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Eidgenössisches Institut für Geistiges Eigentum
Institut Fédéral de la Propriété Intellectuelle
Istituto Federale della Proprietà Intellettuale
Swiss Federal Institute of Intellectual Property

UNI BASEL

Making the most out of my research

Patents and other intellectual properties I cannot afford to ignore

Heinz Mueller
Swiss Federal Institute of Intellectual Property

...

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Content of the course

- **27th September 2019** (8:30 – 12:00 ; 13:00-16:30)
- Introduction, objectives of the workshop & overview of day
- Basic concepts of intellectual property
- Copyright, design, trademarks
- Patents, basic concepts
- Patent rights in biotech / pharma
- Understanding the content of a patent (exercise: writing a claim)
- Patenting strategies
- Patent information as knowledge source
- Q & A

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Objectives of the course:

- Gain sufficient understanding of IP rights
- Know the basic does and don‘ts
- Make use of the patent system for advancing your research

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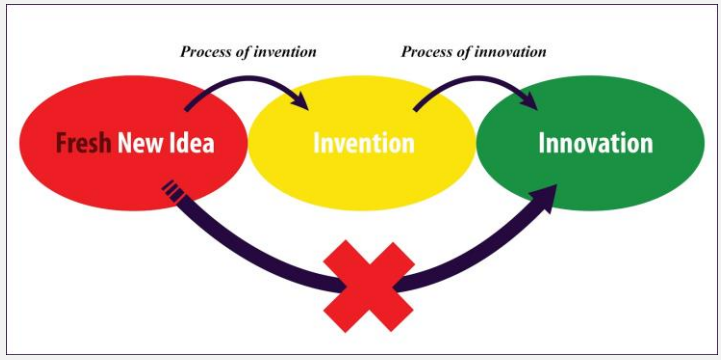
Introduction to IP
From Invention to Innovation



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Genius is 1% inspiration and 99% prespiration (Thomas Alva Edison)

Idea = Inspiration

↓

Invention/Creation = Perspiration

↓

Innovation = Business

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The Innovation Cycle

R & D
Invention

Protection rights
market exclusivity

Sucsessful
market entry

RoI

Innovation drives the economy

...

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Basic Concepts of Intellectual Property

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Some IP found in a mobile phone

Trade marks:
- iPhone
- Made for iPhone
- Software "iOS"

Patents:
- Data-processing methods
- Semiconductor circuits
- Chemical compounds
- …

Copyrights:
- Software code
- Instruction manual
- Ringtone
- …

Trade secrets:

?

Designs (some of them registered):
- Form of overall phone
- Arrangement of the apps
- Appearance of apps
- …

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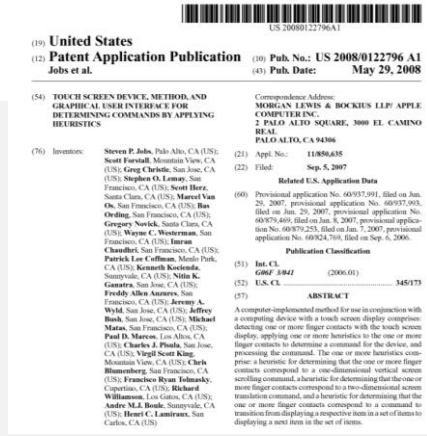
Apples iPhone related patents

Since 2000 (until 2012) Apple filed
~1300 mobile phone patents

Technology	Number of patents
iPhone, Smartphone	416
Camera	279
User Interface	232
Display, Screen	149
Battery	88
Antenna	75
Calendar	31
Voice control	5



US 20080122796A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2008/0122796 A1**

Jobs et al. (43) **Pub. Date: May 29, 2008**

(54) **TOUCH SCREEN DEVICE, METHOD, AND GRAPHICAL USER INTERFACE FOR DETERMINING COMMANDS BY APPLYING HEURISTICS**

Correspondence Address:
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PALO ALTO, CA 94306

(76) Inventors: **Steven P. Jobs**, Palo Alto, CA (US); **Scott Forstall**, Mountain View, CA (US); **Greg Christie**, San Jose, CA (US); **Stephen O. Lemay**, San Francisco, CA (US); **Scott Herz**, Santa Clara, CA (US); **Marcel Van Os**, San Francisco, CA (US); **Bas Ording**, San Francisco, CA (US); **Gregory Novick**, Santa Clara, CA (US); **Wayne C. Westerman**, San Francisco, CA (US); **Imran Chaudhri**, San Francisco, CA (US); **Patrick Lee Coffman**, Menlo Park, CA (US); **Kenneth Kocienda**, Sunnyvale, CA (US); **Nitin K. Ganatra**, San Jose, CA (US); **Freddy Allen Anzures**, San Francisco, CA (US); **Jeremy A. Wyld**, San Jose, CA (US); **Jeffrey Bush**, San Jose, CA (US); **Michael Matas**, San Francisco, CA (US); **Paul D. Marcos**, Los Altos, CA (US); **Charles J. Pisula**, San Jose, CA (US); **Virgil Scott King**, Mountain View, CA (US); **Chris Blumenberg**, San Francisco, CA (US); **Francisco Ryan Tolmasky**, Cupertino, CA (US); **Richard Williamson**, Los Gatos, CA (US); **Andre M.J. Boule**, Sunnyvale, CA (US); **Henri C. Lamiraux**, San Carlos, CA (US)

(21) Appl. No.: **11/850,635**

(22) Filed: **Sep. 5, 2007**

Related U.S. Application Data

(60) Provisional application No. 60/937,991, filed on Jun. 29, 2007, provisional application No. 60/937,993, filed on Jun. 29, 2007, provisional application No. 60/879,469, filed on Jan. 8, 2007, provisional application No. 60/879,253, filed on Jan. 7, 2007, provisional application No. 60/824,769, filed on Sep. 6, 2006.

Publication Classification

(51) **Int. Cl.**
G06F 3/041 (2006.01)

(52) **U.S. Cl.** **345/173**

(57) **ABSTRACT**

A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

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What is Intellectual Property?

- Intellectual property (IP) refers to **the ownership of intangible and non-physical goods**. It is knowledge which a person or institution can claim ownership of.
- IP is an intangible asset which can be given a financial value and as such **IP can be bought, sold (traded), mortgaged or licensed.**

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Why Intellectual Property Protection?

- Effective protection of IP is an essential tool of government in encouraging innovation.
- Innovation typically requires substantial investment in education, research and development, and labor to bring a new idea to the marketplace.
- If others can steal the idea once it is proven, undermining the creator's ability to recoup the cost of his or her innovative investment, the incentive to innovate is reduced.

→ **Protecion of IP drives innovation/economy**

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Disregarding the protection system

- „Reinvention of the wheel"
  Loss of time and development costs
- No protection
  Loss of exclusivity
- Infringement of existing rights
  Infringement action with cost effect

Annual loss in Switzerland
~ 5 - 7'000'000'000.- CHF

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Acetyl salicylic acid

registered trademark since 1899

UNITED STATES PATENT OFFICE.

FELIX HOFFMANN, OF ELBERFELD, GERMANY, ASSIGNOR TO THE FARBENFABRIKEN OF ELBERFELD COMPANY, OF NEW YORK.

ACETYL SALICYLIC ACID.

SPECIFICATION forming part of Letters Patent No. 644,077, dated February 27, 1900.

Application filed August 1, 1898. Serial No. 687,385. (Specimens.)

To all whom it may concern:

Be it known that I, FELIX HOFFMANN, doctor of philosophy, chemist, (assignor to the FARBENFABRIKEN OF ELBERFELD COMPANY, of New York,) residing at Elberfeld, Germany, have invented a new and useful Improvement in the Manufacture or Production of Acetyl Salicylic Acid; and I hereby declare the following to be a clear and exact description of my invention.

In the *Annalen der Chemie und Pharmacie*, Vol. 150, pages 11 and 12, Kraut has described that he obtained by the action of acetyl-chlorid on salicylic acid a body which he thought to be acetyl salicylic acid. I have now found that on heating salicylic acid with acetic anhydride a body is obtained the properties of which are perfectly different from those of the body described by Kraut. According to my researches the body obtained by means of my new process is undoubtedly the real acetyl salicylic acid

$$C_6H_4 \begin{cases} OCO.CH_3 \\ COOH. \end{cases}$$

Therefore the compound described by Kraut cannot be the real acetyl salicylic acid, but is another compound. In the following I point out specifically the principal differences between my new compound and the body described by Kraut.

If the Kraut product is boiled even for a long while with water, (according to Kraut's statement,) acetic acid is not produced, while my new body when boiled with water is readily split up, acetic and salicylic acid being produced. The watery solution of the Kraut body shows the same behavior on the addition of a small quantity of ferric chlorid as a watery solution of salicylic acid when mixed with a small quantity of ferric chlorid—that is to say, it assumes a violet color. On the contrary, a watery solution of my new body when mixed with ferric chlorid does not assume a violet color. If a melted test portion of the Kraut body is allowed to cool, it begins to solidify (according to Kraut's statement) at from 118° to 118.5° centigrade, while a melted test portion of my product solidifies at about 70° centigrade. The melting-points of the two compounds cannot be compared, because Kraut does not give the melting-point of his compound. It follows from these details that the two compounds are absolutely different.

In producing my new compound I can proceed as follows, (without limiting myself to the particulars given:) A mixture prepared from fifty parts of acetic anhydride is heated for about two hours at about 150° centigrade in a vessel provided with a reflux condenser. Thus a clear liquid is obtained, from which on cooling a crystalline mass is separated, which is the acetyl salicylic acid. It is freed from the acetic anhydride by pressing and then recrystallized from dry chloroform. The acid is thus obtained in the shape of glittering white needles melting at about 135° centigrade, which are easily soluble in benzene, alcohol, glacial acetic acid, and chloroform, but difficultly soluble in cold water. It has the formula

$$C_6H_4 \begin{cases} OCOCH_3 \\ COOH \end{cases}$$

and exhibits therapeutical properties.

Having now described my invention and in what manner the same is to be performed, what I claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture the acetyl salicylic acid having the formula:

$$C_6H_4 \begin{cases} O.COCH_3 \\ COOH \end{cases}$$

being when crystallized from dry chloroform in the shape of white glittering needles, easily soluble in benzene, alcohol and glacial acetic acid, difficultly soluble in cold water, being split by hot water into acetic acid and salicylic acid, melting at about 135° centigrade, and substantially as hereinbefore described.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

FELIX HOFFMANN.

Witnesses:
R. R. JAHN,
OTTO KÖNIG.

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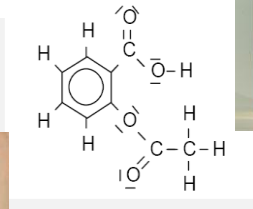

Aspirin is synthesized by acetylation of sialicylic acid – obtained from the bark of the willow tree

Sales today for Bayer:
ca. 6-800 m Euro p.a.

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Intellectual Property Rights

Copyright	Industrial Property Rights				
Literature artistic scientific works	Design	Inventions	Trademark	Topo-graphies	Varieties Protection
70 y. after ✝	5 x 5 y.	20 y. (+5)	10 y. * X	10 y.	25-30 y.





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Copyright

©

Object of protection:
Form not Idea

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Copyright

- **artistic, dramatic, musical, photographic, artistic works recorings, films, broadcasts**
- **Products may have more than one copyright**
- **Duration of protecion**
  - 70 years sfter the death of the author/creator
- No formalities – no application

protecion is automatic!

- **Starts from the moment of creation**
- Protection right belongs always to a natural person

© **use optional**

Misuse is criminal

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Design

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Design

Form, appearance of a product (what is visible)
(not ist function, not the manufacturing process)

Design has to be registered
Registration will be examined

- Requirement of novelty (Must differ from previous desings in material details)
- Must have an individual character
- Not for appearances of a product which are solely dicated by the product's technical fundtion
- Designs contrary to public order and morality are not registered

5 x 5 years

→ **Fees** CHF 200.-
for 5 years

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Trademark

- The trademark is a sign which identifies specific products and services of a company and allows to distiguish them from products and services of other companies.
- **Must be non-descriptive of the product and service**
- Protection period:
  - 10 years (extentable)
- Protection
  - List of goods and services
- Formalities
  - Examination
  - → **Fees**
    CHF 550.- for 10 years

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Most valuable global trademarks in 2017

01	02	03	04	05 TOP GROWING	06	07	08 TOP GROWING
+3% 184,154 $m	+6% 141,703 $m	+10% 79,999 $m	-5% 69,733 $m	+29% 64,796 $m	+9% 56,249 $m	-6% 50,291 $m	+48% 48,188 $m
09	**10**	**11**	**12**	**13**	**14**	**15**	**16**
+10% 47,829 $m	-11% 46,829 $m	+3% 44,208 $m	+5% 41,533 $m	0% 41,521 $m	+5% 40,772 $m	+7% 39,459 $m	+3% 31,930 $m

...

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The internationalization

The challenge facing inventors in the 19th century caused many who had been invited to the Austria-Hungary international exhibition of inventions held in Vienna in 1873 to be unwilling to exhibit their inventions because of fear of copycats.

→1883 signing of the

Paris Convention for the Protection of Industrial Property

by Belgium, Brazil, El Salvador, France, Guatemala, Italy, the Netherlands, Portugal, Serbia, Spain and Switzerland

...

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23

Paris Convention for the Protection of Industrial Property

The Convention was signed in 1883 by 11 countries: today 175 contracting parties (7.11.2018)

Today

The Paris Convention is administered by the World Intellectual Property Organization (WIPO), based in Geneva, Switzerland

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The cornerstones of the Paris Convention

The Paris Convention applies to industrial property in the widest sense, including patents, trademarks, industrial designs, utility models, service marks, trade names, geographical indications and the repression of unfair competition.

National treatment: According to Articles 2 and 3 of this treaty, juristic and natural persons who are either national of or domiciled in a state party to the Convention shall, as regards the protection of industrial property, enjoy in all the other countries of the Union, the advantages that their respective laws grant to nationals.

Priority right: It provides that an applicant from one contracting State shall be able to use its first filing date (in one of the contracting State) as the effective filing date in another contracting State, provided that the applicant, or his successor in title, files a subsequent application within 6 months (for industrial designs and trademarks) or 12 months (for patents and utility models) from the first filing.

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Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)

- The **Agreement on Trade Related Aspects of Intellectual Property Rights** (**TRIPS**) is an international agreement **administered by the World Trade Organization (WTO)** that sets down minimum standards for many forms of IP regulation as applied to nationals of other WTO Members. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994.

- TRIPS contains requirements that nations' laws must meet for copyright rights, including the rights of performers, producers of sound recordings and broadcasting organizations; geographical indications, including appellations of origin; industrial designs; integrated circuit layout-designs; patents; monopolies for the developers of new plant varieties; trademarks; and undisclosed or confidential information.

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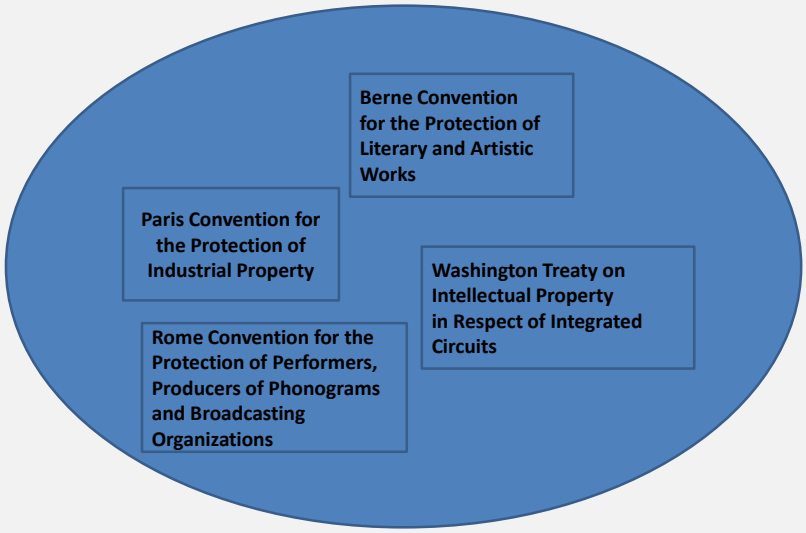
TRIPS



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Patents

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Patents

A Patent is a Right for its Owner to Exclude Thirds from a Commercial Exploitation of the Invention.

The patent is therefore a prohibiting right and not a right to use.

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That by the authority of this Council is granted to Mr. Galileo Galilei that **for the space of the next twenty years** **others than him or his agents** are not allowed **in the city or any place in our state** to make, have made, or, if made elsewhere, to use the device invented by him for raising water and irrigating fields, by which with the motion of only one horse twenty buckets of water that are contained in it run out continuously; under pains of **losing the devices which will go to the supplicant, and 300 ducats**, a third of which will be for the accuser, a third for the magistrate who undertakes the prosecution, and a third for our Arsenal; the supplicant being obligated, however, to have made known this new type of device within one year, and that **it has not been invented or recorded by others**, and that a patent has not been granted [on the same device] to others; otherwise the present grant will be void.

(*Le opere di Galileo Galilei*, XIX:128-129. Translation by Albert Van Helden)

A patent to Galileo Galilei (Venice 1594)

→ **Time limit**
→ **Exclusivity**
→ **Territoriality**
→ **Right of Prohibition**
→ **Novelty**

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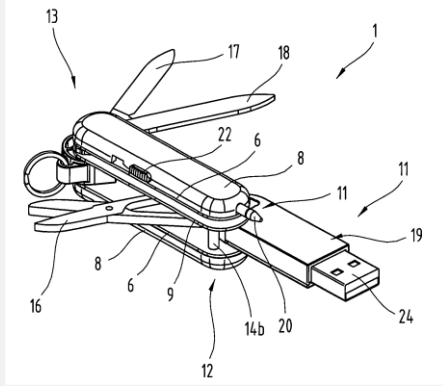
The Patent

- **Art. 1**
  1 Patents **for inventions** are granted for **new** inventions **applicable in industry**.
  2 Anything **that is obvious** having regard to the state of the art **is not patentable** as an invention.

- **Art. 50**
  1 The invention must be **described** in the patent application in such a manner that **it can be carried out by a person skilled in the art**.



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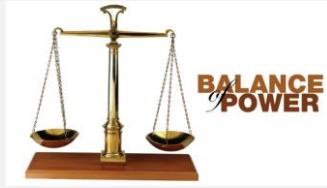
Disclosure



In return to the exclusive right for exploitation

- the inventor must disclose all that he/she knows about the invention in the patent application
- the patent application and the patent are published

(patent applications in general 18 months after filing)

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What is an invention?

An invention solves a technical problem with technical means.

"Anything under the sun made by man.«

35 U.S. Code § 101
Whoever **invents** or **discovers** any new and useful **process**, **machine**, **manufacture**, or **composition of matter**, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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United States Patent [19]

Iwasa et al.

[11] **Patent Number: 4,807,078**

[45] **Date of Patent: Feb. 21, 1989**

[54] **FLEXIBLE DISK JACKET COLORED WITHIN SPECIFIC MUNSELL RANGES**

[75] Inventors: **Masakazu Iwasa; Kazuhiko Morita,** both of Odawara, Japan

[73] Assignee: **Fuji Photo Film Co., Ltd.,** Japan

[21] Appl. No.: **143,247**

[22] Filed: **Jan. 4, 1988**

Related U.S. Application Data

[63] Continuation of Ser. No. 669,320, Nov. 7, 1984, abandoned.

[30] **Foreign Application Priority Data**

Nov. 11, 1983 [JP] Japan 58-212219

[51] **Int. Cl.**[4] **G11B 23/03**

[52] **U.S. Cl.** **360/133**

[58] **Field of Search** 360/133, 132; 206/444, 206/312-313

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,352,132	9/1982	Gyi	360/133 X
4,400,753	8/1983	Beebe et al.	360/133
4,413,298	11/1983	Pecsok et al.	360/133
4,485,421	11/1984	Hoshino	360/133

OTHER PUBLICATIONS

"Strategic Systems Corporation", BYTE Publications, Inc., Sep. 1983, vol. 8, No. 9, p. 160.

Primary Examiner—Stuart N. Hecker
Assistant Examiner—David J. Severin
Attorney, Agent, or Firm—Pasquale A. Razzano

[57] **ABSTRACT**

A flexible disk jacket f
disk-like magnetic recor
form a flexible disk is fo
into a bag-like shape. Th
color having a Munsell v

3 Claims

We claim:

1. A flexible disk jacket for accommodating therein a magnetic recording medium to form a flexible disk formed by folding a plastic sheet into a bag-like shape characterized in that at least substantially the entire outer surface of the plastic sheet itself is colored in a chromatic color having a Munsell chroma in the range of 4–10, a Munsell hue in the range of 2.5–5 and a Munsell value in the range of 4–8.

2. A flexible disk jacket as defined in claim **1** in which said outer surface of the plastic sheet is matted.

3. A flexible disk jacket as defined in claim **1** in which at least one pigment selected from the group consisting of yellow-orange pigments, red pigments, blue-green violet pigments and white pigments is used for coloring said plastic sheet.

* * * * *

EPO: „aesthetic creation“
→ not patentable

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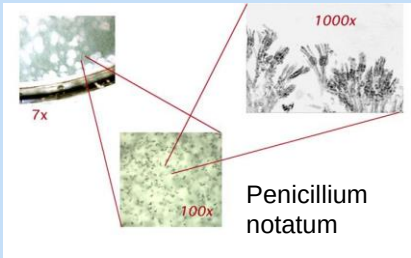
What is a discovery?- What is an invention?

Discovery

= Description of something existing

= Extension of human knowledge



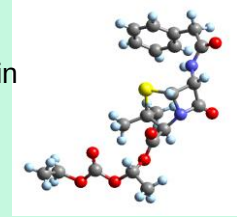
Penicillium notatum

Invention

= Instruction how to solve a problem with technical means

= Extension of human abilities

Penicillin



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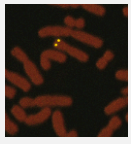
General Requirements for Obtaining a Patent

Technical Solution for a Technical Problem

	Novelty	Inventive	Industrial Application
CH	§ 1(1)	§ 1(2)	1(1)
EPC	§ 54(1)	§ 56(1)	§ 57
USC 35	§ 101	(non-obvious § 103)	(utility § 101)



Disclosure, Reproducibility (by a specialist in the field)

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Novelty

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Prior Art includes….

„… everything that had been made available to the public before the filing or priority date in writing or orally, by means of usage, or in any other way.“ (Patent Law)

- **Published patents and patent applications**
- **Scientific papers**
- **News paper articles**
- **Flyers**
- **Radio or TV broadcastings**
- **Public presentations (psters and oral)**
- **Photographs**
- **Internet (Web pages)**
- **Approved grants might be published**

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From “Publish or Perish” to “Patent and Prosper”?

Novelty destroying: anything revealed about the invention in writing or orally before the patent application

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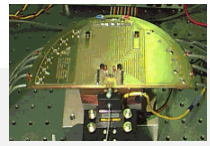
Publish and perish

UC Berkley

laser scanning



PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G02B 26/08 — A1 — (11) International Publication Number: WO 98/35258 — (43) International Publication Date: 13 August 1998 (13.08.98)

(21) International Application Nu
(22) International Filing Date:
(30) Priority Data: 08/796,301 7 Feb
(71) Applicant: THE REGENTS CALIFORNIA [US/US]; 2 Oakland, CA 94612-3550 (
(72) Inventors: KIANG, Meng-Hu 25, Berkeley, CA 94709 (Blackhawk Drive, Danville Richard, S.; 51 Kenyon A (US). SOLGAARD, Olav; CA 95616 (US).
(74) Agents: GALLIANI, William, Albritton & Herbert LLP, Center, San Francisco, CA (
(54) Title: APPARATUS AND MI SYSTEM

INTERNATIONAL SEARCH REPORT — Internatio PCT/US

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :G02B 26/08
US CL. :359/198-199, 201, 213-214, 224; 235/462
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 359/198-200, 201, 212-215, 223-225; 235/462
Documentation searched other than minimum documentation to the extent that such documents are
Electronic data base consulted during the international search (name of data base a

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indic
X --- Y	US 4,317,611 A (PETERSEN) 02 March 1982, (02/03/82) Fig and 8 and the accompanying text.
X ---- Y	KIANG ET AL. Silicon Micromachined Micromirrors with Integr High-Precision Actuators for External-Cavity Semiconductor Las IEEE Photonic Technology Letters, January 1996. Vol 8, No pages 95-97, see whole document.
Y	US 5,408,352 A (PENG) 18 April 1995, (17/04/95) Fig. 1 column 6, lines 25-28.

(57) Abstract
An optical scanning system i including a mirror (52) that deflects are formed in a silicon substrate. R (52).

Patent application rejected

IEEE PHOTONICS TECHNOLOGY LETTERS, VOL. 8, NO. 1, JANUARY 1996

Silicon-Micromachined Micromirrors with Integrated High-Precision Actuators for External-Cavity Semiconductor Lasers

Meng-Hsiung Kiang, Olav Solgaard, Richard S. Muller, *Fellow, IEEE*, and Kam Y. Lau, *Fellow, IEEE*

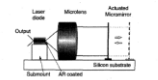


Fig. 1. Schematic diagram of an integrated external-cavity-laser module that incorporates a silicon-micromachined micromirror with on-chip actuators.

I. Introduction

EXTERNAL-CAVITY semiconductor lasers are of interest for applications such as laser-linewidth narrowing, emission-wavelength tuning and laser mode-locking, among other uses [1]–[3]. One drawback of existing external-cavity lasers is the difficulty in maintaining mechanical stability for critical alignment of bulk-optical elements. Meanwhile, schemes employing optical fibers as the external cavities offer little flexibility for the cavity length once the device is built. Efforts have been made to develop miniaturized external-cavity semiconductor lasers by, for instance, replacing the bulk lens with a micro-ball lens [4]. Such schemes still, however, are implemented using expensive bulk micropositioners, which imposes constraints on the size and cost of the system.

A micromachined movable micromirror has been demonstrated as a viable component for optoelectronic packaging [5] and for making lightwave devices and subsystems [6]. The integration of micromirror and actuators on a silicon chip provides an inexpensive alternative to bulk optics for the construction of external-cavity semiconductor-laser modules without compromising tunability. This approach also avoids such bulk-mechanical-system problems as slow speed and heavy weight. A schematic of an integrated external-cavity-laser system is shown in Fig. 1. By making use of micro-hinge technology [7], we can fabricate relatively large-area structures (order 0.1 to 1 mm^2) using polysilicon surface-micromachining processes and then rotate them out of the plane of the substrate to achieve a tall mirror with satisfactory optical surface quality. An anti-reflection coating is applied to the cleaved facet of the semiconductor diode facing the external cavity to maximize coupling, and a microlens (both sides anti-reflection coated) is used to collimate the diverging Gaussian beam coming out of the active medium. We have designed and fabricated micromirrors actuated by electrostatic comb drives (integrated on the same silicon chip) that are capable of fine and continuous control of the mirror position. This type of actuator is particularly suitable for positioning optical elements that require high precision over a limited range of motion.

The micromirrors with the integrated electrostatic comb-motors are fabricated with three layers of structural polysilicon on a silicon substrate. Phosphorous-doped LPCVD silicon dioxide is used as the sacrificial material between polysilicon layers. Each layer of polysilicon is 2 μm thick and the thickness of the sacrificial oxide layers ranges from 1 to 2 μm. A layer of unstructured polysilicon plates is first laid out to serve as the ground planes for the electrostatic comb drives. The first layer of structural polysilicon is made into the comb-actuators, the second layer forms the pins for the hinges, and the last layer finishes the hold-down staples and defines the body of the micromirror. Through-holes are made in the large polysilicon structures to reduce the wet-etching time needed for the releasing step during which the processed wafer is immersed in hydrofluoric acid to remove the sacrificial oxide layers. Fig. 2(a) is an SEM micrograph of one of the as-fabricated micromirrors lying on the surface of the substrate, whereas Fig. 2(b) shows the mirror after assembly; two side latches lock the back-support and thus the mirror in place. With two electrostatic comb drives, the mirror can move back-and-forth along the cavity axes when the two actuators are driven

Manuscript received July 19, 1995; revised September 14, 1995.
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O. Solgaard was with the Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, Berkeley, CA 94720 USA; he is now with the Department of Electrical and Computer Engineering, University of California, Davis, CA 95616 USA.
Publisher Item Identifier S 1041-1135(96)00053-8.

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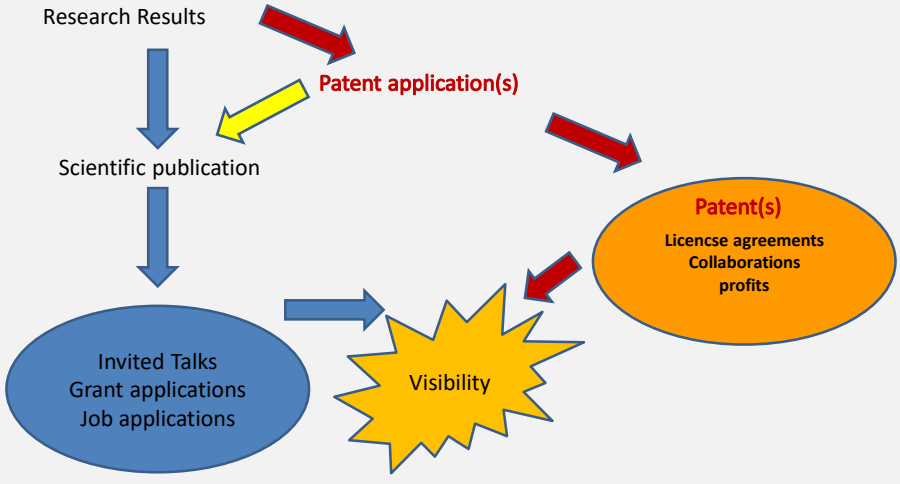
Do both: patent and publish



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(Not) inventive/obvious…?

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Prior art

Obvious!

Inventive step

EP0282132
Applicant: The Procter & Gamble Company

Title: Compositions and their use for treating gastrointestinal disorders

Claim 1. Pharmaceutical compositions useful for treating or preventing gastrointestinal disorders, said compositions comprising:
(a) a bismuth-containing agent;
(b) an H2 receptor blocking anti-secretory agent; and
(c) a pharmaceutically-acceptable carrier.

Since for the reasons given in this decision it was, in the board's opinion, **obvious for the skilled person to arrive at the proposed solution of the technical problem concerned**.

(No) industrial application…

44

An invention shall be taken to be capable of industrial application

if it can be made or used in any kind of industry, including agriculture.

Salt water desalination plant

Industrial applicability

EP0914452,: Applicant: Max Planck Gesellschaft (Munich)

Title: Novel PTP20, PCP-2, BDP1, CLK and SIRP proteins and related products and methods

Claim 1. An isolated, enriched or purified BDP1 polypeptide comprising at least 200 contiguous amino acids of the amino acid sequence of Figure 3."

In cases where **a substance, naturally occurring in the human body, is identified**, and possibly also structurally characterised and made available through some method, **but either its function is not known or it is complex and incompletely understood, and no disease or condition has yet been identified as being attributable** to an excess or deficiency of the substance, **and no other practical use is suggested for the substance**, then industrial applicability cannot be acknowledged. Even though research results may be a scientific achievement of considerable merit, they are not necessarily an invention which can be applied industrially.

What can be patented?

- **a machine or apparatus**
- **a process or method**
- **a manufacture or article of manufacture**
- **a composition of matter**
- **a new and useful improvement thereof**

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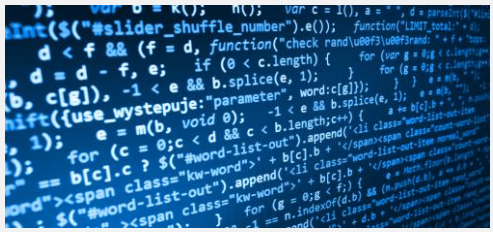
Copyright Protection of Software



- Only the particular expression of an idea is protected, but the idea itself is not protected. (form not function)
- Programs for the automated handling of information
- Protection period
  - 50 years after death of programmer

•No formalities!

Is owned by the employer and not the programer

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Copyright Protection of Software

Advantage:

- The major advantage to copyright protection is that it is inexpensive and easy to obtain (in fact, it does not cost anything and is automatic).
- Another advantage to copyright protection is its duration.

Disadvantage:

- The main disadvantage of copyright protection for computer programs is it does not protect the functionality or technique of the program.

- → Another software developer can develop other software that performs the same function without infringing the copyright.

Software-related inventions?

- **Article 52(2) EPC**
- **The following in particular shall not be regarded as inventions within the meaning of paragraph 1:**
- **(a) discoveries, scientific theories and mathematical methods;**
- **(b) aesthetic creations;**
- **© schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;**
- **(d) presentations of information**
- **→ Sofware is protected by copyright (except the US → patents)**

Computer-implemented inventions (CII)

Computer-implemented inventions are **treated differently by patent offices in different regions of the world.**

For being patentable, computer programs **must have a technical character** that distinguishes them from computer programs “as such”.

The technical effect may result, for example, from the control of an industrial process or the **working of a piece of machinery**, or from the internal functioning of the computer itself (e.g. **memory organisation, program execution control, interface control**) under the influence of the computer program.

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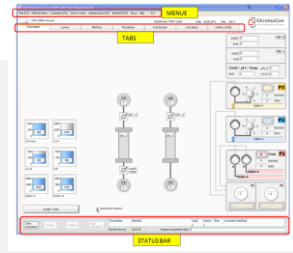
Software-related patents exist!



- Algorithms as such are not protectable
- A patent for a computer program gives the patent owner during the term of the patent the exclusive right over any algorithm that performs the same function and solves the same problem as the patented program.
- Advantage: protection ot the effect of a software (Copyright protects the form it is written in)
- Disadvantages: «only» 20 years maximum protection, protection of the process (function), the software itself is not protected (however, nondisclosure of the source code)

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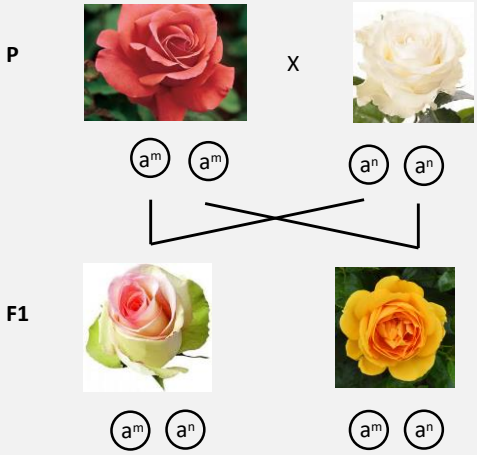
Reproducibility



- result by chance:

  selective (natural) breeding of a new variety of roses

Not patentable

plant or animal varieties or essentially biological processes for the production of plants or animals; an "animal variety" is not legally defined in patent law, but may be taken to be a group of animals of the same species which have been selected to constitute a breed having at least one significant and identifiable characteristic.

Exclusions from Patentability

- **Inventions contrary to Ordre Public or Morality**

The purpose of the law is to Exclude from protection inventions likely to induce riot or public disorder, or lead to criminal or other generally offensive behaviour.

However, the denial of a patent does not prevent use of such inventions. Moreover, it is impossible to deny a patent merely because exploitation is prohibited by law.

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Immoral: the commercial exploitation of the human embryo

Ruling of the European Court of Justice (ECJ):
It is immoral to destroy human embryos to obtain stem cells.

1. Non-tumorigenic cell composition obtained from mammalian embryonic stem cells, containing

a) at least 85% isolated neural precursor cells with the ability to differentiate into neuronal o
b) no more than 15% primitive embryonic and non-neural cells, obtainable by the steps of

(a) proliferation of ES cells,
(b) cultivation of the ES cells from step (a) into neural precursor cells,
(c) proliferation of the neural precursor cells in growth factor-containing serum-free medium,
(d) proliferation of the neural precursor cells from step (c) in another growth factor-containing serum-free medium and isolation of the purified neural precursor cells and
(e) proliferation of the neural precursor cells from step (d) in another growth factor-containing serum-free medium and isolation of the purified precursor cells with the ability to differentiate into neuronal or glial cells,

wherein the growth factor-containing, serum-free medium in step (d) comp
growth factor-containing, serum-free medium in step (e) comprises bFGF
method does not include the destruction of human embryos.

Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 040 185 B1

EUROPÄISCHE PATENTSCHRIFT

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(54) NEURALE VORLÄUFERZELLEN, VERFAHREN ZU IHRER HERSTELLUNG UND IHRE VERWENDUNG ZUR THERAPIE VON NEURALEN DEFEKTEN

NEURAL PRECURSOR CELLS, METHOD FOR THE PRODUCTION AND USE THEREOF IN NEURAL DEFECT THERAPY

CELLULES PRECURSEURS NEURALES, LEUR PROCEDE DE PRODUCTION ET LEUR UTILISATION POUR LA THERAPIE D'ANOMALIES NEURALES

(12) **United States Patent**
Bruestle

(10) **Patent No.: US 7,968,337 B2**
(45) **Date of Patent: Jun. 28, 2011**

(54) **NEURAL PRECURSOR CELLS, METHOD FOR THE PRODUCTION AND USE THEREOF IN NEURAL DEFECT THERAPY**

(76) Inventor: **Oliver Bruestle**, Meckenheim (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 310 days.

Cattaneo & McKay, Nature 347:762-765, (1990).
Reynolds & Weiss, Science 255:1707-1710, (1992).
Richards et al., Proc. Natl. Acad. Sci. USA 89:8591-8595, (1992).
Ray et al., Proc. Natl. Acad. Sci. USA 90:3602-3606, (1993).
Kilpatrick & Bartlett, Neuron 10:255-265, (1993).
Ray & Gage, J. Neurosci. 6:3548-3564, (1994).
Davis & Temple, Nature 372:263-266, (1994).
Vicario-Abejon et al., Neuron 15:105-114, (1995).
Gosh & Greenberg, Neuron 15:89-103, (1995).
Gritti et al., J. Neurosci. 16:1091-1100, (1996).
Svendsen et al., Exp. Neurol. 137: 376-388, (1996).

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Exclusion from Patentability

patenting in the medical field is constrained by the exclusion from patentability of

methods of treatment of the human or animal body by therapy or surgery, or methods of diagnosis performed on the human or animal body.

This exclusion applies only to methods of treatment and diagnosis and not to the materials used in such methods,

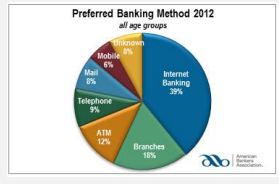
(in possible)

Not technical

- Gaming instructions
- Training instructions for athletes

Not patentable

- Not technical
  - Business methods
  - Concepts
    - Bookkeeping systems
    - Lottery systems
    - Marketing concepts



→ Instructions to the mind

Exemption from Protection

- For private use

- Education

Exemption from protection

Research and Development

- Research on the object for free
- Research with the object not for free (research tools)

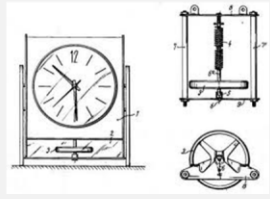
Utility Model

- Gebrauchsmuster
- modèle d'utilité
- modello di utilità
- modelos de utilidad

- A number of products were labeld between 1891 and approx. 1945 with "D.R.G.M.", often together with the protection right number.

Utility Model

- Fast protection (grant within weeks to a few months) for technical inventions
- Have in general a shorter protection period (often 7 to 10 years) and less strict requirements for patentability
- Requirements for patentability such as novelty, inventive step and industrial application are not examined (however necessary)
- Maybe only protection of products and not methods or processes
- Certain technology areas might be excluded (such as biotechnology in DE)
- Often only a certain number of claims allowed
- costs: e.g. Germany 40 Euro



Utility Models in:

Albania,
Angola,
Argentina,
ARIPO,
Armenia,
Aruba,
Australia,
Austria,
Azerbaijan,
Belarus,
Belize,
Brazil,
Bolivia,
Bulgaria,
Chile,
China,
Colombia,
Costa Rica,
Czech Republic,
Denmark,
Ecuador,
Estonia,
Ethiopia,
Finland,
France,
Georgia,
Germany,
Greece,
Guatemala,
Honduras,
Hungary,
Indonesia,
Ireland,
Italy,
Japan,
Kazakhstan,
Kuwait,
Kyrgyzstan
Laos,
Malaysia,
Mexico,
OAPI,
Peru,
Philippines,
Poland,
Portugal,
Republic of Korea,
Republic of Moldova,
Russian Federation,
Slovakia,
Spain,
Taiwan,
Tajikistan,
Trinidad & Tobago,
Turkey,
Ukraine,
Uruguay
Uzbekistan

no US, no Canada, no UK, no EPO

Utility Models
some bizzare examples

Misconception

A valid patent is **not a right to sell or use** the invention!

A patent is **not a guarantee** for the quality of the invention!

Misconception
Patented inventions are kept secret

- the inventor must disclose all that he/she knows about the invention in the patent application
- the patent is published worldwide (internet)

- Information in return of the
- commercialisation monopoly

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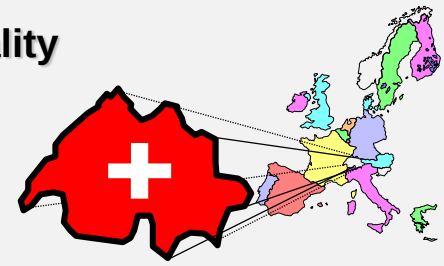
Misconception
Patented inventions are protected worldwide

Principle of territoriality

protection rights only in the country where you claim it



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Other protections

Keep it secret! Trade Secret

The formula of Coca-Cola

The end of a mythe

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Open innovation

- Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology."

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Intestinal Carcinoid and Pancreatic Neuroendocrine Tumor Cell Lines Needed – Year Two

TAGS: Nature, Global Health, Requests for Partners and Suppliers, Life Sciences, RTP
AWARD: **$600,000 USD** | DEADLINE: **7/06/16** | ACTIVE SOLVERS: 73 | POSTED: 7/06/15

The lack of well-validated and widely accepted cell lines derived from intestinal carcinoid and pancreatic neuroendocrine tumors (PNET) is a significant barrier for research and development of new therapies. The Caring for Carcinoid Foundation therefore wishes to launch a second Challenge to stimulate a concerted effort to create a "collection" of well-characterized cell lines that faithfully replicate tumor characteristics and genetics. The Foundation has partnered with the Rare Cancer Research Foundation (RCRF), a foundation dedicated to curing rare cancers through strategic investments and innovative collaborations, and the American Type Culture Collection (ATCC), the world's largest non-profit cell line repository, to establish a Neuroendocrine Tumor Cell Line collection in their catalog.

This is a Reduction-to-Practice Challenge that requires written documentation, detailed description of each cell line, and sample delivery.

Source: InnoCentive **Challenge ID:** 9933756

Challenge Overview

This Challenge is intended to encourage innovative approaches to establishing new cell lines from primary tumors that grow slowly *in vivo* and to publicize new methods as well as availability of the new cell lines for broad, unrestricted use.

To stimulate development of new carcinoid and PNET cell lines, the Foundation is pleased to announce its second open competition for up to ten individual prizes: Developers of the first new cell lines in each disease (intestinal carcinoid and PNET) will receive $100,000 each and developers of the second, third, fourth, and fifth new cell lines in each disease will receive $50,000 each. Individual creators are eligible for one (the *first* cell line from *either* disease) or up to ten prizes (the *first, second, third, fourth, and fifth* cell lines from *both*

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Who owns the invention?

- Where a scientist is employed to produce a solution to a problem, the employer is entitled to the ownership of the patent. (labor contract, no additional compensation) → service invention
- *a service invention can also be made during leisure time, on holiday, or after office/working hours*

- **→ employer**

Free inventions

Free inventions are those made during the term of employment but which have neither originated from the employees' tasks nor are essentially based on the experience or activities of the company.

→ **employee**

ETH PATENT POLICY

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Royalties

- 1/3 for the inventor
- 1/3 for free research of the respective institute
- 1/3 for ETH for research and technology transfer

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Glendale Inquiry

Heinz Mueller
Swiss Federal Institute of Intellectual Property