Riccardo Pietrabissa

Intellectual property:
what is and how to use it in public research organizations (PRO)

The property is an exclusive right characterized by the possibility
- to use the object of the property for every purpose that is not prohibited
- and to transfer the ownership to others.

George Bernard Shaw:

"If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple.
But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas"

tangible/material goods

intangible/immaterial goods

property
acquisition
use
value
rights

One product - many IP rights

Trade marks
- NOKIA
- Product "208"
- Start-up tone

Copyright
- Software
- User manuals
- Ringtones
- Start-up tone
- Images

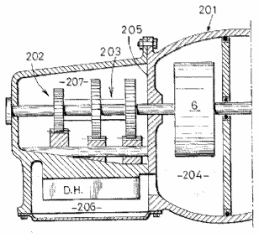
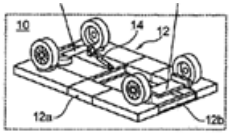
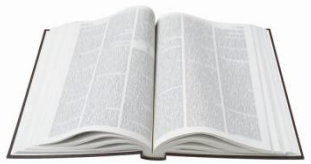
© Nokia Corporation

Patents and utility models
- Data-processing methods
- Operating system
- Operation of user interface

Designs
- Form of overall phone
- Arrangement and shape of buttons
- Position and shape of screen

Trade secrets
- Some technical know-how kept "in-house" and not published

The different types of IP (I)

Legal right	What for?	How?	
Patents	New inventions	Application and examination	
Utility models	New inventions	Application and registration	
Copyright	Original creative or artistic forms	Exists automatically	

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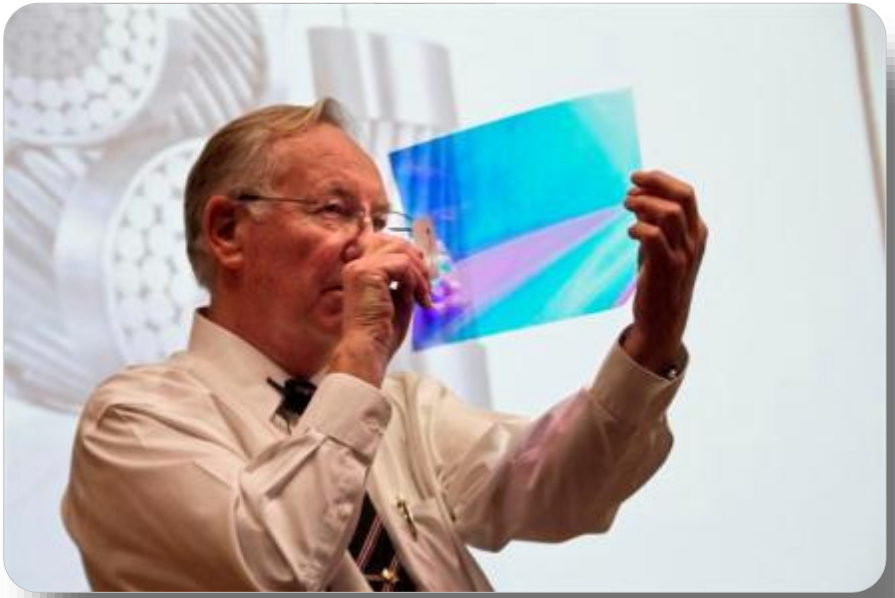
The different types of IP (II)

Legal right	What for?	How?
Trade marks	Distinctive identification of products or services	Use and/or registration
Registered designs	External appearance	Registration
Trade secrets	Valuable information not known to the public	Reasonable efforts to keep secret



Geoffrey C. Nicholson, Geoff, served as Vice President of Corporate Technical Planning and International Technical Operations of 3M Corporation. He served at 3M Corporation from 1963 to 2001. During his career at 3M, he was instrumental in the development of its "Post-it" Notes as well as oversaw 2500 3M employees internationally.

Imperial College London

Department of Chemistry Centenary Lecture on Innovation, 22 February 2007

Innovation: A Survival Issue

Dr Geoff Nicholson

"...research is the transformation of money into knowledge

and

innovation is the transformation of knowledge into money..."

Imperial College London

Department of Chemistry Centenary Lecture on Innovation, 22 February 2007

Innovation: A Survival Issue

Dr Geoff Nicholson

"...research is the transformation of money into knowledge

and

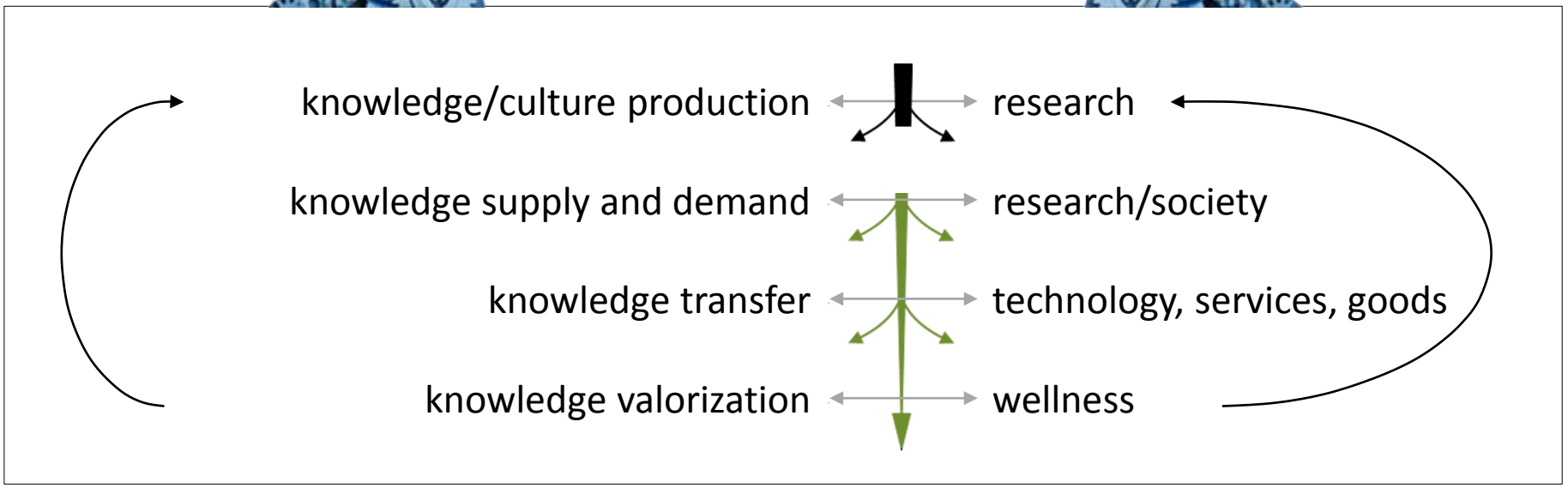
innovation is the transformation of knowledge into money..."

university  viewpoints  industry

1. research produces knowledge and
2. innovation uses knowledge

1. research consumes money and
2. innovations produces money

the knowledge cycle



discovery and knowledge (Gauss 1777-1855 numerical sequence)

1 + 2 + 3 + 4 + 5 + ... + ... + ... + 97 + 98 + 99 + 100 = 5050

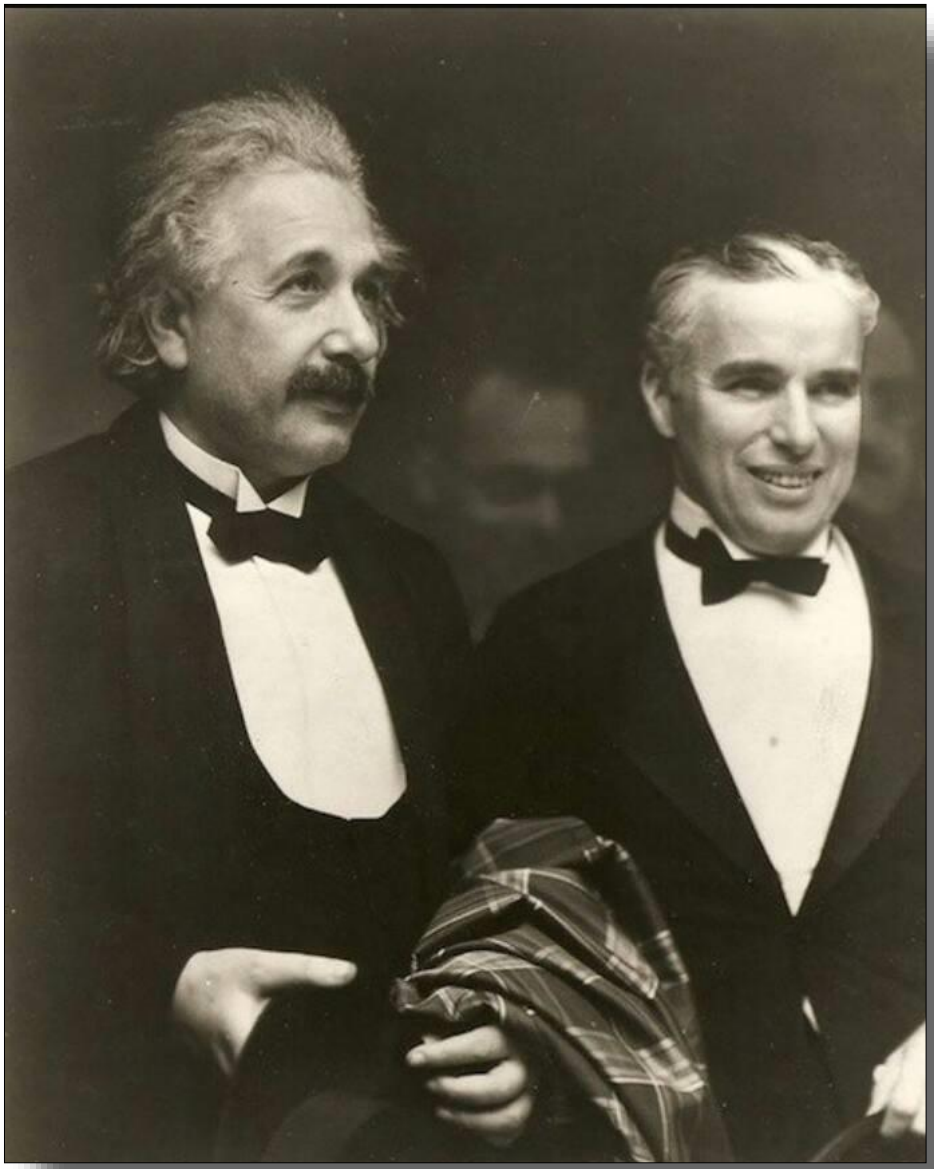
+ + + + + + + + + + + +

100 99 98 97 96 ... ... 4 3 2 1

---

101 + 101 + 101 + 101 + 101 + ... + ... + ... + 101 + 101 + 101 + 101 = 100x101/2 = 5050

$$\sum_{n=a}^{b} n = (a+b)x(b-a+1)/2$$



In 1930 Charlie Chaplin e Albert Einstein met and an adectode is reported.

Einsten said:

> "What I most admire about your art, is your universality. You don’t say a word, yet the world understands you!"

Chaplin replied:

> "True. But your glory is even greater! The whole world admires you, even though they don’t understand a word of what you say."

?

which is the aim of research?

what is espected from researchers?

publication of papers ➔ number of papers

education of the ruling class ➔ quality of politicians and decisors

contribution to the progress of the nation ➔ GDP / wealth / wellbeing

generation of culture ➔ quality of population

about
visiting | maps | offices | history

admissions
undergrad | graduate | financial aid

education
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OpenCourseWare | *MITx* | edX

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arts | athletics | social media

initiatives
energy | cancer | diversity | global

impact
industry | public service

commencement

today's spotlight

Rumor has it

Study: Trying to correct political gossip may only entrench it further

Today's image

news

Startup's platform gives free data to cellphone users in developing countries

Researchers explain India's rapid move north 80 million years ago

John Tirman's new book explores cultural clash over immigration

National Academy of Sciences elects four MIT professors

research | campus | press

events

xTalks: Willcox & Seering (May 6)

Kendall Community Meetings (May 6)

Compton Lecture (May 11)

Reminder to graduating students from the Registrar

about
visiting | map | history | offices

admissions
undergrad | graduate | financial aid

education
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OpenCourseWare | *MITx* | edX

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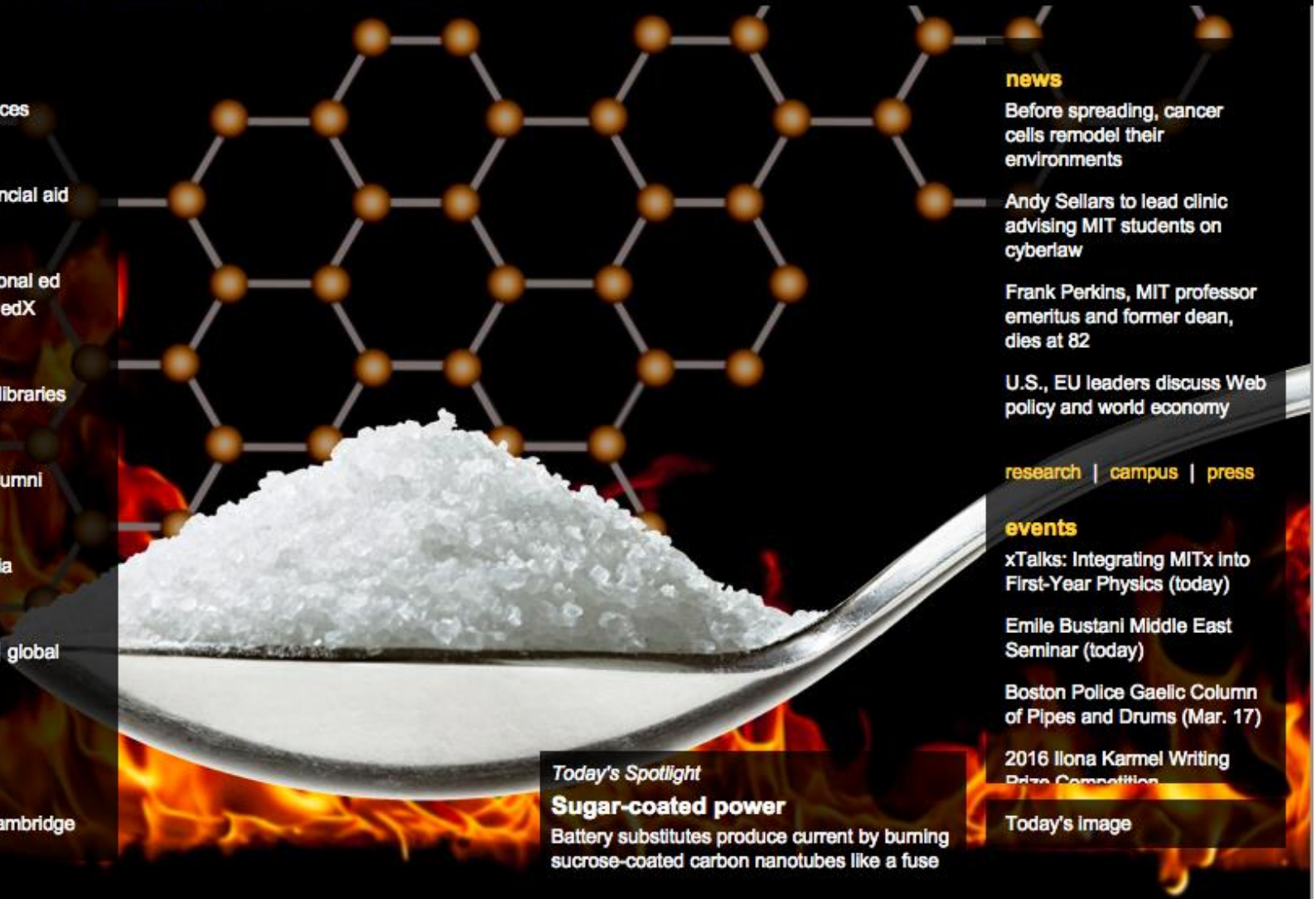
industry | public service

MIT 2016
Celebrating a Century in Cambridge



Today's Spotlight

Sugar-coated power

Battery substitutes produce current by burning sucrose-coated carbon nanotubes like a fuse

news

Before spreading, cancer cells remodel their environments

Andy Sellars to lead clinic advising MIT students on cyberlaw

Frank Perkins, MIT professor emeritus and former dean, dies at 82

U.S., EU leaders discuss Web policy and world economy

research | campus | press

events

xTalks: Integrating MITx into First-Year Physics (today)

Emile Bustani Middle East Seminar (today)

Boston Police Gaelic Column of Pipes and Drums (Mar. 17)

2016 Ilona Karmel Writing Prize Competition

Today's image

about

The mission of the Massachusetts Institute of Technology is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century. We are also driven to bring knowledge to bear on the world's great challenges.

130,000 living alumni.

At its founding in 1861, MIT was an educational innovation, a community of hands-on problem solvers in love with fundamental science and eager to make the world a better place. Today, that spirit still guides how we educate students on campus and how we shape new digital learning technologies to make MIT teaching accessible to millions of learners around the world.

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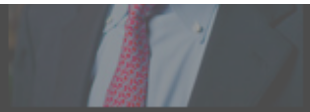

site for more information

Institute initiatives

Digital learning

Integrated Learning Science

Climate Change

Energy

Environmental solutions

Innovation

Entrepreneurship

Cancer

Global

Institutional Awards and Honors

MIT ranked No. 1 among world's universities

MIT ranked No. 1 in architecture globally

MIT named No. 1 university worldwide for social sciences

research/researchers/Univ-PRO

which rights?
autonomy

which duties?
responsibility

topics

use of results

publications

exploitation

a patent

United States Patent [19]
Sedlmayr

[11] 4,294,458
[45] Oct. 13, 1981

[54] SKI STOP

[75] Inventor: Gerhard Sedlmayr, Farchant, Fed. Rep. of Germany

[73] Assignee: Hannes Marker, Garmisch-Partenkirchen, Fed. Rep. of Germany

[21] Appl. No.: 961,458

[22] Filed: Nov. 16, 1978

[30] Foreign Application Priority Data

Nov. 18, 1977 [DE] Fed. Rep. of Germany 2751602

[51] Int. Cl.² A63C 7/10
[52] U.S. Cl. 280/605
[58] Field of Search 280/605

[56] References Cited

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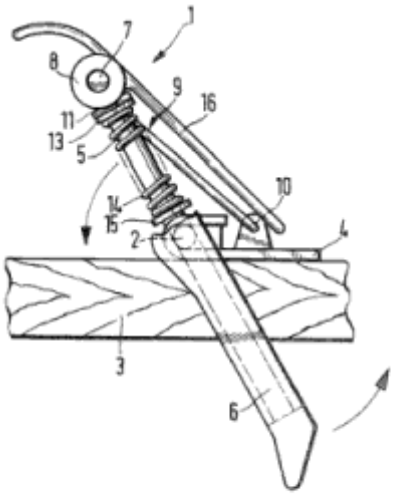
7504430 6/1975 Fed. Rep. of Germany .
2517861 11/1976 Fed. Rep. of Germany .
2526908 12/1976 Fed. Rep. of Germany .

Primary Examiner—Joseph F. Peters, Jr.
Assistant Examiner—Milton L. Smith
Attorney, Agent, or Firm—Flett & Jacobson

[57] ABSTRACT

A ski brake has two pivotable prongs, one on each side of the ski and having coaxial pivot shafts which are mounted on the ski to extend across the ski adjacent the upper ski surface and are each integral with an actuating arm depressible by a ski boot against spring action whereby to turn the pivot shafts and swing the brake prongs to an inoperative position. The spring action is exerted by way of a link member hinged to the ski by one end at a fixed position spaced lengthwise of the ski from the coaxial pivot shafts and connected by the other end to both actuating arms so as to be displaceable therealong when the actuating arms are depressed.

10 Claims, 4 Drawing Figures

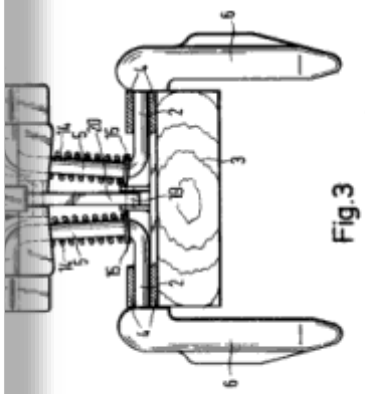


United States Patent [19]
Sedlmayr

[54] SKI STOP

[75] Inventor: Gerhard Sedlmayr, Farchant, Fed. Rep. of Germany

[73] Assignee: Hannes Marker, Garmisch-Partenkirchen, Fed. Rep. of Germany



What is a patent?

The patent is a set of **exclusive rights**

- the right to exclude others

granted by a **sovereign state**

- given under a law
- in the territory of a nation

to an **inventor or assignee**

- who has the ownership of the patent

for a **limited period of time**

- the term of the right is 20 years

in exchange for **detailed public disclosure**

- the publication is a teaching to reproduce the invention for an expert

of an **invention**

- the solution of a technical problem

If

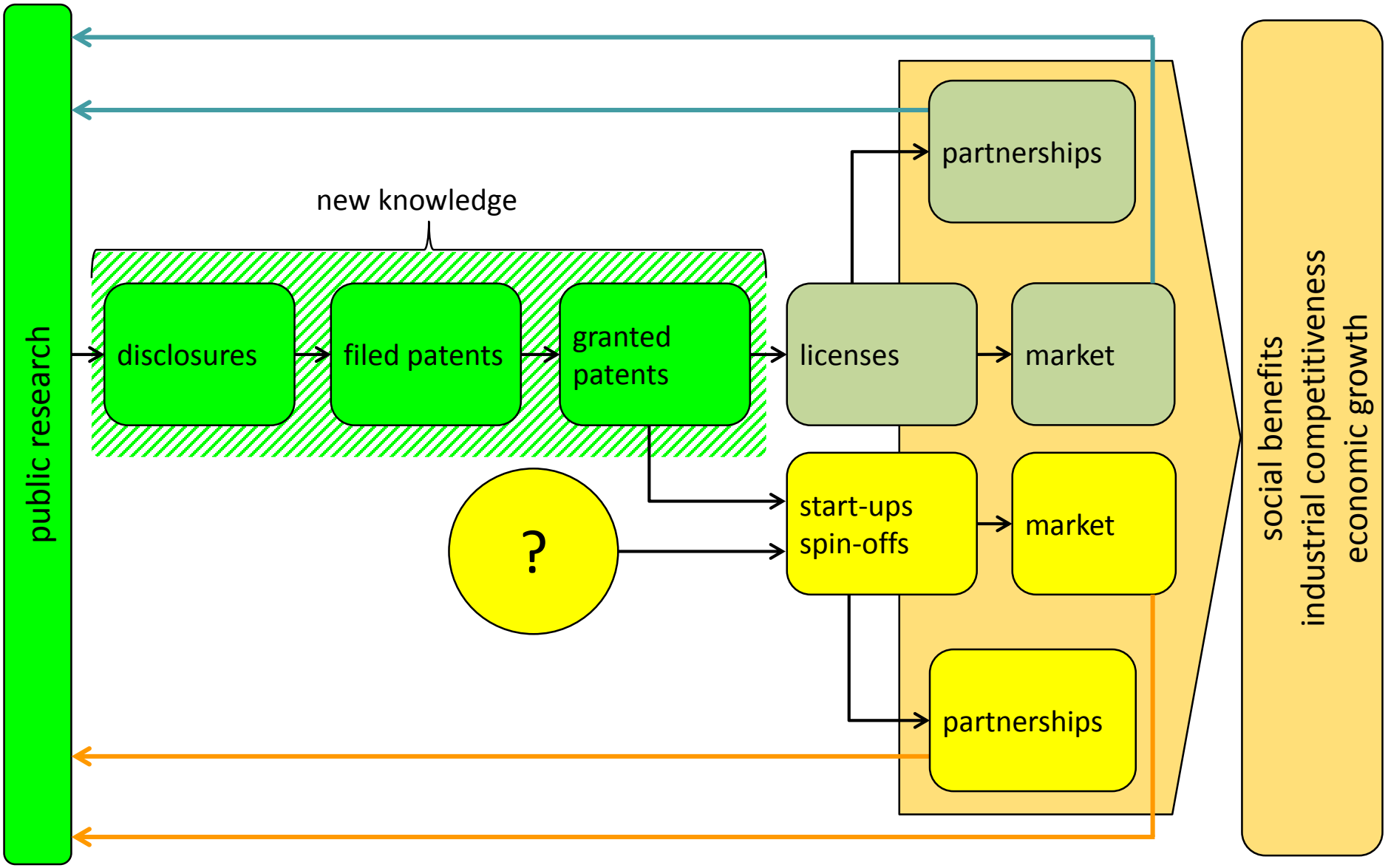
The patent is a set of exclusive rights

the right to exclude others

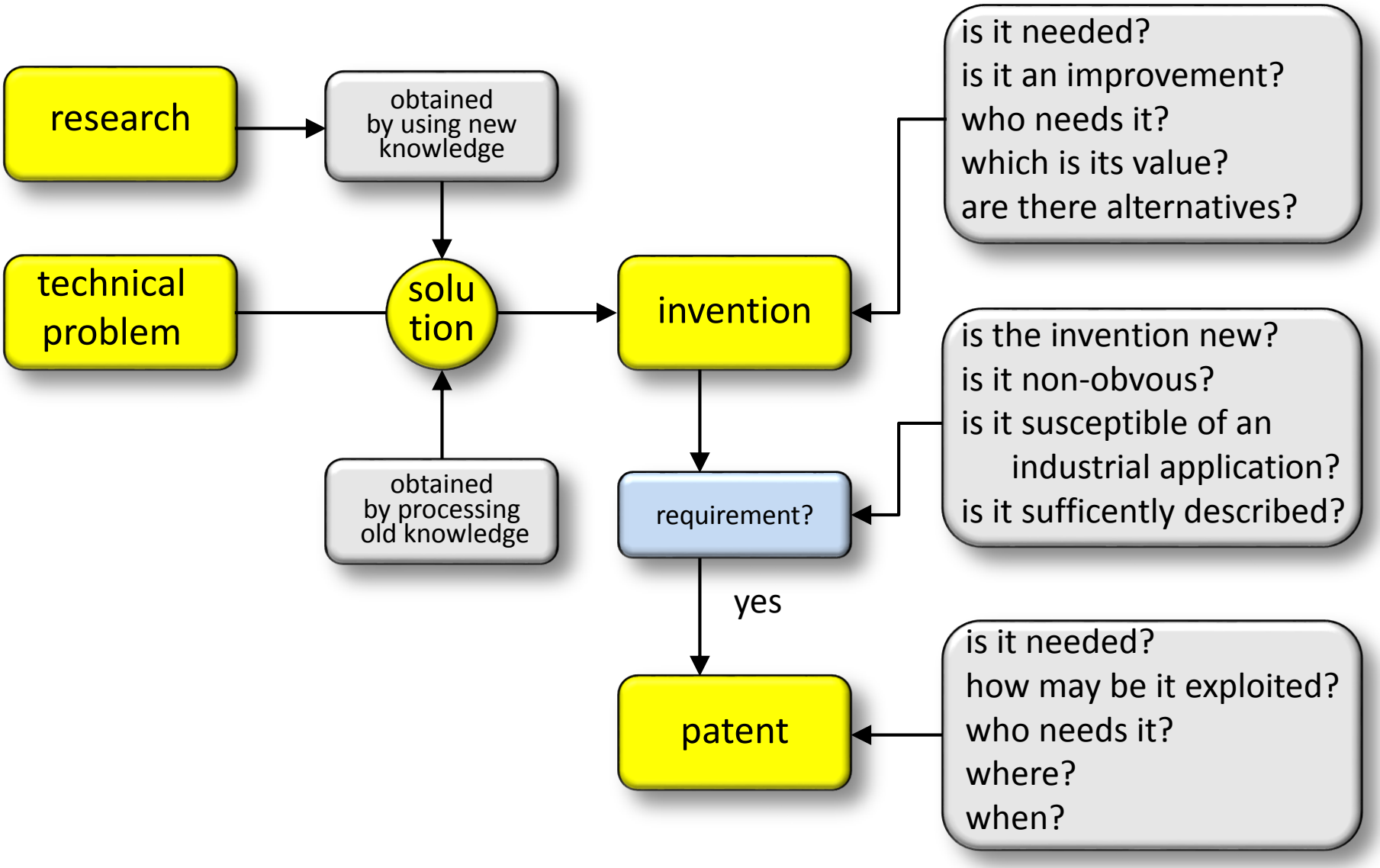
why a PRO should patent an invention?

- for error (lack of evaluation)
- to generate a portfolio (lack of exploitation)
- to use it
  - by excluding others
  - by granting the exclusive to others
    - third companies
    - spin off

The line from research to market



Technical problem, invention, patent



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Protect your ideas

An introduction to patents for students of natural sciences, engineering, medicine and business administration

http://www.epo.org/learning-events/materials/kit.html

PATENTS

Rights conferred by patents

- Right to prevent others from making, using, offering for sale, selling or importing infringing products in the country where the patent was granted

  Exception: non-commercial purposes (private use, academic research)

- Right to assign, sell or license these rights

These rights belong to the patent holder.

What is a patent?

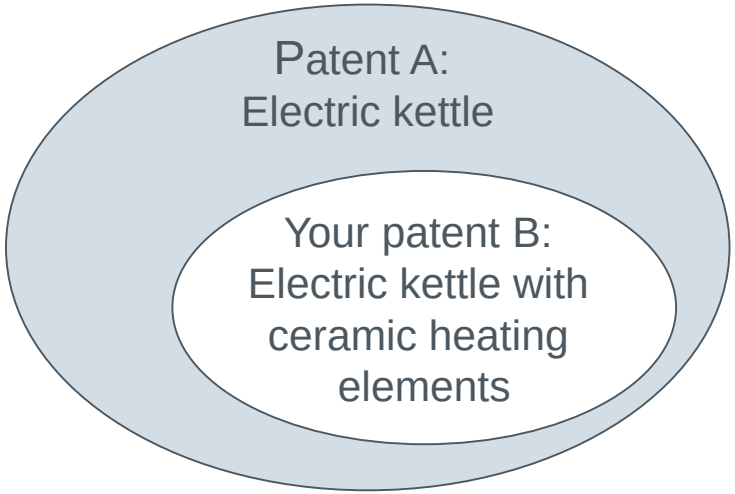
- Does a patent give you the right to exploit an invention?

  - NO!

- A patent is a negative right.
  It gives you the right to prevent others from exploiting the invention.
  It is not an enabling right.

- Patents owned by others may
  overlap or encompass your own patent.
  -> Seek a licence before commercialising

For example:



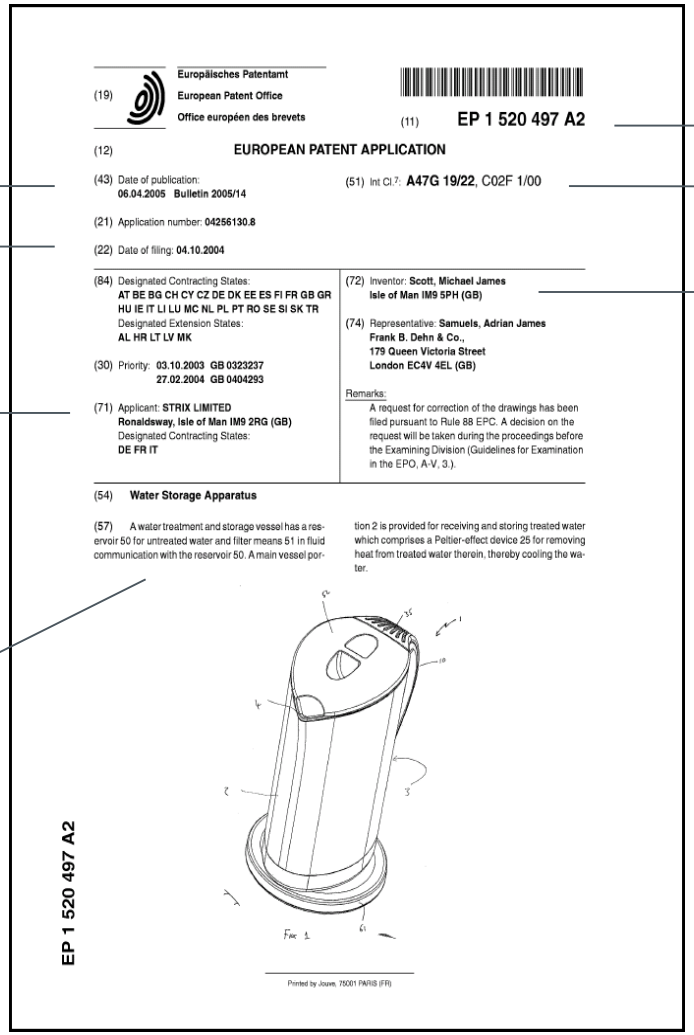
What do patent documents look like?

Date of publication

Date of filing

Applicant

Abstract



Europäisches Patentamt
European Patent Office
Office européen des brevets

(19)

(11) EP 1 520 497 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.04.2005 Bulletin 2005/14

(51) Int Cl.?: A47G 19/22, C02F 1/00

(21) Application number: 04256130.8

(22) Date of filing: 04.10.2004

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL HR LT LV MK

(30) Priority: 03.10.2003 GB 0323237
27.02.2004 GB 0404293

(71) Applicant: STRIX LIMITED
Ronaldsway, Isle of Man IM9 2RG (GB)
Designated Contracting States:
DE FR IT

(72) Inventor: Scott, Michael James
Isle of Man IM9 5PH (GB)

(74) Representative: Samuels, Adrian James
Frank B. Dehn & Co.,
179 Queen Victoria Street
London EC4V 4EL (GB)

Remarks:
A request for correction of the drawings has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

(54) Water Storage Apparatus

(57) A water treatment and storage vessel has a reservoir 50 for untreated water and filter means 51 in fluid communication with the reservoir 50. A main vessel portion 2 is provided for receiving and storing treated water which comprises a Peltier-effect device 25 for removing heat from treated water therein, thereby cooling the water.

EP 1 520 497 A2

Printed by Jouve, 75001 PARIS (FR)

Application number
Technical class
Inventor

Description

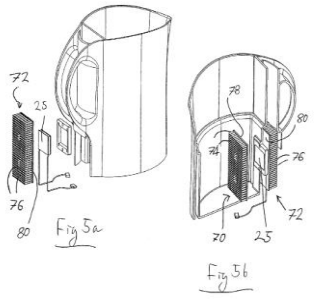
Claims

1. A portable water treatment and storage vessel comprising:

a reservoir for untreated water;
filter means in fluid communication with said reservoir; and
a main vessel portion for receiving and storing treated water;

wherein said main vessel portion comprises electro-thermal cooling means for removing heat from the treated water therein, thereby cooling the water.

Claim(s)



Drawing(s)

What does the description contain?

- Prior art
  - *teapot with one spout*
- Drawback of prior art
  - *time-consuming*
- Problem to be solved
  - *reduce filling time for multiple cups*
- Solution
  - *provide a second spout*
- Advantage of the invention
  - *filling time is reduced*

Fig.1.

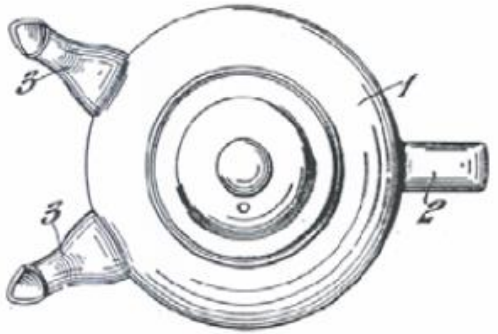
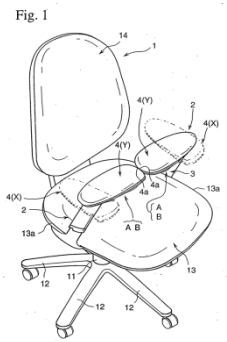


Fig.2.

What can and can't be patented

Patents protect technical inventions which solve technical problems:

- Products, devices, systems



- Chemical substances, pharmaceuticals
- Processes, methods, uses

For an invention to be patentable, it must usually be

- ✓ **new** to the world (i.e. not available to the public anywhere in the world)
- ✓ **inventive** (i.e. not an "obvious" solution), and
- ✓ susceptible of **industrial application**

In most countries, patents are not granted for mere business methods or rules of games, or for methods of treatment, diagnostics and surgery of the human or animal body, or for inventions that are contrary to *ordre public* or morality, or for plant and animal varieties.

When is an invention "new"?

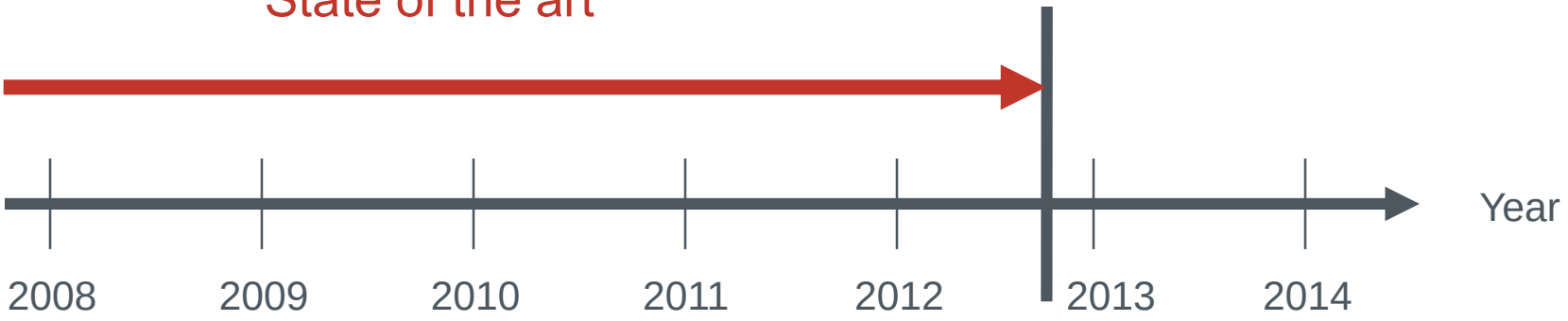
Keep your invention confidential until you have filed your application!

- When it is not part of the state of the art
- State of the art =
  everything made available to the public before the date of filing

Patent application

Date of filing

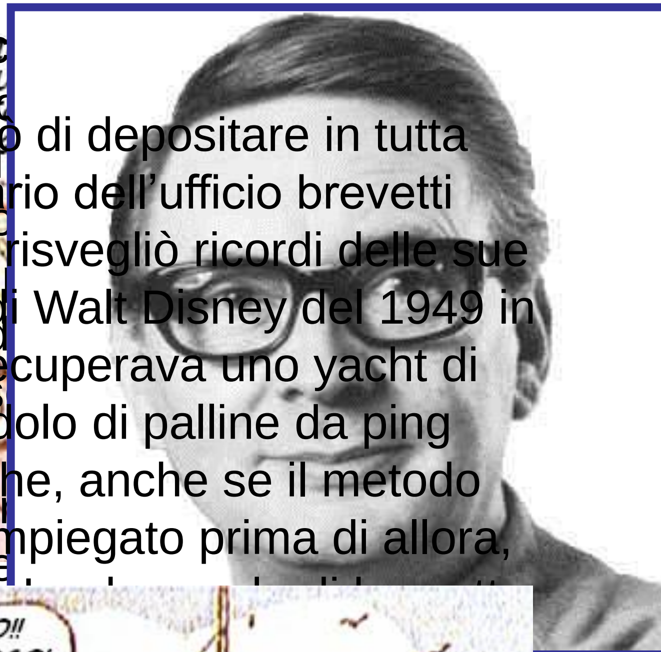
State of the art



La compagnia danese di assicurazione si rivolse agli ingegneri della BASF e l'incarico fu affidato a Karl Kroyer. Nella zona non c'erano gru galleggianti e a Kroyer balenò l'idea di riempire il relitto di polistirolo espanso utilizzando lo Styropor®, inventato e brevettato dalla BASF nel 1950. Essendo lo Styropor® occupato al 98% da aria, secondo Kroyer questo si sarebbe sostituito all'acqua facendo così riemergere il relitto con il suo c…

Nel 1964 il c… di 6000 pecc… adagiandosi … minacciando … carcasse in … da cui, per c… origine le ris… kuwaitiani. Per scongiur… doveva esse…

Per un metodo tanto geniale non si trascurò di depositare in tutta fretta una domanda di brevetto. Al funzionario dell'ufficio brevetti tedesco il metodo descritto nella domanda risvegliò ricordi delle sue letture da bambino. Rintracciò un fumetto di Walt Disney del 1949 in cui Paperino, insieme a Qui, Quo e Qua, recuperava uno yacht di Zio Paperone dal fondo del mare riempiendolo di palline da ping pong. Il funzionario concluse, sostenendo che, anche se il metodo oggetto della domanda non era mai stato impiegato prima di allora, era però stato descritto, quindi …



Walt Disney 1949

Do’s and don’ts for safeguarding novelty

Don’ts

- Do not publish any articles, press releases, conference presentations/ posters/ proceedings, lectures or blog posts, etc. before you file
- Do not sell any products incorporating the invention before you file

Do’s

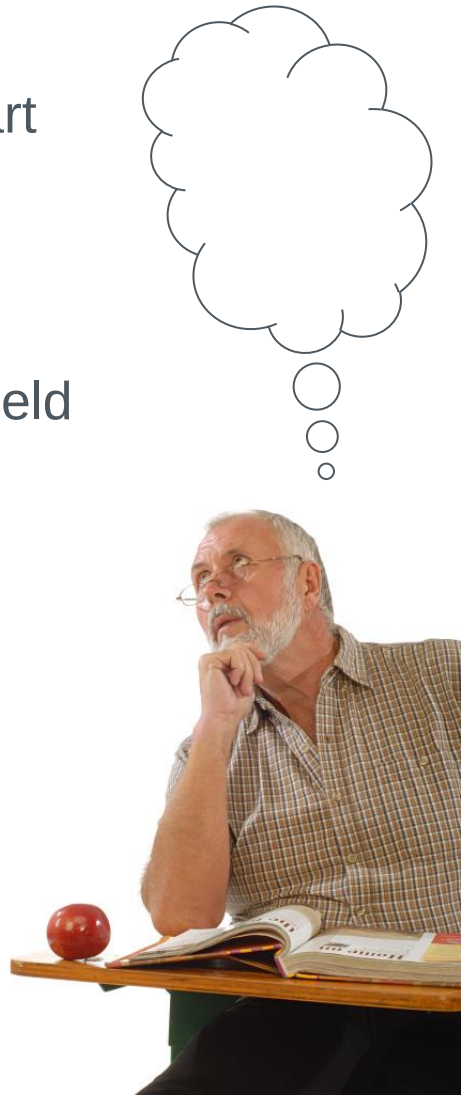
- Sign a non-disclosure agreement (NDA)
- Seek professional advice at an early stage
- File before anyone else does!

When is an invention "inventive"?

- When it is not obvious to the person skilled in the art in view of the state of the art

- The person skilled in the art
  - is a skilled practitioner in the relevant technical field
  - has access to the entire state of the art
  - is aware of general technical knowledge
  - is capable of routine work

He knows EVERYTHING,
but has ZERO imagination!



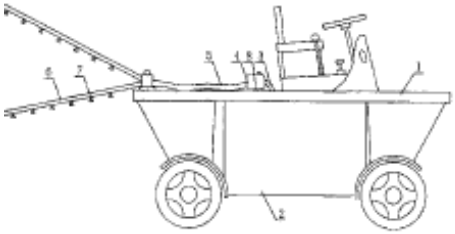
Assessing novelty

Claim: A pouring vessel comprising
(a) a compartment for liquids (1),
(b) a handle (2),
(c) a lid, and
(d) two spouts (5) extending from the compartment (1),
(e) whereby the tops of the two spouts are arranged at the same height.

Stage 1: Prior art

The prior art search revealed the following documents:

Document D1:
A teapot with one spout.



Document D2:
High efficiency distributor for fertilizer. Each rod has several nozzles for spraying liquid.

Document D3:
A filter handle with two spouts to be used with a coffee-maker.

Document D4:
An oil and vinegar bottle which reveals a second bottle inside. The two spouts are cleverly arranged to ensure the second bottle never drips while the first one is in use.

Assessing inventive step (I)

Stage 1

- Determine the closest prior art and common features:
  - (a) a compartment for liquids
  - (b) a handle
  - (c) a lid
  - (d) one spout

Stage 2: Problem

- Differences over D1:
  - two spouts instead of one
  - particular arrangement of the spouts

- Drawback of prior art:
  - time-consuming

- Advantage/effect of the invention:
  - the time needed to fill multiple cups is reduced

- Objective problem to solve:
  - how to modify the teapot of D1 to reduce the time needed to fill multiple cups

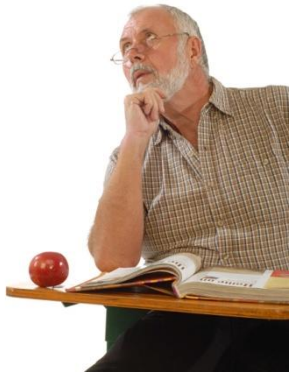
Assessing inventive step (II)

Stage 3: Solution

Is the claimed solution obvious in view of the prior art?

?

Objective problem for the skilled person: How to modify the teapot of D1 in order to reduce the time needed to fill multiple cups



Programs for computers

- Program for a computer "as such" is excluded from patentability (Article 52(2)(c) EPC), but…

- Not excluded from patentability if, when running on a computer, it causes a further "technical effect" going beyond the "normal" physical interaction between the program (software) and the computer (hardware)

- Programs for computers are therefore not automatically excluded from patentability

Requirements for a patentable invention

1. Novelty (demostration)

2. Inventive step

3. Susceptible of industrial application

4. Sufficient written description

Rights conferred by the patent

- **Prevent others** from making, using, offering for sale, selling or importing infringing products **in the country where the patent was granted**

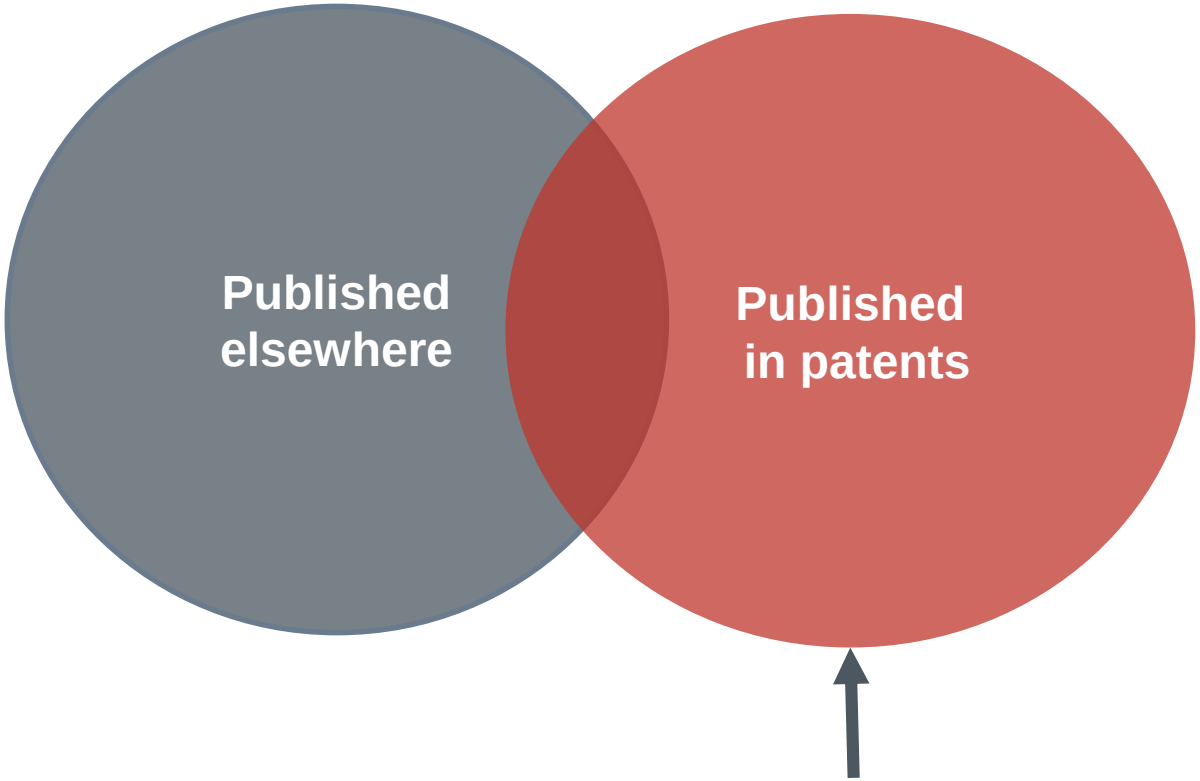
- **Sell these rights** or conclude licensing contracts

- For up to **20 years** from the date of filing of the patent application

The patent does not grant the right to use the invention!

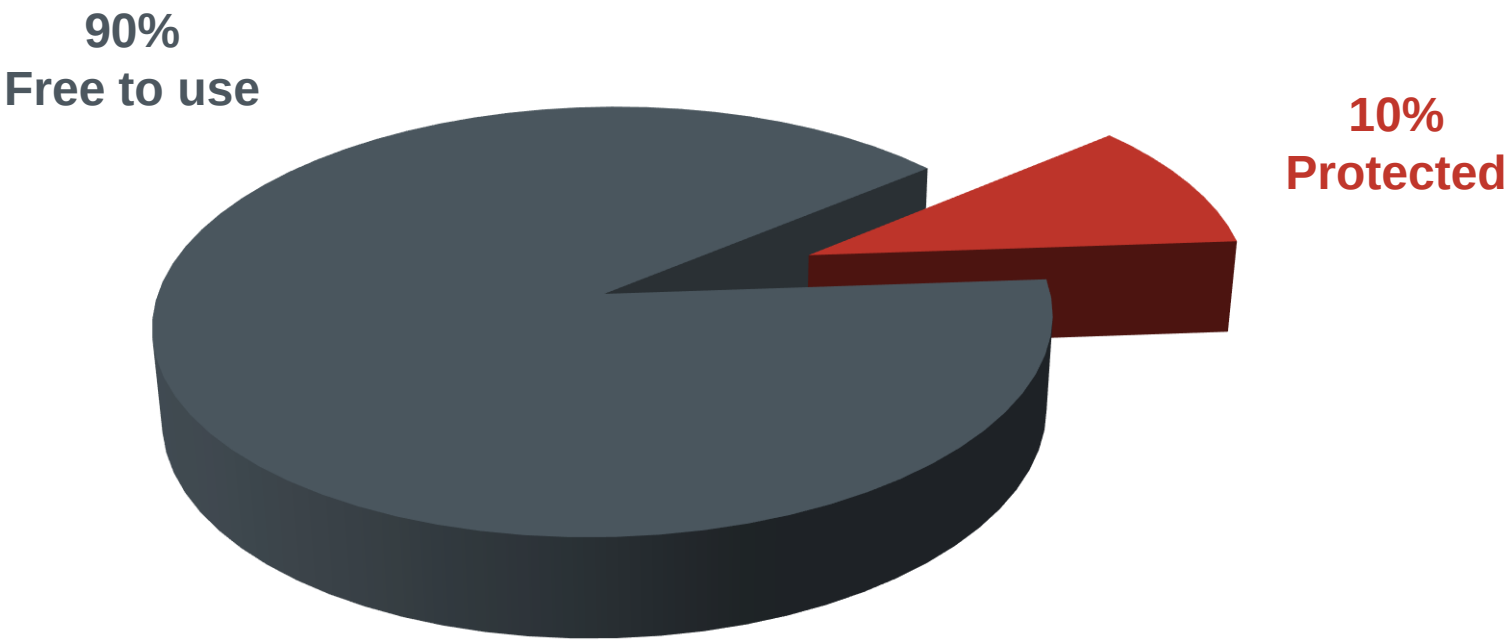
A patent search is indispensable!!!

Much information only available in patents



Where do secretive competitors publish their R&D?

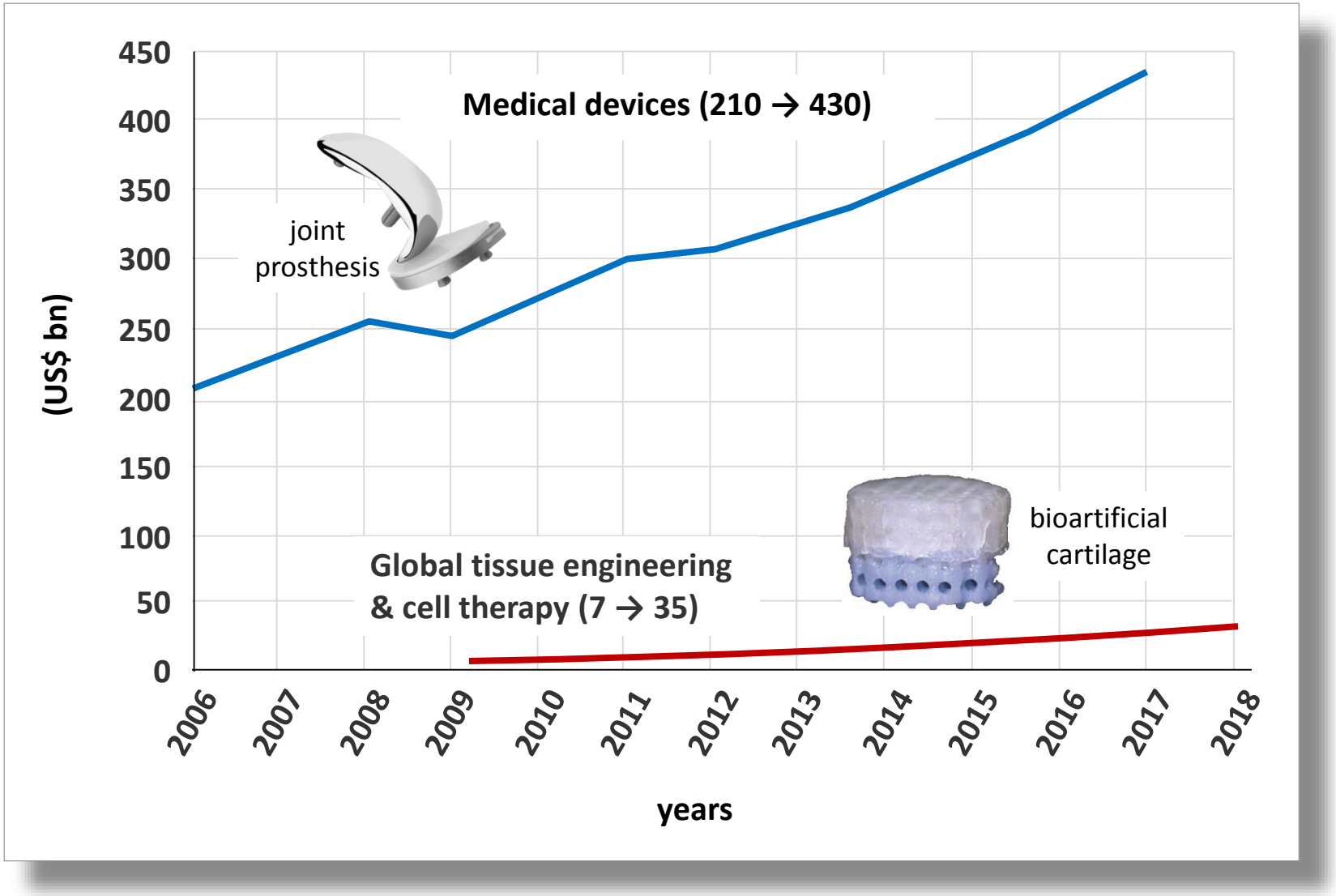
Solutions found in patent documents

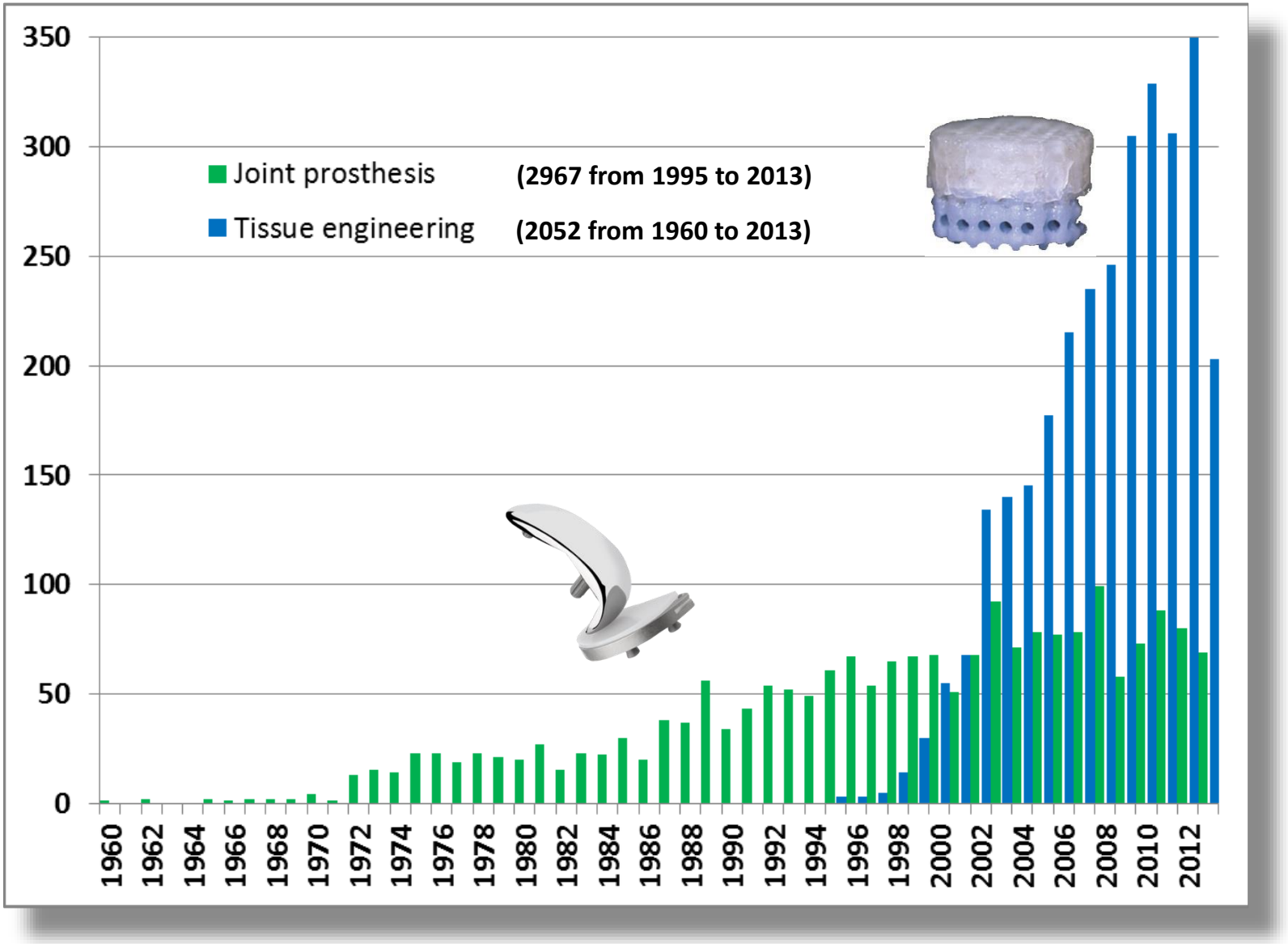


You can find many great solutions for free!

joint prosthesis

bioartificial cartilage


450
400
350
300
250
200
150
100
50
0
(US$ bn)
Medical devices (210 → 430)
joint
prosthesis
bioartificial
cartilage
Global tissue engineering
& cell therapy (7 → 35)
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
years


350
300
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200
150
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Joint prosthesis
(2967 from 1995 to 2013)
Tissue engineering
(2052 from 1960 to 2013)
1960
1962
1964
1966
1968
1970
1972
1974
1976
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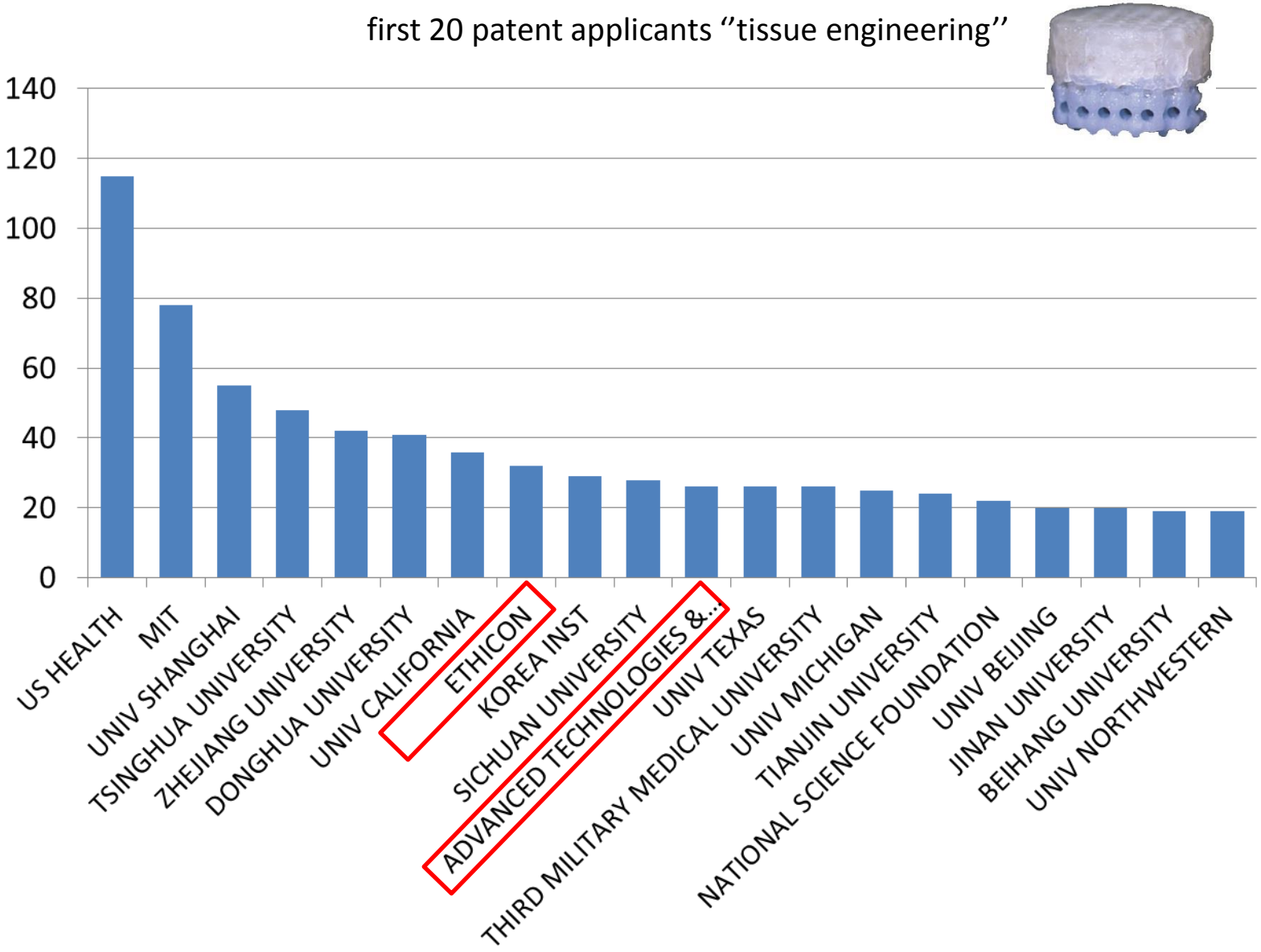
2012

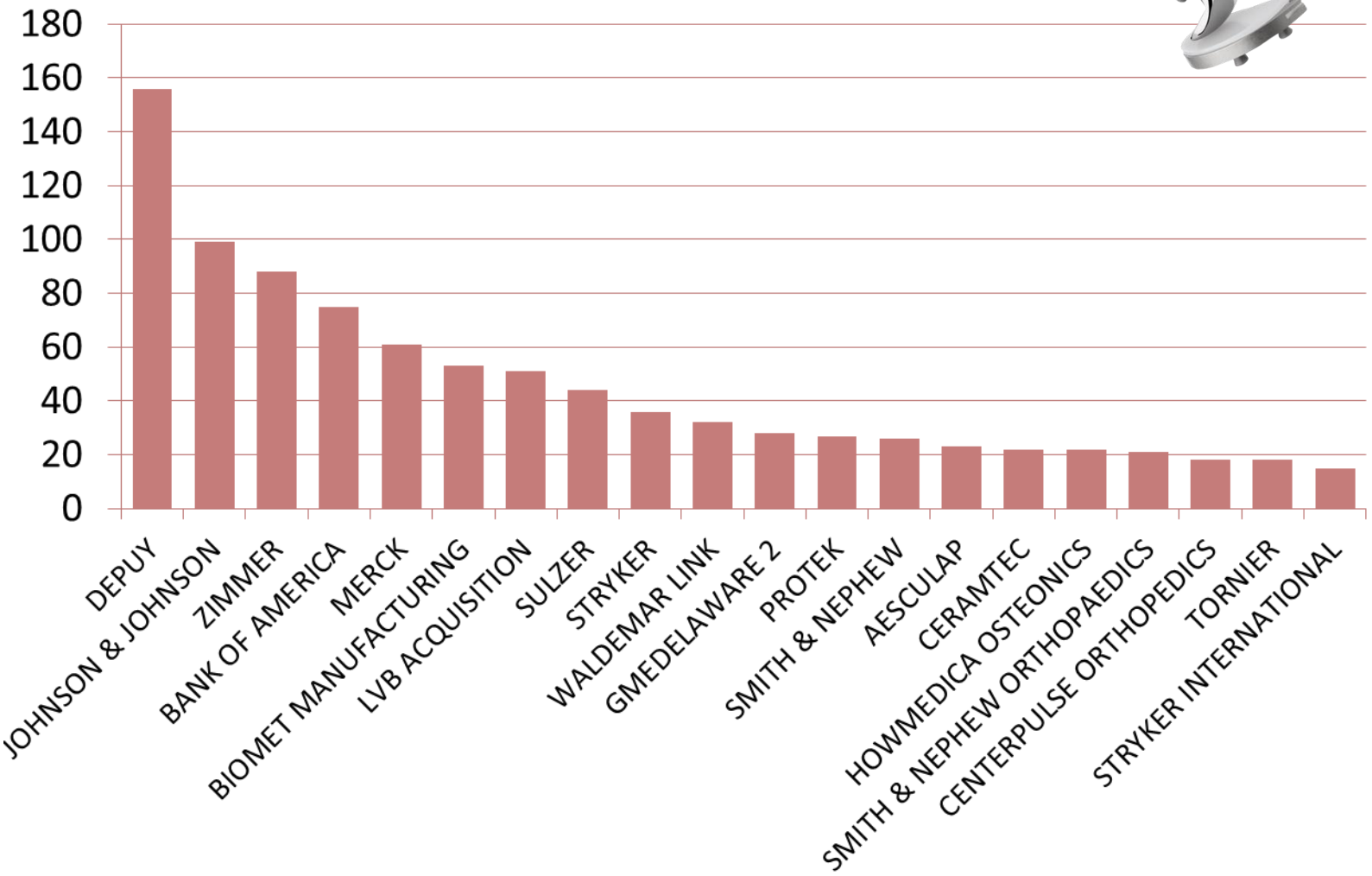
trends



trends

patent applicant networks
''tissue engineering''

first 20 patent applicants ''joint prosthesis''



trends

patent applicant networks
''joint prosthesis''

Life of a Stanford Invention

OFFICE OF TECHNOLOGY LICENSING
STANFORD UNIVERSITY

Stanford inventions begin as nascent ideas

supported by over **$1 billion per year** of funding for research across 7 schools and SLAC.

Big Picture

Stanford Budget FY13-14:

- $4.8B Total
  - $1.35B for research
  - $931.6M of gifts (FY13)
- $18.7B Endowment

OTL $87.0M income in FY13

Stanford has over **15,000 students** and over **2,000 faculty** members that teach and conduct research.

Disclosures

Then. . .

28 in 1970

Now. . .

502 in 2013

9,897 cumulative

Licenses

Then. . .

3 in 1970

Now. . .

103 in FY13

~1200 active licenses from ~3500 active inventions

~3300 cumulative licenses

some inventions have many licensees

Income

Then…

$50K in 1970

Now…

$87.0M in FY13

~$1.6B cumulative

Big Winners…

Cohen-Boyer Recombinant DNA ($255M)

Google ($339M)

Functional Antibodies ($426M)

Since 1970, Stanford inventions have generated ~ $1.6 Billion in licensing income, **BUT**

only 3 out of 10,000 inventions was a big winner and **only 75** have generated over $1 million.

Most Income Comes from a Few Dockets

622 inventions generated income in FY13

42 of those generated over $100K

6 of those generated over $1M

1 invention generated over $55M

Licensing Takes Time

10 to 15 years can elapse between initial invention disclosure and significant royalties

OTL Shares the Royalties

After deductions for overhead (15%) and expenses, the net cash royalties are divided:

1/3 to inventors

1/3 to inventors' departments

1/3 to inventors' school

Background: OTL and the Bayh-Dole Act

~83% of research at Stanford is funded by the U.S. government

Bayh-Dole Act: Federal law that created uniform patent policy regarding inventions made under federally-funded research program.
(Council on Governmental Relations publications on intellectual property)