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INTELLECTUAL PROPERTY
ORGANIZATION

Topic 5: **Overview of Patent Databases and Search Methodologies**

Lutz Mailänder
Head, International Cooperation on Examination and Training Section

Pretoria
14 March 2016

Overview

- Publication practices, e.g. types of publications
- Sources of patent information (databases)
  - Primary
  - Secondary
- Ideal publication policies
- Quality of search strategies: recall, precision
- Scope of searches: claims
- Objectives and types of searches
- Keyword and classification searches

Historical publication practice

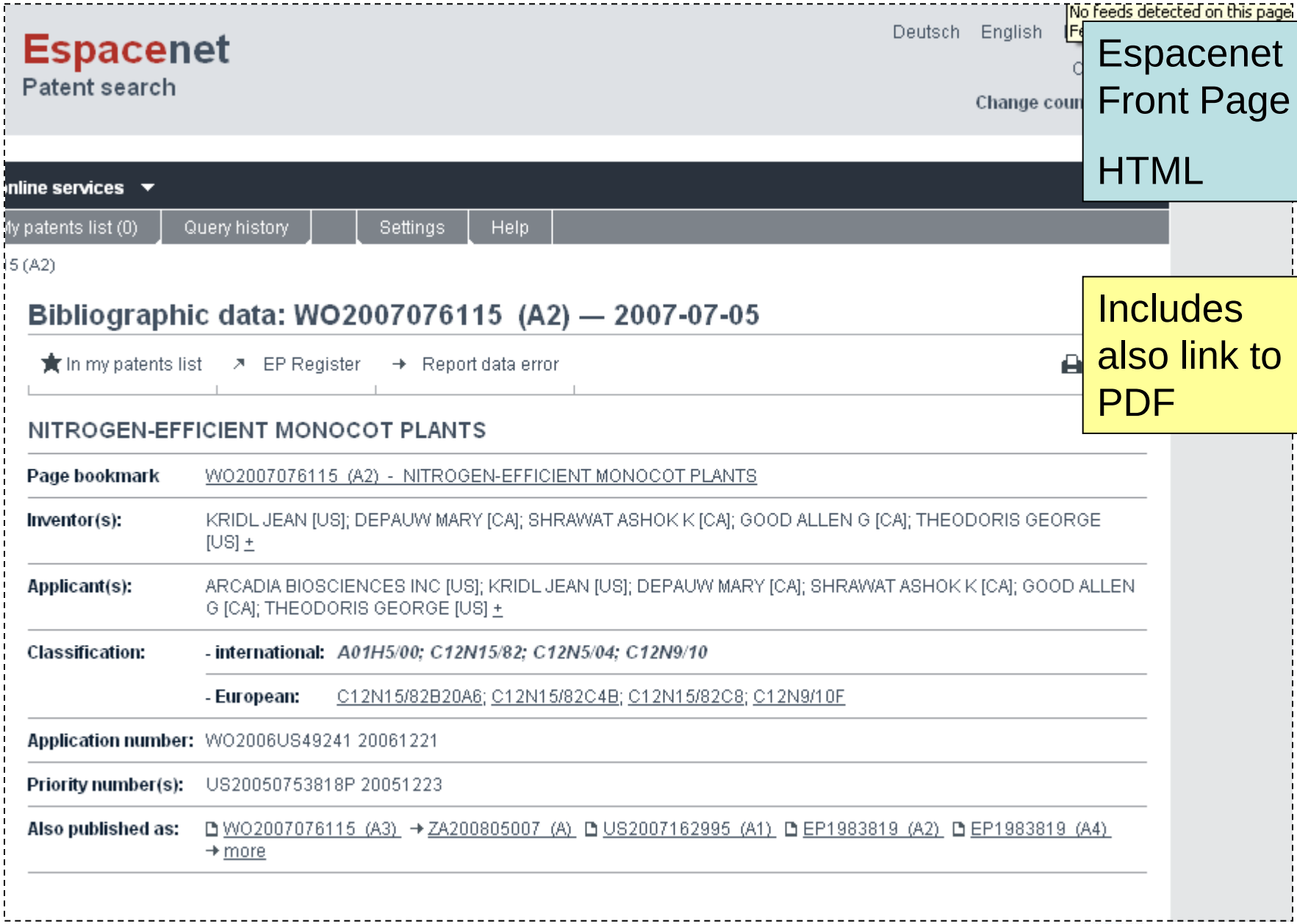
- Fully paper based
- Full Patent **Specifications** with description and claims
  - Technical disclosure and definition of scope of protection
  - Individual paper prints; one time publications, no revised editions
  - Disseminated to libraries and through subscriptions
- **Gazette**/Bulletin
  - periodically published overview of new grants, legal notifications,..
  - according to most laws: Protection enters into force with publication in Gazette
- Patent **Register**:
  - Records of legal status
  - Continously maintained in paper at office
  - Not published as prints but publicly accessible

What is **publication** ?

- Printing a paper copy ? Yes
- Preparing a PDF version and putting it on a website ? Yes
- Making a file wrapper accessible, ie permitting file inspection ? Yes
- Publication does not mean easy accessibility, it does mean that information is accessible by the public
- A notification in a Gazette in combination with the possibility of file inspection also implies that the information is publicly available, though not easily accessible
- Individual versions fixed after publication (paper prints could not be changed, only be republished, same still with PDFs nowadays)
- Regularly updated information source (e.g. register database)

Publication media

- Historically: paper prints
  - Have been scanned and are now available e.g. as PDF or TIFF files in databases, OCR converted full text, image data,..
  - Bibliographic data has been captured manually (US1)
- Today: mostly electronic publication
  - PDF, HTML format
  - (on CDs etc)
  - Stored in databases
  - Access through browsers, webservices
  - Individual documents, bulk download



Espacenet Front Page

HTML

Includes also link to PDF

Mobile | Deutsch | Español | Français | 日本語 | 한국어 | Português | Русский | 中文 |

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PATENTSCOPE

Search International and National Patent Collections

WORLD INTELLECTUAL PROPERTY ORGANIZATION

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Home > IP Services > PATENTSCOPE

1. (WO2007076115) NITROGEN-EFFICIENT MONOCOT PLANTS

PCT Biblio. Data | Description | Claims | National Phase | Notices | Documents

Latest bibliographic data on file with the International Bureau

Pub. No.: WO/2007/076115 **International Application No.:** PCT/US2006/049241
Publication Date: 05.07.2007 **International Filing Date:** 21.12.2006

IPC: ***A01H 5/00*** (2006.01), ***C12N 5/04*** (2006.01), ***C12N 9/10*** (2006.01)

Applicants: **ARCADIA BIOSCIENCES, INC.** [US/US]; 202 Cousteau Place, Suite 200, Davis, CA 95616 (US) *(For All Designated States Except US)*.
KRIDL, Jean [US/US]; (US) *(For US Only)*.
DEPAUW, Mary [CA/CA]; (CA) *(For US Only)*.
SHRAWAT, Ashok, K. [IN/CA]; (CA) *(For US Only)*.
GOOD, Allen, G. [CA/CA]; (CA) *(For US Only)*.
THEODORIS, George [US/US]; (US) *(For US Only)*

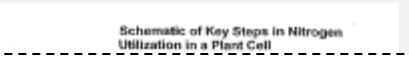
Inventors: **KRIDL, Jean**; (US).
DEPAUW, Mary; (CA).
SHRAWAT, Ashok, K.; (CA).
GOOD, Allen, G.; (CA).
THEODORIS, George; (US)

Agent: **WARD, Michael, R.**; Morrison & Foerster LLP, 425 Market Street, San Francisco, CA 94105-2482 (US)

Priority Data: 60/753,818 23.12.2005 US

Title **(EN)** NITROGEN-EFFICIENT MONOCOT PLANTS
(FR) PLANTES MONOCOTYLEDONES AYANT UN RENDEMENT EFFICACE EN AZOTE

Abstract: **(EN)**Methods of increasing nitrogen utilization efficiency in monocot plants through genetic modification to increase the levels of alanine aminotransferase expression and plants

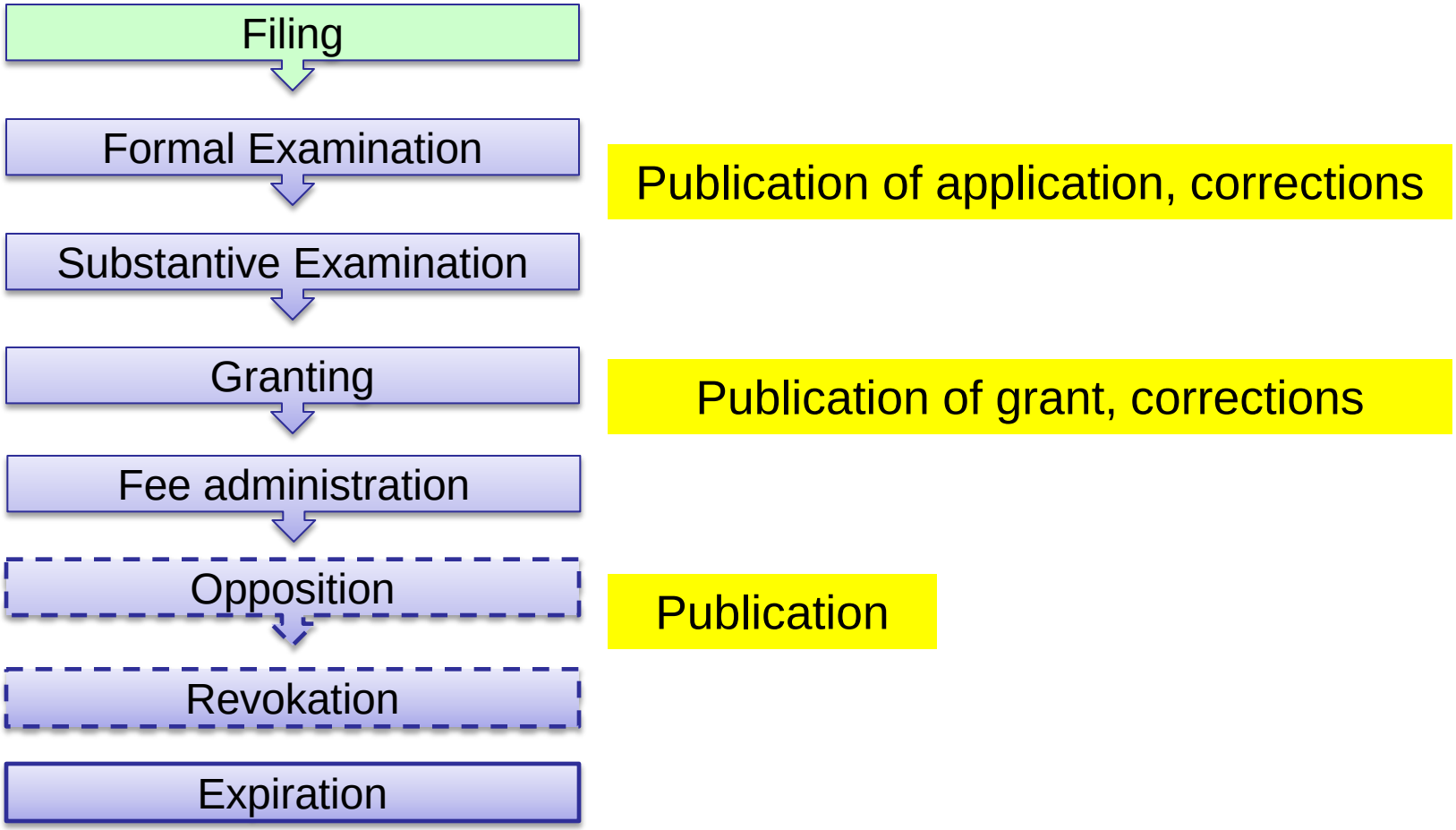


Patentscope Front Page

HTML

Includes also link to PDF

Stages of patent prosecution



What is **published** over life cycle ?

- Varies strongly from country to country (different publication policies)
- Minimum: notification of grants or other events in Gazettes
  - if so: further information only retrievable through file inspection
- Often but not always:
  - full specification of granted patents, i.e. examined applications
  - Applications, i.e. non-examined filings
    - usually 18 month after filing
    - many countries (DCs) dont (PCT NPE)
  - search reports, corrections, amendments, translations
  - legal status

What is published over life cycle ?

Conclusion:

- In (many)(some) countries the public life of a patent application only starts after granting
- In (many)(some) countries only file inspection discloses technical teaching and scope of protection

- That violates the basic concept of the patent system to grant protection in exchange of disclosure
- It also prevents early and easy information on possible infringement of potential patent rights

Data sources

- **Primary sources:** each jurisdiction defines how **authoritative (official)** patent information is published and the respective authority in charge
  - Individual versions/editions:
    - National publications of applications, grants, Gazettes
  - Continuous: Legal status, file wrapper

- **Secondary sources:** collect data from various primary sources and make it accessible through a single interface
  - Commercial patent databases (often include analysis tools)
  - Free-of-charge searchable patent databases:
    - hosted by some IPOs: Depatisnet, Espacenet, Patentscope
      - Derived from proprietary search systems
    - hosted by others: Google Patents, Patentlens,..

Primary sources: **Gazettes/Bulletins**

- publication of notifications, e.g. fee change
- publication of essential legal events, such as grants
- **only (some) bibliographic data** (front page)
- limited technical disclosure (sometimes abstract)
- limited legal information (usually no claims)
- regularly published gazette editions (weekly, monthly,..)
- published editions are not updated
- changes/corrections appear in new edition
- often dedicated IP right gazettes
- sometimes general government gazette
- often available online, even if no online register
  - therefore facilitate some basic monitoring of legal status

Patent Gazette of India: applications

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/07/2012

(21) Application No.1973/MUM/2012 A

(43) Publication Date : 05/04/2013

(54) Title of the invention : A HAIR CLIP WITHOUT REBIT

(51) International classification	:A45D8/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	:N/A
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

(71)**Name of Applicant :**
1)MR. PRADEEP B. RAUT
Address of Applicant :AAI BUNGLOW, NEAR RAM MANDIR, BOLINJ, VIRAR (WEST), DIST - THANE Maharashtra India
(72)**Name of Inventor :**
1)MR. PRADEEP B. RAUT

(57) Abstract :
A metal hair clip without rebit which require less metal which is having more durability, > cost effective and aesthetic looks. After making the drawings, the metal sheets are inserted into the die and a soft punch is made from it After cutting according to the design, the soft punch is hardened. After the hardening procedure is completed the design is put through an operation wherein 2 specific points are pressed in such a way that it gives strokes to the design which enables the action of moving front and back and gives tension to the product.

No. of Pages : 11 No. of Claims : 8

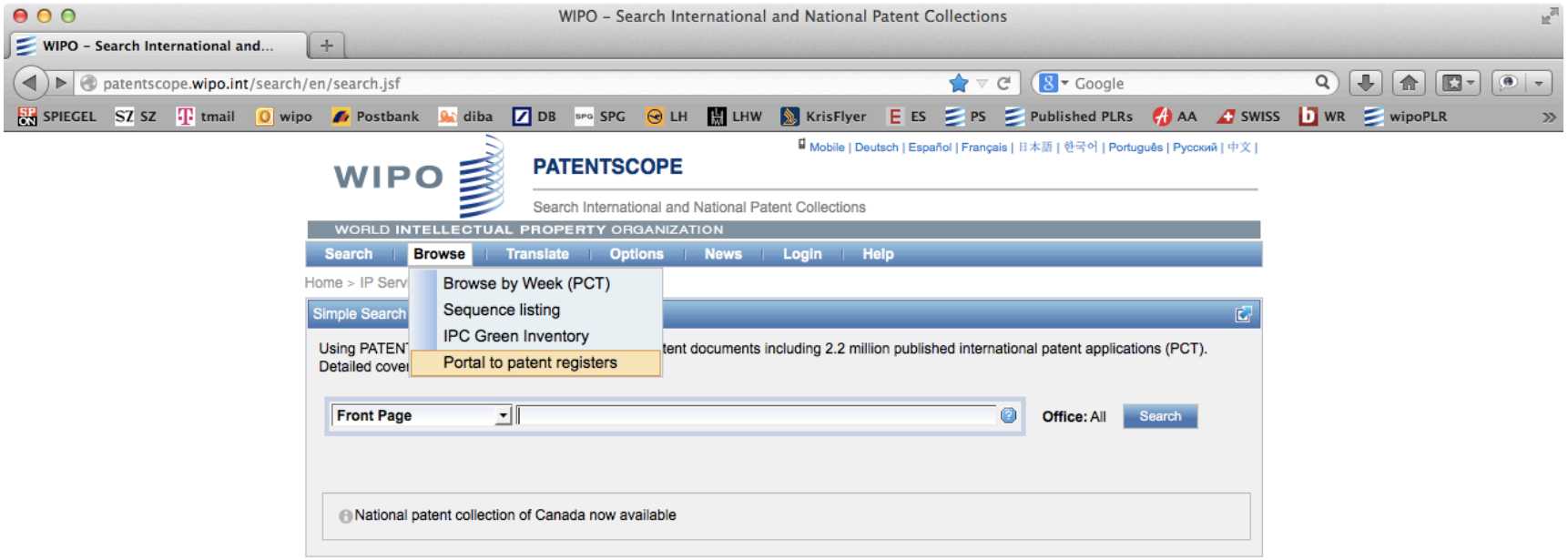
Primary sources: **Full specifications**

- Complementing the limited information in Gazettes
- Provide full **technical disclosure**
- **Claims** define
  - potential protection (publication of applications)
  - granted protection (publication of granted patents)
- Synonymous expressions:
  - “patent document”
  - “patent publication”

Primary sources: **Patent registers**

- Provide up-to-date legal status information, i.e. whether
  - application/examination is pending
  - patent is in force, lapsed, …
- Varying detailedness of data content
- Regularly updated (daily in some jurisdictions)
- in many countries no online register
- see WIPO register portal website

WIPO patent register portal



http://www.wipo.int/branddb/portal/portal.jsp

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Saudi Arabia

also part of Patent Office of the Cooperation Council for the Arab States of the Gulf (GCC)

Online National Register

Y

English Interface

Y

Inventor Search

Y

PCT Search

N

PCT National Phase Entry

N

Fee Payment

N

Most Recent Legal Status

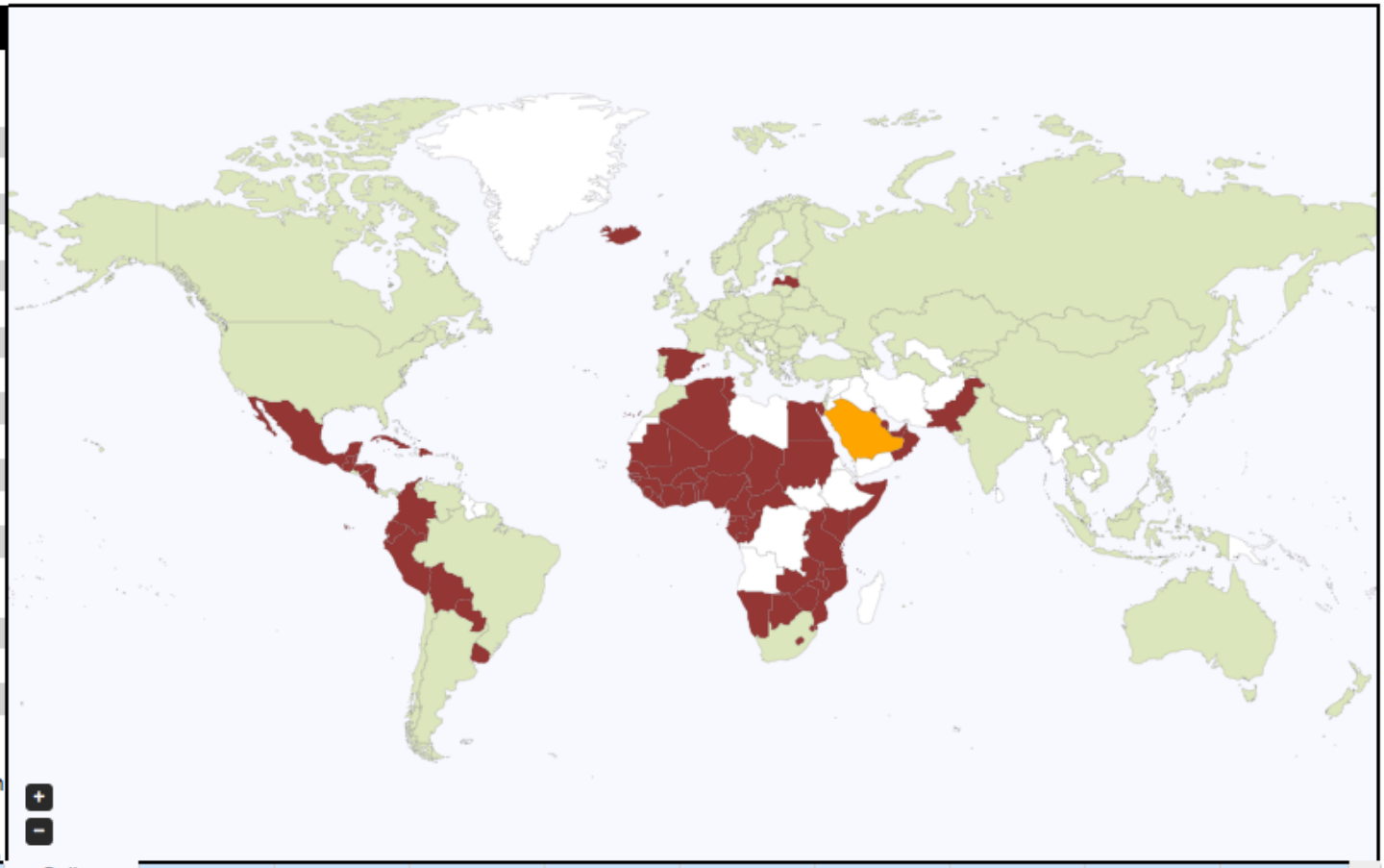
Y E.g, 'Lapsed' for application number 1210694

File Inspection

N

Full Publications

Y Documents are available in radnom manner, e.g. for application number 5260065: Open the link behind the title and select whether you want to see the publication of the application or the



Jurisdiction	Online National Register	English Interface	Inventor Search	PCT Search	PCT National Phase Entry	Fee Payment	Most Recent Legal Status	File Inspection	Full Publications	Online Gazette
African Intellectual Property Organization (OAPI)	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N
African Regional Intellectual Property Organization (ARIPO)	N *	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N

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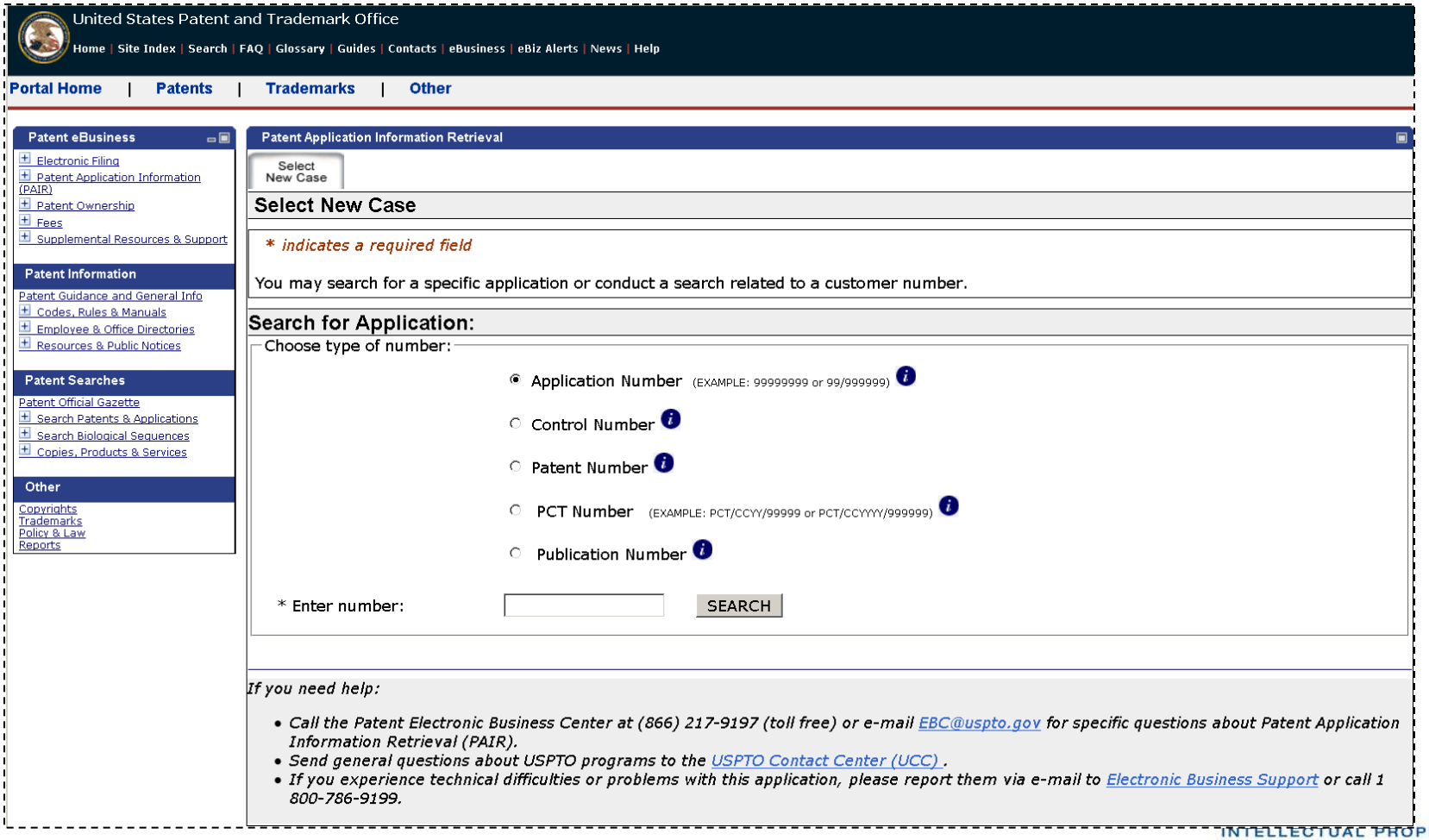
Register sample: USPTO - PAIR

- **P**atent **A**pplication **I**nformation **R**etrieval (PAIR)

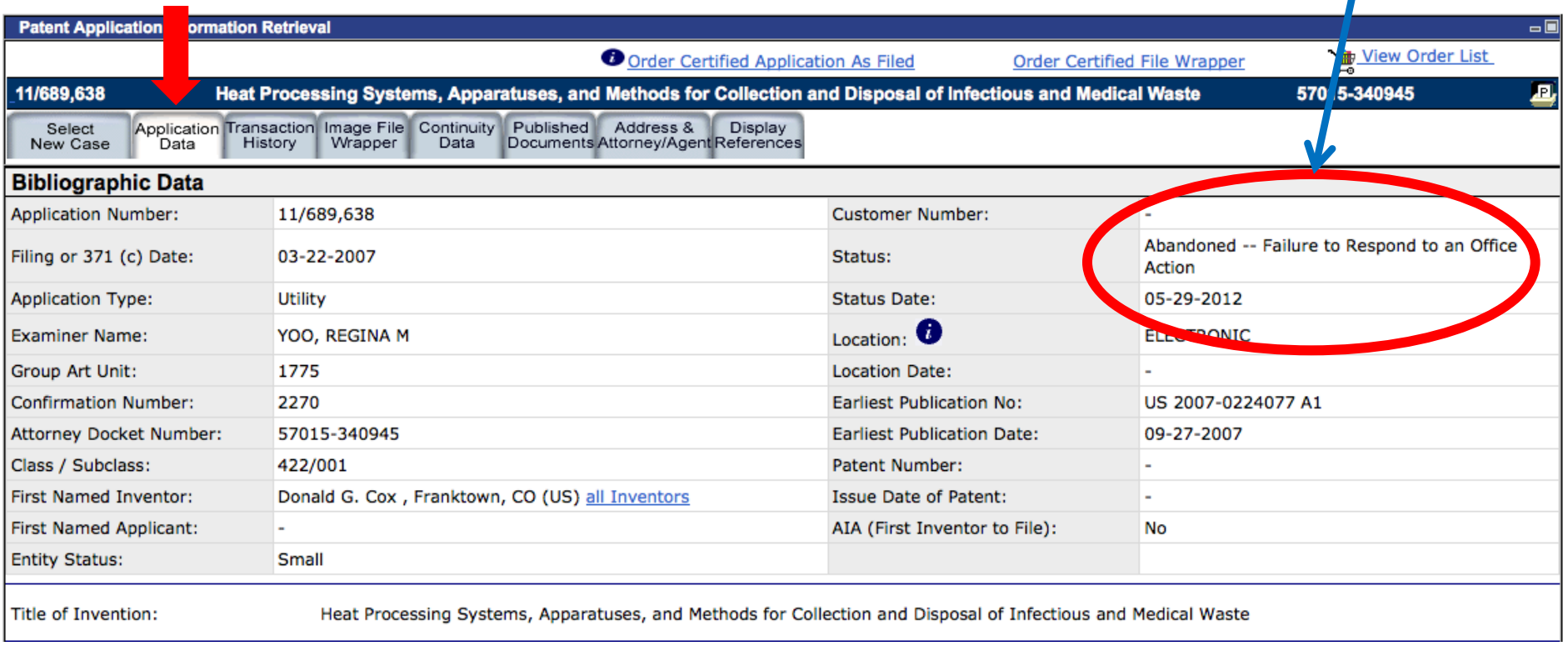


US-PAIR

- Only number search possible
- Various numbers, eg for PCT/US2007/07071, search is possible for
  - US application number, e.g. 11/689,638
  - US patent number (if granted; not the case for present example)
  - PCT application number, e.g. PCT/US07/07071
  - US application publication number, e.g. 2007-0224077
- Different number formats possible, although not necessarily those used by other databases (e.g., publication numbers WO2007111918, or US20070224077A1 are not accepted); see examples on search interface

US-PAIR: overview of application data

Recent status



Patent Application ormation Retrieval

Order Certified Application As Filed | Order Certified File Wrapper | View Order List

11/689,638 Heat Processing Systems, Apparatuses, and Methods for Collection and Disposal of Infectious and Medical Waste 570 5-340945

Select New Case | Application Data | Transaction History | Image File Wrapper | Continuity Data | Published Documents | Address & Attorney/Agent | Display References

Bibliographic Data

Application Number:	11/689,638	Customer Number:	-
Filing or 371 (c) Date:	03-22-2007	Status:	Abandoned -- Failure to Respond to an Office Action
Application Type:	Utility	Status Date:	05-29-2012
Examiner Name:	YOO, REGINA M	Location:	ELECTRONIC
Group Art Unit:	1775	Location Date:	-
Confirmation Number:	2270	Earliest Publication No:	US 2007-0224077 A1
Attorney Docket Number:	57015-340945	Earliest Publication Date:	09-27-2007
Class / Subclass:	422/001	Patent Number:	-
First Named Inventor:	Donald G. Cox , Franktown, CO (US) all Inventors	Issue Date of Patent:	-
First Named Applicant:	-	AIA (First Inventor to File):	No
Entity Status:	Small		

Title of Invention: Heat Processing Systems, Apparatuses, and Methods for Collection and Disposal of Infectious and Medical Waste

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US-PAIR

Overview of basic bibliographic and status data

File inspection: access to PDFs of all communications between office and applicant

List of actions taken by USPTO or applicant

National family

Tables of prior art (search report)

US-PAIR: transaction history

11/689,638 Heat [illegible]cessing Systems, Apparatuses, and Methods for Collection ar

Select New Case | Application Data | Transaction History | Image File Wrapper | Continuity Data | Published Documents | Address & Attorney/Agent | Display References

Transaction History

Date	Transaction Description
05-30-2012	Mail Abandonment for Failure to Respond to Office Action
05-29-2012	Aband. for Failure to Respond to O. A.
05-21-2012	Mail-Petition Decision - Granted
05-21-2012	Petition Decision - Granted
05-18-2012	Correspondence Address Change
05-11-2012	Petition Entered
01-31-2012	Mail-Petition Decision - Dismissed
01-31-2012	Petition Decision - Dismissed
01-23-2012	Petition Entered
10-26-2011	Electronic Review
10-26-2011	Email Notification
10-26-2011	Mail Non-Final Rejection
10-20-2011	Non-Final Rejection
08-31-2011	Date Forwarded to Examiner
08-24-2011	Request for Continued Examination (RCE)
08-31-2011	Disposal for a RCE / CPA / R129
08-24-2011	Request for Extension of Time - Granted
08-24-2011	Workflow - Request for RCE - Begin
04-12-2011	Case Docketed to Examiner in GAU
02-24-2011	Electronic Review
02-24-2011	Email Notification

Table of actions by office/examiner or applicant and related dates

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US-PAIR: image file wrapper

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US-PAIR: sample PDF non final rejection

= "written opinion"

Office Action Summary	Application No.	Applicant(s)	
	11/689,638	COX ET AL.	
	Examiner	Art Unit	
	REGINA M. YOO	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1,2,4,6,7,9,10 and 26-28* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

US-PAIR: sample PDF non final rejection

application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/24/2011 has been entered.

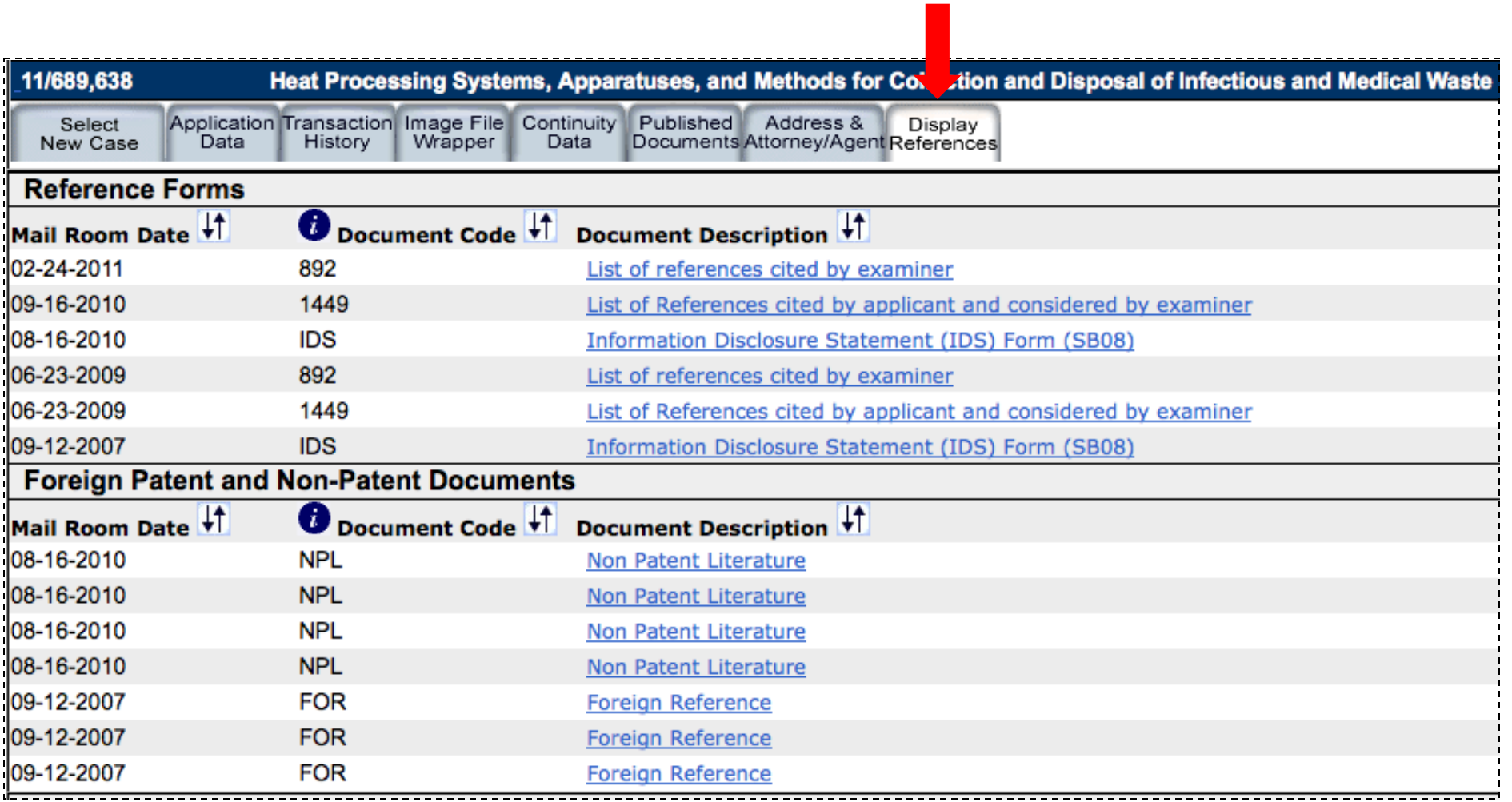
Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-2, 4, 6-7, 9-10 and 26-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

US-PAIR: prior art



11/689,638 Heat Processing Systems, Apparatuses, and Methods for Co[illegible]tion and Disposal of Infectious and Medical Waste

Select New Case | Application Data | Transaction History | Image File Wrapper | Continuity Data | Published Documents | Address & Attorney/Agent | Display References

Reference Forms

Mail Room Date	Document Code	Document Description
02-24-2011	892	List of references cited by examiner
09-16-2010	1449	List of References cited by applicant and considered by examiner
08-16-2010	IDS	Information Disclosure Statement (IDS) Form (SB08)
06-23-2009	892	List of references cited by examiner
06-23-2009	1449	List of References cited by applicant and considered by examiner
09-12-2007	IDS	Information Disclosure Statement (IDS) Form (SB08)

Foreign Patent and Non-Patent Documents

Mail Room Date	Document Code	Document Description
08-16-2010	NPL	Non Patent Literature
08-16-2010	NPL	Non Patent Literature
08-16-2010	NPL	Non Patent Literature
08-16-2010	NPL	Non Patent Literature
09-12-2007	FOR	Foreign Reference
09-12-2007	FOR	Foreign Reference
09-12-2007	FOR	Foreign Reference

US-PAIR: search report US examiner

Notice of References Cited	Application/Control No. 11/689,638	Applicant(s)/Patent Under Reexamination COX ET AL.	
	Examiner REGINA YOO	Art Unit 1773	Page 1 of 1

U.S. PATENT DOCUMENTS

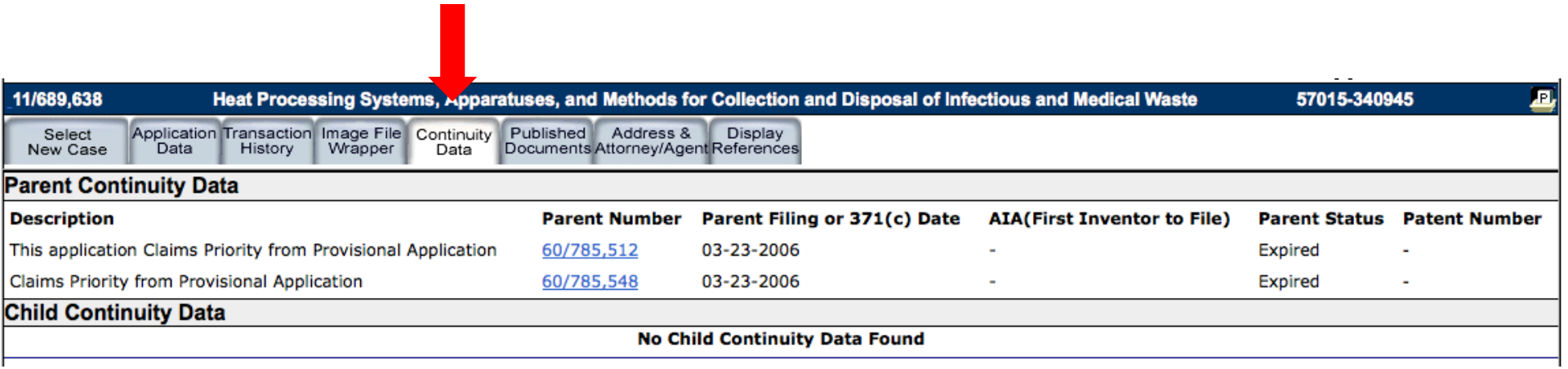
*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,662,516 A	05-1987	Baker et al.	206/363
*	B	US-5,003,892 A	04-1991	Bricken, Jonathan	110/346
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					

Search reports are **not enriched**, i.e. no X,Y,A; no references to claims, no references to pages, lines, drawings,..

US-PAIR: national family



11/689,638 Heat Processing Systems, Apparatuses, and Methods for Collection and Disposal of Infectious and Medical Waste 57015-340945

Select New Case | Application Data | Transaction History | Image File Wrapper | Continuity Data | Published Documents | Address & Attorney/Agent | Display References

Parent Continuity Data

Description	Parent Number	Parent Filing or 371(c) Date	AIA(First Inventor to File)	Parent Status	Patent Number
This application Claims Priority from Provisional Application	60/785,512	03-23-2006	-	Expired	-
Claims Priority from Provisional Application	60/785,548	03-23-2006	-	Expired	-

Child Continuity Data

No Child Continuity Data Found

Summary: File inspection

- File inspection means access to communications between applicant and office/examiner, in particular
  - E.g. examination reports/written opinions which are not published like search reports, search strategies
  - Final rejection rulings
  - Amended claims
- Possible usually through registers; e.g., at Patentscope, EP-Register, US-PAIR, AIPN, DPMA Register (soon)
- For general information see WIPO register portal (see browse tab of Patentscope) or at: http://www.wipo.int/branddb/portal/portal.jsp

Summary: Primary source

- Different publication functions are nowadays often integrated:
  - Register function together with
  - Access to official publication of patent documents/specifications
  - Links to separate Gazette/Bulletin/Journal
  - Accessible through more or less complex search interface
    - Search for application/publication numbers only
    - Search for other bibliographic data
- Different practices in different jurisdictions

Secondary sources of patent information

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

- Commercial patent databases
- Non-public proprietary search systems of patent offices
  - EPOQUE (EPO), DEPATIS (DPMA)
- Free-of-charge public patent databases:
  - **hosted by some IPOs**
  - hosted by others: Google Patents, Patentlens,..

Major free 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: as commercial providers and office search systems
- Search interface and functionalities: more basic and simple
- Do not permit searches as efficient as commercial databases or office search systems

Commercial providers

- Commercial database providers:

  Thomson, 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
  - text mining (search similar documents)

Q

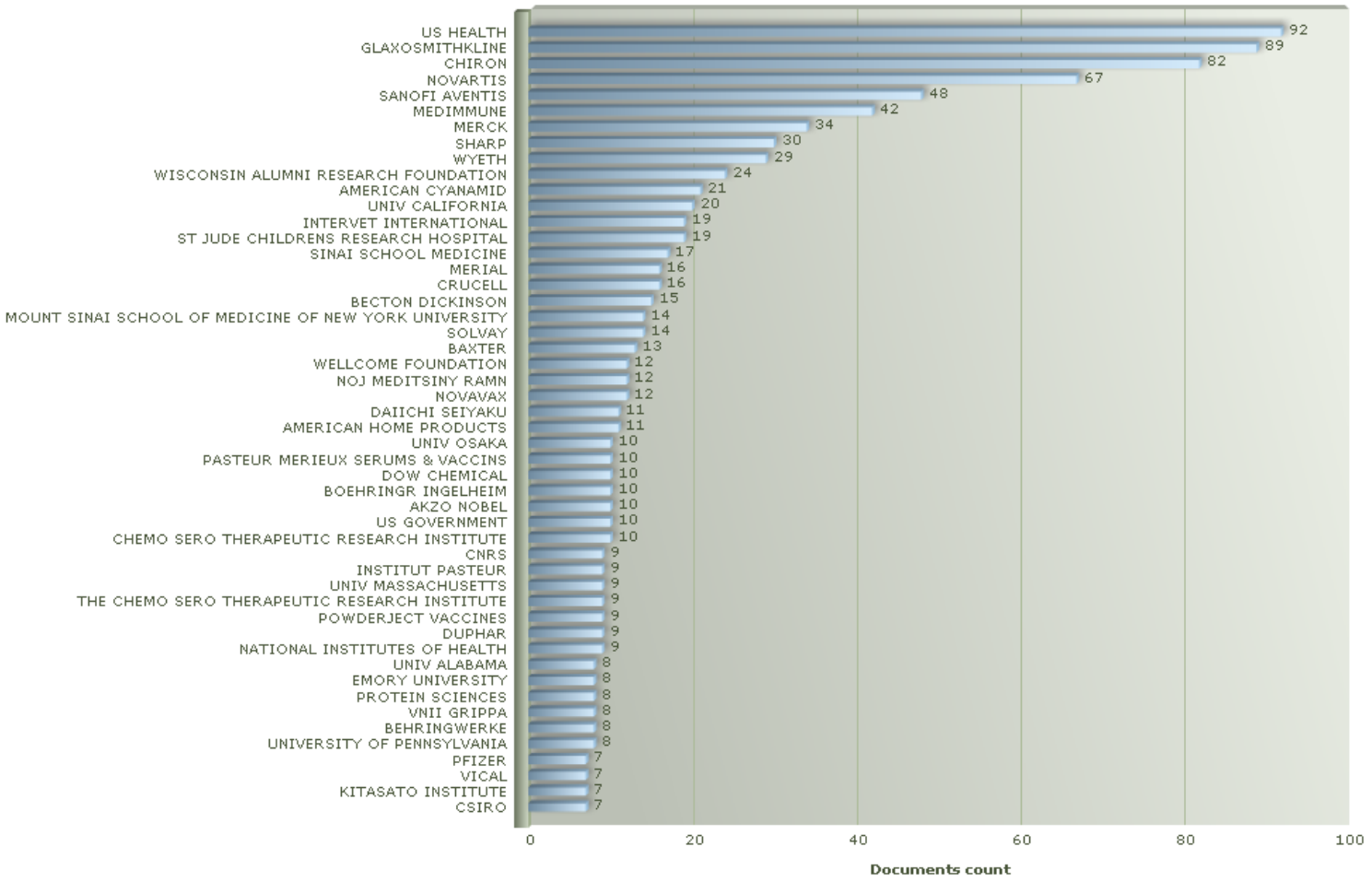
Orbit

Documents | Assignees | Inventors | Technologies | Data crossing | Semantic (beta) | Graphic size: 1000px

(A61K-039/145)/IC

Top 50 assignees

Top 50



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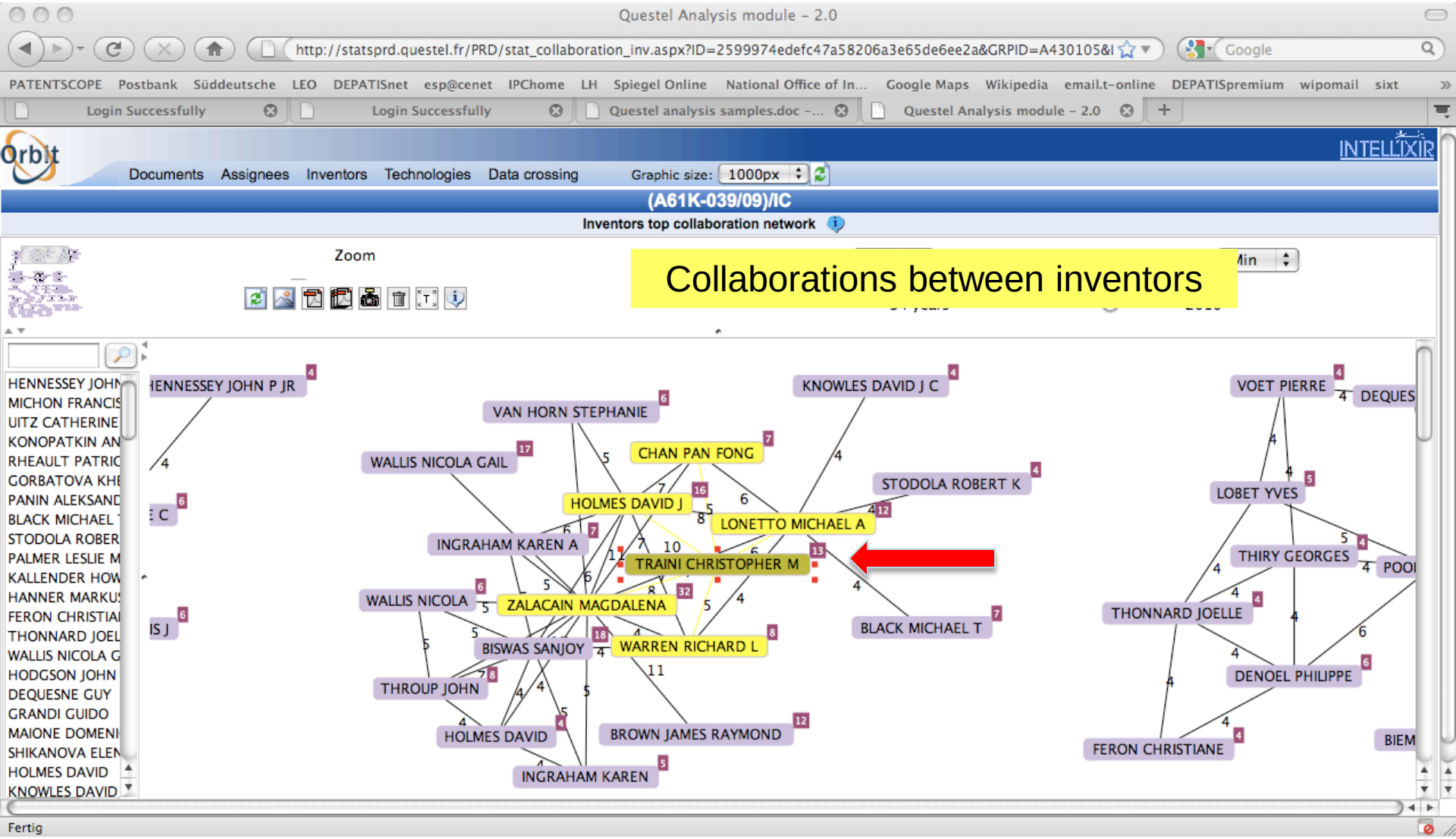

Abstract

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

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

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
  - Natural language, fuzzyness, similar documents
- Various formats e.g. for priority data, dates, … (a nightmare!)
- Still little standardization

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

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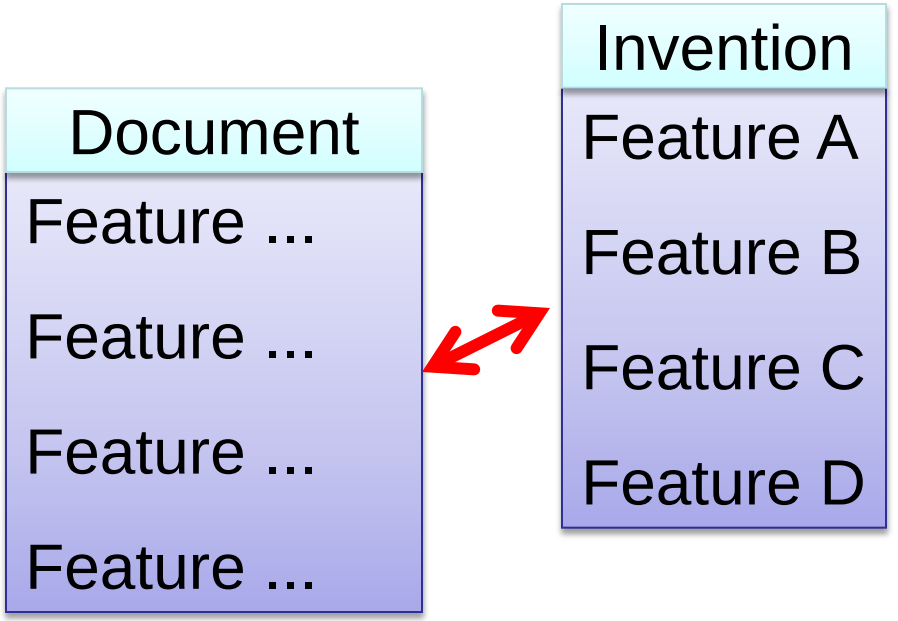
Novelty



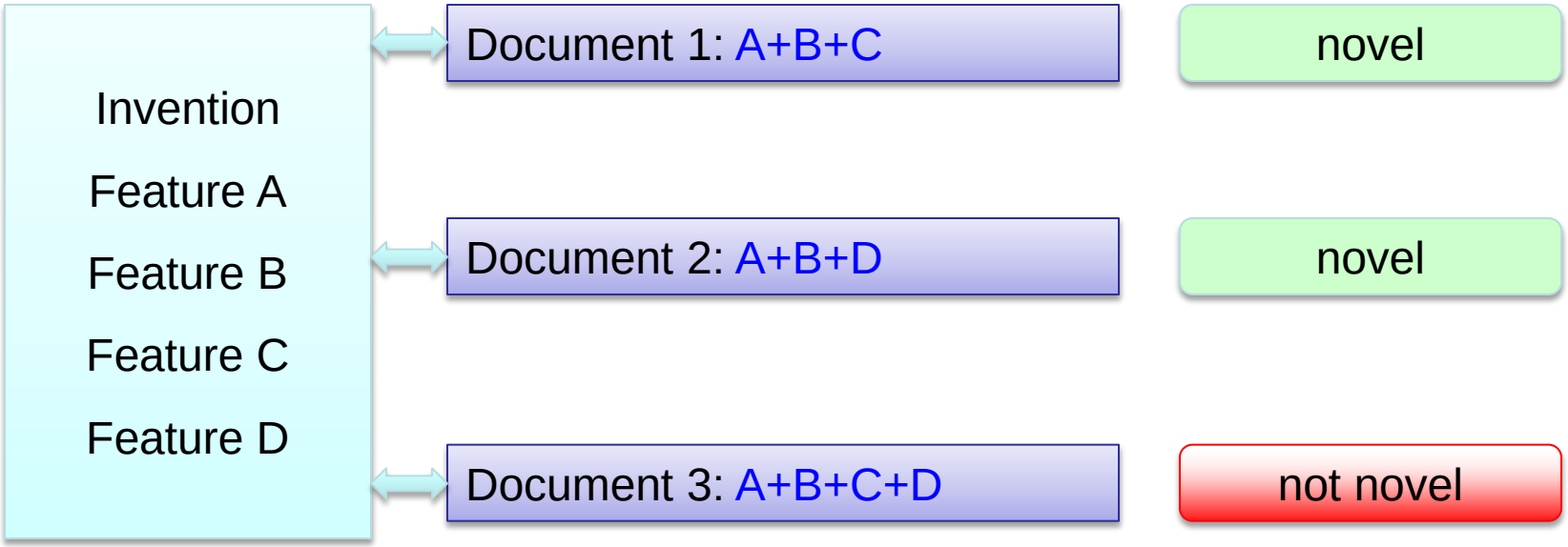
- Subject matter described in a claim is not novel if

  all features are known

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

Checking novelty

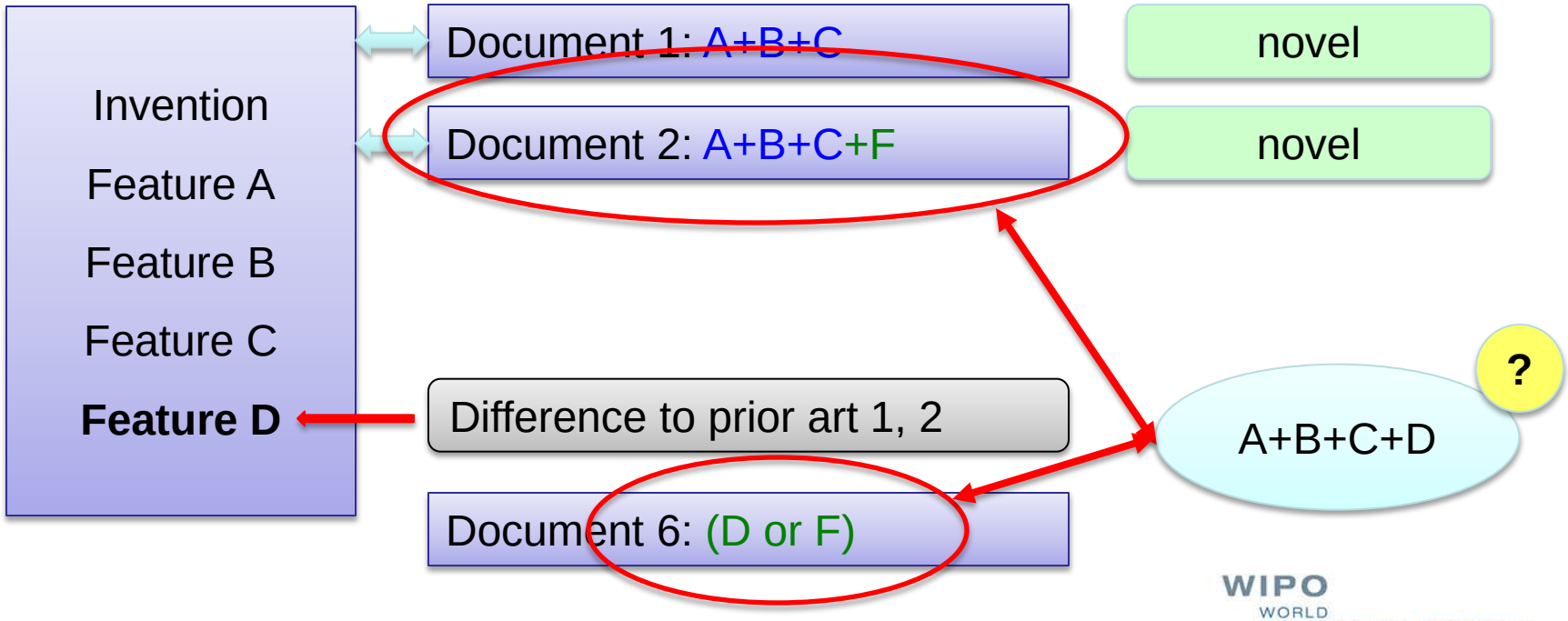
- Compare claimed inventive subject matter (e.g. claim 1) **individually** with each prior art document



more on searching prior art later on

Checking inventive step

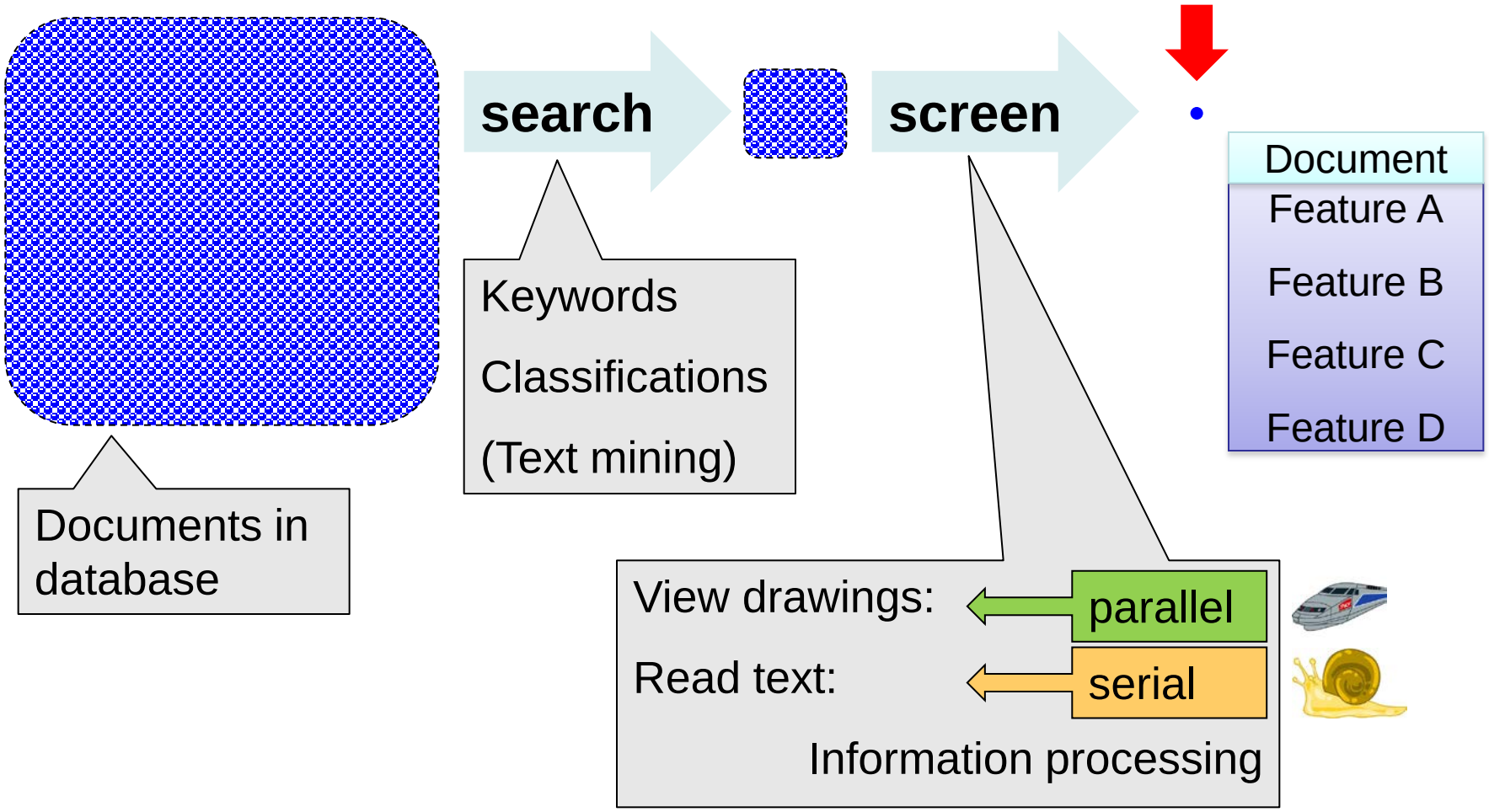
- If application is new: Is modification, e.g. of "closest" prior art **obvious for someone skilled in the art** ?



Search objectives (and types)

- **Patentability (prior art) search**:
  - Done before grant
  - Try to find documents that cover in total as many features included in the (potential) claims as possible
  - **Novelty search:** Try to find a document that includes all features of at least one independent claim
  - Else: Try to find documents that include, if not all, at least as many features as possible
    - (D1 with a, b, c) + (D2 with d) is better than
    - (D1 with a, b) + (D2 with c) + (D3 with d)
  - There may be a need to search additional features from the description (perhaps supplementary later search)

Novelty: Quest for the **one** document



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How to **search** technology ?

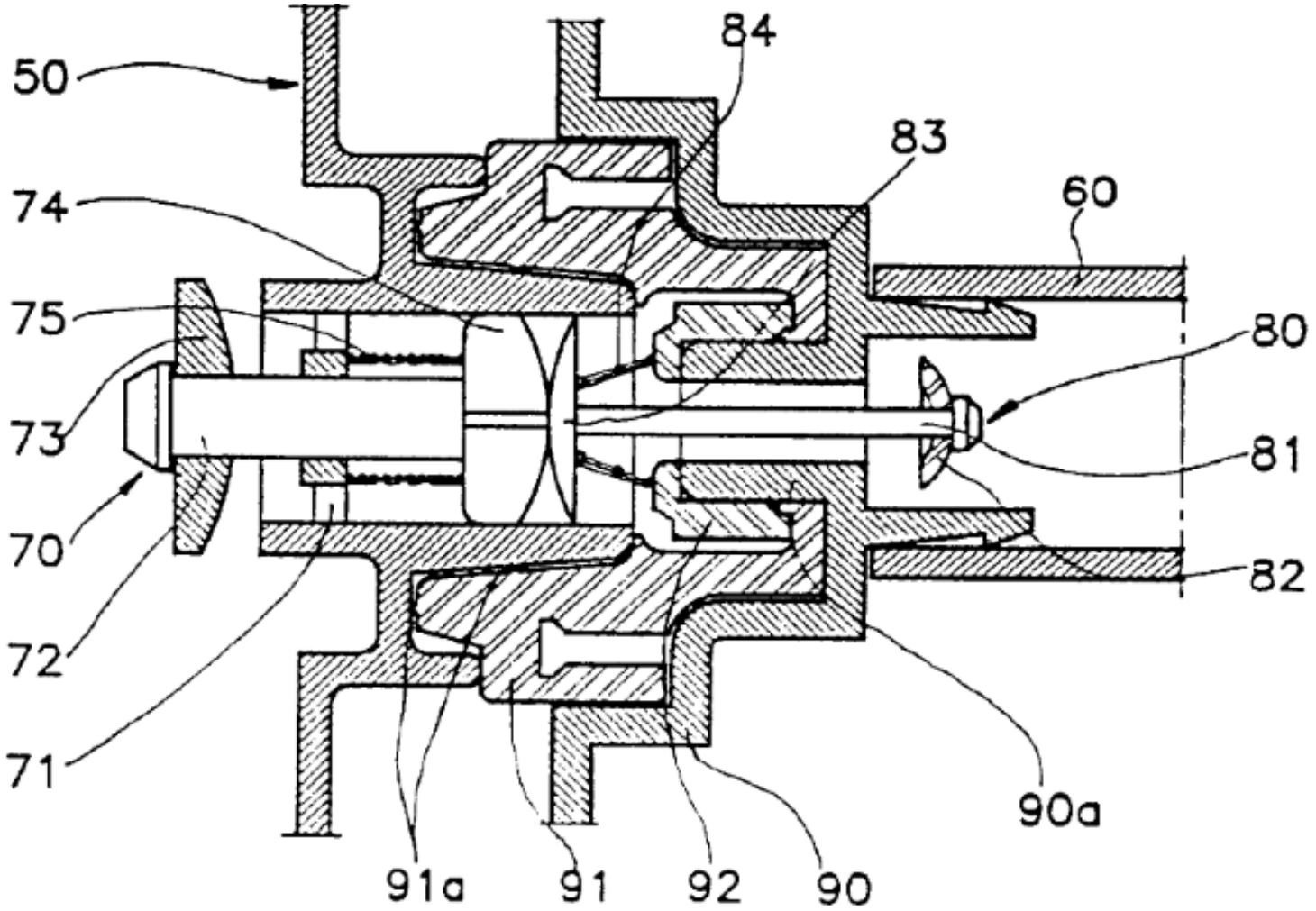
- Using keywords
  - language dependent
  - synonyms, variations
  - cross lingual search (in Patentscope)
- Using classification codes
  - language independent
  - Different classification systems
  - Predefined concepts
- Combinations of keywords/classifications
- Reiteration, refinement by review 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; usualy 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:

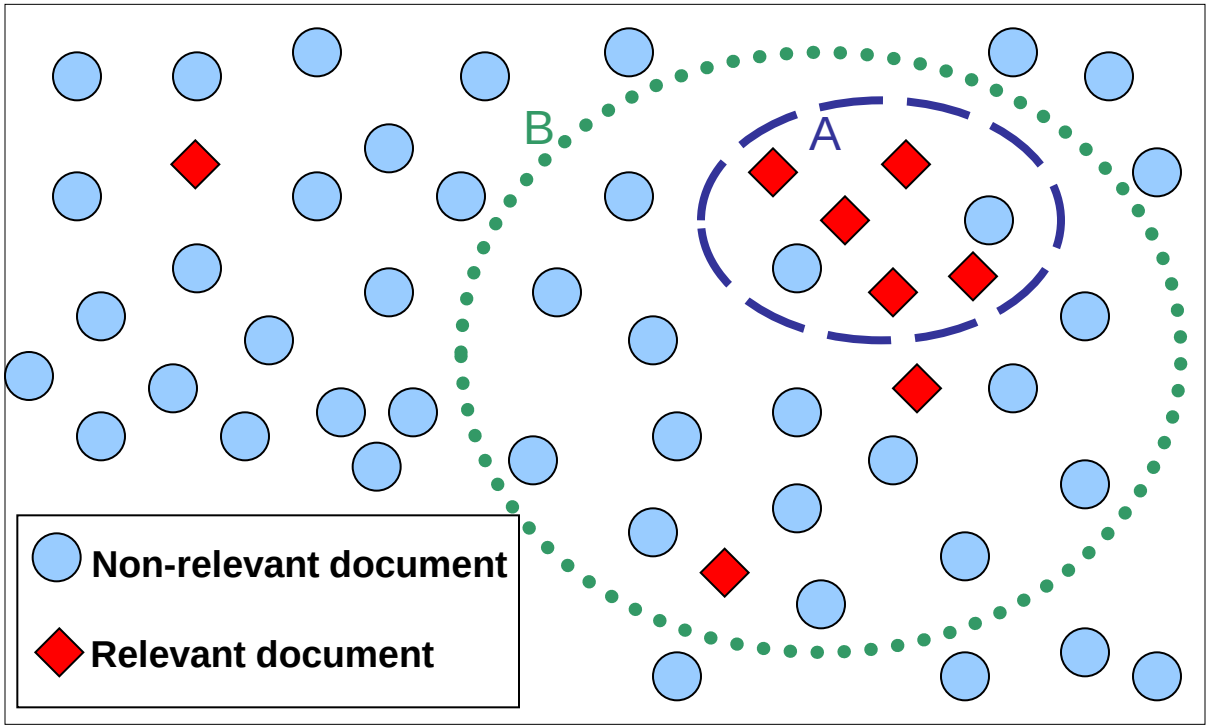
    X: challenging novelty > very similar

    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

Quality of search queries



Query A

Query B

Query Precision: number of relevant results/number of results
Query Recall: number of relevant results/number of relevant documents

Quality of search queries

- A search query usually returns both relevant and irrelevant results (hits)
- "**Recall**" and "**precision**" are two concepts to measure the quality of searches

- **Recall** (0≤x≤1)
  - What % of the relevant documents were found?
  - Recall=1 : All relevant documents were found

- **Precision** (0≤x≤1)
  - How big is the % of irrelevant search results (hits) ?
  - Precision=1 : no noise, ie no irrelevant documents in result list
  - Precision=0 : only noise; no relevant document was found

Quality of search strategies

- **Recall** (0≤x≤1)
  - What % of the relevant documents were found?
  - Recall=1 : All relevant documents were found

$$\text{Recall} = \frac{\text{number of relevant results}}{\text{total number of relevant documents}}$$

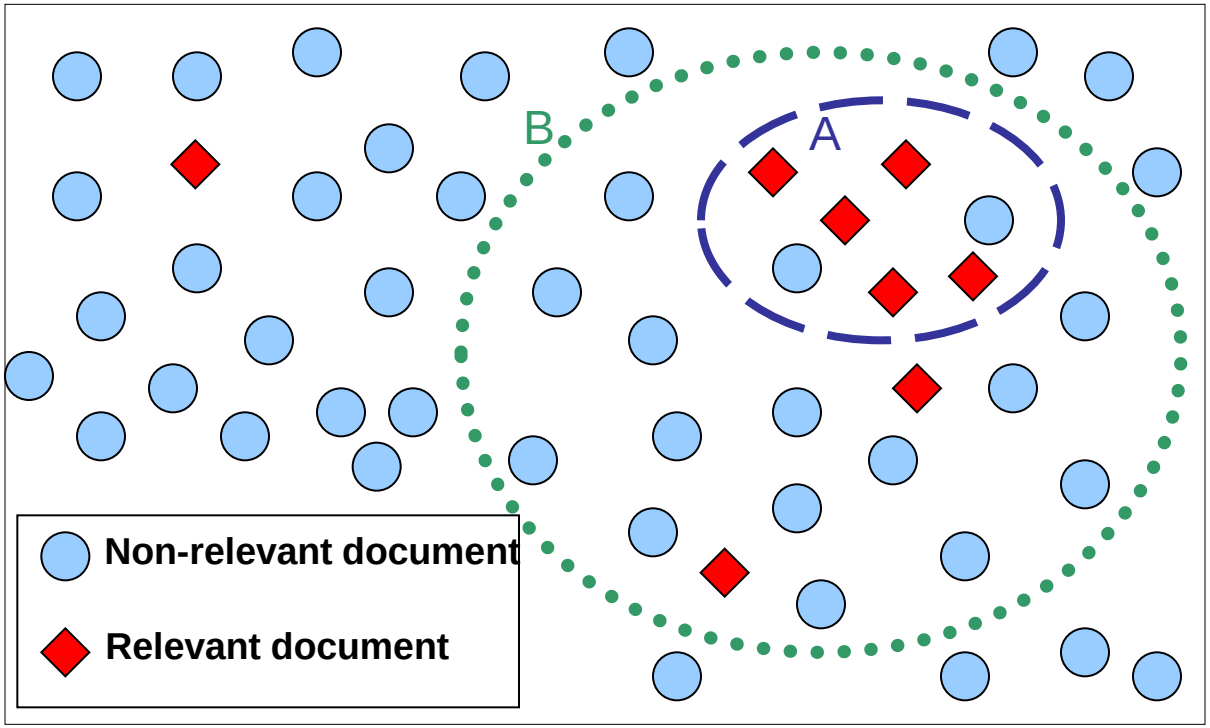
- Do we know how many relevant documents there are?
- What is a relevant document?
- Recall is rather a theoretical concept that facilitates discussion.

Quality of search strategies

- **Precision** (0≤x≤1)
  - How big is the % of irrelevant search results?
  - Precision=1 : no noise, ie no irrelevant documents in result list
  - Precision=0 : only noise; no relevant document was found

$$\text{Precision} = \frac{\text{number of relevant results}}{\text{number of results}}$$

Recall/precision



Query A

Precision: 5/7 = 71%

Recall: 5/8 = 63%

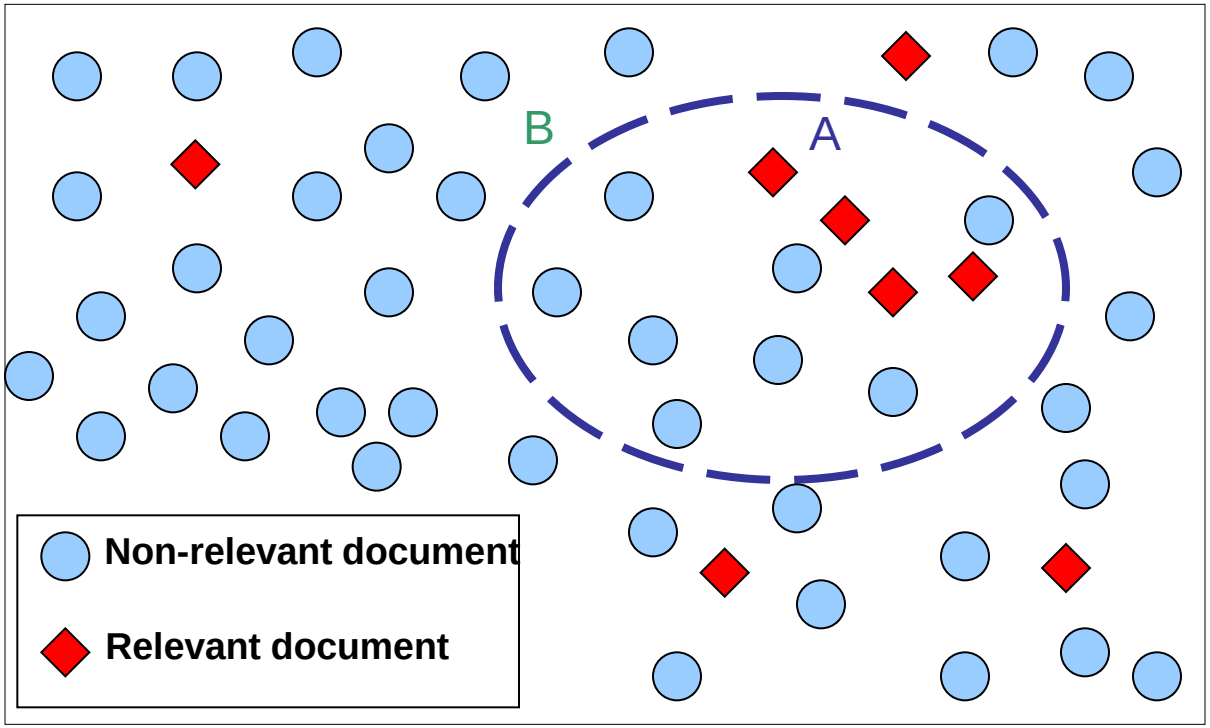
Query B

Precision: 7/23 = 30%

Recall: 7/8 = 88%

Query Precision: number of relevant results/number of results
Query Recall: number of relevant results/number of relevant documents

Exercise



What is a relevant document ?

- What do we want to find? **What is the scope of search?**
  - Just one particular document? E.g. a document of which you forgot the number?
  - All documents in a particular area of technology? E.g. all documents related to the treatment of waste water from tanneries?
  - All documents describing the same invention?
  - All documents describing a similar invention?
- For what purpose?
  - Patentability of inventions/Validity of granted patents
    - Novelty
    - Inventive step
  - Freedom to operate

Recall and precision in practice

- How can we enhance recall?
- How can we enhance precision?
  - Truncations?
  - Synonyms, translations (OR)
  - Keywords (AND)
  - Keywords (AND) classifications
  - Classifications from different classification systems
  - Citations

Search objectives (and types)

- **Patentability (prior art) search** (cont.):
  - Recall=1 is not needed: one novelty challenging document is enough
  - High recall will enhance the probability to find one novelty challenging document
  - High precision (low noise) only improves the efficiency of the manual screening of the search result
- **Validity search**:
  - = patentability search after grant, i.e. the claims to be searched are fixed, all features are definite; no potential features in description need to be taken into account

Search/examination practice

- Before search: Claims analysis/preliminary examination
  - Claims clearly worded ?
  - Exemptions from patentability?
  - Technical nature given?
  - Unity of invention given?
  - Sufficient disclosure?
- If not, issue a report without search and request rectifications

Deconstruction of claim wording

- Deconstruction of claim wording, ie structuring/sorting the subject matter of a claim into distinct features/elements or groups of such facilitates:
  - the understanding of the subject matter
  - the checking of the clarity of the claim wording
  - the assessing of novelty by comparing the distinct features with the prior art
  - the determination of the closest prior art
  - (the determination of the difference to the closest prior art)
  - the searching of prior art

> exercises

Thank you

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