



Introduction to Patents

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YORKSHIRE AND HUMBER

Agenda

Why patents?

What can be patented?

What is a patent?

How do we apply for patents?

Case studies

1. Why patents?



- to sue infringers
- to secure investment
- to tie down something to license
- to tie down something to sell

Patent protection provides "a handle" on your technology so that you can use it as a business tool

1. Why Patents?



Definition of Infringement – Section 60, UK Patents Act 1977.

1. Where patented invention is **product**:

Make, use or import product without patent proprietor's consent.

2. Where patented invention is **process**:

Use or offer for use process without patent proprietor's consent.

1. Why patents?



- Patents enable you *to use* your ideas to the full
 - control competitors
 - establish credibility for your business
 - create a handle with which to move your business on
 - Make a patent strategy part of your business plan
 - Make the patent system work for you
-

2. What can be patented?



There is no clear definition anywhere of what a patent is

Dictionary.com:

“The exclusive right granted by a government to an inventor to manufacture, use, or sell an invention for a certain number of years”

2. What can be patented?



Patentable Inventions

European Patent Convention – [Article 52](#)

- (1) European patents shall be granted for any inventions, in all fields of technology, provided that they are [new](#), involve an [inventive step](#) and are susceptible of [industrial application](#).
-

2. What can be patented?



What does “**new**” mean?

European Patent Convention - [Article 54](#)

- (1) An invention shall be considered to be new if it does [not form part of the state of the art](#).
- (2) The state of the art shall be held to comprise **everything** made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.

Therefore, it is extremely important not to disclose invention before applying for a patent!

2. What can be patented?



What does “**inventive step**” mean?

European Patent Convention - [Article 56](#)

- An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is [not obvious](#) to a person skilled in the art.
-

2. What can be patented?



What does this mean in practice?

European Patent Office - “**problem and solution**” approach.

- ➔ **compare** the invention with the closest single item of prior art
- ➔ the **advantage** given by the invention over the closest single item of the prior art is the solution to a problem with that closest prior art
- ➔ would it be **obvious** to the skilled person to solve the problem with the closest prior art in the same way as the invention?

If **NO** ➔ **INVENTION !**

2. What can be patented?



Exceptions to patentability

- (a)...contrary to “public policy/morality”
 - (b)...plant or animal varieties, production of plants or animals...
 - (c) methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body; this provision shall not apply to products, in particular substances or compositions, for use in any of these methods
-

2. What can be patented?



Patenting in the medical field [not exhaustive]

- a device or apparatus
 - a composition or formulation
 - a method of manufacture of a device or composition
 - a composition or device for a particular medical use [treatment of disease, surgery, therapy, diagnosis]
 - a biological material (must be industrially applied)
 - a kit of parts
-

3. What is a patent?



The patent document

1. introduction
 2. summary
 3. detailed description
 4. claims
 5. abstract
 6. drawings
-

3. What is a patent? – example 1 –



- EP 1 985 766 A2
- Soil Machine Dynamics Ltd
- “Vehicle for laying an elongate product in a trench in the sea floor”

(19) **European Patent Office**
Office européen des brevets

(11) **EP 1 985 766 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **29.10.2008** Bulletin 2008/44 (51) Int Cl.: **E02F 5/10 (2006.01)**

(21) Application number: **08251502.4**

(22) Date of filing: **23.04.2008**

(84) Designated Contracting States: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR Designated Extension States: AL BA MK RS	(72) Inventor: Reece, John Newcastle upon Tyne NE3 4EA (GB)
(30) Priority: 26.04.2007 GB 0708082	(74) Representative: Archer, Graham John et al Urquhart-Dykes & Lord LLP Cale Cross House Pilgrim Street Newcastle upon Tyne NE1 6SU (GB)
(71) Applicant: SOIL MACHINE DYNAMICS LIMITED Newcastle-upon-Tyne NE3 3QS (GB)	

(54) **Vehicle for laying an elongate product in a trench in the sea floor**

(57) A vehicle (40) for laying a pipe (42) in a trench (44) in the sea floor (46) is disclosed. The vehicle has two operational modes, a first mode for cutting a trench in a sea floor with a soft upper layer and a hard lower layer and a second mode for a sea floor of hard material throughout the depth of the trench. The vehicle has three cutting chains (56, 58, 60), the forward most chain, that is only used when the second mode cuts a shallow central section of the trench from a first side. A centrally positioned cutting chain (56), that is used in both modes, cuts the next portion of the trench to its full depth from the opposite side that the forward most cutting chain (58) operates. A rear most cutting chain (60) cuts the final portion of the trench to its full depth, therefore partially overlapping with the previous portion, and operates from the same side of the trench (44) as the forward most cutting chain (58).

EP 1 985 766 A2

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3. What is patent? – *example 1* –



Claim 1:

A vehicle for laying an elongate product in a trench in a sea floor, the vehicle comprising:

- a vehicle body adapted to travel along the sea floor;

- first cutting means for cutting a first portion of a trench in the sea floor from a first side of said trench;

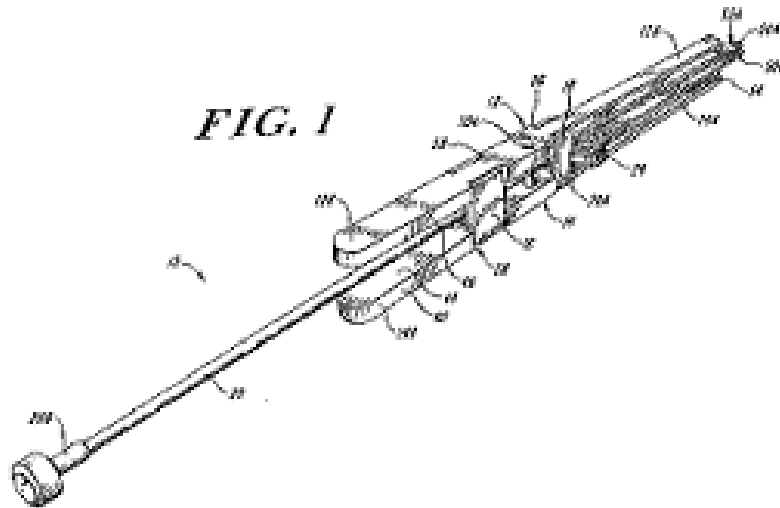
- second cutting means for cutting a second portion of said trench from a second side opposite said first side;

- wherein said first and second trench portions overlap with each other and said first cutting means is located in front of said second cutting means in the direction of travel of the vehicle.

3. What is a patent? – example 2 –



- EP 1 153 582 B1
- DePuy Spine Inc.
- “Medical installation tool”



Europäisches Patentamt European Patent Office Office européen des brevets		
(19)		(11) EP 1 153 582 B1
(12) EUROPEAN PATENT SPECIFICATION		
(45) Date of publication and mention of the grant of the patent: 20.04.2005 Bulletin 2005/16	(51) Int Cl.7: A61F 2/46, A61B 17/17	
(21) Application number: 01304089.4		
(22) Date of filing: 04.05.2001		
(54) Medical installation tool Chirurgisches Einsetzwerkzeug Outil d'insertion médical		
(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR	• O'Neil, Michael J. West Barnstable, Massachusetts 02668 (US) • Boomer, Mark Providence, Rhode Island 02909 (US)	
(30) Priority: 08.05.2000 US 566514	(74) Representative: Belcher, Simon James Urquhart-Dykes & Lord LLP Tower North Central Merrion Way Leeds LS2 8PA (GB)	
(43) Date of publication of application: 14.11.2001 Bulletin 2001/46	(56) References cited: DE-U- 20 012 549 DE-U- 29 901 611 DE-U- 29 916 078 US-A- 3 486 505 US-A- 5 431 658 US-A- 5 571 109	
(73) Proprietor: DePuy Spine, Inc. Raynham, MA 02767-0350 (US)		
(72) Inventors: • Fraser, Robert D. Myrtle Bank, South Australia 5064 (AU)		

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 153 582 B1

3. What is patent? – *example 2* –



Claim 1:

A medical device installation tool (10), comprising

- a pair of opposed levers (12, 14), each having a proximal, handle portion and a distal portion (12A, 14A);

- a fulcrum (16) disposed between the two levers, at a point which is between the handle portions and the distal portions;

- a pusher block (18) positioned between the two levers and selectively moveable between an initial location distal of the fulcrum and a final location which is distal of the fulcrum and adjacent a distal end of the levers, further from the fulcrum than when in the Initial location; and

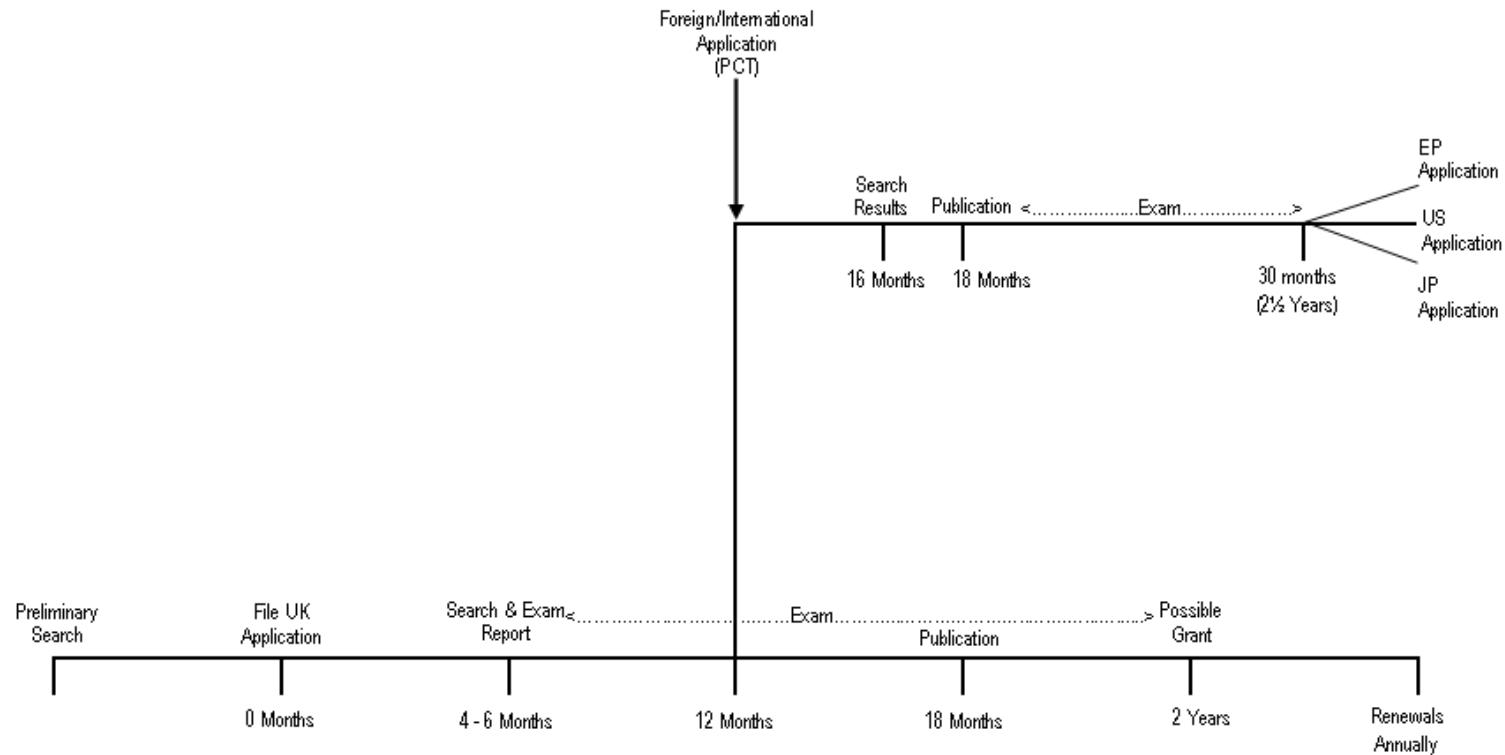
- a pusher rod (20) having a distal end (20A) connected to the pusher block and a proximal, handle end (20B); characterised by

- the fulcrum allowing the handle portions of the levers to be closed so that the distal portions of the levers separate, facilitating movement of the pusher block from the initial location towards the final location.

4. How do we apply for patents?



The patent system



4. How do we apply for patents?



Patent searching and competitor's IP

- Espacenet

http://ep.espacenet.com/advancedSearch?locale=en_EP

- Epoline

<https://register.epoline.org/espacenet/regviewer>

- WIPO

<http://www.wipo.int/pctdb/en/search-struct.jsp>

5. Case Study – example 1 –



Polymer membranes

- priority May 1991
- Li-SOCl₂ based rechargeable batteries

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁵ : H01M 2/16, D06M 14/28 B01J 47/12		A1	(11) International Publication Number: WO 93/01622
(21) International Application Number: PCT/GB92/01245			(43) International Publication Date: 21 January 1993 (21.01.93)
(22) International Filing Date: 9 July 1992 (09.07.92)			(74) Agent: BELCHER, Simon, James; Urquhart-Dykes & Lord, Tower House, Merrion Way, West Yorkshire, Leeds LS2 8PA (GB).
(30) Priority data: 9114797.5 9 July 1991 (09.07.91) GB 9208906.9 24 April 1992 (24.04.92) GB			(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, PL, RO, RU, SD, SE, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE), OAPI patent (BF, BI, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG).
(71) Applicant (for all designated States except US): SCIMAT LIMITED [GB/GB]; Techno Trading Estate, Bramble Road, Swindon, Wiltshire SN2 6EZ (GB).			Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(72) Inventors; and (75) Inventors/Applicants (for US only): SINGLETON, Raymond, William [GB/GB]; The Nook, Down Ampney, Cirencester, Gloucestershire GL7 5QW (GB). COOK, John, Anthony [GB/GB]; 18 Beech Close, Orchard Hill, Faringdon SN7 7EN (GB). GARGAN, Kenneth [GB/GB]; 16 Theobald Street, Swindon, Wiltshire SN1 5DU (GB).			
(54) Title: POLYMERIC SHEET			
(57) Abstract <p>A polymeric sheet, which is particularly suited for use as a separator in an electrochemical device, is formed, by graft copolymerising acrylic acid, or another vinyl monomer capable of reacting with an acid or a base to form a salt directly or indirectly, with fibres of a non-woven sheet, whose outer surface is provided by a polyolefin, especially polypropylene. The polyolefin is crosslinked as a result of the polymerisation reaction. The polymerisation reaction is preferably initiated by exposure of the sheet to ultraviolet radiation, after impregnation with an appropriate solution of the vinyl monomer.</p>			

5. Case Study – example 1 –



Polymer membranes

Background:

- in-house development group (1987)
 - spun out technology:
 - Li-SOCl₂ battery separators - no market
 - breathable membranes for fabrics - Goretex!
 - overhead and no product
 - investors losing faith (1989-90)
-

5. Case Study – example 1 –



Polymer membranes

Grafted polypropylene non-woven fabrics

- market opportunity (1991) - rechargeable batteries
 - manufacturing expertise
 - initial orders required new premises and new equipment (1992)
-

5. Case Study – example 1 –



Polymer membranes

Grafted polypropylene non-woven fabrics

- refinanced through 3i (1994)
 - new production line installed
 - international patent application filed
 - agreement reached early with EPO examiner (1993)
-

5. Case Study – example 1 –



Polymer membranes

Grafted polypropylene non-woven fabrics

- sales reached £10m after 3 years
 - competitor product located in Hong Kong (1994)
 - European patent application accepted (1996)
 - Japanese patent application rejected (1997)
 - company purchased by Crane Inc (1996)
 - due diligence focused on patent case
-

5. Case Study – example 1 –



Polymer membranes

Grafted polypropylene non-woven fabrics

- European opposition rejected (2000)
 - negotiations with US based opponent/infringer concluded (2000)
 - Japanese opposition rejected (2001)
 - Japan based opponent/infringer withdraws product
 - management buyout (2002)
-

5. Case Study – example 1 –



Polymer membranes

Grafted polypropylene non-woven fabrics

- diversification into wound management/diaper market
- new patent application filed (2004)
- negotiations with diaper manufacturer (2005)

Company purchased by raw material supplier (2007)

5. Case Study – example 2 –



Anti-microbial coating for medical devices

- filed May 1992
- biocompatible metal powder deposited on medical device by vapour deposition

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WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : A61L 29/00, C23C 14/14 B22F 9/04, C22F 1/00 C22C 45/00		A1	(11) International Publication Number: WO 93/23092 (43) International Publication Date: 25 November 1993 (25.11.93)
(21) International Application Number: PCT/CA93/00201 (22) International Filing Date: 19 May 1993 (19.05.93)		(74) Agent: OGILVIE AND COMPANY, #1400 Metropolitan Place, 10303 Jasper Avenue, Edmonton, Alberta T5J 3N6 (CA).	
(30) Priority data: 07/885,758 19 May 1992 (19.05.92) US 08/057,968 7 May 1993 (07.05.93) US		(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(71) Applicant (for all designated States except US): WESTAIM TECHNOLOGIES INC. [CA/CA]; Box 1000, Fort Saskatchewan, Alberta T8L 3W4 (CA).		Published With international search report.	
(72) Inventors; and (75) Inventors/Applicants (for US only): BURRELL, Robert, Edward [CA/CA]; 112 Village Downs, Sherwood Park, Alberta T8A 4L6 (CA). MORRIS, Larry, R. [CA/CA]; #807, 11007 - 83rd Avenue, Edmonton, Alberta T6G 0T9 (CA).			
(54) Title: ANTI-MICROBIAL COATING FOR MEDICAL DEVICES			
(57) Abstract Anti-microbial coatings and method of forming same on medical devices are provided. The coatings are formed by depositing a biocompatible metal by vapour deposition techniques to produce atomic disorder in the coating such that a sustained release of metal ions sufficient to produce an anti-microbial effect is achieved. Preferred deposition conditions to achieve atomic disorder include a lower than normal substrate temperature, and one or more of a higher than normal working gas pressure and a lower than normal angle of incidence of coating flux. Anti-microbial powders formed by mechanical working to produce atomic disorder are also provided. The invention extends to other metal coatings and powders similarly formed so as to provide enhanced solubility.			

5. Case Study – example 2 –



Anti-microbial coating for medical devices

- NUCRYST formed 1993
 - silver coatings for burn dressings
 - Acticoat™ with SILCRYST™ nanoocrystals 1998
 - first licensing agreement with Smith & Nephew 2001
-

5. Case Study – example 2 –



Anti-microbial coating for medical devices

- NUCRYST infection and inflammation development 2002 for Smith & Nephew
 - Acticoat™ dressings (wound care) used in:
 - hospitals
 - clinics
 - GP practices
 - sale of Acticoat™ dressings \$54 million by Smith & Nephew in 2006
 - revenue for NUCRYST \$24.4 in 2006 from licence agreement
-

5. Case Study – *example 2* –



Anti-microbial coating for medical devices

- NUCRYST hold 21 granted US patents
 - NUCRYST pursuing 21 patent applications
 - Patents cover:
 - products and compositions (coatings, powders, flakes)
 - manufacturing process
 - use of products and compositions to treat wounds, anti-inflammatory, anti-microbial etc.
-

5. Case Study – *example 2* –



Anti-microbial coating for medical devices

- Smith & Nephew acquires all assets of NUCRYST Pharmaceuticals (11 November 2009)
 - NUCRYST shareholders net US \$21 million
-

6. Summary



- Maintain confidentiality until patent application filed
- Assess patentability and commercial value
- Exploit your IP:
 - control competitors
 - establish credibility for your business
 - use patent rights to make money

ANY QUESTIONS

???



Thank you

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