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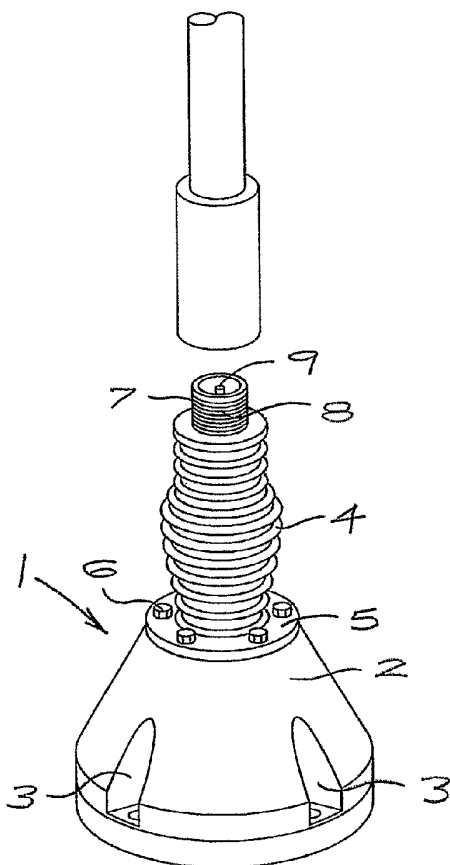
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[Continued on next page]

(54) Title: ANTENNA MOUNTING BASE ASSEMBLY AND SYSTEM



(57) Abstract: An antenna mounting base assembly (1) is provided comprising a base (2) adapted to be secured to a vehicle body, a coiled spring support section (4) secured at one of its ends to the base and operatively supporting at its other end an antenna (12). The mounting base assembly has fixed to such other end of the coiled spring support section contact means (7) adapted to electrically connect an antenna conductor (13) passing into the spring support to a contact (10) on a lower end of an antenna whip. Coupling means (8, 11) are provided, typically in the form of a screw threaded spigot and socket for releasably attaching such antenna whip to the coiled spring support section. The invention also provides a vehicle antenna system in which a plurality of vehicles (21) are each provided with such an antenna mounting base assembly (1) so that an appropriate one of a selection of different antenna whips (17a and 17b, 18, 19, 21) may be coupled to a particular base for serving a particular purpose.

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ANTENNA MOUNTING BASE ASSEMBLY AND SYSTEM

FIELD OF THE INVENTION

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This invention relates to an antenna mounting base assembly that is particularly adapted for mounting an antenna whip to a motor vehicle body and, more particularly, but not exclusively, the body of a military vehicle or other off-road vehicle. The invention also relates to a system utilizing such a mounting base assembly as well as a range of antennas.

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BACKGROUND TO THE INVENTION

Antennas that are attached to vehicles of the type indicated above generally comprise a coiled support spring section interposed between a base to be secured to a vehicle body and an antenna whip. The antenna is generally of unitary construction so that, if it needs to be replaced, the entire base, coiled support spring section, and whip section need to be removed and replaced.

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The difficulty with this procedure is that the bases do not always provide a matching arrangement of bolt holes for fasteners attaching them to the vehicle body and, in such an instance, additional holes must be drilled in the vehicle body in order to accommodate the different configuration of bolt holes of the different bases. This is particularly common in instances in which a different antenna type must be attached to a vehicle to replace an existing antenna type such as in cases in which the different antennas are configured to transmit and receive different frequency ranges.

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OBJECT OF THE INVENTION

It is an object of this invention to provide an antenna base assembly and system utilizing same whereby this difficulty is obviated, at least to some extent.

SUMMARY OF THE INVENTION

In accordance with one aspect of the invention there is provided an antenna mounting base assembly comprising a base adapted to be secured to a vehicle body, a coiled spring support section secured at one of its ends to the base and operatively supporting at its other end an antenna, the mounting base assembly being characterised in that it has fixed to said other end of the coiled spring support section contact means adapted to electrically connect an antenna conductor passing into the spring support to a contact on a lower end of an antenna whip, and coupling means for releasably attaching such antenna whip to the coiled spring support section.

Further features of the invention provide for the coupling means to be an externally screw threaded spigot for receiving a complementarily screw threaded socket provided typically at one end of a coupling sleeve carried coaxially at the adjacent end of an antenna whip; for the contact means to be a central contact, typically a pin or socket, electrically isolated from the coupling and adapted to contact a cooperant contact associated with the "live" of the antenna whip; and for the antenna conductor to be the central insulated conductor of a coaxial cable.

In accordance with a second aspect of the invention there is provided a vehicle antenna system in which a plurality of vehicles are each provided with an antenna mounting base assembly as defined above secured to the vehicle body and wherein a selection of different antenna whips is provided each

having a contact and coupling means for releasably attaching the whip to the coupling means of such an antenna mounting base assembly.

In order that the invention may be more fully understood one embodiment thereof will now be described with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:-

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Figure 1 is a perspective illustration of an antenna mounting base assembly according to the invention in exploded relationship relative to an operatively lower end of a cooperant antenna whip;

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Figure 2 is a sectional elevation of the antenna mounting base assembly and lower end of an antenna whip as illustrated in Figure 1;

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Figure 3 illustrates, in elevation, the mounting base assembly illustrated in Figures 1 and 2 in association with a variety of different antenna whips; and,

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Figure 4 illustrates schematically a vehicle antenna system utilising antenna mounting base assembly is according to the invention.

DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

30 In the embodiment of the invention illustrated in the drawings, an antenna mounting base assembly, generally indicated by numeral (1) comprises a base (2), typically made of injection moulded plastics material that is

electrically insulating. The base is of a generally truncated conical shape with recesses (3) for providing access to fasteners whereby the base can be secured to a motor vehicle body in the usual way.

- 5 The smaller diameter end of the base has permanently secured coaxially thereto one end of a coiled spring support (4) of generally known construction and having a flange (5) fixed to its operatively lower end with the flange being secured to the base by means of a series of fasteners (6). The operatively upper end of the coiled spring support has fixed to it a coupling (7). The
10 coupling has an externally screw threaded spigot (8) and, electrically insulated therefrom, a central contact pin (9) that is to operatively electrically connect with a cooperant contact (10) in a connecting sleeve (11) fixed to the operatively lower end of an antenna whip (12). The contact pin is electrically connected to the central electrically insulated conductor (13) of a coaxial
15 connector (14).

- The shield of the coaxial cable is grounded to a terminal support plate (15) through which the fasteners pass on the inside of the body. This plate is electrically connected to the spigot (8) by way of a suitable flexible braided
20 conductor (16). It will be noted from Figure 2 of the drawings that the insulated conductor (13), being generally a solid wire, has a coiled section to provide flexibility commensurate with that of the coiled spring support.

- It will be understood that, in use, the antenna mounting base assembly
25 described above can be permanently fixed to a motor vehicle body and, as required, from time to time, a different or replacement antenna whip can be attached thereto.

- The antenna whip may take any one of numerous different forms and simply
30 for the sake of illustration, and as illustrated in Figure 3 it could be in the form of a high frequency 5 m sectional whip that is instructed in two sections (17a) and (17b); a 2,4 - 2,5 GHz co-linear whip (18); or a centre-fed dipole having

different frequencies of operation such as those indicated by numerals (19) and (20). To this end, the entire mounting base assembly is configured to form a 50 ohm coaxial connection to the associated antenna whip. The earthing of the shield ultimately to the vehicle body provides a ground plane for antenna types that require it.

Accordingly, when a series of mounting bases according to the invention are employed on a series of different vehicles, indicated by numeral (21) in Figure 4, typically military vehicles or a series of other off-road vehicles, the whip of each of the antennas may be changed from time to time according to requirements and the particular service to be performed by the antenna. This is achieved in each case without the necessity of having to change the mounting base and possibly form additional holes in the vehicle bodies. In such an application the invention gives rise an entire system as indicated above.

It should also be noted that an antenna mounted to a base assembly provided by the invention can easily be removed and attached to a cooperant fixed coupling on a fixed structure as and when required, for example during temporary residence at a particular geographic place.

It will be understood that numerous variations may be made to the embodiment of the invention described above without departing from scope hereof.

CLAIMS:

1. An antenna mounting base assembly (1) comprising a base (2) adapted to be secured to a vehicle body, a coiled spring support section (4) secured at one of its ends to the base and operatively supporting at its other end an antenna (12), the mounting base assembly being characterised in that it has fixed to said other end of the coiled spring support section contact means (7) adapted to electrically connect an antenna conductor (13) passing into the spring support to a contact (10) on a lower end of an antenna whip, and coupling means (8, 11) for releasably attaching such antenna whip to the coiled spring support section.
5
2. An antenna mounting base assembly as claimed in claim 1 in which the coupling means is an externally screw threaded spigot (8) for receiving a complementarily screw threaded socket provided at one end of a coupling sleeve (11) carried coaxially at the adjacent end of an antenna whip.
15
3. An antenna mounting base assembly as claimed in either one of claims 1 or 2 in which the contact means is a central contact (9), electrically isolated from the coupling and adapted to contact a cooperant contact (10) associated with the "live" of the antenna whip.
20
4. An antenna mounting base assembly as claimed in any one of the preceding claims in which the antenna conductor is the central insulated conductor (13) of a coaxial cable (14).
25
5. A vehicle antenna system in which a plurality of vehicles (21) are each provided with an antenna mounting base assembly (1) as claimed in any one of claims 1 to 4 secured to the vehicle body and wherein a selection of different antenna whips (17a and 17b, 18, 19, 21) is
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provided each having a contact and coupling means for releasably attaching the whip selectively to the coupling means of such an antenna mounting base assembly.

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FIG 1

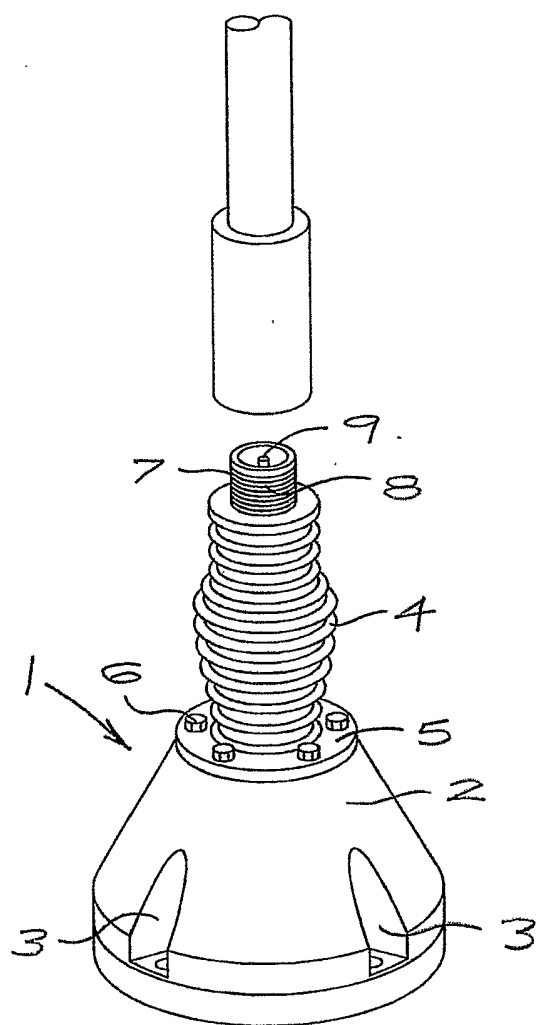
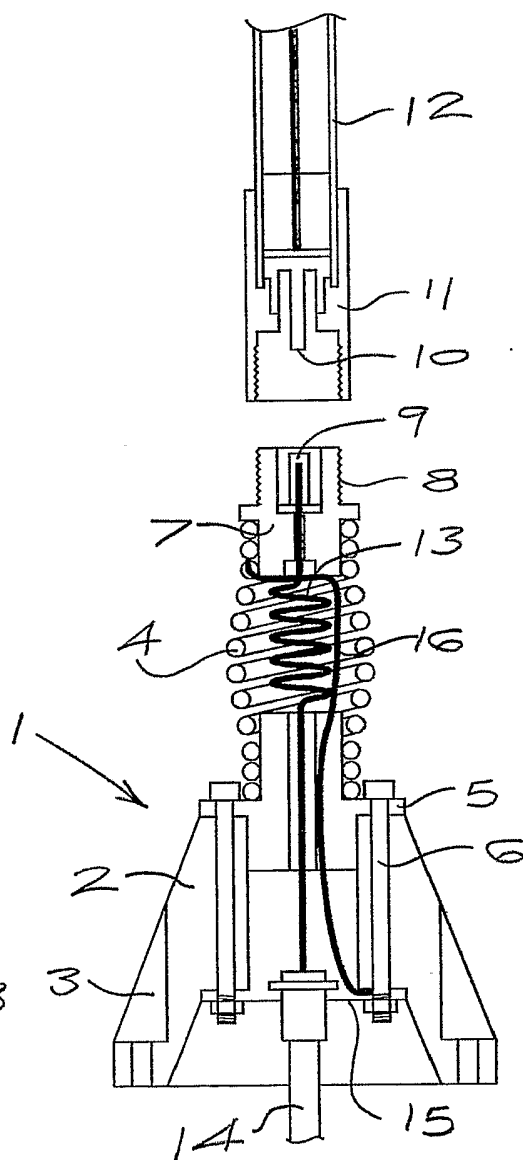
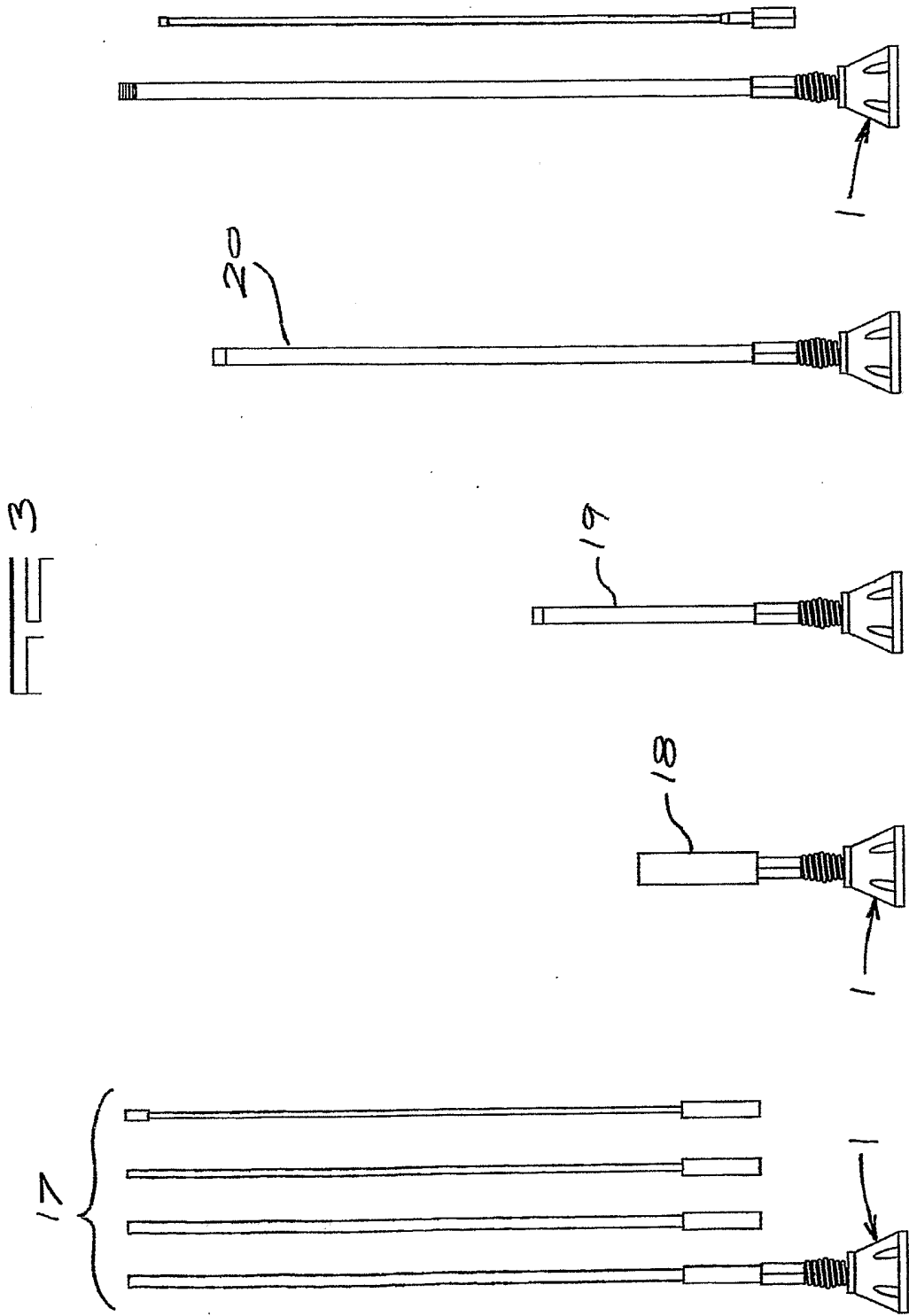


FIG 2





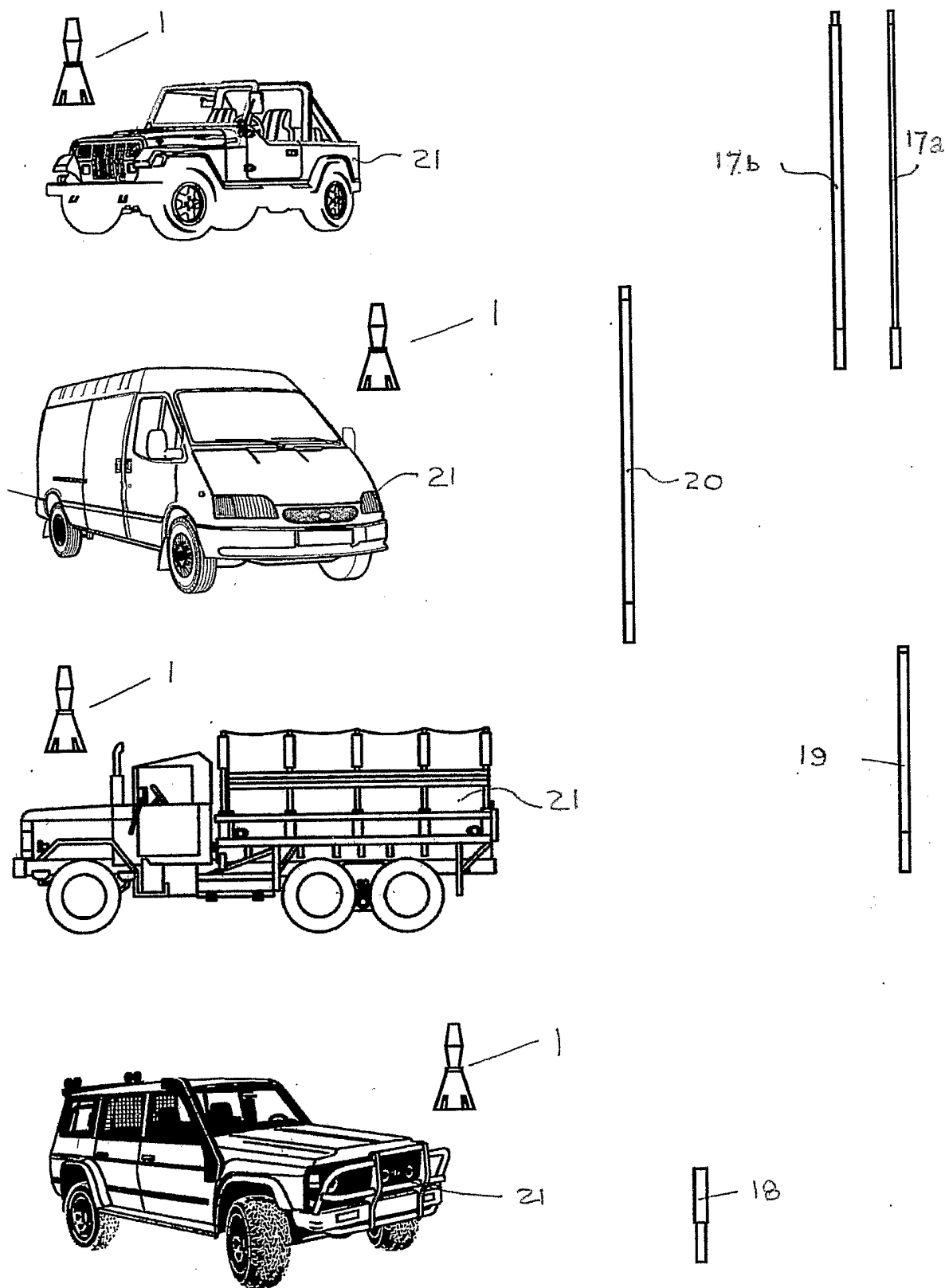


Figure 4

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01Q1/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 429 503 A (LERC LABO ETU RECHERC CHIMIQUES) 18 January 1980 (1980-01-18) page 2; figure 1	1,2,5
Y		3,4
X	US 2 546 026 A (COON JAMES P) 20 March 1951 (1951-03-20) column 1, line 47 - column 2, line 25 figure 2	1,5
A	US 4 364 051 A (YAMASHITA ET AL) 14 December 1982 (1982-12-14) column 1, line 67 - column 2, line 29 figure 2	1,2,4,5
Y		3
A	WO 99/13530 A (ANDREW CORPORATION) 18 March 1999 (1999-03-18) page 11, lines 16-28 figure 2	1-3,5
Y		4
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"&" document member of the same patent family

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International Application No
PCT/ZA2004/000144

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4 914 450 A (DILLEY ET AL) 3 April 1990 (1990-04-03) column 3, line 52 - column 5, line 37 figure 2</p> <p>-----</p>	1-4

INTERNATIONAL SEARCH REPORT

Information on patent family members

In/ tional Application No
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