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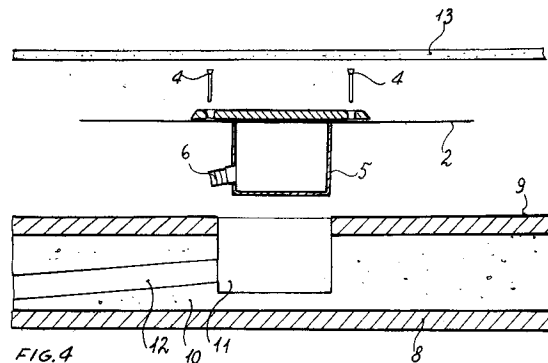
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Omnidirectional antenna for television and radio signals incorporable into roof of vehicles.

The antenna (1), making for screen printing molding with conductive varnish on flexible sheet circular plate (2), is equipped on the upper part in central position with a fixing base (3) and a holder (5), for a mixing electronic circuit, with in exit a connector (6) connectable with a coaxial cable (7) to put the signals received by the antenna to a fitting amplifier before sending the same to the radio or television. The installation, realizing in a vehicle roof part without conductive materials, foresees in preparatory steps into said roof a fitting housing seat for the holder (5) so to permit the bond disposition of the circular plate (2) in which the antenna (1) is printed and then blocking the same in said position by means of the base (3) fixing with screws (4). The incorporation is completed by overlay application of impermeable plate material (13) to realize the cover.



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The invention refers to an omnidirectional antenna to television and radio signals reception incorporable into the roof of vehicles, during the fabrication phase or in a subsequent processing of the same, so realizing the installation without overhanging parts. The invented device, with universality use, is particularly usable for vehicles such as campers, caravans, lorry-cabins, crafts and cabins in general however with lining in nonconductive materials. The current antennas to pick up television and radio signals are realized in rigid metal structure and are assembled on a projected bearing part, generally a column must, which holds the same suspended onto the vehicle roof. In said condition with its structure coming to the body, the antenna determines a vehicle advancement resistance, consequently increasing the fuel consumption speed being equal, and moreover it may break against the branches of the trees or other parts with which the same antenna was coming contacted. Moreover the said assembly presents and intrinsic fragility and it results of easy tampering. Consequently these said drawbacks make up a big hindrance for using said current antennas on the above cited means of transport. The invented device permits the total solution of said problems by means of a new kind of omnidirectional antenna to pick up radio and television signals incorporable into the vehicle body so obviating to the must use, to the presence of a body projected part and to the necessity of paying attention to the device in relation to is outside placing. Being this new kind of antenna realized for screen printing molding on polystyrene sheet circular plate, its flexibility and its smallest thickness permit the easy antenna incorporation into the body plating for interposition between the plate structure of the outside part. Structurally the invented antenna realizes a fundamental manufacture simplification which highly reduces the production costs. The antenna 1 is made for screen printing molding with conductive varnish on circular plate 2 in polystyrene flexible sheet or other similar material on the upper part equipped in central position with a fixing base 3 with screws 4 and with lower holder 5, for positioning a mixing electronic circuit, from which gets out a connector 6 for the connection to a coaxial cable 7 to put the signals received by the antenna to a fitting amplifier before sending the same to the radio or television. The installation can be mounted in a vehicle roof part, without conductive materials, preliminarily foreseen into the same roof a suitable housing seat for the holder 5 so to permit the bond disposition of the plate 2 with the antenna 1 on the plate material of the inner plating and then blocking in this position by means of the base 3 fixing with screws 4. The incorporation is completed superimposing, for finishing the roof structure, an imperme-

able plate material or other cover means. A realization form and a possible installation version of an omnidirectional antenna according to the invention and equipped for its installation on the roof of vehicles is showing in drawings of sheets 1 and 2. With reference to sheet 1 fig. 1 is frontal view of the antenna 1 making for screen printing molding, using conductive varnish with silver base, on flexible circular plate 2 in polystyrene. Fig. 2 is perspective view of the same antenna of fig. 1 for its installation. It is visible in central position the fixing base 3. Fig. 3 is longitudinal section view of the same installation device of fig. 2. In sheet 2 is illustrated a possible antenna installation system according to the invention incorporable into the roof in a part without conductive materials. Referring to this sheet 2 fig. 4 is longitudinal section view with decomposed parts prepared in advance for installation with in view lower down the roof part with plating formed by the parallel surface structures, a lower 8 and an upper 9 in fibreglass or wooden base, integrated with expanded material 10 into which is foreseen a housing seat 11 communicating with a duct 12. In intermediate position it is seen the device to set up which on the upper part is a caoutchouc sheet 13 or other impermeable material using for the cover. Fig. 5 is longitudinale section view of the same roof part of fig. 4 with the antenna already installed. It is seen the disposition of the holder 5 into the seat 11 and of the coaxial cable 7, departing from the connector 6, into the duct 12 whereas the circular plate 2 in bond condition on the surface structure 9 has been blocking in this position with all the device by means of the fixing base 3 with the screws 4. In said fig. 5 is consequently visible the incorporation condition of the antenna installed into the roof plating by means of the completion cover 13 which maintains in constraint condition the same antenna. Fig. 6 is view for example of a camper 14 with in position on its roof, pointed out by hatching, an invented antenna incorporated into the same roof. In the realizations: the must and the antenna forms, the kind of installation tools, the screen printing varnishes and each other element could be foreseen in different way.

Claims

1. Omnidirectional antenna for television and radio signals incorporable into roof of vehicles making for screen printing molding with conductive varnish on a flexible sheet circular plate (2) equipped on the upper part in central position with a fixing base (3) with screws (4) and with lower holder (5), for positioning a mixing electronic circuit, from which gets out a connector (6) for the connection to a coaxial

cable (7) to put the signals received by the antenna to a fitting amplifier before sending the same to the radio or television, characterized by the fact that the installation of said antenna (1) is foreseen in a vehicle roof part, without conductive materials, foreseen in preparatory steps into said roof a fitting housing seat (11) for the holder (5) so to permit the bond disposition of the circular plate (2) in which the antenna (2) is printed on the plate material of the inner plating and then blocking in this position by means of the base (3) fixing with screws (4). The incorporation is completed superimposing an impermeable plate material (13).

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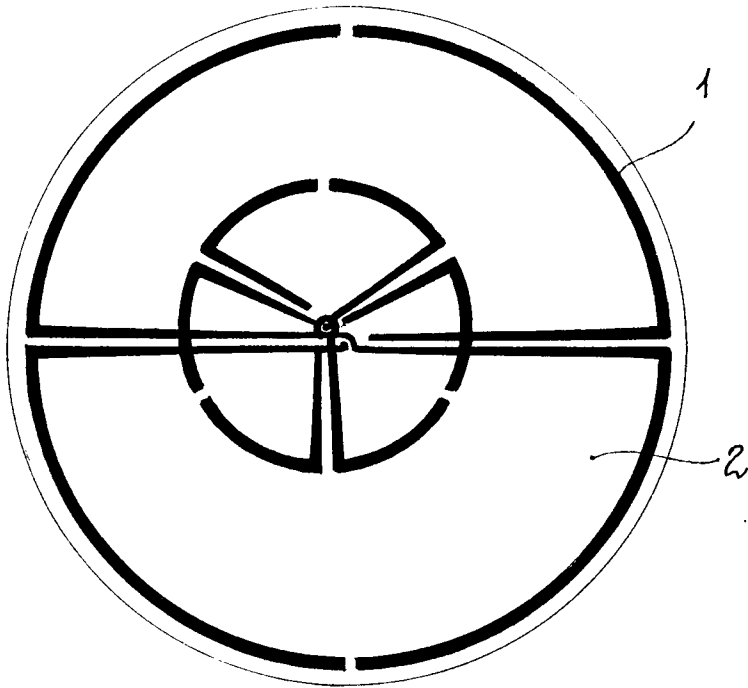


FIG. 1

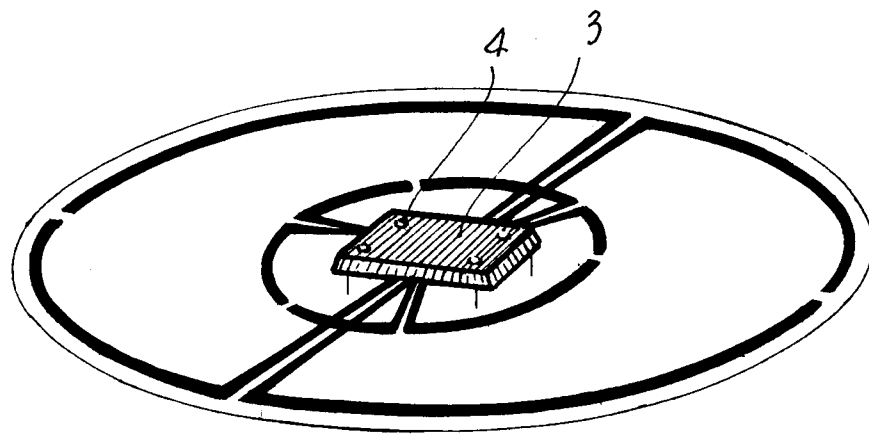


FIG. 2

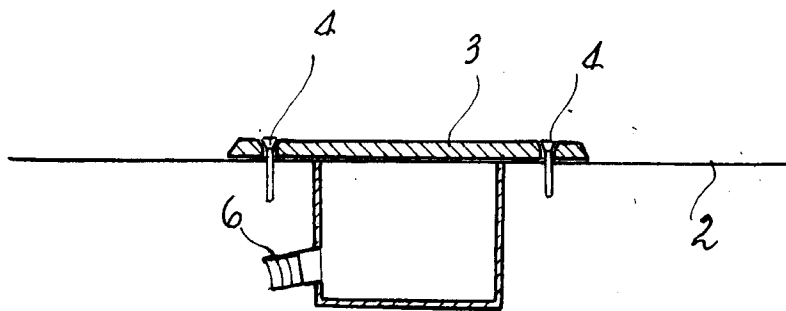
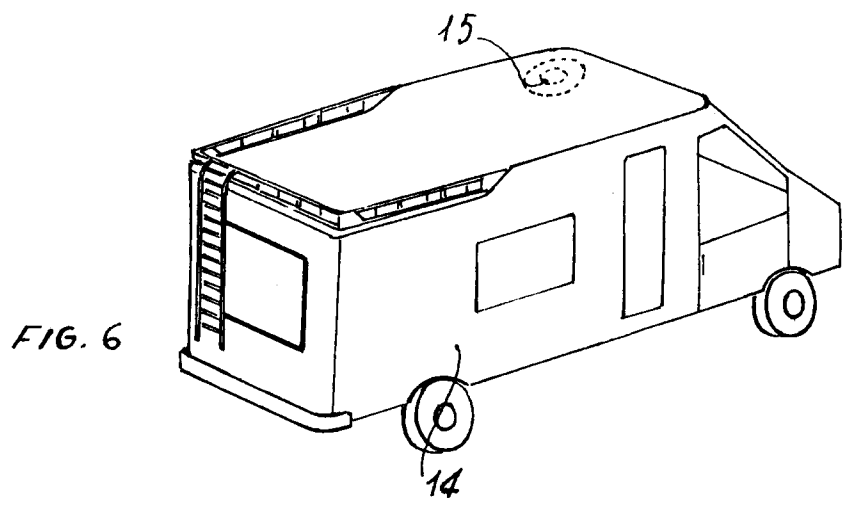
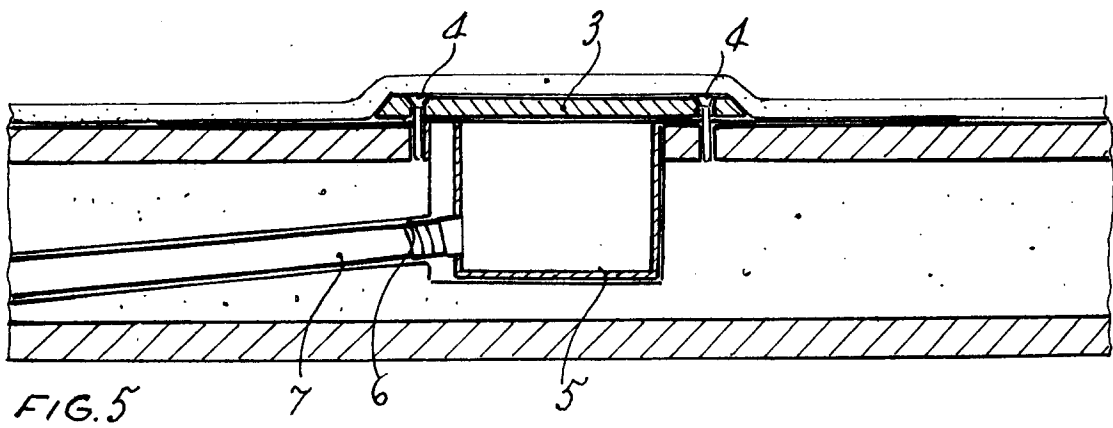
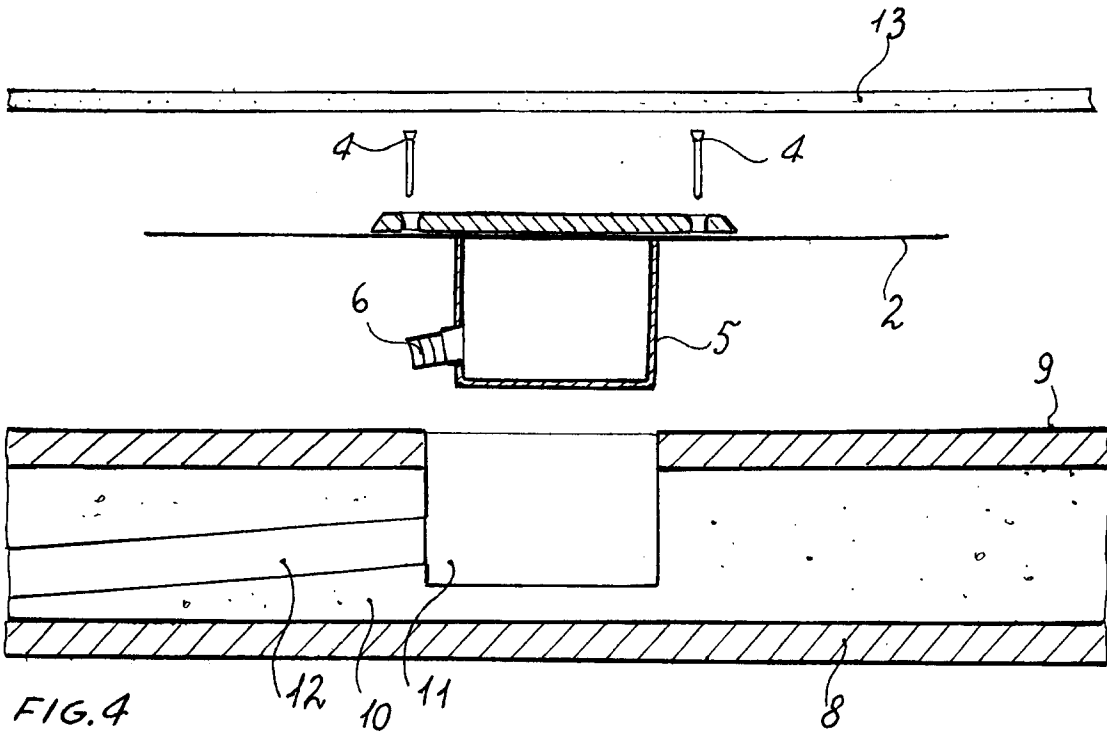


FIG. 3





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	US-A-4 370 658 (HILL) * abstract; figure 4 * * column 7, line 30 - line 37 * ---	1	H01Q1/32
A	EP-A-0 142 325 (PANARAMA SUNROOFS LTD.) * abstract; figure 1 * ---	1	
A	US-A-4 707 700 (NAGY) * abstract; figures 1,4,5 * * column 2, line 55 - line 65 * ---	1	
A	DD-A-245 302 (VEB MAGNETBANDFABRIK) * abstract * * page 1, line 8 - line 10 * ---	1	
A	DE-A-2 137 441 (KLEINERMANN) * the whole document * -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01Q
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 11 DECEMBER 1992	Examiner DANIELIDIS S.
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	