

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 817 306 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
28.04.1999 Bulletin 1999/17

(51) Int Cl.⁶: **H01Q 1/32**, H01Q 1/12

(43) Date of publication A2:
07.01.1998 Bulletin 1998/02

(21) Application number: **97304100.7**

(22) Date of filing: **12.06.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

(30) Priority: **19.06.1996 GB 9612826**

(71) Applicants:

- **FORD MOTOR COMPANY LIMITED**
Brentwood, Essex CM13 3BW (GB)
Designated Contracting States:
GB
- **FORD FRANCE S. A.**
92506 Rueil-Malmaison Cédex (FR)
Designated Contracting States:
FR
- **FORD-WERKE AKTIENGESELLSCHAFT**
50735 Köln (DE)
Designated Contracting States:
DE
- **Ford Motor Company**
Dearborn, MI 48126 (US)
Designated Contracting States:
ES

(72) Inventors:

- **Cvetkovic, Milan**
Rochester, Kent ME2 2PL (GB)
- **Kennedy, John Francis**
Dearborn, Michigan (US)
- **Lane, Robert**
Brentwood, Essex CM14 5HF (GB)

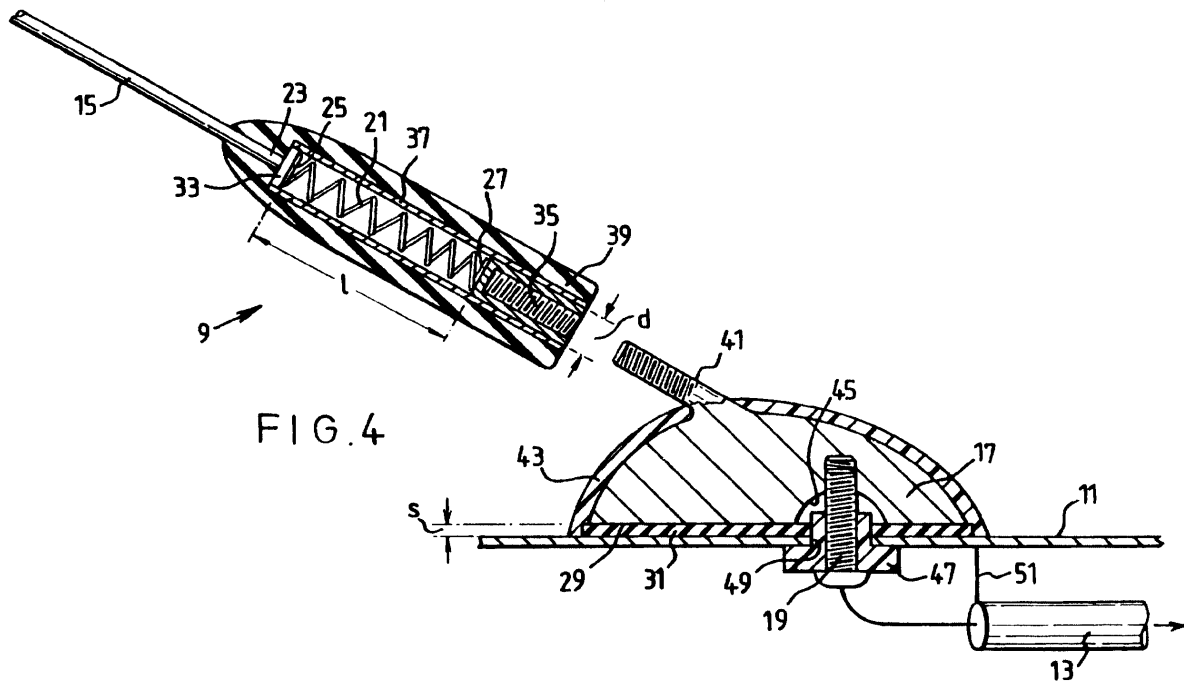
(74) Representative: **Messulam, Alec Moses**
A. Messulam & Co.
24 Broadway
Leigh-on-Sea Essex SS9 1BN (GB)

(54) **Improved vehicular radio antennas**

(57) A radio antenna (9) for a vehicle, for mounting upon an exterior surface (11) of the vehicle and for electrical connection to a coaxial cable (13) coupled to the radio system of the vehicle, the antenna (9) comprising a mast (15) for receiving radio signals, a base (17) for mounting upon the exterior surface (11) of the vehicle and means (19) for electrically coupling the base (17) to the coaxial cable (13) of the vehicle, the mast (15) being mounted on the base (17) via an electrically conductive coil spring member (21), one end (23) of the mast (15) being mounted upon and electrically connected with one

end (25) of the spring member, the other end (27) of the spring member being mounted upon and electrically connected with the electrically conductive base (17), and the base (17) including a mounting surface (29) covered by an insulating base layer (31) for contacting the exterior surface (11) of the vehicle such that when the antenna is mounted upon the vehicle the electrically conductive base (17) does not touch and is not in direct electrical contact with the exterior surface of the vehicle (11).

EP 0 817 306 A3





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 4100

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.6)
X	US 4 825 217 A (CHOI YOUNG J) 25 April 1989 * column 3, line 7-35 * * column 3, line 50-59; claim 1; figures 1,2 *	1,5,9	H01Q1/32 H01Q1/12 H01Q9/30
X	US 4 794 319 A (SHIMAZAKI TETSUO) 27 December 1988 * column 3, line 57 - column 4, line 19; claims 1,2; figures 1,2 *	1,5,9	
Y	US 4 058 811 A (GAUSS ROBERT C ET AL) 15 November 1977 * column 2, line 18 - column 3, line 58; figures 1,3 *	1,5,9	
D,Y	WO 92 10865 A (WALLEN MANUFACTURING LIMITED) 25 June 1992 * page 2, line 4-30; figure 1 *	1,5,9	
A	US 4 184 160 A (AFFRONTI VICTOR A) 15 January 1980 * column 4, line 51 - column 5, line 5; figure 1 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H01Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 March 1999	Examiner Van Dooren, G
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	

EPO FORM 1503 03.82 (P04C01)

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

EP 97 30 4100

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.

10-03-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4825217 A	25-04-1989	NONE	
US 4794319 A	27-12-1988	NONE	
US 4058811 A	15-11-1977	NONE	
WO 9210865 A	25-06-1992	GB 2250637 A	10-06-1992
		AU 8749791 A	08-07-1992
		DE 9116508 U	24-12-1992
		EP 0515590 A	02-12-1992
		GB 2250639 A	10-06-1992
US 4184160 A	15-01-1980	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82