases:

http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_3/cdip_3_inf_2study_iii_inf_1.pdf

Novelty search

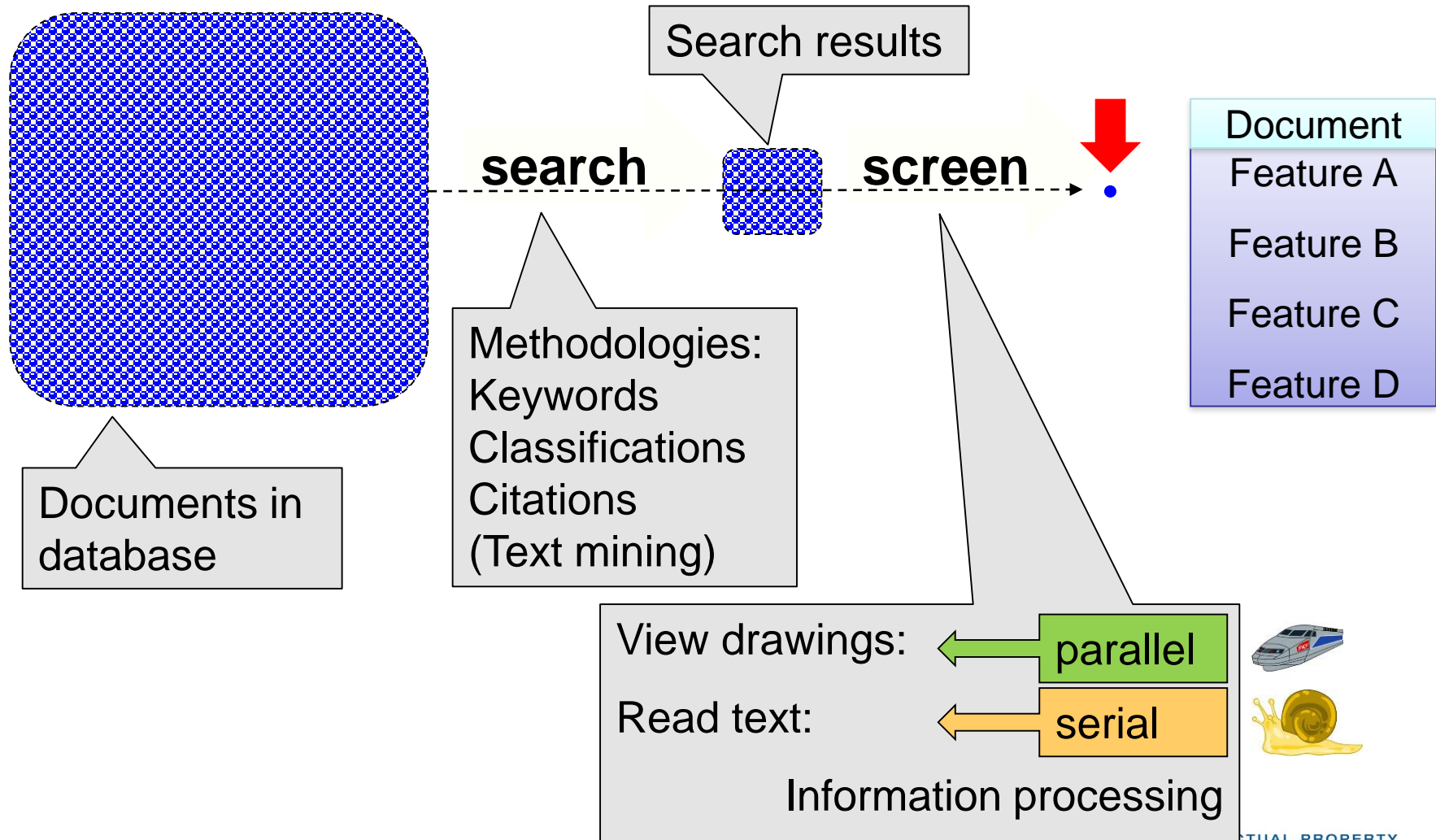


- **Claimed subject matter** is not novel if

all features are known

from a **single** piece of **prior art**, e.g. another patent

Novelty: Quest for the **one** document



Sources of patent information

Primary sources: each jurisdiction defines how **authoritative (official)** patent information is published and the respective authority in charge (national patent offices)

Secondary sources Collect data from various primary sources and make it accessible through single interface:

- Commercial patent databases
- Non-public proprietary search systems of patent offices
 - accessible by selected other users (subscribers) **EPOQEnet (EPO)**, **DEPATIS (DPMA)**
 - Not accessible by others (JPO, KIPO, USPTO, ...)
- Free-of-charge public patent databases:
 - **hosted by some IPOs: Espacenet, Patentscope, Depatisnet**
 - hosted by others: **Google Patents**, Patentlens,...

Sources: common features & differences

- Patent information **retrievable**
 - Which jurisdictions are covered? (country coverage)
 - Which data per jurisdiction? Bibliographic data only, full specifications, PDF, legal status;
 - Value added information; non patent data
- Patent information **searchable** (search fields)
- Complexity of query language and search queries:
 - operators
 - truncations
 - nesting, ranges
 - subqueries
 - Natural language, fuzziness, similar documents
- Various formats e.g. for priority data, dates, ... (**a nightmare!**)
 - Still little standardization

Major public **IPO** patent databases

- **Patentscope:** WIPO

<http://www.wipo.int/patentscope/search/en/search.jsf>

- **Espacenet:** European Patent Office (EPO)

<http://worldwide.espacenet.com/>

- **Depatisnet:** German Patent Office (DPMA)

<http://depatisnet.dpma.de>

- Retrievable documents: mostly same as commercial providers and office search systems
- Search interface and functionalities: more basic and simple (competition)
- Do not permit as efficient searches as commercial databases or office search systems

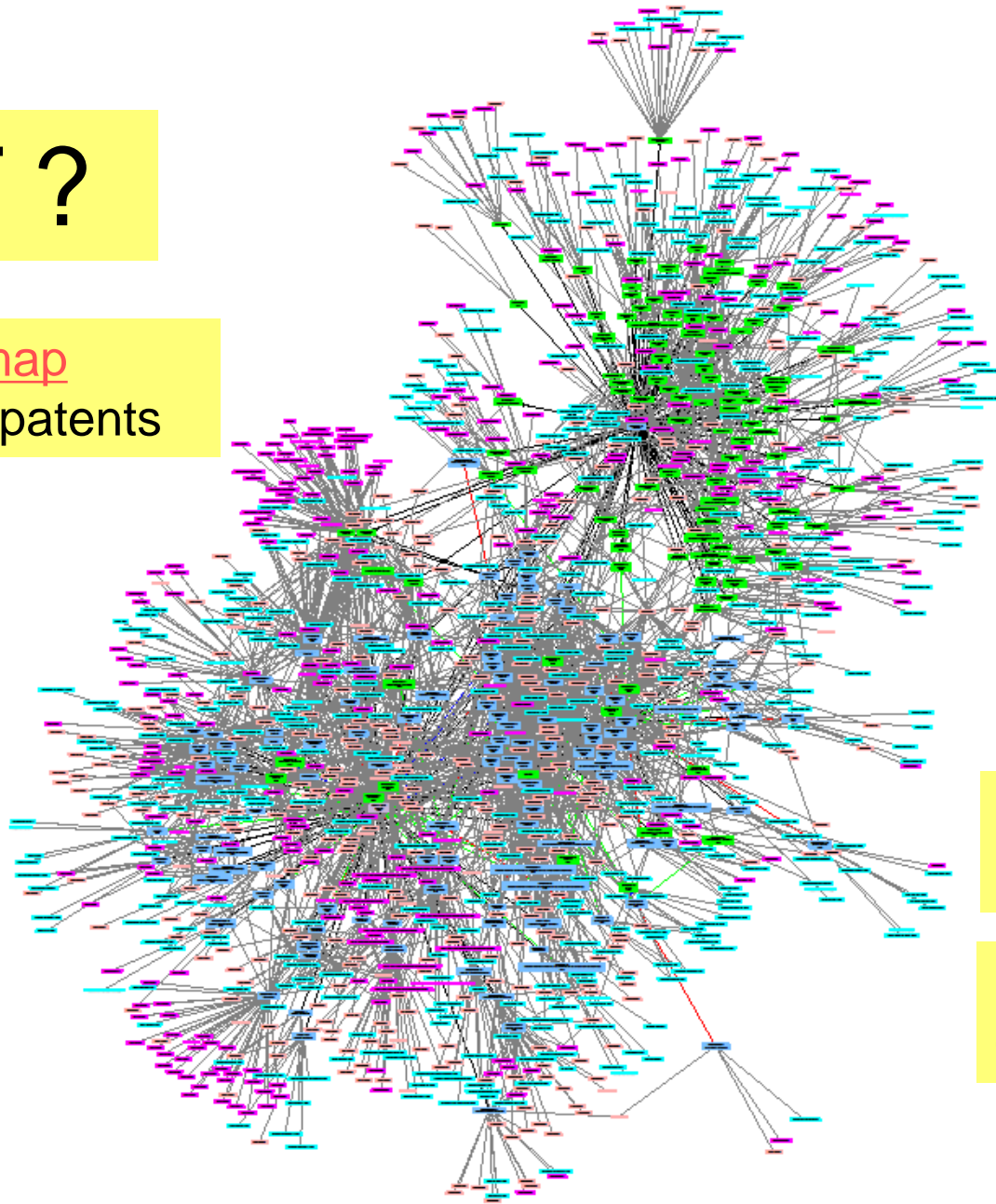
Commercial providers

- Commercial database providers/vendors:
Clarivate, Questel, STN, LexisNexis, Minesoft,
- fee based
- broad coverage of searchable and retrievable data (e.g. full texts)
- valued added services, e.g.:
 - analysis and visualization tools
 - data enhancement, quality checks
 - **added proprietary information, e.g. enhanced abstracts**
 - **chemical identifiers like CAS registry codes**
 - semantic search, text mining (search similar documents)

Q

ART ?

Citation map
Ritonavir patents



Each box:
Patent publication

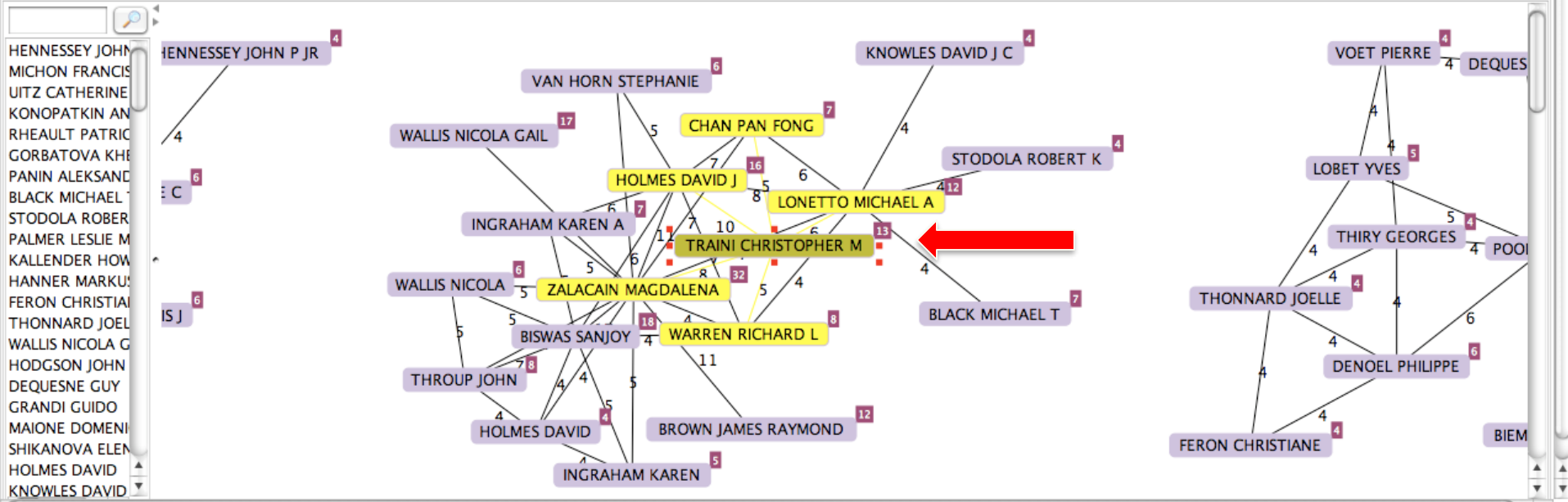
Each line:
Citation relation



(A61K-039/09)/IC

Inventors top collaboration network

Collaborations between inventors

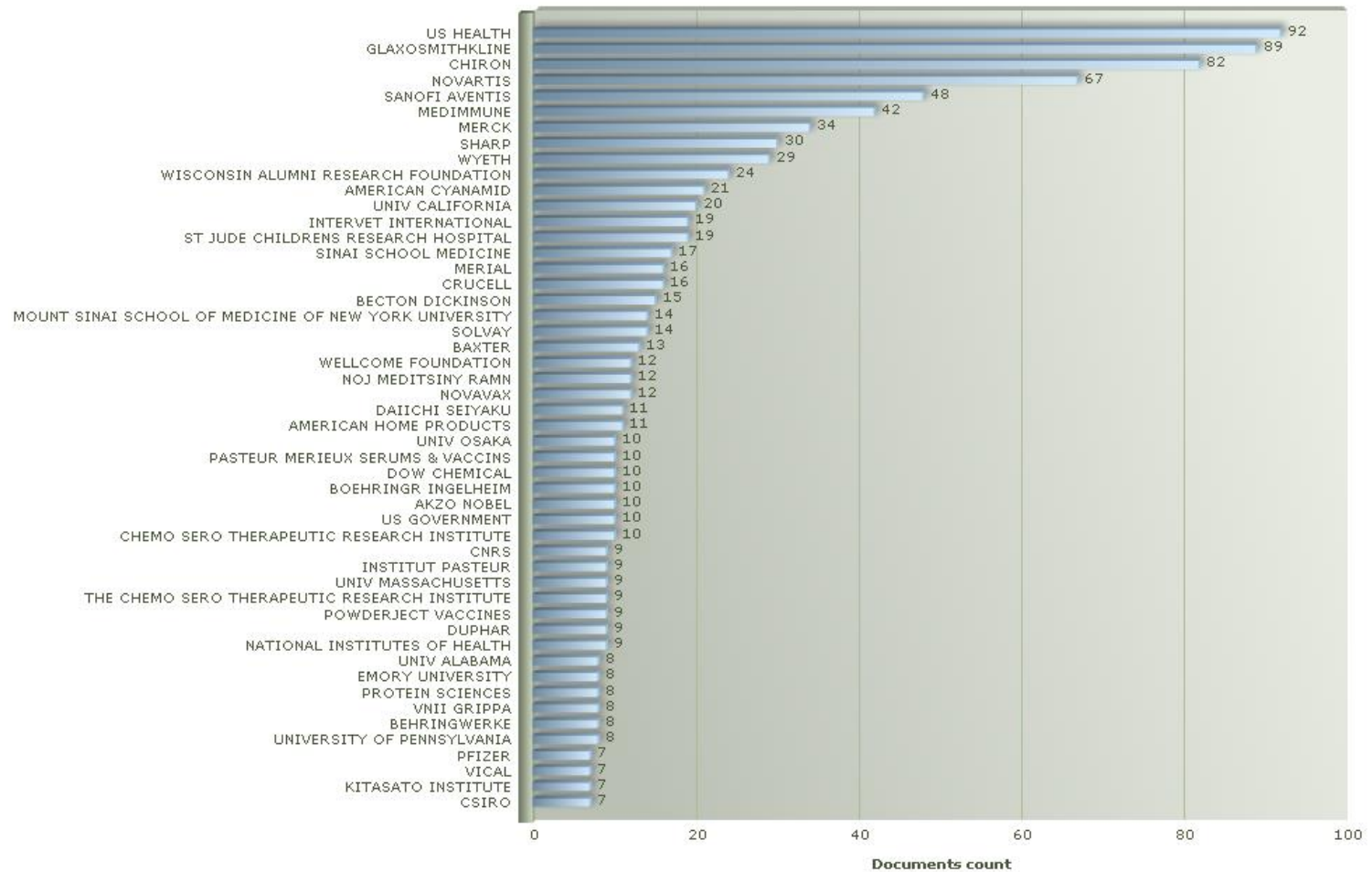


Fertig

(A61K-039/145)IC

Top 50 assignees

Top 50



Abstract

DWPI Abstract ?
(WO2009056818A1)

Novelty

Pharmaceutical composition comprises a solid unit dosage form comprising **ritonavir** and **atazanavir** or their salts.

Detailed Description

An INDEPENDENT CLAIM is included for a method of making the pharmaceutical composition comprising: hot melt extruding the **ritonavir** to form an extrudate, then formulating the extrudate into the first layer; formulating the **atazanavir** into the second tablet layer; and combining the first and second layers to provide a single unitary multiple layer tablet formulation.

Activity

Anti-HIV.

Mechanism

Protease inhibitor; Cytochrome P450 inhibitor.

Use

The composition is useful for treating HIV or AIDS. No biological data given.

Advantage

The composition increases the treatment potency particularly against drug-resistant HIV-1 strains, without significantly raising the risk for toxicity in treatment-naive and treatment-experienced patients. The composition has greater stability, less risk of chemical interaction between different medicaments, smaller bulk and accurate dosage, and is easy to prepare.

Technology Focus

PHARMACEUTICALS - Preferred Composition: The composition is a tablet formulation comprising the **ritonavir** in the first layer of the formulation and the **atazanavir** in the second layer of the formulation; a water insoluble polymer and/or a water soluble polymer; and at least one excipient, where the excipient includes a plasticizer. Preferred Components: The polymer is present at least in the layer containing the **ritonavir**. The amount of **atazanavir** and **ritonavir** is 70-400 mg and 20-200 mg, respectively. The weight ratio of the **ritonavir** or **atazanavir** to the weight of the polymer is 1:1-1:6. Preferred Method: The layer containing the **ritonavir** is obtainable by hot melt extruding the **ritonavir** with the polymer. The **ritonavir** is mixed with the water soluble polymer and/or the water insoluble polymer prior the hot melt extrusion step. The **atazanavir** is mixed with the water soluble polymer and/or water insoluble polymer and extruded by hot melt granulation processor melt granulation process. The method comprises preparing a substantially homogeneous melt of the **ritonavir** or **atazanavir** and optionally one or more excipients, extruding the melt, and cooling the melt until it solidifies. The melt is formed at 50-200° C. In the method, the **ritonavir**, the polymer, and optionally one or more excipients are processed to form a powder blend which is transferred through the heated barrel of the extruder, where the powder blend melts and a molten solution product is formed, which is allowed to cool to form an extrudate. The method comprises processing the cooled extrudate into a desired pharmaceutical dosage form. The layer containing the **atazanavir** is prepared by direct compression or by wet granulation.

Abstract ?

The invention relates to pharmaceutical compositions containing a combination of **atazanavir** and **ritonavir**, to methods of making them, and their use in medicine.

DWPI sample

- written by experts
- covering some 45+ countries
- in English
- solution to language barrier in keyword searching
- alternative to poor quality of applicant written abstracts

How to search technology ?

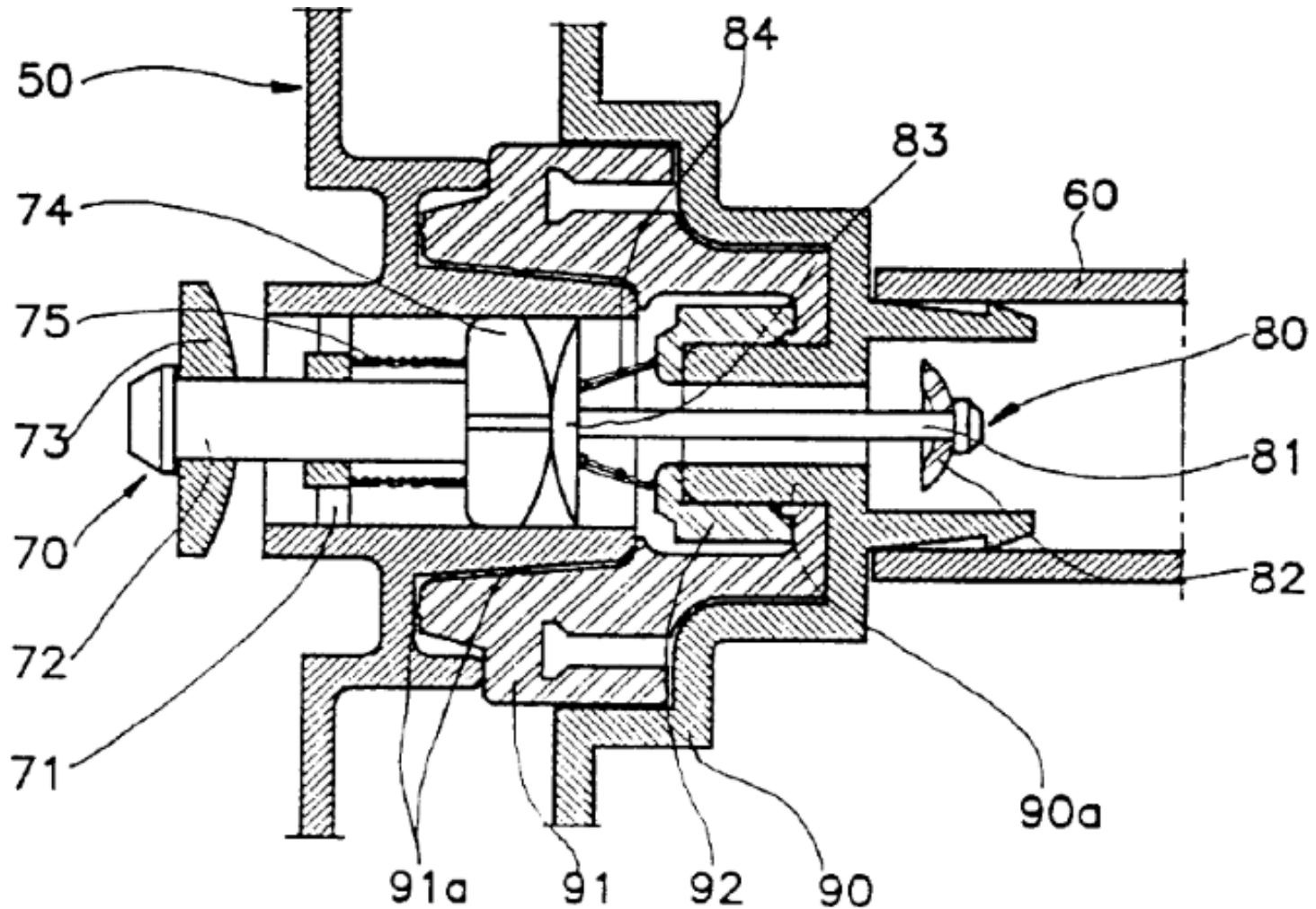
- ▶ Using keywords
 - language dependent
 - synonyms, variations
 - cross lingual search (in Patentscope)
- ▶ Using classification codes
 - language independent
 - different classification systems
 - predefined concepts
- ▶ Combinations of keywords/classifications
- ▶ Reiteration, Refinement by review of results
- ▶ Text mining tools (search for similar documents, e.g. by starting from one given document)

Keyword search

Searchable fields (parts of patent documents)

- **Title:** too short (field of technology)
- **Abstract:** may be unspecific, not focused on real invention; usually not checked by examiners
- **Claims:** **define invention** but use sometimes unspecific terminology;
 - features described in a functional way, e.g. "device for doing this and that, where x happens when y is acted,.....";
 - alternative expressions; imagine in how many ways a structural feature of a mechanical construction could be described
 - "lawyerish language"
- **Full text:** may increase noise, decrease precision
 - E.g. because descriptions also describe prior art solutions; or inappropriate details

Describing structural features ?



How to search technology ?

- ▶ Initial search results (hits), e.g. by keywords:
 - Positive hits, i.e. relevant/appropriate documents
 - Noise, i.e. irrelevant/inappropriate documents
- ▶ Use initial hits for further improvement/refinement of search results; you may indentify:
 - Further keywords, synonyms;
 - Keywords for excluding certain subject matter
 - Classification symbols
 - Applicant/inventor names to search for related inventions filed by them
 - Similar documents through backward/forward citations in researched documents

How to search technology ?

- ▶ State of art (prior art) search report of applications include information on patent applications with similar technology
 - citations by examiner
 - citations by applicant
 - citations by third parties
 - Document categories:
 - X: challenging novelty > very similar
 - Y: challenging inventive step > quite similar
 - A: technical background > broadly similar
- ▶ Recurrent approach; exploit several generations of citations: citations in citations in; include backward and forward citations

Enriched prior art search reports



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 8955

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 813 338 A2 (ROCKWELL INTERNATIONAL CORP [US]) 17 December 1997 (1997-12-17) * column 6, line 12 - column 8, line 26 * * column 8, line 52 - column 9, line 4; figure 1 *	1-13	INV. G01T1/17
Y	US 6 128 039 A (CHEN DATONG [US] ET AL) 3 October 2000 (2000-10-03) * column 3, line 57 - column 4, line 28; figure 2 *	1,3-7	
Y	US 6 163 029 A (YAMADA SHINICHI [JP] ET AL) 19 December 2000 (2000-12-19) * column 15, line 30 - column 16, line 45; figures 2,15,16 *	1,3-7	
A	FR 2 864 628 A1 (COMMISSARIAT ENERGIE ATOMIQUE [FR]) 1 July 2005 (2005-07-01) * page 4, line 18 - page 6, line 15; figure 3 *	1-13	
A,D	WO 2004/064168 A1 (SCHERRER INST PAUL [CH]; BROENNIMANN CHRISTIAN [CH]; SCHMITT BERND [CH]) 29 July 2004 (2004-07-29) * the whole document *	1-13	TECHNICAL FIELDS SEARCHED (IPC) G01T
E	WO 2009/131151 A1 (HAMAMATSU PHOTONICS KK [JP]; MORI HARUMICHI [JP]; KYUSHIMA RYUJI [JP];) 29 October 2009 (2009-10-29) * figure 12 *	1	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 March 2010	Examiner Wulveryck, J
<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</p> <p>T : theory or principle underlying the invention 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>			

International Patent Classification

Category X, Y, A, etc.

Relevant to Claim ...

Cited documents

Technical Fields Searched

Searching Authority

Date of Completion of the Search

Examiner

Common Citation Document (CCD)

<http://ccd.fiveipoffices.org/CCD-2.1.6/>

CCD View
Inspector: biblio for EP20040425475
Bibliographic data: EP 1612403 (A1)
Servo valve for controlling an internal combustion engine fuel injector
Publication date: 4 January 2006
Inventor(s): RICCO MARIO [IT]; DE MATTHAEIS SISTO LUIGI [IT]; GORGOLIONE ADRIANO [IT]; DI MEO ALFONSO [IT]
Applicant(s): FIAT RICERCHE [IT]
Classifications: International: F02M59/46; F02M47/02
European: F02M47/02D; F02M63/00E2B; F02M63/00E4C; F02M63/00E4D
Application number: EP20040425475 20040630
Priority number(s): EP20040425475 20040630

#	CC	Cat.	Citation details	Claims
1	EP		Application N° EP04425475 (EP20040425475) - 30 June 2004 National Search Report	
X	DE	4310984 A1	(REXROTH MANNESMANN GMBH [DE]) - 6 October 1994 Column 4, line 31 - column 5, line 54 Figure 1	1-5,13 6
Y	WO	0111227 A1	(SIEMENS AG [DE], et al) - 15 February 2001 Page 7, line 9 - page 9, line 3 Figure 1 Claim 17	6 1
A	EP	0740068 A2	(LUCAS IND PLC [GB]) - 30 October 1996 Column 4, line 27 - column 5, line 13 Figure 2	1
A	US	6257499 B1	(STURMAN ODED E) - 10 July 2001 Column 4, line 49 - column 5, line 23 Figure 4	1
2	AT		Application N° AT05425384 (AT20050425384T) - 27 May 2005	
3	AT		Application N° AT05425383 (AT20050425383T) - 27 May 2005	
4	DE		Application N° DE602004004254 (DE200460004254T) - 30 June 2004	
5	DE		Application N° DE602005000662 (DE200560000662T) - 27 May 2005	
6	DE		Application N° DE602005003175 (DE200560003175T) - 27 May 2005	
7	EP		Application N° EP05425384 (EP20050425384) - 27 May 2005 National Search Report	

Simple families: 5 Total family members: 23

Compilation of backward citations from members of the patent family

CCD View
Inspector: biblio for EP20040425475
Bibliographic data: EP 1612403 (A1)
Servo valve for controlling an internal combustion engine fuel injector
Abstract of EP 1612403 (A1)
A control servo valve (8) is housed inside the casing of an internal combustion engine fuel injector (1), and has an actuator (9), a control chamber (13) communicating with a fuel inlet (5) and with a fuel outlet passage (22), and a shutter (35) movable along an axis (3) by the actuator (9) between a closed position and an open position to close and open the outlet passage (22) respectively the servo valve (8) also has a fixed axial rod (29) interposed between the actuator (9) and the control chamber (13) the outlet passage (22) comes out through an outer lateral surface (30) of the axial rod (29) and the shutter (35) is defined by a sleeve which slides axially on the outer lateral surface (30), and, in the closed position, closes the outlet passage (22) so as to be subjected to a zero axial resultant force by the pressure of the fuel.

#	CC	Cat.	Citation details	Claims
7	EP		Application N° EP05425384 (EP20050425384) - 27 May 2005	
8	ES		Application N° ES04425475 (ES20040425475T) - 30 June 2004	
9	ES		Application N° ES05425384 (ES20050425384T) - 27 May 2005	
10	JP		Application N° JP2005192051 (JP20050192051) - 30 June 2005	
11	JP		Application N° JP2005118446 (JP20050118446) - 15 April 2005	
12	US		Application N° US11112772 (US20050112772) - 21 April 2005	
13	US		Application N° US11741474 (US20070741474) - 27 April 2007	
14	US		Application N° US11171659 (US20050171659) - 30 June 2005	
15	EP		Application N° EP05425383 (EP20050425383) - 27 May 2005	
16	JP		Application N° JP2005191978 (JP20050191978) - 30 June 2005	
17	US		Application N° US11171658 (US20050171658) - 30 June 2005	
18	AT		Application N° AT06114551 (AT20060114551T) - 25 May 2006	
19	CN		Application N° CNA2006101639681 (CN20061163968) - 24 November 2006	
20	KR		Application N° KR1020060117230 (KR20060117230) - 24 November 2006	
21	EP		Application N° EP06114551 (EP20060114551) - 25 May 2006	
22	JP		Application N° JP2006147852 (JP20060147852) - 29 May 2006	
23	US		Application N° US11441643 (US200601441643) - 26 May 2006	

Simple families: 5 Total family members: 23

Number: EP1612402 Search

examples: EP1612402, US2006000447A1, JP20090214944

EP20040425480

Hide CCD viewer Double inspector Timeline

CCD Viewer [also published as]

Citations only view Compact view Sort by country Filter

#	CC	Cat.	Citation details	Claims
1	EP		Application N° EP20040425480 (EP04425480) - 30 June 2004 National Search Report	
	X	DE	DE10345154 A1 (DENSO CORP [JP]) - 22 April 2004 Page 3, paragraph 19 Figure 1	1-3
	X	US	US4501246 A (BOSCH GMBH ROBERT [DE]) - 26 February 1985 Column 2, line 22 - column 2, line 23 Figure 1	1-5
	X	EP	EP0270720 A1 (RENAULT [FR]) - 15 June 1988 Page 5, line 12 - page 6, line 5 Figure 1, 6	1, 4-8
	A	EP	EP0299337 A2 (IVECO FIAT [IT], et al) - 18 Jan 1988 Figure 1	
	A	DE	DE19714489 C1 (SIEMENS AG [DE]) - 1 October 1998 Figure 1	1-8
2	AT		Application N° AT20040425480T (AT04425480) - 30 June 2004	
3	DE		Application N° DE200460002105T (DE602004002105) - 30 June 2004	
4	ES		Application N° ES20040425480T (ES04425480) - 30 June 2004	
5	JP		Application N° JP20050120087 (JP2005120087) - 18 April 2005	
6	JP		Application N° JP20090214944 (JP2009214944) - 2009 National Examination	
		JP	JP2004011448 A (NIPPON SOKEN, et al) - 15 January 2004	
		JP	JP2004124727 A (DENSO CORP) - 22 April 2004	
			JPH01160164 U	
		JP	JP11230005 A (NIPPON SOKEN, et al) - 24 August 1999	
		JP	JP10299611 A (NIPPON SOKEN) - 10 November 1998	
		JP	JP2001107776 A (NISSAN MOTOR) - 17 April 2001	

Simple families: 1 Total family members: 7

Enriched Citations of EPO

Domestic family of selected citation

PDF of selected citation

Citations of JPO

Full document: US 4501246 (A)

United States Patent and Trademark Office
Leblanc et al. [45] Date of Patent: 2/26/1985

[54] FUEL INJECTION PUMP

Jean Leblanc, Lyons, France
Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

App. No.: 397,712
Filed: Jul. 13, 1982

[56] Foreign Application Priority Data

Jul. 22, 1981 [EP] Fed. Rep. of Germany 3128975

[51] Int. Cl.³ F02M 39/00
[52] U.S. Cl. 123/449; 123/458; 417/487; 417/519

[58] Field of Search 417/487, 519, 221, 244, 417/253, 462, 505; 123/449, 450, 458, 502, 500, 506

[56] References Cited
U.S. PATENT DOCUMENTS

1937	Planiol	123/451
1944	Skaredoff	123/450
1968	Eheim et al.	123/449
1971	Voit et al.	417/505
1978	Hofer et al.	123/449
4,378,775	4/1983 Straubel et al.	123/458
4,382,751	5/1983 Potter	123/458 X
4,385,610	5/1983 Leblanc	123/449

ABSTRACT
A fuel injection pump is proposed for metering during the intake stroke of an internal combustion engine. The fuel injection pump is effectuated by means of a distributor shaft, which is electrically controlled switching means of the control of a fuel supply pressure conduit by means of a control valve which communicates with the pump and is part of a distributor shaft, is guided in a groove and the possibility of an angular longitudinal displacement of the distributor shaft at which injection is embodied in an arbitrary manner in a switching valve.

5 Claims, 2 Drawing

1/5 - ABSTRACT
2/5 - DRAWINGS
3/5
4/5 - DESCRIPTION
5/5 - CLAIMS

20.99 x 29.70 cm

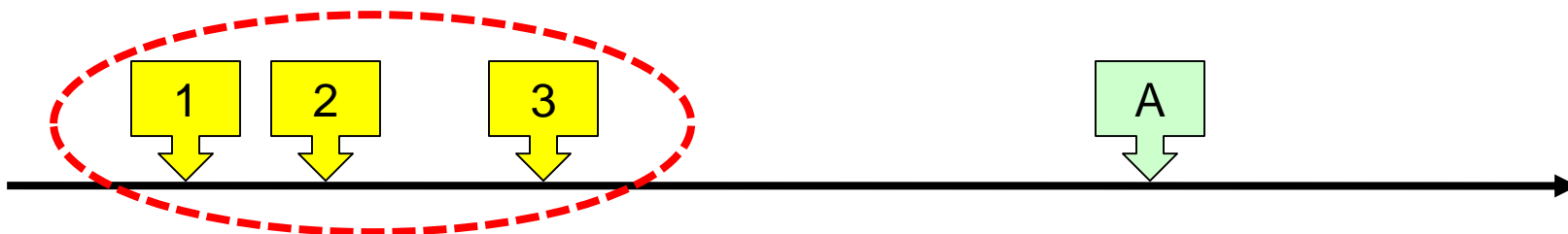
Page 1/5 - ABSTRACT

Backward and forward citations

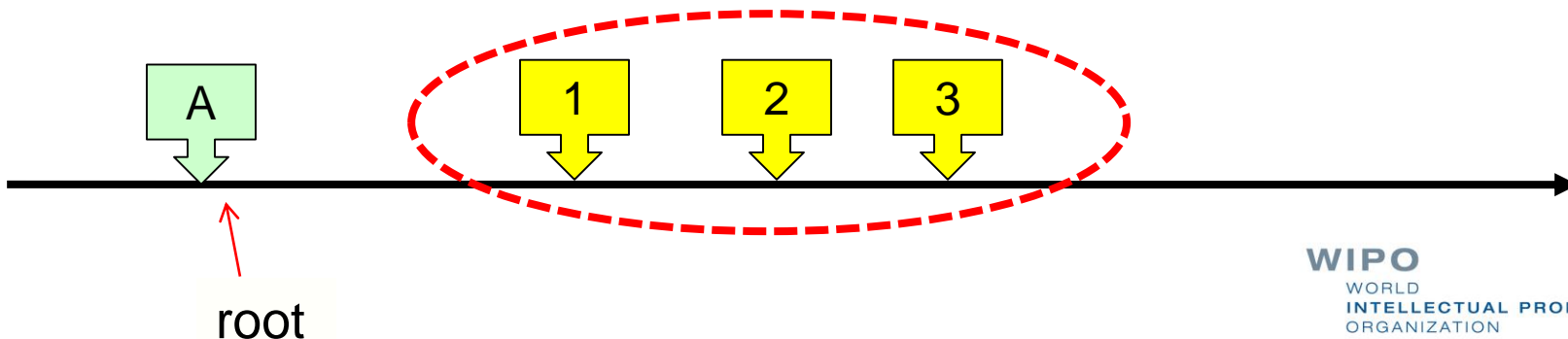
For any publication A:

Time dimension

Publications **cited** in A → Backward citations of A



Publications **citing** A → Forward citations of A



Espacenet: Forward Citations



Espacenet
Patent search

Deutsch English Français

Contact

Change country ▼

← About Espacenet Other EPO online services ▼

Search Result list **★ My patents list (0)** Query history Settings Help

WO2011113363 (A1) → Citations

WO2011113363 (A1)

Bibliographic data

Description

Claims

Mosaics

Original documents

Cited documents

Citing documents

INPADOC legal status

INPADOC patent families

Quick help

- Can I export this list?
- What happens if I click on "Download covers"?
- What are citing documents?
- Why do some documents not have any citing documents?
- What happens if I click on the star icon?

Citing documents: WO2011113363 (A1) — 2011-09-22

Select all (0/3) Compact Export (CSV | XLS) Download covers

3 documents citing WO2011113363 (A1)

Sort by Sort order

1. Agomelatine methanesulfonic acid complex and preparation method thereof

★ Inventor: HAIPING WANG CHENG CHI (+3)	Applicant: SHANGHAI RIGHT HAND MEDICAL TECHNOLOGY DEV CO LTD	CPC: A61K31/165 A61P1/00 A61P25/00 (+6)	IPC: A61K31/165 A61P1/00 A61P25/00 (+6)	Publication info: CN102718675 (A) 2012-10-10 CN102718675 (B) 2015-03-25	Priority date: 2012-06-07
---	---	--	--	--	-------------------------------------

2. SOLID PHARMACEUTICAL COMPOSITION FOR ORALLY DELIVERING AGOMELATINE

★ Inventor: THARRAULT FRANCOIS [FR] POIRIER CECILE [FR] (+2)	Applicant: SERVIER LAB [FR] THARRAULT FRANCOIS [FR] (+3)	CPC: A61K31/165 A61K9/0056 A61K9/006 (+3)	IPC: A61K31/165 A61K9/00 A61K9/20	Publication info: WO2013021139 (A1) 2013-02-14	Priority date: 2011-08-10
--	--	--	---	---	-------------------------------------

3. Solid pharmaceutical composition for buccal administration of agomelatine

★ Inventor: THARRAULT FRANCOIS [FR] POIRIER CECILE [FR] (+2)	Applicant: SERVIER LAB [FR]	CPC: A61K31/165 A61K9/0056 A61K9/006 (+3)	IPC: A61K31/165 A61K9/00 A61K9/20	Publication info: EP2556824 (A1) 2013-02-13	Priority date: 2011-08-10
--	---------------------------------------	--	---	--	-------------------------------------

Google patents: Forward Citations

Agomelatine hydrobromide hydrate and preparation thereof

Abstract

An agomelatine hydrobromide hydrate of formula (I), in which X is Br, preparation method and use thereof as well as pharmaceutical composition containing it are provided. The solubility of the agomelatine hydrobromide hydrate obtained by the present method is significantly higher than that of agomelatine. Therefore, it is more suitable for manufacturing pharmaceutical formulations. In addition, the product has higher stability and purity. The present product of high purity can be obtained through a simple process, rather than process with complicated steps.

Classifications

[C07C233/18](#) Carboxylic acid amides having carbon atoms of carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of an acyclic saturated carbon skeleton

[View 1 more classifications](#)

WO2011113363A1

WO Application

Application number: PCT/CN2011/071912

Other languages: [French](#)

Inventor: [Hanbin Shan](#) , [Zhedong Yuan](#) , [Xueyan Zhu](#) , [Peng Zhang](#) , [Hongjuan Pan](#) , [Xiong Yu](#)

Original Assignee: [Les Laboratoires Servier](#)

Priority date: [2010-03-17](#)

Filing date: [2011-03-17](#)

Publication date: [2011-09-22](#)

Info: [Patent citations \(2\)](#), [Non-patent citations \(1\)](#), [Cited by \(4\)](#), [Also published as \(16\)](#), [Legal events](#), [Similar documents](#)

External links: [Espacenet](#), [Global Dossier](#), [PatentScope](#), [Discuss](#)



Text mining – similar documents

- Text mining software analyses the content/topics of a given document, for example by determining statistical patterns of significant keywords
- Software identifies similar documents, for example such having similar keyword patterns
- Simple application available in Google patents

Semantic Search– similar documents

Google Patents 2 of 45835 < >

← Back to results laser; cancer; infrared;

Photodynamic laser detection for cancer diagnosis

Abstract

A method and apparatus for detecting the presence of cancerous tissue using fluorescence. The tissue under examination which has absorbed Hematoporphyrin Derivative (HpD) is excited with a beam of coherent light from a diode laser flashed to the body through a fibre optic probe assembly. The fluorescence spectrum and image, as well as normal image from the tissue under examination, are transmitted through the same probe assembly and collected by associated detectors and processor for analysis. The fluorescence spectrum and superimposed normal image and fluorescence image are observed simultaneously on a TV monitor to determine the presence of cancer and its extend, based on the knowledge that the fluorescence spectrum of cancerous tissue is substantially different from normal tissue. <IMAGE>

Classifications

G01N21/6456 Spatial resolved fluorescence measurements; Imaging

[View 10 more classifications](#)

GB2254417A

GB Application

Download PDF Find Prior Art Similar

Inventor: [Bijan Jouza](#)
Original Assignee: [Bijan Jouza](#)
Priority date: [1991-04-05](#)

Family: GB (1)

Date	App/Pub Number	Status
1991-04-05	GB9107115A	Withdrawn
1991-05-22	GB9107115D0	Grant
1992-10-07	GB2254417A	Application

Info: [Patent citations \(4\)](#), [Non-patent citations \(2\)](#), [Cited by \(21\)](#), [Legal events](#), [Similar documents](#), [Priority and Related Applications](#)

Google Patents: prior art finder

- Automated creation of search query for given document
- Application extracts suitable keywords

Google Patents laser cancer infrared 2 of 45835

← Back to results laser; cancer; infrared;

Photodynamic laser detection for cancer diagnosis

Abstract

A method and apparatus for detecting the presence of cancerous tissue using fluorescence. The tissue under examination which has absorbed Hematoporphyrin Derivative (HpD) is excited with a beam of coherent light from a diode laser flashed to the body through a fibre optic probe assembly. The fluorescence spectrum and image, as well as normal image from the tissue under examination, are transmitted through the same probe assembly and collected by associated detectors and processor for analysis. The fluorescence spectrum and superimposed normal image and fluorescence image are observed simultaneously on a TV monitor to determine the presence of cancer and its extend, based on the knowledge that the fluorescence spectrum of cancerous tissue is substantially different from normal tissue. <IMAGE>

Classifications

G01N21/6456 Spatial resolved fluorescence measurements; Imaging

[View 10 more classifications](#)

GB2254417A

GB Application

[Download PDF](#) [Find Prior Art](#) [Similar](#)

Inventor: Bijan Jouza
Original Assignee: Bijan Jouza
Priority date: 1991-04-05

Family: GB (1)

Date	App/Pub Number	Status
1991-04-05	GB9107115A	Withdrawn
1991-05-22	GB9107115D0	Grant
1992-10-07	GB2254417A	Application

Info: [Patent citations \(4\)](#), [Non-patent citations \(2\)](#), [Cited by \(21\)](#), [Legal events](#), [Similar documents](#), [Priority and Related Applications](#)

TOTAL PROPERTY TION

Google Patents: prior art finder

Google Patents

(fluorescence) (image) (tissue) (laser) (cancer) before:priority:19910405



SEARCH TERMS



About 3,615 results

Download

Sort by · Relevance ▾ Grouped by · None ▾ Results / page · 10 ▾

fluorescence × or + Synonym

image × or + Synonym

tissue × or + Synonym

laser × or + Synonym

cancer × or + Synonym

+ Synonym

SEARCH FIELDS

Date · Priority ▾

YYYY-MM-DD — 1991-04-05

+ Inventor

+ Assignee

Patent Office ▾ Language ▾

Status ▾ Type ▾

Laser excited **fluorescence** of hematoporphyrin derivative for diagnosis of cancer

[Google Scholar](#) · [ieeexplore.ieee.org](#) · [Profo A](#) · [IEEE journal of quantum electronics](#)

Publication 1984

... The digital **image** subtraction system was designed with the help of D. Sever and ... REFERENCES 11 R. L. Lipson, "The photodynamic and **fluorescent** properties of a particular hematoporphyrin ... 21 DR Doiron, "**Fluorescence** bronchoscopy for the early localiza- tion of lung cancer ...

A **fluorescence** imaging device for endoscopic detection of early stage cancer— instrumental and experimental studies

[Google Scholar](#) · [onlinelibrary.wiley.com](#) · [Baumgartner R](#) · [Photochemistry and photobiology](#)

Publication 1987

... The **fluorescence images** with violet excitation and blue PAP 46:5-N Page 4. 762 R. BAUMGARTNER et al ... The study shows that the contribution of background **fluorescence** can be considerably reduced by digital **image** subtraction ...

Malignant tumor and atherosclerotic plaque diagnosis using laser-induced **fluorescence**

[Google Scholar](#) · [ieeexplore.ieee.org](#) · [Andersson-Engels S](#) · [IEEE journal of quantum electronics](#)

Publication 1990

... From the four **images** a di- mensionless contrast function value is calculated for each spatial location using the corresponding pixel values in the **fluorescence images**. Finally, a generalized **image**, spatially displaying the contrast function is formed ...

Detection and localization of early lung cancer by imaging techniques

[Google Scholar](#) · [journal.chestnet.org](#) · [Palcic B](#) · [Chest](#)

Publication 1991

... Several attempts have been made in the past to enhance the detection of early lung cancer by using **fluorescent** tumor markers such ... **Fluorescence images** at two (or more) characteristic spectral bands are amplified and captured by a sensitive **image**-intensified camera ...

Thank you

lutz.mailander@wipo.int