(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 19.11.2003 Bulletin 2003/47

(51) Int CI.7: **H01B 17/02**, H01B 17/08

(43) Date of publication A2: 15.01.2003 Bulletin 2003/03

(21) Application number: 02254811.9

(22) Date of filing: 09.07.2002

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
IE IT LI LU MC NL PT SE SK TR
Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 12.07.2001 JP 2001211944

(71) Applicant: NGK INSULATORS, LTD. Nagoya City Aichi Pref. (JP)

(72) Inventors:

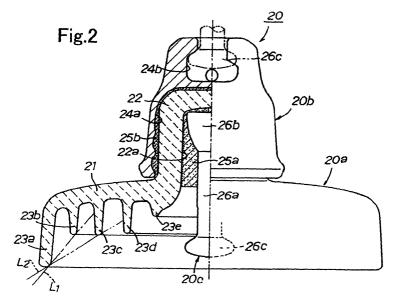
 Mitsuharu, Okamoto Mizuho-ku Nagoya-shi, Aichi-ken 467-8530 (JP)

- Ryoichi, Mine
 Mizuho-ku Nagoya-shi, Aichi-ken 467-8530 (JP)
- Takao, Nakamura
 Mizuho-ku Nagoya-shi, Aichi-ken 467-8530 (JP)
- (74) Representative: Paget, Hugh Charles Edward et al MEWBURN ELLIS York House
 23 Kingsway London WC2B 6HP (GB)

(54) Insulator and insulator apparatus

(57) An insulator includes a disklike shed portion (21) and a plurality of annular rib portions (23a to 23e) formed concentrically on the underside of the shed portion (21) and projecting downward along respectively predetermined lengths. Among the rib portions (23a to 23e), a first rib portion (23a) located outermost is the longest; a second rib portion (23b) is shorter than the

first rib portion (23a); a third rib portion (23c) assumes a length such that the third rib portion (23c) intersects a straight line L1 tangent to the end of the first rib portion (23a) and to that of the second rib portion (23b); and a fourth rib portion (23d) assumes a length such that the fourth rib portion (23d) intersects a straight line L2 tangent to the end of the first rib portion (23a) and to that of the third rib portion (23c).





EUROPEAN SEARCH REPORT

Application Number

EP 02 25 4811

Category	Citation of document with indication, w of relevant passages		Relevant o claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
A	US 4 140 871 A (NAITO KATS 20 February 1979 (1979-02- * column 2, line 44 - colu figure 1 *	-20)	5	H01B17/02 H01B17/08
A	GB 2 225 176 A (SP KT BJUK ARMA) 23 May 1990 (1990-09 * page 3, line 25 - page 9 figure 1 *	5-23)	5	
				TECHNICAL FIELDS SEARCHED (Int.CI.7)
				H01B
	The present search report has been drawn	Date of completion of the search		Examiner
	THE HAGUE	23 September 2003	Dem	older, J
X : part Y : part doci	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with another ument of the same category inological background	T : theory or principle und E : earlier patent docume after the filing date D : document cited in the L : document cited for oth	nt, but publication er reasons	

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 4811

This annex lists the patent family members relating to the patent documents cited in the above–mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-09-2003

	Patent documen cited in search rep		Publication date		Patent fam member(s	ily 3)	Publication date
US	5 4140871	Α	20-02-1979	JP JP JP	1114526 53040896 57005323	Α	29-09-1982 13-04-1978 29-01-1982
GE	3 2225176	Α	23-05-1990	AU AU	606485 2638288		07-02-1991 07-06-1990
	•						
D FORM P0459							

 $\frac{Q}{\omega}$ For more details about this annex : see Official Journal of the European Patent Office, No. 12/82