Patents and patents information sources: What to consider when commercializing research

December 12, 2013
Todays Goal

» Know what is intellectual property and its role in business

» When are you dealing with patentable matter

» How to access information from patent databases

» Know LU Innovation Systems
The two hours from now

1. Introduction to IP och patent.

2. How does the commercialization process LU i.s. look like?

3. Coffee – ca 10 MIN

4. How do a "novelty search" within your field?

5. Demonstration av sökning i databas

6. Diskussion och avslutning
Intellectual asset?

» Tangible results, such as:

- Models
- Knowledge
- Simulations
- Algorithms
- Software
- Data
- Figures
- Blueprints
- Experimental set-ups
- New methods... etc.
$IP(R) = \text{Intellectual Property (Rights)}$

Human creations

- Function
  - Patents

- Appearance
  - Design

- Efforts
  - Trademark

- Art
  - Copyright
An intellectual property…

» Protection of intellectual achievements and characteristics in the marketplace

– Includes:

» Patent

» Design

» Trademark ®

» Copyright ©

» Company name, domain name

» Secrets – "know-how"
Example: Inhalator

**Patent**
- The active substance compositions etc
- Methods for production
- Inhalator mechanism; dosage control, spiral m.m.
- Treatment of disease A and/or B etc.

**Trademark**
- ASTRA, ASTRA-logo, “Turbohaler”, “Pulmicort”

**Design**
- 3D-design of the Inhalator

**Secrets**
- Internal processes and further know-how
Short facts about patents

» Protection for a commercial use of an invention

» Exclusive right for up to 20 years (25 years for drugs)

» Publish your invention after 18 months

» National contract, only valid in the country it is granted
Gain for Society

» Knowledge accessible for the people in a society

» Attract non-governmental venture (i.e. money) to implement technology

» Tax money

» Speed up technical development
A patentable invention must be:

- **New** (novel) – the invention must have at least one different feature
- **Inventive step** (non-obviousness) – the invention must not be a trivial variation
- **Industrial applicable** – the invention must have a real use
Not an invention

Not be regarded as inventions by the law:

» discoveries, scientific theories and mathematical methods or

» aesthetic creations or

» schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers or

» presentations of information.
"...all fields of technology..." i.e. Technical character

» No definition of technical – case law

» Technical character
  – Must relate to a technological field
  – Must relate to a technical problem
  – Must have technical features

Thus a defined technical solution to a technical problem that is new, non-obvious and is industrially applicable
Structure of a patent application

» An abstract

» An introduction to the technical field of the invention

» A detailed description of the invention

» Examples supporting the invention

» Claims defining the scope of protection sought for the invention

» (Figures?)
Introduction

» Defines the technical field and invention in brief

» Describes the current level of knowledge, i.e. the ”state of the art”

» Highlights problems that the invention seeks to address

Example:
The present patent application relates to a tool suited for digging. At present, one uses a flat device held directly by the hand of the user, and/or a stick to loosen the soil. The present invention aims to solve the problem of the low power of the single flat device and the low shuffling capacity of the stick.
Detailed description

» Not a scientific manuscript

» Describes the invention in sufficient detail to enable the reader to work the invention

» Describes alternative embodiments (bases for amendment)

Example:

A flat device attached to a stick.
The flat device may be of metal, iron...etc...
The shape of the flat device may be...etc....
The attachment may be ...etc...
The stick may be straight, bent...etc...
Additional features may be ...etc...
Examples (part of detailed description)

» Provide supporting data to demonstrate that the invention actually works

» Comparable to "material and methods" and "results" of a manuscript

» Figures

*Example:*

**Digging speed of different shuffles in comparison**
Claims

» Define the **scope of protection** for the invention

» Often amended between publication of application and grant of patent (to limit scope)

» Two types – **Dependent** and **independent** claims

» Three aspects – product, method and use

**Example:**
1. A digging device characterised by a lower part which is flat and an upper part which is a stick.

2. A digging device of claim 1 characterized by that the lower part is of metal.
Patenting worldwide

Priority year

0 12 mån 30 mån

X - 100 kkr 40-100 kkr 30-100 kkr/country Årsavg...

Totalt ca: 1,5 miljoner för 10 år i viktigaste länder
Patent family

» A family of patents is to protect a single invention in different countries

Note:

– Different definitions from for example INPADOC and WPI

– Sometimes different content in different countries
“5 disciplines of Innovation”

» Important Customer and Market need

» Value creation – NABC value proposition

» Innovation Champion

» Innovation Team

» Organizational alignment
LU-i.s. and patent applications

» **Need** – Who’s problem are you solving who is willing to pay

» **Approach** – How do you plan to reach/convince him

» **Benefits per costs** – Value

» **Competition and alternatives**

*How may IPR be used to support the above?*
PAUS?
Public patent information as a source

» More than 80 million published patent applications

» Over 5 million active patents

» Around 2 million new applications are published/year

» All are classified in one or more classification systems
State of the art - search


» EPO patent database (including WIPO)

» Free Patents Online (FPO),
  http://www.freepatentsonline.com/search.html

» Patentlens databases,
  http://www.patentlens.net/patentlens/structured.html

» Övriga databaser för tidskrifter, sekvenser, m.m. Inspec and Scifinder
National codes

Nation codes to limit your search results (i.e. [SE], [GB], etc)

Quick search: Nation code must be in both Applicant AND Inventor field to retrieve a hit

» For example in the Applicant or Inventor search fields.

» Note 1: nation codes stands for nation of residence not citizenship

» Note 2: Not all documents are indexed with Nation codes
Search statement?

E.g.

- Medicin
- Alternative medicin
- Herbal medicin
- Aromatherapy
- Aromatherapy for treating reumatism

» Defines the scope of the search
» Scope is restricted by the keywords used in statement
» Can be changed during search process
Basics

- Max 10 words/field and max 20 in total
- English
- Space = ” and ”
- Search word selection!
  - Truncations
- Wildcards: ” * ”; ” ? ”; and ” # ”
Choice of keywords

Synonyms are listed with "or" between

» E.g. **headphone** for a mobile telephone, a CD player, etc.

- ear, ear plug, wireless etc

- But also earphone, headset or even listening device
Patent classes

IPC classes

– http://www.wipo.int/classifications/ipc/ipc8/?lang=en

ECLA classes


US classes


» USPC-to-IPC Reverse Concordance

– http://www.uspto.gov/web/patents/classification/international/ipc/ipc8/ipc_concordance/ipcsel.htm
CPC replaced ECLA on Espacenet

Cooperative Patent Classification (CPC) system is a new patent classification system developed jointly by the EPO and the USPTO.

» http://www.cooperativepatentclassification.org/index.html

» Searching:
Using Patent Translate in Espacenet

1. Find a patent document in Espacenet.

2. Choose the part you want to translate - abstract, description or claims.

3. Select the target language and click the Patent Translate button.

4. Once you see the translation, you can mouse-over to see the original text sentence by sentence.
Cited documents

Document citation – aim at making invention non-obvious

Examiner citations – aim at making invention obvious
Espacenet alerts (RSS feeds)

» RSS feed of the result list

- Click on the RSS icon to add the URL of the result list as a feed to the RSS client installed on your machine. Each click creates a new RSS feed.

- Active bookmarks or Outlook?
## Espacenet Assistant

**Welcome**

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How to start with your new idea…

» Fake story - real patent case (SE0200064-4; Inventors Hans Bernhoff and Mats Leijon)

» Some Professors at Uppsala University with a background in ABB interact in a creative environment…
From idea to patent

» A vertical wind power plant

» Why?
  – Noise
  – Maintenance
  – Size
From idea to patent (2)

» Why not a vertical power plant?
  – Output power not controllable
    » Regulation of turbine blades
    » Overload control or large generators
  – Ratio useful vs theoretical power
» Not realistic alternative?

» EPO patent database,
What to do first?

» Make a structure scheme of the technical features of your invention!

- Define the technical features necessary to work your invention

- What effect does each of the technical features contribute to (note: a combination of technical features may be considered as a single new tech. feature)

» EPO patent database,
Generalization about search words

» Search words from patent documents are derived from a description of the solution

» Search word from academic literature are focused on the result/observation of the research
Examples of technical features

Vertical turbine blades of “H”-type

Vertical turbine axis

Inclined stays/cables

Generator at the ground journalled vertical

Previous inventor activities

» Mats Leijon
  - http://sv.wikipedia.org/wiki/Mats_Leijon

» Hans Bernhoff
  - http://www.el.angstrom.uu.se/personer/hans/hans.html

» EPO patent database,
Finding relevant CPC-classes

» Leijon Mats or Bernhoff Hans + wind* and power*

» Vertical* turbine* axis*

» Y10S often interesting
Finding relevant CPC-classes

- F03D3/005 – Wind motors with rotation axis vertical to wind /axis vertical

- F05B2240/95 F05B2240/96 – To machines or engines / components / Mounting on supporting structures or systems / ++ offshore / ++ as part of a wind farm

- F05B2240/214 – To machines or engines / components / rotors / for wind turbines / vertical axis / H-type

- Y02E10/74 - Energy generation through renewable energy sources / wind energy / Wind turbines with rotation axis perpendicular to the wind direction

- Y10S174/20
Thank You
- and good luck with your searches
Design databases

» PRV design database (Sweden)

» OHIM design database (European)

– Available via http://www.prv.se/Design/e-tjanster/
Basics about patent suffix

» "A" = first publication of application after 18 months
  (e.g. US1999123456A or WO20091123456A1)
  – "A1" = application + search report from a PTO
  – "A2" = application without search report
  – "A3" = Search report from a PTO

» "B" = Publication of a granted patent
  (e.g. US1999123456B or EP2011123456B1)
An invention(?) on Youtube

http://www.youtube.com/watch?v=L7L3iSZsNpY&feature=f vst

- "A microprocessor base"
- "Flashbulb suspended here" (i.e. in front of the carriers eyes)
- "Aerial receiver" (or antenna or …)
- "Phone" (or telephone)
- "Transmitter"
Publically available

Knowledge

Oral
Application
Publication
Posters