

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) Publication number:

**0 444 702 A3**

(12)

**EUROPEAN PATENT APPLICATION**(21) Application number: **91103113.6**(51) Int. Cl.<sup>5</sup>: **H01F 7/22, H01F 41/04**(22) Date of filing: **01.03.91**(30) Priority: **02.03.90 JP 49267/90**(43) Date of publication of application:  
**04.09.91 Bulletin 91/36**(84) Designated Contracting States:  
**DE FR GB**(88) Date of deferred publication of the search report:  
**23.09.92 Bulletin 92/39**(71) Applicant: **HITACHI, LTD.**  
**6, Kanda Surugadai 4-chome**  
**Chiyoda-ku, Tokyo 101(JP)**

(72) Inventor: **Satou, Motohiro**  
**243-9, Hakari, Minorimachi**  
**Higashiibaraki-gun, Ibaraki-ken(JP)**  
Inventor: **Okada, Ryoji, Tsukuba Hausu 9-401**  
**2625-3, Shimoinayoshi, Chiyodamura**  
**Niihari-gun, Ibaraki-ken(JP)**  
Inventor: **Okano, Chie**  
**161-3, Akatsuka**  
**Tsukuba-shi(JP)**  
Inventor: **Yamada, Toshihiro**  
**1569-48, Nakayama, Sumiyoshi,**  
**Tomobemachi**  
**Nishiibaraki-gun, Ibaraki-ken(JP)**  
Inventor: **Ogata, Hisanao**  
**3233-2, Shimoinayoshi, Chiyodamura**  
**Niihari-gun, Ibaraki-ken(JP)**  
Inventor: **Nakajima, Tadakatsu**  
**1975-2, Shimoinayoshi, Chiyodamura**  
**Niihari-gun, Ibaraki-ken(JP)**  
Inventor: **Saito, Ryusei**  
**14-6, Mizukicho-2-chome**  
**Hitachi-shi(JP)**

(74) Representative: **Patentanwälte Beetz sen. -**  
**Beetz jun. Timpe - Siegfried -**  
**Schmitt-Fumian- Mayr**  
**Steinsdorfstrasse 10**  
**W-8000 München 22(DE)**

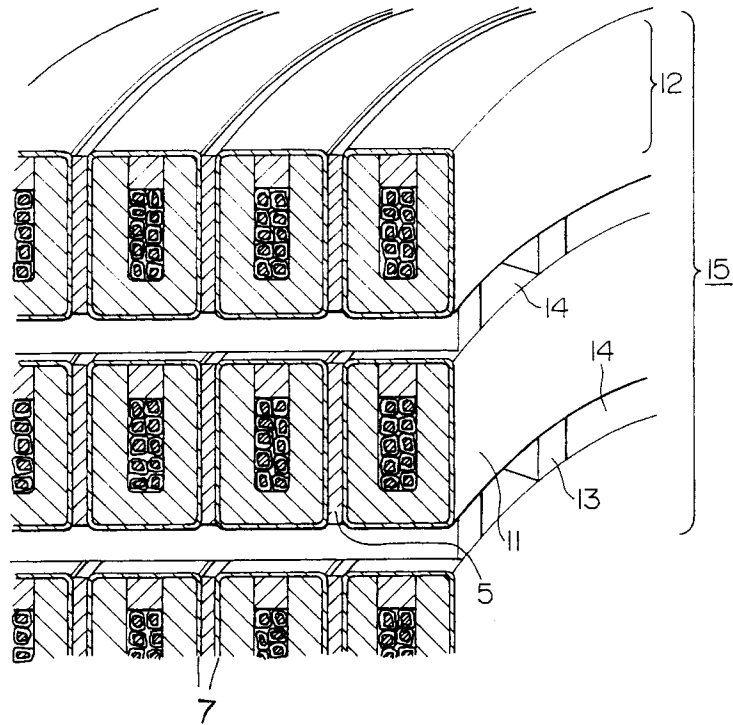
(54) **Superconducting coil and process for manufacturing the same, composite superconductor and process for manufacturing the same and superconducting apparatus.**

(57) A superconducting coil (15) is formed by coating a composite superconductor (11) with a resin thereon and winding the coated superconductor. A coating film (7) of the resin is formed by a electrocoating

method. The resin is selected from a group consisting of epoxy resins, acrylic resins, fluorine resins, phenolic resins and polybutadiene resins.

**EP 0 444 702 A3**

FIG.1



**EP 91 10 3113**

Page 1

DOCUMENTS CONSIDERED TO BE RELEVANT			Page 1
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 092 321 (STANDARD TELEPHONES AND CABLES)  * page 6, line 5 - line 33; figure *  ---	1-4, 38, 39	H01F7/22 H01F41/04
A	WORLD PATENTS INDEX Section Ch, Derwent Publications Ltd., London, GB; Class L, AN 74-76634V & JP-B-49 036 798 (HITACHI) 3 October 1974 * abstract *  ---	1, 3, 5, 8, 10, 22, 32, 38, 40, 43, 45, 55	
A	US-A-4 421 946 (FURUTO ET AL)             * column 2, line 49 - column 3, line 27 * * column 6, line 3 - line 27; figures 1, 3 *  ---	1, 3-5, 8, 10, 11, 14, 15, 17, 18, 20, 22, 23, 26, 27, 29, 30, 32, 33, 35, 38-40, 43, 45, 46, 49, 50, 52, 53, 55	TECHNICAL FIELDS SEARCHED (Int. Cl.5)  H01F H01B H01L
A	EP-A-0 305 168 (SEMICONDUCTOR ENERGY LABORATORY) * claims 1-6 *  ---	35, 36	
A	FR-A-2 210 042 (GENERAL ELECTRIC)  * page 6, line 36 - page 7, line 29 * * page 11, line 36 - page 12, line 20; figure 1 *  ---  -/--	3, 4, 38, 39	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 JULY 1992	Examiner MARTI ALMEDA R.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number

EP 91 10 3113

Page 2

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	PATENT ABSTRACTS OF JAPAN vol. 5, no. 15 (E-43)(687) 29 January 1981 & JP-A-55 143 005 ( MITSUBISHI DENKI ) 8 November 1980 * abstract *	5, 40	
	---		
A	PATENT ABSTRACTS OF JAPAN vol. 13, no. 295 (E-783)7 July 1989 & JP-A-1 074 709 ( TOSHIBA ) 20 March 1989 * abstract *	32, 34	
	-----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 JULY 1992	Examiner MARTI ALMEDA R.
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	