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(54) IMPROVEMENTS IN OR RELATING TO ROAD MARKERS

(71) We, GLASDON LIMITED, a British Company of 117-123 Talbot Road, Blackpool, FY1 3QY, Lancashire, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention concerns improvements in or relating to road markers.

The invention particularly concerns road markers which can be used to demarcate traffic lanes, pedestrian crossings or other areas on a road surface.

One known type of road marker comprises a relatively large cast iron base in which is mounted a rubber block containing reflective glass beads. This base is placed in a hole in the road with a part of the block and the beads projecting above the road surface. The hole is filled with adhesive such as cement mortar, concrete or bitumen to cover the base and hold the marker in place. This known form of road marker also serves to support traffic cylinders. These are usually upright cylindrical posts about one half metre high and 10 cms diameter of a distinctive coloured plastics material for example orange, with a band or sleeve, which may be light reflective, of another colour provided about the post intermediate its ends. The rubber block is extracted from the base plate leaving a cavity into which the traffic cylinder is fitted. Such traffic cylinders are frequently used to demarcate traffic lanes on the same side of a motorway when there is two-way traffic on that side when the other side of the motorway is closed. To remove the rubber blocks from the marker devices between two motorway lanes over several miles and subsequently replace them when the cylinders are no longer required is laborious.

Another known type of road marker comprises a stud of cast aluminium having a plate-like head carrying on one side light reflective beads. On its other side the head carries a spigot formed with projections and grooves. A hole is drilled in the road. This hole is filled with bitumen. Then the spigot is put in the hole. This displaces some of the bitumen which emerges to lie under the head and also oozes out to surround sides of the head sitting on the road surface. On setting, the bitumen adheres the marker to the road.

In both the above described known types of road marker the adhesive material can spread over the marker and mask its light reflective parts.

Another type of known road marker, which also suffers from the above defect, comprises a plastics disc having light reflective beads on one side and grooves in its other side. A deposit of synthetic resin adhesive is placed on the road and the disc set on top of the deposit which keys into the grooves and adheres the marker in place. Unfortunately this marker can be detached relatively easily because it is not anchored into the road.

An object of the invention is to provide a road marker in which the above difficulties attendant to fixing the marker to a road are avoided or at least mitigated and can be constructed so that detachment of the marker from the road when desired, may be facilitated.

According to the invention there is provided a road marker comprising a head for sitting on a road surface and a spigot for location in a hole in the road, an end of the spigot being mounted on the head, said head and spigot being of synthetic plastics material and formed integrally one with the other, a bore extending longitudinally of the spigot being formed, through said spigot and head, a projection arrangement on the exterior of the spigot, one or

more slots formed through the wall of the spigot such that, when the marker is in use and a pin having a transverse dimension greater than a transverse dimension of the bore in the region of the slot(s) is driven into said bore, the spigot is radially expansible for engaging sides of the hole to lock the marker to the road, and said head being formed to allow access through a side of the bore to the end of said bore in said head.

The head of the road marker can be formed with groove means and can be used in conjunction with a traffic cylinder comprising a post member having at least one end of tubular form for detachable fitment into the groove means.

This traffic cylinder can have flange means on said tubular end, said flange means being intended for detachable engagement in an undercut part of the groove means.

The invention will now be further described by way of example with reference to the accompanying drawings in which:—

Fig. 1 is a plan view of a road marker formed in accordance with the invention with a pin driven into the bore;

Fig. 2 is a part side elevation of the road marker and part section on the line IV-IV of Fig. 1 showing the spigot in a hole in a road and the pin in longitudinal section prior to insertion in the bore;

Fig. 3 is an end view of the road marker in Fig. 1, showing the spigot in the hole and the pin in the course of insertion in the bore;

Fig. 4 is a section on the line IV-IV of Fig. 1 showing the spigot expanded radially by the pin which is shown in side elevation;

Fig. 5 is a perspective view of a traffic cylinder for use with the road marker in Fig. 1;

Fig. 6 is an end elevation of the road marker in Fig. 1 showing in phantom lines a fragment, on an enlarged scale, of the traffic cylinder in Fig. 5 fitted on the road marker; and

Fig. 7 is a perspective view on a reduced scale of a portion of road having a plurality of road markers of Fig. 1 each with a traffic cylinder of Fig. 5 thereon.

In the drawings the road marker 2 comprises a stud-like member formed with a head or plate-like part 4 integral with a spigot 6. The marker is formed of tough resilient plastics material, for example nylon which may be glass filled. The marker may be of an eye-catching colour, for example white.

Sides 8 and 10 of the head 4 are sloped, and the head is formed with cut-outs 12 and 14 having end walls 16 provided with light reflective material, for example light reflective glass beads 18 mounted in cavities in the walls.

A bore 20 of substantially circular section is formed through the head 4 and spigot 6. In the head the bore widens to provide an annular shoulder 22. The bore tapers frustoconically at 24 in the spigot. The spigot is surrounded by a plurality of annular projections or ribs 26 each of a generally triangular section. A plurality of slots 28 formed through the wall of the spigot extended longitudinally from its free end towards the head 4.

To secure the marker to a road R a hole H, substantially the diameter of the spigot 6 and somewhat longer than the spigot length, is drilled in the road. The spigot 6 is inserted in this hole until the head 4 sits on the road surface. Then a peg or locking pin 30 is driven into the bore 20. This pin is of a cylindrical tubular shape with an external annular lower lip 32 and a circular upper head 34. The outer diameter of the lip 32 is the same as or slightly less than the diameter of the portion of the bore 20 between the shoulder 22 and the wider end of the frusto-conical part 24. Therefore, as the pin is driven home, the lip 32 contacting the frusto-conical part 24 forces the spigot to expand radially so that the ribs 26 firmly engage in sides of the hole H, particularly in any bitumen constituent of the road forming material; the pin 30 is hammered in until its head 34 sits on the shoulder 22.

A pair of diametrically opposed open ended grooves 36 in the surface of the head 4 lead from the bore 20 below the shoulder 22. These grooves 36 give a locking pin extracting tool access, through the side of the bore 20, to below the head 34 whereby the locking pin 30 can be pulled from the bore. This allows the spigot 6 to contract radially so that the marker can be removed from the road R when it is being resurfaced or otherwise under repair.

Four arcuate grooves 38 having the same radius and centre of curvature are formed in the upper surface of the sides 8 and 10 of the head 4. Each of these grooves is open at both ends and has an undercut part 40 each open at one end 42 but closed at its other end 44.

A traffic cylinder or post 46, which may be of plastics material and may be provided with light reflective material thereon, has a lower end 48 which is tubular of substantially the same radius as the grooves 38 into which this lower end can fit. The lower end 48 of the post 46 is provided with four, substantially equally spaced, external radially extending flanges 50 which can locate in respective undercuts 40. To fit the post 46, its lower end

48 is fitted into the grooves 38 with two of the flanges 50 located in the cut-outs 12 and 14 and the other two at positions X and Y as shown in phantom lines in Fig. 1. The post is then rotated clockwise in the direction of arrow Z with respect to Fig. 1 about a vertical axis to bring the flanges 50 into register with the undercuts 40. The post may be detached by an opposite rotation. Accordingly with a road marker and traffic cylinder as described, it is very easy to put the traffic cylinders in position when required and to subsequently remove them.

The lower end of the post is preferably formed with diametrically opposed openings 52 for location in front of the reflecting beads 18 as shown in Fig. 6 and 7 so that these can be seen when the traffic cylinder is in position.

The marker described above without the cut-outs 12 and 14 and beads 18 may be used to demarcate areas of a road surface such as pedestrian crossings.

WHAT WE CLAIM IS:

1. A road marker comprising a head for sitting on a road surface and a spigot for location in a hole in the road, an end of the spigot being mounted on the head, said head and spigot being of synthetic plastics material and formed integrally one with the other, a bore extending longitudinally of the spigot being fomed through said spigot and head, a projection arrangement on the exterior of the spigot, one or more slots formed through the wall of the spigot such that, when the marker is in use and a pin having a transverse dimension greater than a transverse dimension of the bore in the region of the slot(s) is driven into said bore, the spigot is radially expansible for engaging sides of the hole to lock the marker to the road, and said head being formed to allow access through a side of the bore to the end of said bore in said head.

2. A road marker as claimed in claim 1, in which the bore tapers over at least part of its length towards the other or free end of the spigot, and the slots extend along the tapering part of the bore.

3. A road marker as claimed in claim 1 or claim 2, in which, considering the road marker in an upright attitude with the head uppermost, the end of the bore in the head is widened above a shoulder in said bore, and the head is formed to allow access to the bore below the shoulder.

4. A road marker as claimed in claim 3, in which the access is permitted by grooves formed in the head, which grooves extend from the bore and have bases below the shoulder.

5. A road marker as claimed in claim 3 or claim 4, in combination with a pin for driving into the bore to radially expand the spigot, said pin having a head to sit on the shoulder, and said access to the bore permitting access to the pin head, when the latter is sitting on the shoulder, to facilitate extraction of the pin from the bore.

6. A road marker as claimed in any preceding claim, in which the projection arrangement comprises a plurality of ribs extending about the spigot.

7. A road marker as claimed in any preceding claim, in which the plastics material is glass filled.

8. A road marker as claimed in any preceding claim, in which the head has light reflective material thereon.

9. A road marker as claimed in claim 8, in which the light reflective material comprises light reflective beads.

10. A road marker as claimed in any preceding claim, in which the head of the marker is formed with a plurality of spaced arcuate grooves having substantially the same radius and centre of curvature.

11. A road marker as claimed in claim 10, in which each arcuate groove is formed with undercut part in the head of the marker, and each undercut part is open at at least one end of the arcuate groove.

12. A road marker as claimed in claim 10 or claim 11, in combination with a traffic cylinder having an end part which is of substantially the same radius as the arcuate grooves and is fitable into said arcuate grooves.

13. The combination claimed in claim 12, when appended to claim 11, in which said end part of the traffic cylinder has radially extending flanges for location in said undercut parts.

14. The combination as claimed in claim 12 or claim 13, in which the end part of the traffic cylinder has at least one cut-out arranged for light reflective material on the head to be visible through the cut-out when the traffic cylinder is fitted on the marker.

15. A road marker substantially as hereinbefore described with reference to Figs. 1 to 4 of the accompanying drawings with or without the locking pin 30.

16. A road marker as claimed in claim 15 in combination with a traffic cylinder which is substantially as hereinbefore described with reference to the accompanying drawings.

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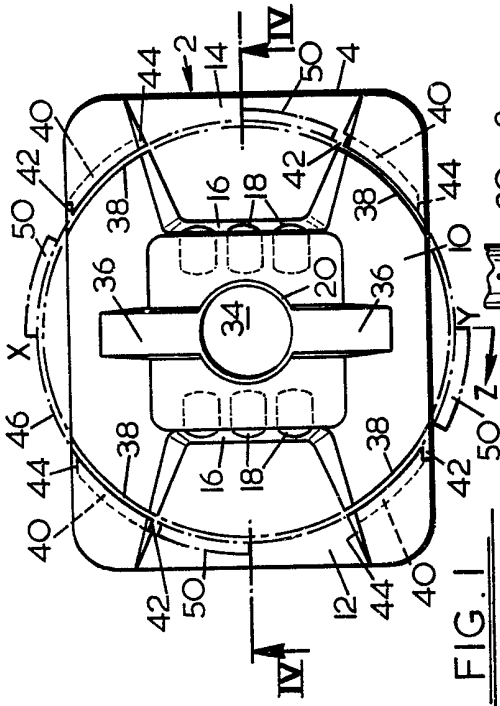

FIG. 1

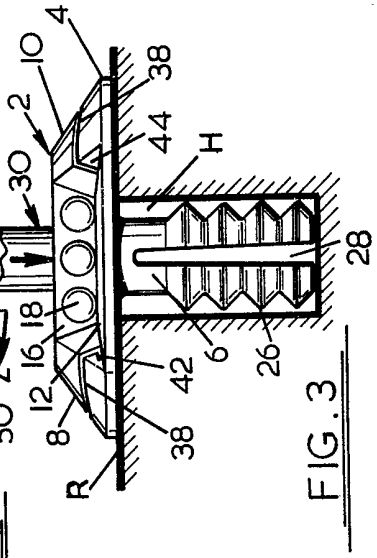

FIG. 3

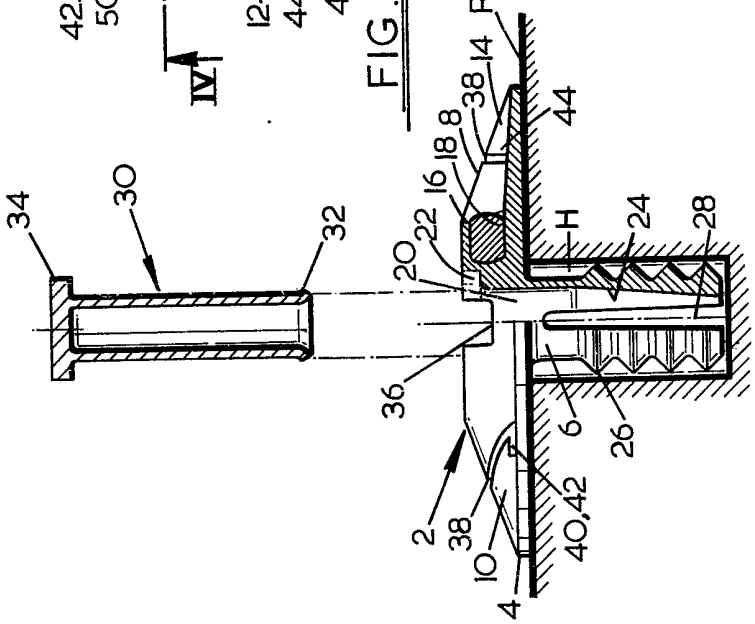

FIG. 2

1560288 COMPLETE SPECIFICATION
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Sheet 2

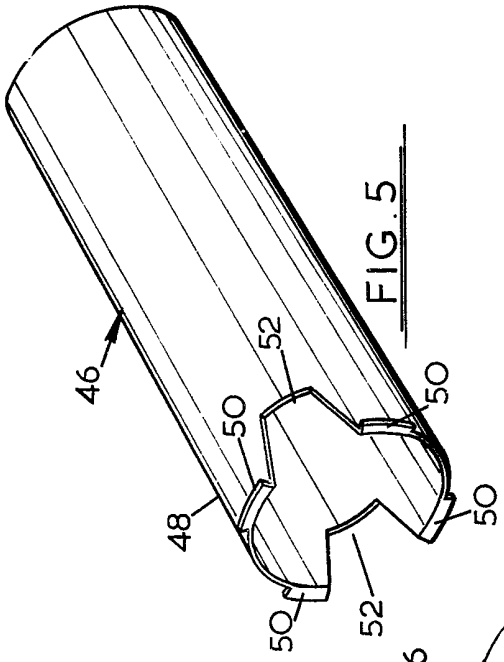

FIG. 5

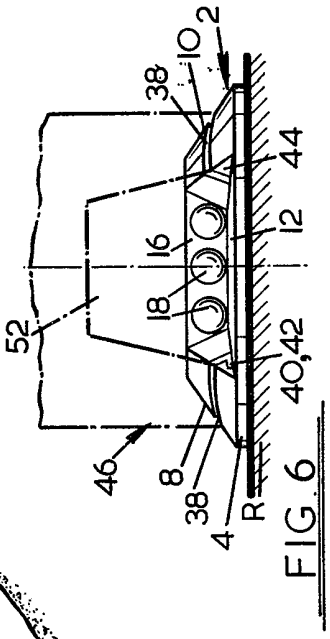

FIG. 6

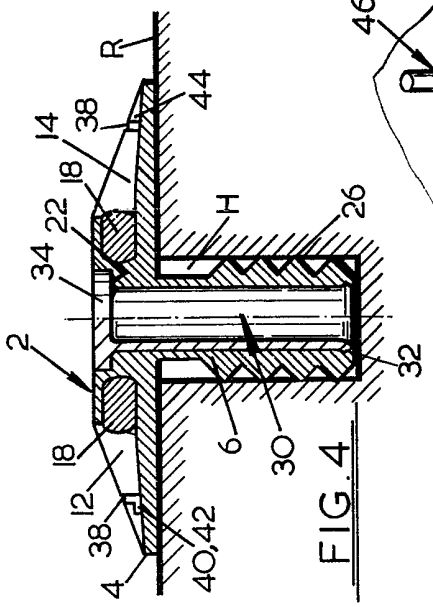

FIG. 4

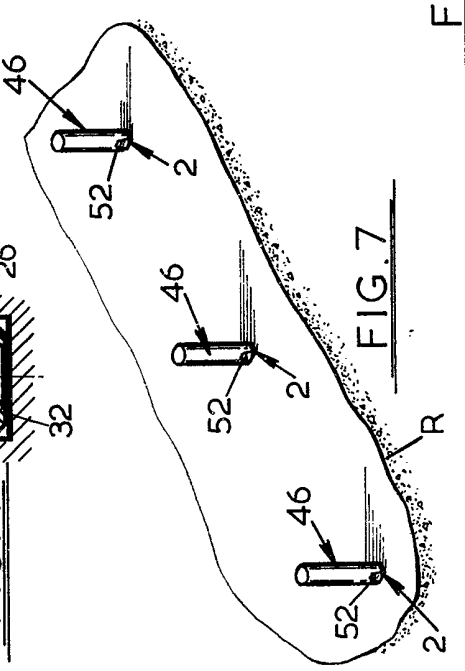

FIG. 7