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(54) Reflective Road Studs.

(57) A reflective road stud comprises a hollow plastics body 11, a reflector support 19 integral with the body and projecting above the body, and a reflector 23 supported by the reflector support. The support 19 is deformable into the body 11 upon receiving an impact from either of two opposite sides of the road stud. Wiper means 24 may be provided for cleaning the reflector when the reflector is deformed into the body. The road stud may also comprise a housing 10 for receiving and locating the hollow plastics body.

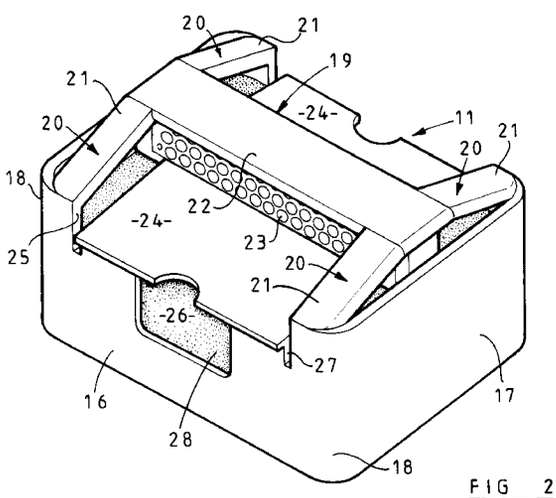

FIG 2

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This invention relates to a reflective road stud and more particularly to a reflective road stud which is resistant to impact by a snow plough.

Snow ploughs in some countries are set to traverse a path slightly above the road surface so as to prevent damage to the road surface and to reflective road studs set in the road surface. In other countries, the plough is set to make contact with the road surface with the result that reflective road studs set in the road surface are damaged or destroyed.

The present invention seeks to provide a reflective road stud which is resistant to impact by a snow plough.

According to the present invention there is provided a reflective road stud comprising a hollow plastics body, a reflector support integral with the body and projecting above the body, and a reflector supported by the reflector support, the support being deformable into the body upon receiving an impact from either of two opposite sides of the road stud.

Preferably, the road stud also comprises wiper means for cleaning the reflector when the reflector support is deformed into the body.

Preferably, the reflector support lies proud of the hollow plastics body and includes two ramp surfaces on each of said two opposite sides of the road stud, which, when impacted, result in the reflector support being deformed into the body. In this case, the reflector support also comprises a bar extending between the two ramp surfaces on each of said two opposite sides of the road stud and a reflector on at least one and preferably on each side of the bar. Also, in this case, the wiper means, when provided, may be in the form of two blades integral with the body and extending inwards from opposite sides of the body towards the bar.

Advantageously, the hollow body contains a closed cell foam material, a blow moulding or solid elastomeric material to prevent ice build up in the body which may otherwise resist or prevent deformation of the reflector support into the body.

Preferably, the body and support are formed of flexible, impact and abrasion resistant, plastics material.

Preferably, the road stud also comprises a housing for receiving and locating the hollow plastics body.

The invention will now be more particularly described by way of example with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of one embodiment of a road stud according to the invention,

Figure 2 is a perspective view of the road stud with the outer housing omitted,

Figure 3 is a side view of the road stud with the outer housing omitted,

Figure 4 is a front view of the road stud with the outer housing omitted,

Figure 5 is an underneath perspective view of the road stud with the outer housing omitted, and

Figure 6 is a perspective view of the outer housing.

Referring now to the drawings, the reflective road stud shown therein comprises an outer plastics housing 10 and a hollow plastics body 11 located in the housing 10.

The housing 10 has a base and a generally rectangular wall with curved corner sections defining a cavity for receiving the body 11. The housing has a flange 12 at is upper end, six outwardly extending projections 13, external ribs 14 and four internal lugs 15. The housing 10 is located in a hole in the road surface and grouted in place. The dimensions of the hole are selected such that the lower projections 13 are deformed upwardly by engagement with the walls of the hole as the housing is placed in the hole to prevent the housing from floating when a grouting mixture is poured into the hole. The upper projections 13 contact the road surface to support the housing at the correct level while the housing is grouted in place. The ribs 14 help to key the housing to the grouting mixture and the internal lugs 15 co-operate with the body 11 in a manner to be described hereinafter.

The plastics body 11 has two side walls 16 and two end walls 17 joined by curved corner sections 18 and is open at the bottom. A reflector support 19 is provided at the top of the body 11 and is integral therewith.

The reflector support 19 comprises two ramp surfaces 20 on each side of the body 11 and at opposite ends, respectively, of the body 11. The ramp surfaces 20 are defined by arms 21 which are inclined upwards from respective side walls 16 and which are joined in the centre by a bar 22 extending between the ends of the body 11.

A reflector 23, which may be formed of biconvex lenses or which may be a cube-corner-type retrodirective reflector or prismatic, is secured to each of the two longitudinally extending sides of the bar 22.

The body 11 and reflector support 19 are formed of flexible, abrasion and impact resistant, plastics material such as that made and sold by Hoechst Polymers under the name Riteflex (TM) and the reflector support 19 is such that it will deform into the body 11 upon receiving an impact from either of two opposite sides of the road stud or from above. The housing 10 may be formed of the same plastics material.

The road stud also comprises two wiper blades 24 which are integral with the body 11 and which extend inwards from respective side walls 16 at positions immediately below elongate recesses 25 formed in the upper edges of the two side walls 16, respectively. The blades 24 extend as far as the bar 22 and wipe the surfaces of the reflectors 23 each time the reflector support 19 is deformed into the body 11 to clean the reflectors 23. A recess 26 is formed in each side wall 16 immediately below the

wiper blades 24 for snap fittably receiving the internal lugs 15 of the housing 10. The blades overhang the outer surface of the side walls 16 by a short distance and co-operate with the wall of the housing 10 to keep the wiper blades 24 in contact with the reflectors 23 when the reflector support 19 is deformed into the body 11. Slits 27 are provided in the side walls 16 at opposite ends of the wiper blades 24 to allow the reflector support 19 to be deformed into the body 11 without deforming the wiper blades 24.

The body 11 is located as a snap fit in the housing 10 with the upper edge of the body 10 flush with or slightly below the upper surface of the housing 10 and with the reflector support 19 lying proud of the upper surface of the housing 10.

The body 11 is substantially filled with closed cell foam material 28 which may be recessed in its upper surface to receive the bar 22 and reflectors 23 when the reflector support 19 is deformed into the body 11. This foam material is impervious to water and therefore prevents ice build up which could otherwise resist or prevent deformation of the reflector support 19 into the body 11. A blow moulding or solid elastomeric material could be used instead of the foam material.

In use, the reflector support 19 will deform into the body 11 when impacted by a snow plough to prevent damage to the road stud. The reflector support 19 will also be deformed into the body 11 when a vehicle wheel passes over the road stud and contact between the wiper blades 24 and the reflectors 23 when this happens will ensure that the reflectors 23 are kept reasonably clean. The foam material may also assist in cleaning the reflectors 23 when the reflector support 19 is deformed into the body 11.

The embodiment described above is given by way of example only and various modifications will be apparent to persons skilled in the art without departing from the scope of the invention. For example, the ramp surfaces 20 could be arcuate rather than flat. Also, the housing 10 could be omitted and the body 11 could be set in a hole in the road by adhesive.

Claims

1. A reflective road stud comprising a hollow plastics body (11), a reflector support (19) integral with the body and projecting above the body, and a reflector (23) supported by the reflector support, the support being deformable into the body upon receiving an impact from either of two opposite sides of the road stud.

2. A reflective road stud as claimed in claim 1, further comprising means (24) for cleaning the reflector when the reflector support is deformed into the body.

3. A reflective road stud as claimed in claim 1 or claim 2, wherein the reflector support lies proud of the hollow plastics body and includes two ramp surfaces (20) on each of said two opposite sides of the road stud, which, when impacted, result in the reflector support being deformed into the body.

4. A reflective road stud as claimed in claim 3, wherein the reflector support also comprises a bar (22) extending between the two ramp surfaces (20) on each of said two opposite sides of the road stud and a reflector (23) on at least one side of the bar.

5. A reflective road stud as claimed in claim 3 or claim 4 when dependent on claim 2, wherein the wiper means is in the form of two blades (24) integral with the body and extending inwards from opposite sides of the body towards the bar.

6. A reflective road stud as claimed in any one of the preceding claims, wherein the hollow body contains a closed cell foam material (28), a blow moulding or solid elastomeric material to prevent ice build up in the body which may otherwise resist or prevent deformation of the reflector support into the body.

7. A reflective road stud as claimed in any one of the preceding claims, wherein the body and support are formed of flexible, impact and abrasion resistant, plastics material.

8. A reflective road stud as claimed in any one of the preceding claims, further comprising a housing (10) for receiving and locating the hollow plastics body.

9. A reflective road stud as claimed in claim 8, wherein the hollow plastics body is a snap fit in the housing.

10. A reflective road stud as claimed in claim 8 or claim 9, wherein the housing is also formed of plastics material.

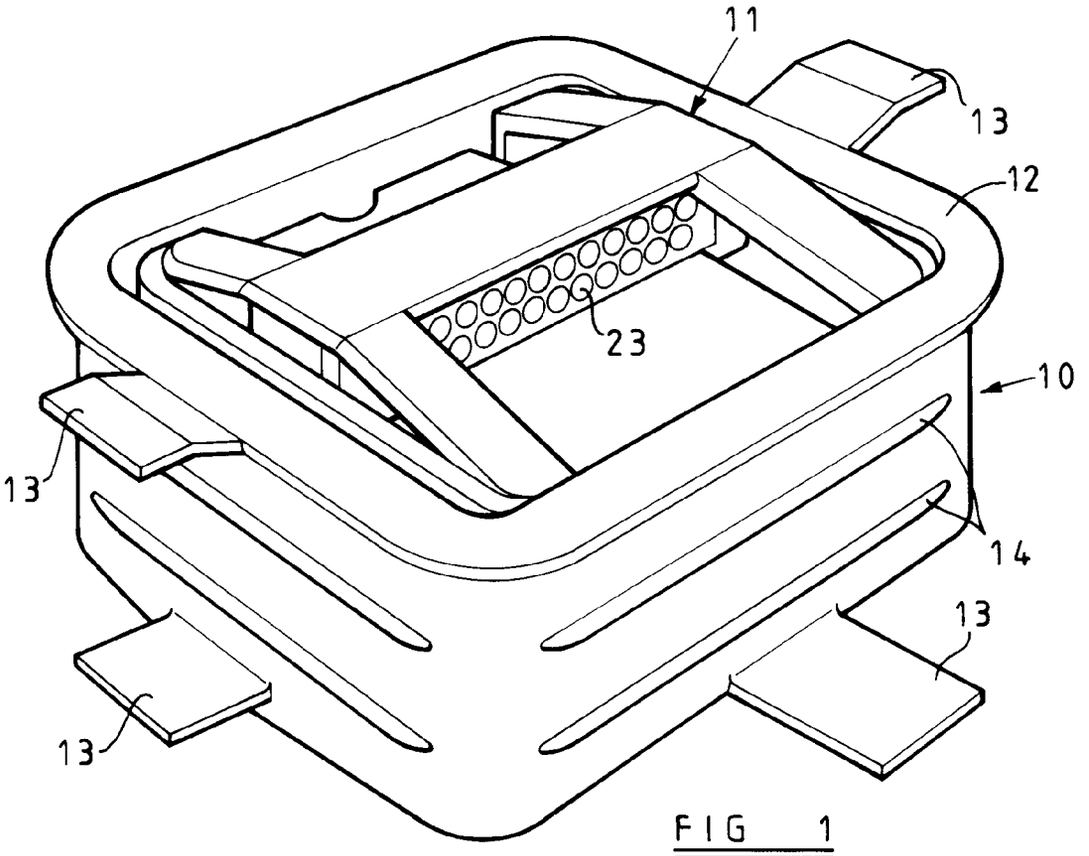
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FIG 1

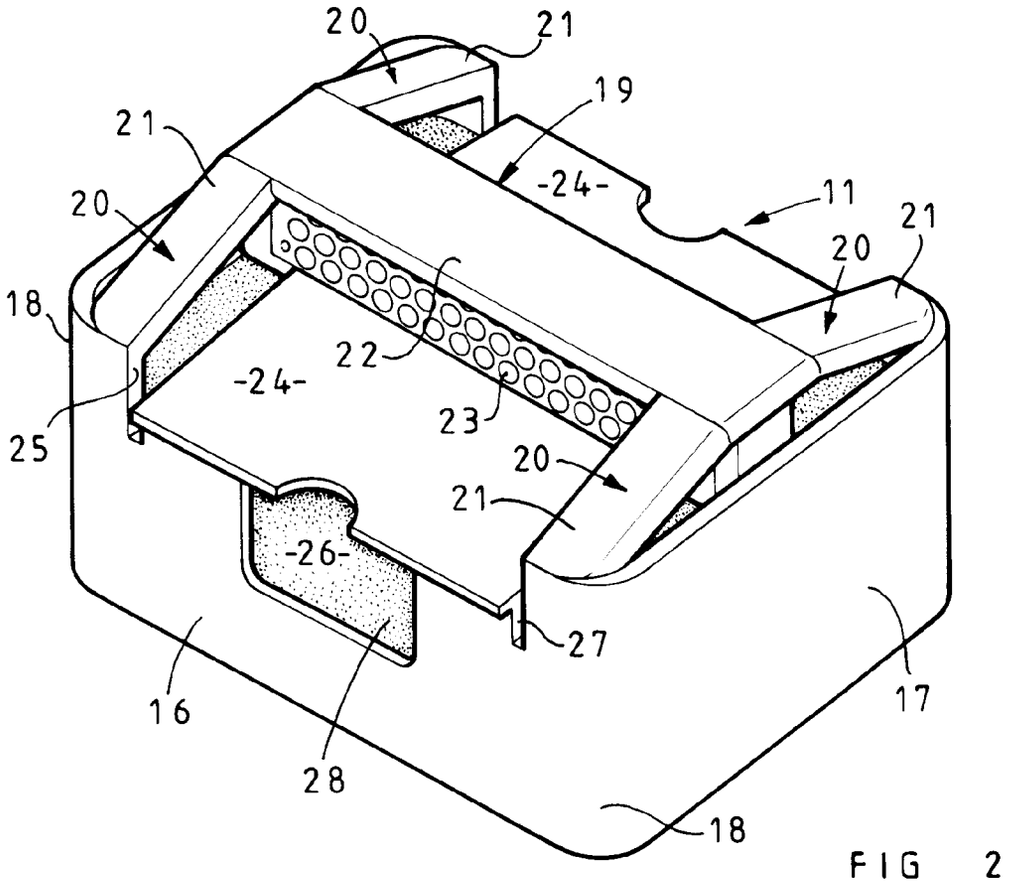
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FIG 2

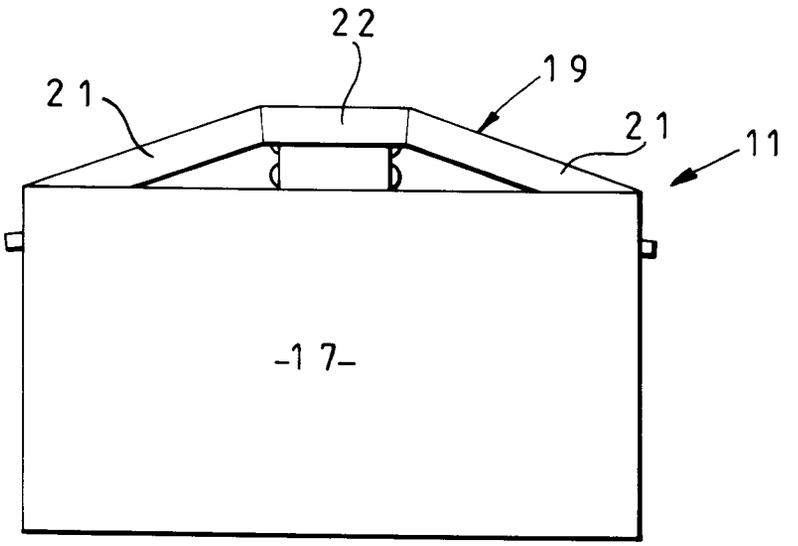

FIG 3

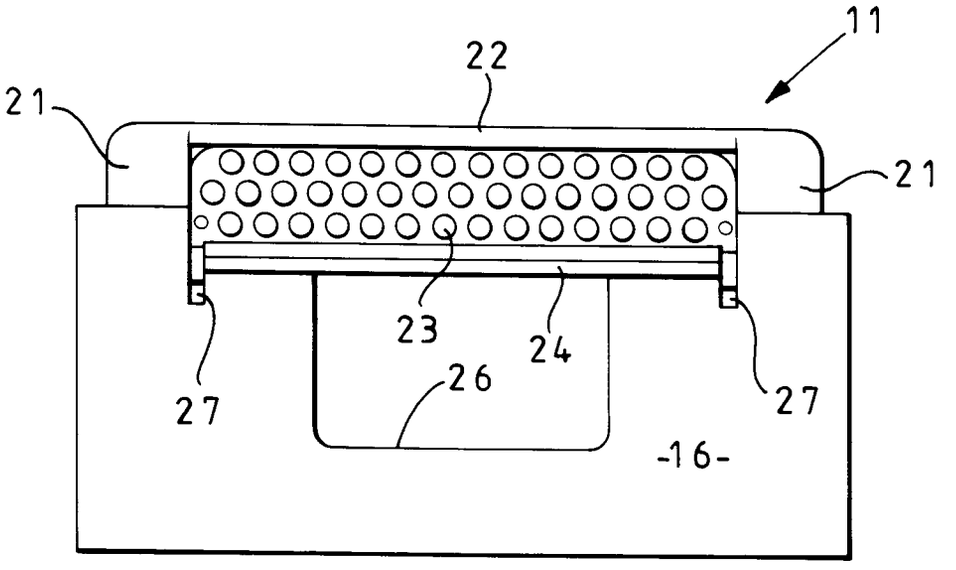

FIG 4

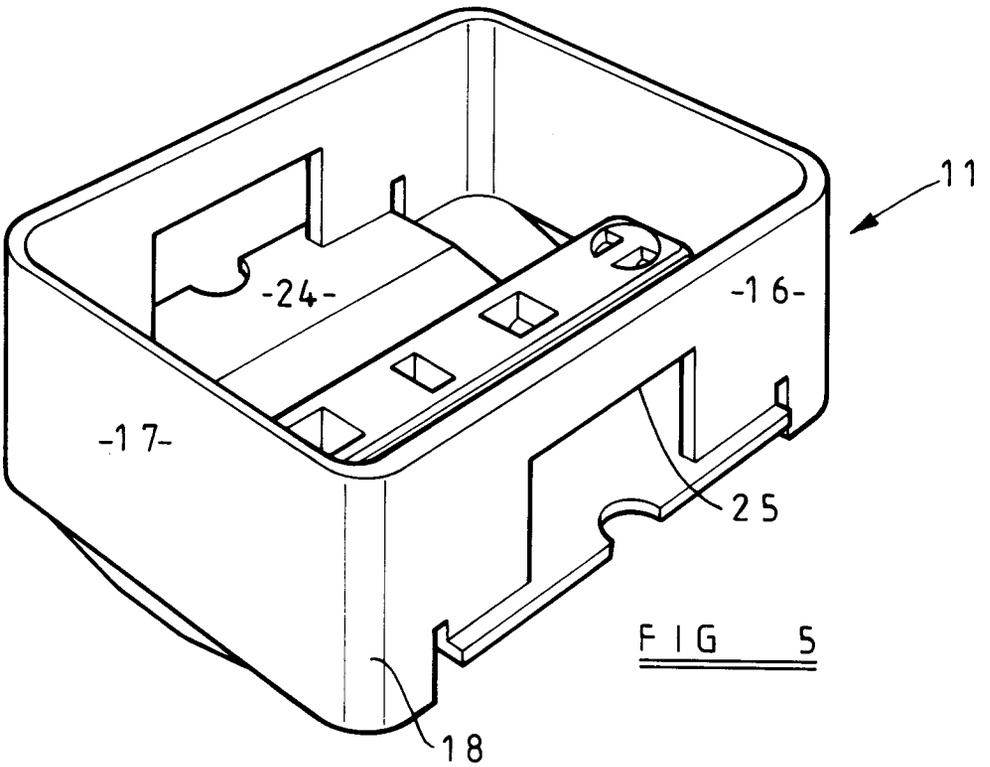

FIG 5

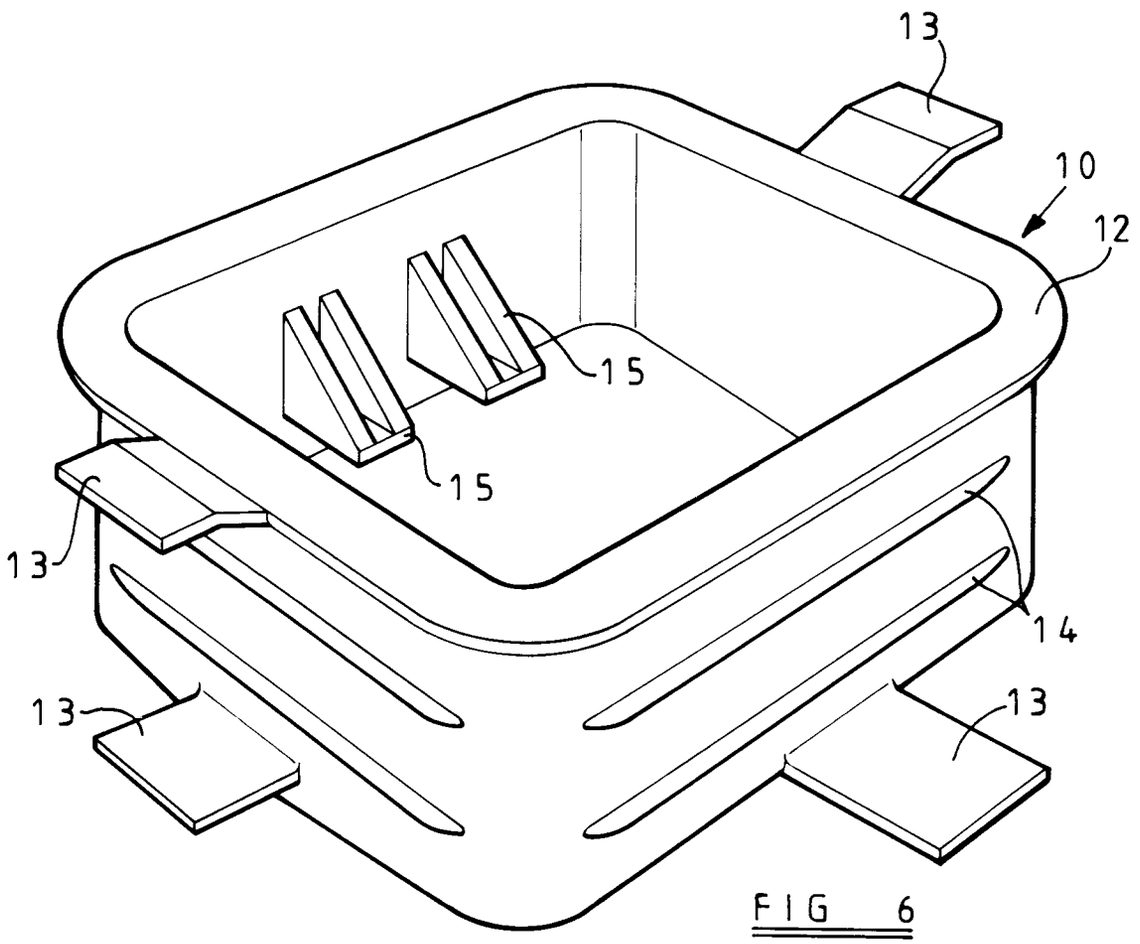

FIG 6