



Intellectual Property : Fundamentals of Patents

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What is **Intellectual** Property ?

- Property
 - Ownership
 - Free to use it as owner wishes
 - Exclude others from so using that owned item of property
- Intellectual Property
 - Types of property that results from creations of human mind, the intellect.
 - It can be owned, sold, leased or licensed.



WIPO Convention

- **WIPO - global forum for intellectual property services, policy, information and cooperation.**
- **The WIPO Convention** is the treaty that established the WIPO
- The Convention was signed at Stockholm Sweden on 14 July 1967 and entered into force on 26 April 1970. It says
- “Literary artistic and scientific works;
- performances of performing artists,
- phonograms, and broadcasts;
- inventions in all fields of human endeavor;
- scientific discoveries; industrial designs;
- trademarks, service marks, and commercial names and designations;
- protection against unfair competition; and
- "all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.”



Intellectual Property Rights - Categories

- Literary, artistic and scientific works e.g. books. Protection of this property is governed by laws concerning **Copyright**.
- Performances, broadcasts e.g. concerts. Protection of this property is governed by laws concerning Copyrights **Related Rights**.
- **(Cricket – broadcast)**
- Inventions e.g. a new form of jet engine. Protection of inventions is covered by laws concerning **Patents**.



Intellectual Property

- **Industrial designs** e.g. the shape of a soft drinks bottle. Industrial Designs may be protected by its own specialized laws, or those of Industrial Property or Copyright.
- **Trademarks**, service marks and commercial names and designations e.g. logos
- Names for a product with unique geographical origin, such as Champagne are protected by **Geographical Indicators**.



Intellectual Property Rights

- Technical Designs of electronic devices are protected by **Integrated Circuits**.
- Not used so much as changes are every 3 years.
- New Plant varieties (GM Cotton) are protected by **Plant Varieties Protection Act**.
- Confidential information not in public domain can be protected as **Trade Secret** – no law in India



IP Rights Important for Startups

- Patents
- Trademarks and Domain names
- Copyrights
- Design Rights
- Trade Secrets



What is a Patent ?

- A right granted to inventors to *prevent* unauthorized use of an invention, within a *particular territory*, for a *limited time*.
- Does not guarantee the *freedom to exploit* the invention.



(12) **United States Patent**
Carr et al.

(10) **Patent No.:** **US 7,487,644 B2**
(45) **Date of Patent:** **Feb. 10, 2009**

(54) **CRYOSTAT ASSEMBLY**

(75) Inventors: **Philip Alexander Carr**, Oxon (GB);
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Diwakar Atrey, Oxon (GB)

(73) Assignee: **Oxford Instruments Superconductivity**
Limited, Oxford (GB)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 362 days.

(21) Appl. No.: **11/282,671**

(22) Filed: **Nov. 21, 2005**

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(51) **Int. Cl.**
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F17C 5/02 (2006.01)
F25D 19/00 (2006.01)

(52) **U.S. Cl.** **62/48.2**; 62/47.1; 62/296

(58) **Field of Classification Search** 62/47.1,
62/48.2, 51.1, 296

See application file for complete search history.

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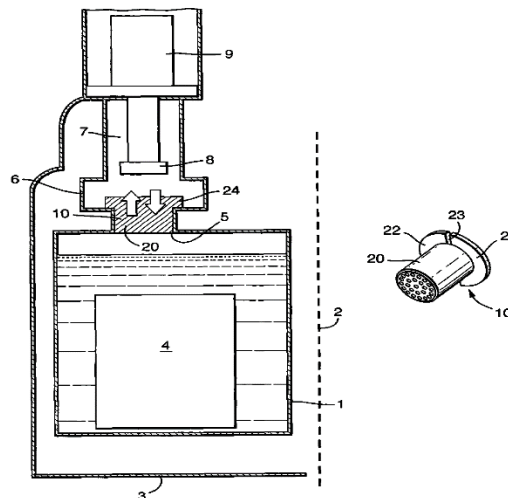
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Primary Examiner—William C Doerfler

(57) **ABSTRACT**

A cryostat assembly comprises a liquid coolant containing vessel; a mechanical cooler having at least one cooling stage located above the vessel; and a channel for conveying gaseous coolant from the vessel to the cooling stage where the coolant is condensed in use and then returns through the channel to the vessel. An acoustic wave attenuator is located in the channel for attenuating the passage of acoustic energy originating from the mechanical cooler and propagating through the gaseous coolant, while permitting flow of gaseous coolant to the cooling stage and flow of condensed coolant to the vessel.

16 Claims, 3 Drawing Sheets





US007191601B2

(12) **United States Patent**
Atrey

(10) **Patent No.:** **US 7,191,601 B2**
(45) **Date of Patent:** **Mar. 20, 2007**

(54) **MAGNETIC FIELD GENERATING ASSEMBLY**

(75) Inventor: **Milind Diwakar Atrey**, Oxon (GB)

(73) Assignee: **Oxford Instruments Superconductivity Ltd**, Oxon (GB)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 340 days.

(21) Appl. No.: **10/960,280**

(22) Filed: **Oct. 8, 2004**

(65) **Prior Publication Data**
US 2005/0262851 A1 Dec. 1, 2005

(30) **Foreign Application Priority Data**
Jan. 28, 2004 (GB) 0401835

(51) **Int. Cl.**
F25B 19/00 (2006.01)
F25B 9/00 (2006.01)

(52) **U.S. Cl.** 62/6; 62/51.1

(58) **Field of Classification Search** 62/6;
62/259.2, 51.1
See application file for complete search history.

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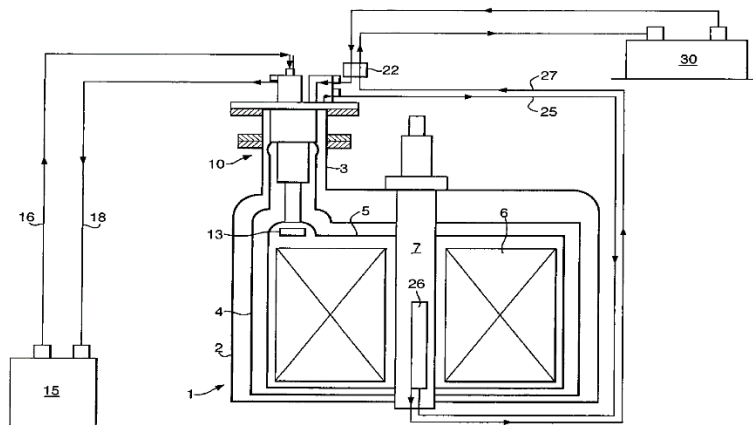
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Primary Examiner—William C. Doerfler

(57) **ABSTRACT**

A magnetic field generating assembly comprises a superconducting magnet located in a cryostat defining a bore accessible from outside the cryostat, and a mechanical refrigerator having at least two cooling stages for at least partly cooling the cryostat. A coolant path extends from the refrigerator into the magnet bore. The coolant path is coupled for heat exchange with a cooling stage of the refrigerator other than the coldest cooling stage, so that the refrigerator is adapted also to cool coolant in the coolant path.

18 Claims, 3 Drawing Sheets





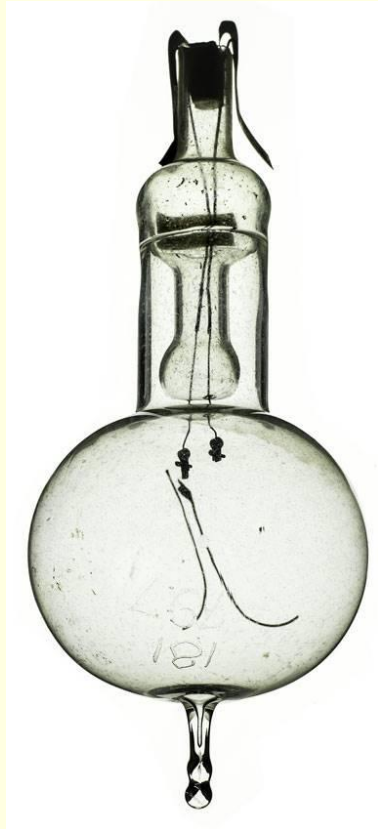
Patent Explanation

- Negative Right (prevents others)
- Get benefit for your knowledge which is built over time
- Patents are territorial
e.g., an Indian patent has **no force in other countries** , **just as a foreign patent has no force in this country**.
- Limited Time: 20 years from Date of application.
- Positive right restricted by previous patents
- Freedom to operate/market/practice (should be free of incumbencies, should not be a willful infringer)



Electric Bulb

- The electric light bulb - 1879 by Edison, - several inventors prior to him. US patent (18979).
- On July 24, 1874 a Canadian patent was filed by a Toronto medical electrician, named Henry Woodward and Mathew Evans.
- They built their lamps with different sizes and shapes of carbon rods held between electrodes in glass cylinders filled with nitrogen. Woodward and Evans attempted to commercialize their lamp, but were unsuccessful. They eventually sold their patent to Edison in 1879.



- But his version - was a combination of an effective incandescent material, a higher
- He worked on several types of material for metal filaments to improve upon his original design and by Nov 4, 1879, he filed another U.S. patent for an electric lamp using "a carbon filament or strip coiled and connected ... to platina contact wires."
- After several months after the patent was granted that Edison and his team discovered that a carbonized bamboo filament could last over 1200 hours.
- Thomas Edison's company, Edison Electric Light Company began marketing its new product.



Requirements of Patentability

Substantive Requirements

- Subject matter – not abstract idea !
- Novelty
- Non-Obviousness
- Utility

Procedural Requirements

- Enablement - enable others to reproduce results
- Definiteness – claims, boundaries
- Best mode – give the best results

Ideas/concepts cannot be patented - prototype



Product and Process patent

- The developed countries follow product patent system. On the other, process patent system is preferred by the developing world.
- Under a process patent, the patent is granted for a particular manufacturing process, and not for the product itself. Any other person can produce the same product through some other PROCESS, modifying the various parameters.
- Weakness of the process patent regime is that it gives less protection for the inventor.
- In the case of product patent, it is an exclusive right given to the original inventor of a product.
- India's 1970 Patent Act allowed only process patent.
- After 2005 – product patent



Types of Patents

- Utility Patents – How it works ?
 - Inventions, Processes, machines, functionality
 - Motors, Radio, computer chips, business methods (in US), no software patents in India but in US.(computer related inventions with technical effects)
 - 20 years
- Design Patents (US) – How it looks ?
 - to protect ornamental (non-functional) designs.
 - Apple's D 604,305 covering the design of its iPhone interface – 14 years
- Plant Patents – New variety (Asexually produced)
- Innovation patents – small improvements (SMEs), 7 years



Provisional Patent

- In India, the United States and some other countries, a temporary patent application, to protect invention while work is in progress termed as provisional application, may be filed.
- Must be “completed” within 12 months by the filing of a complete application. Otherwise it lapses and you lose the priority.
- The legal requirements for a provisional application may be less than those for a complete application, for example, it is not necessary to include claims in a provisional.



Foreign Patents

- Territorial Right- Restricted to Grant Giving Country
- No Concept of World Patent or International Patent
- System of Filing International Patent Application for The Purpose of Priority Date and Examination Exists Under The Patent Cooperation Treaty (PCT). After 18 months – publish and after 1 year, any country.
- Wait for 6 weeks to see the strategic importance of the patent.
- Administered By World Intellectual Property Organisation



Inventorship Vs Ownership

- Organizational IPR policies (work for hire)
- Commercial work of Non-Employees
 - Artistic Works
 - Architectural or Engineering Drawings
 - Computer Software
 - Reports by consultants or subcontractors
 - Sponsorships /Grants



IITB IP policy

- **Ownership:** The IP policy has to be accepted and signed by all IITB Personnel. IITB owns all the Intellectual Property (IP) that is produced by all IITB personnel.
- http://www.ircc.iitb.ac.in/IRCC-Webpage/rnd/IITB_IP_Policy2012.jsp
- Use of library facilities, internet connectivity, and occasional use of office equipment and office staff - not considered as "significant use" of Institute facilities and equipment. In addition, following too :
- The inventor does not use any Institute provided funds in connection with the activity resulting in generation of IP.
- Prior disclosure by the inventors of any intellectual property that closely resembles a specific research project at the Institute, together with an explanation that such intellectual property did not arise through use of Institute resources.



Communication that Count against An Inventor

- Printed Publications
 - Microfilm
 - Slides and Drawings
 - Photographs
 - Speeches and Handouts
 - Library Cataloguing (Thesis)
 - Government Research Grant Proposal
- Emphasis on 'Accessibility And Dissemination of The Work'
- Invention on Sale
- Invention Available for Public use.
- USA- One Year Grace After Publication



Lessons from the Commercialization of the Cohen-Boyer Patents: The Stanford University Licensing Program

- <http://www.iphandbook.org/handbook/ch17/p22/>
- The Cohen-Boyer licensing program, was widely successful - Recombinant DNA (rDNA) products provided a new technology platform for a range of industries, resulting in over US\$35 billion in sales for an estimated 2,442 new products, licensed to 468 companies.
- Over the 25 years of the licensing program, Stanford and the University of California system accrued US\$255 million in licensing revenues.
- In many ways, Stanford's management of the Cohen-Boyer patents has become the gold standard for university technology licensing.
- Only US patent after publishing, lost patent opportunity in other countries.



Why Do Patent Rights Matter ?

- To protect your own business and inventions from your competitors
- To avoid the risk of being sued for infringement by competitors and other third parties
- Income from licensing
- Attract Investors



What Is a Trademark ?

- A sign used to distinguish the goods and services offered by one from another.
- Two main characteristics
 - distinctive
 - should not be deceptive
- **“A trademark is a sign that individualizes the goods of a given enterprise and distinguishes them from the goods of its competitors”**





What Constitutes As Trademark

- A trademark may consist of words, designs, letters, numerals or packaging, slogans, devices, symbols, etc.
- A service mark is similar to a trademark
- Hologram mark
- Sound mark (MGM Studio)- Advt. Jingle
- Shape (Toblerone)
- Scent as trademark



Trademarks



Name

Logotype

Symbol

Slogan

Shape

Color





Examples

- Words: ‘Apple’ for computers; Deutsche Bank for a bank,
- Arbitrary or fanciful designations: Coca-Cola, Nikon, Sony, NIKE, Easy Jet.
- Names: Ford, Peugeot, Hilton (hotel)
- Slogans: ‘Fly me’, for an airline;
- Devices: the star for Mercedes Benz, the flying lady for Rolls Royce
- Number: the 4711 cologne
- Letters: GM, FIAT, VW, KLM
- Pictures or symbols: Lacoste (small crocodile)



Characteristics

- **Distinctiveness**

Ex.: Apple- computer

Not distinctive for apples as it is descriptive

Describes nature of goods or services

- **Deceptiveness**

When it claims a quality for the goods that they do not have.



Secondary meaning

- A trademark creates a mental association among consumers such that consumers will come to expect that a product sold under the mark comes from a unique source.
- This association is referred to as “secondary meaning” and it is the basis for creating trademark



Period of Protection

- Indefinitely
- Subject to timely renewal
- Period of ten year at a time



Copyright

- The right to copy and make use of Literary, Dramatic, Musical, Artistic works, Cinematographic films, Records and Broadcast
- Includes Databases, Computer Programmes, Multimedia Products
- Property right comes into existence as soon as the work is created, for legal protection needs to be fixed on a medium
- Fixed means written down or recorded- to be produced as proof or evidence



What is covered by Copyright ?

- Copyright protects works, that is expression of thoughts and not ideas
- For example plot is not protected, different writers may build stories based on a similar plot
- Every expression can get protection
- Paintings “Sunset over the sea”



Rights

- Economic Rights : to use the work or to authorize others to use the work –right of reproduction, right of performance, right of broadcasting, right of communication, rights of translation and adoption
- Moral Rights : Right of authorship- the right to object to the work being distorted or used in contexts that are prejudicial to the honor and literary and artistic reputation of the author.



Period of Protection

Related Rights

- Rome Convention : 20 years
- TRIPS: 50 Years
- Exemption for private use, use of short excerpts, and use for teaching or scientific research.



Objective Of Design Protection

- Sometimes purchase of articles for use is influenced not only by their practical efficiency but also by their appearance
- The artisan, creator, originator of a design having aesthetic look is not deprived of his bonafide reward by others applying it to their goods.



Objective Of Design Protection

- Design means only the features of shape, configuration, pattern, ornament, or composition of lines or colours applied to any article, 2-D or 3-D, by any industrial process - Manual, mechanical or chemical – which in the finished article appeal to the eye and are judged solely by it.



Period Of Protection

- Varies from 10 to 25 depending upon country
- Subject to timely renewal
- Period of ten year at a time



What Is a Trade Secret ?

- The extent to which information is known to public or within particular trade
- The amount of effort and money expended in developing the secret information
- The value of the information to holder & his competitors
- The extent of measures taken to guard the secrecy of the information
- The ease or difficulty with which the information could be properly acquired by others



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Examples

- Recipe, chemical formula, survey methods, confidential data, computer programmes, manufacturing process, marketing strategies, financial strategies or a new invention for which patent application is not yet filed.
- Generally information is usually protected as trade secret when the other forms of IPR protection can not be used (eg. Idea, a negative know-how)



Trade Secret Vs Patent

- **Patent**

20 years + Fees

- **Trade Secret**

Ability to keep secret for longer period

Reverse Engineering

Enforcement



Trips

- The information must be secret
- It must have a commercial value
- Subjected to reasonable steps by the holder of the information to keep it secret



Steps

- Limited number of people have access and are aware that it is confidential
- Signing confidentiality agreement with business partners whenever disclosing confidential information
- Confidentiality agreements with employees
- Physical restrictions (access, repository)
- Security in digital era



IP Strategy

- An IP strategy should support long-term product development goals, not just ad-hoc innovations.
- Focus on inventive step, competitive advantage of your product, patentability
- In addition, the value of any given patent is not absolute, but relative to competitor patent filings
Multiple Protection – rights and geography



Common Mistakes

- Failure to look at Prior art
- Mixing up- Pre-existing IP
- Employment Agreements
- Service Agreements
- Assignments (including restrictions)
- Timely filing
- Untimely disclosures
- Validity, Infringement (FTO)
- DIY



IP Due Diligence

- A buyer is interested in acquiring a company's IP assets;
- A venture capitalist wants to invest in a start-up company with relevant IP;
- A prospective business partner is interested in licensing-in a company's IP;
- A company wants to use its IP assets to obtain financial loans.



IP Due Diligence

- Verify IP Assets
- Verify ownership and existence of IP
- Detect restriction on IP asset use
- Ascertain the validity and strength of IP rights
- Evaluate potential IP infringements



IP Ownership

- Assignment agreements
- Employment agreements
- Non-compete agreements
- Non-Disclosure agreements
- JV agreements
- Collaborative research agreements



Employment And Independent Contractor Agreements

- Provisions governing the transfer of the IP rights from employees or contractors to the company
- Terms and conditions under which an independent contractor is allowed to use any copyrighted materials or rely on trademark association with the business
- The scope of the assignment itself.





Employment And Independent Contractor Agreements

- Provisions regarding a waiver of moral rights in all copyright works
- Clauses setting restrictions on the disclosure or use of confidential information during or after the completion or termination of the employment/contract
- Provisions defining the employees' continuous obligation to assist in the protection of the IP rights
- The extent, scope and enforceability of non-compete and non-solicitation provisions



Joint Venture and Collaboration Agreements

- Who owns the IP assets pre-dating or created through the joint venture or collaboration
- Define a system for identifying protectable intellectual property resulting from the cooperation
- Identify who pays for any application for registration of IP rights and any subsequent defense of the IP rights
- Determine the scope of IP contributed to the joint venture
- Determine which IP rights can be used by whom when the joint venture or collaboration ends.



Grants

- Often government or foundation funded R&D agreements provide for ownership of IP rights in favor of the government or a government agency.
- Therefore all such contracts should be closely reviewed for such limitations.



IP Validity

- Filing receipts from patent offices
- Payment receipts
- Recording of non-registrable IP
- FTO report
- Any claim or dispute affecting grant or validity of IP (opposition or revocation proceedings)



Other Encumbrances

- Pledge guarantees
- Court actions
- Public or Private funding agreements
- Distribution agreements
- Bank loans
- Are IP assets tied up with financial assets