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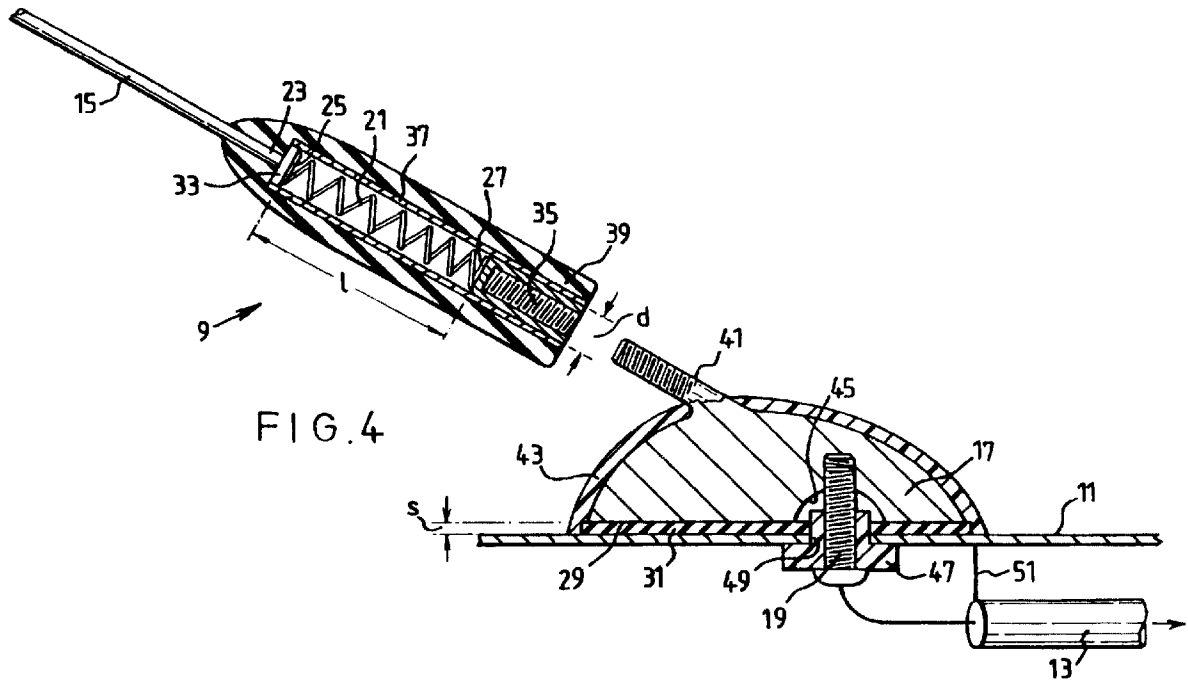
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(54) **Improved vehicular radio antennas**

(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).

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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)<br>25 April 1989<br>* column 3, line 7-35 *<br>* column 3, line 50-59; claim 1; figures 1,2 *           | 1,5,9   | H01Q1/32<br>H01Q1/12<br>H01Q9/30             |
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| Y  | ---<br>US 4 058 811 A (GAUSS ROBERT C ET AL)<br>15 November 1977<br>* column 2, line 18 - column 3, line 58;<br>figures 1,3 *         | 1,5,9   |  |
| D,Y  | ---<br>WO 92 10865 A (WALLEN MANUFACTURING LIMITED) 25 June 1992<br>* page 2, line 4-30; figure 1 *                                   | 1,5,9   |  |
| A  | ---<br>US 4 184 160 A (AFFRONTI VICTOR A)<br>15 January 1980<br>* column 4, line 51 - column 5, line 5;<br>figure 1 *                 | 1   | TECHNICAL FIELDS SEARCHED (Int.Cl.6)<br>H01Q |
| The present search report has been drawn up for all claims   |   |   |  |
| Place of search<br>THE HAGUE   |   | Date of completion of the search<br>10 March 1999   | Examiner<br>Van Dooren, G                    |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document |   | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>.....<br>& : member of the same patent family, corresponding document |  |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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10-03-1999

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