March 19, 1968 R. W. TAYLOR-MYERS 3,373,667

ROAD SURFACE MARKER

Filed June 17, 1966 2 Sheets-Sheet 1

Fig. 1.

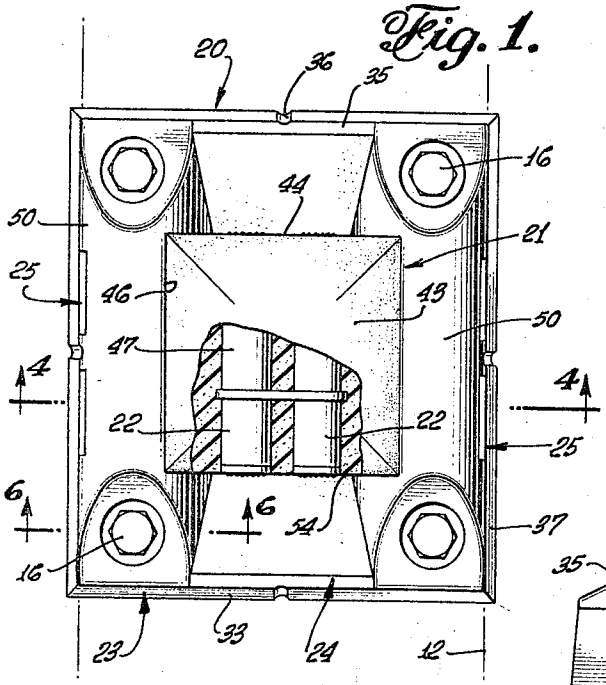


Fig. 6.

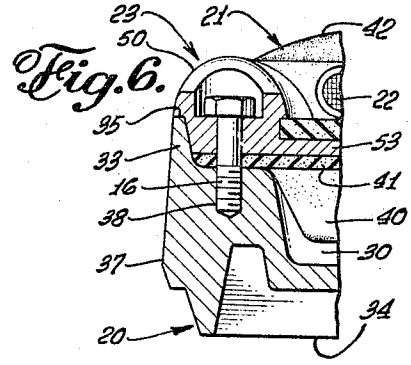


Fig. 3.

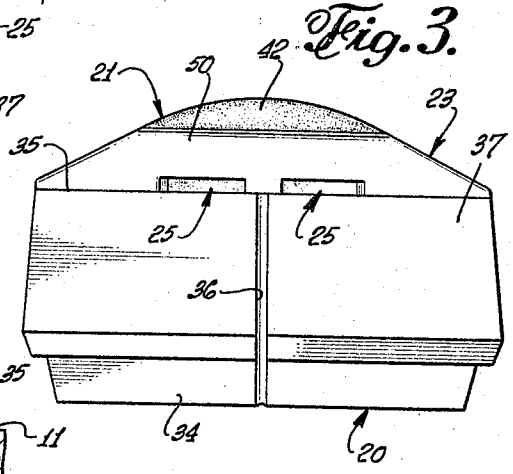


Fig. 2.

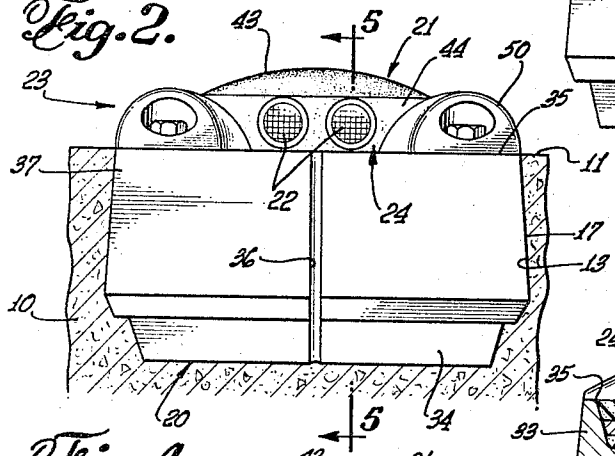


Fig. 5.

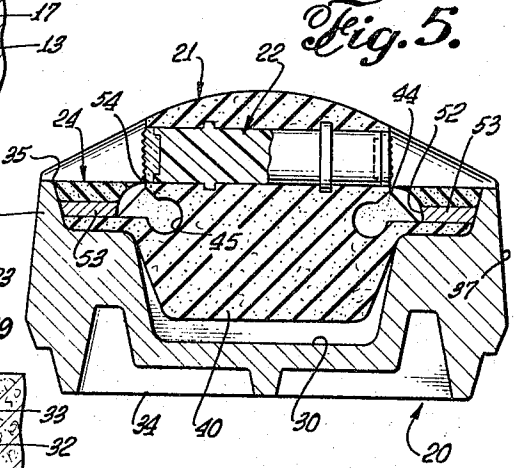
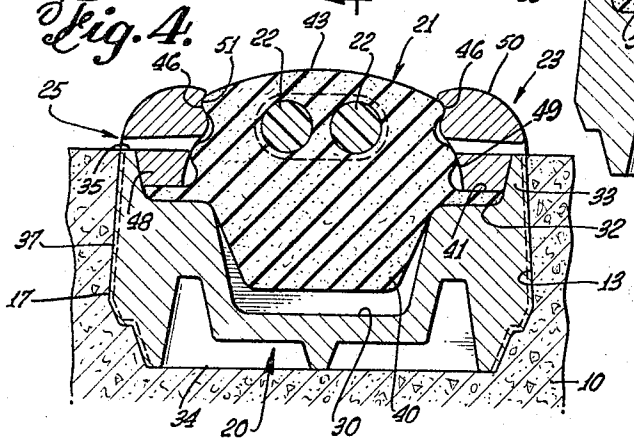


Fig. 4.



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March 19, 1968 R. W. TAYLOR-MYERS 3,373,667

ROAD SURFACE MARKER

Filed June 17, 1966 2 Sheets-Sheet 2

Fig. 7.

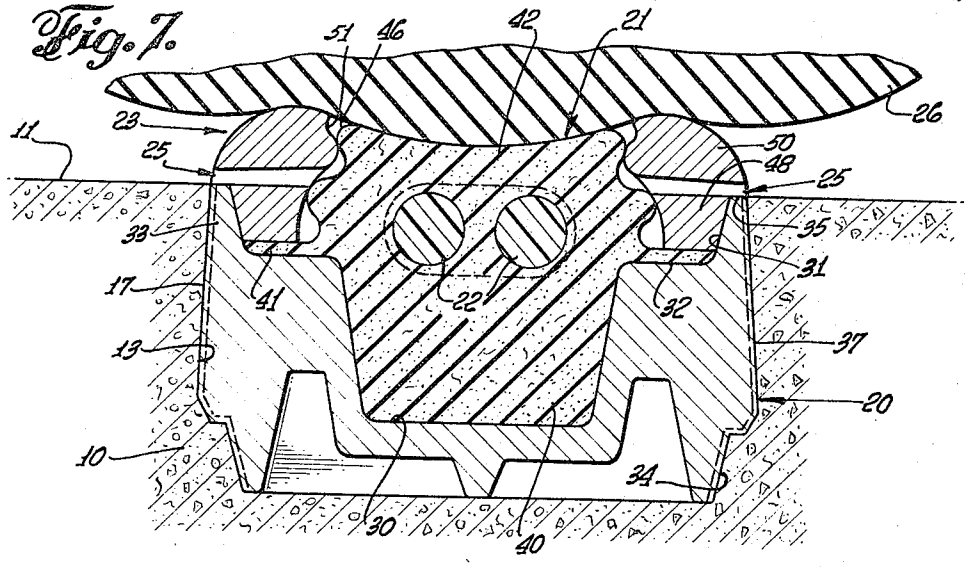


Fig. 8.

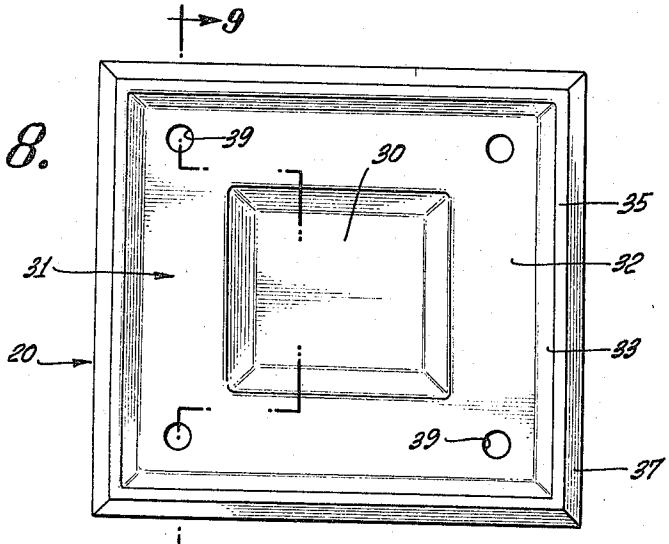
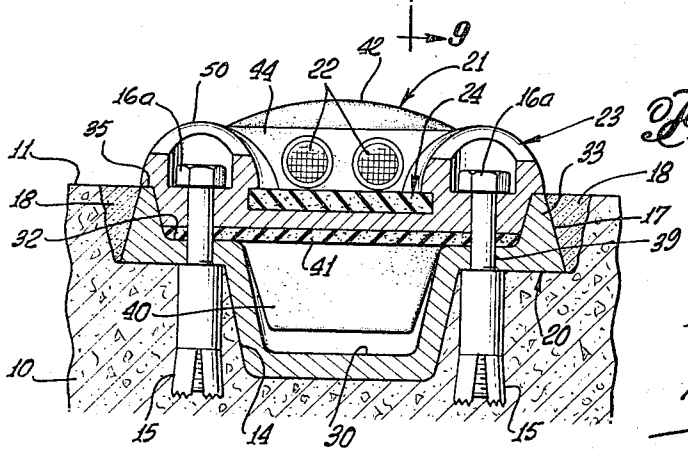


Fig. 9.



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ROAD SURFACE MARKER

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8 Claims. (Cl. 94—1.5)

This invention relates to a road surface marker.

An object of the present invention is to provide a road marking unit of the type that is anchored in the roadway pavement to mark lanes of traffic, alone or in combination with painted traffic lines.

Another object of the invention is to provide a road surface marker of the character referred to that extends partly above the road surface, said extending portion being depressible by auto and other tires, in the event the same are run over by vehicles.

A further object of the invention is to provide a road marker unit, as above characterized, the depressible portion being provided with light-reflecting means which are protected against damage due to the same being moved below the surface of the road when the depressible portion of the marker is depressed in the manner above referred to, or in any other manner by pressure from above.

A still further object of the invention is to provide a road surface marker having a non-metallic depressible portion which is also compressible to minimize damage thereto by the hazards of being run over.

A yet further object of the invention is to provide a road surface marker that provides a construction and arrangement that facilitates rapid replacement of the depressible portion should the same become worn after long use.

A yet further object of the invention is to provide a road surface marker that is easily incorporated in a road surface whether to mark lanes or lines on old road surfaces or new pavement.

This invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The above objects of the invention are realized in a structure that comprises a metal base housing that is adapted to be set into a road pavement, preferably flush with the surface thereof; a non-metallic, elastic and compressible core centered in a cavity in the housing, extending partly above the pavement surface, and provided, in the extending portion, with light reflectors disposed to catch headlight beams of vehicular traffic moving over said pavement; a combined clamp and guard ring encircling the extending portion and preferably formed of metal to withstand road wear; reflector-wiping portions provided on said guard ring; and a plurality of bolts to removably affix the guard ring to the base housing, the same, when snugged up, clamping the depressible core in operative position and, when removed, enabling lifting of the guard ring so replacement of the core may be effected; said guard ring being provided with passages affording ejection passage of particles of grit and other foreign matter dislodged by the core, as the same returns to normal operating position after depression thereof by a vehicle.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description, and which is based on the accompanying drawings. However, said drawings merely show, and the following description merely describes, preferred embodiments of the present invention, which are given by way of illustration or example only.

In the drawings, like reference characters designate similar parts in the several views.

FIG. 1 is a top plan view, partly broken away, of a road surface marker according to the present invention.

FIG. 2 is a side elevational view thereof as seen from the bottom of FIG. 1.

FIG. 3 is a side elevational view as seen from the right of FIG. 1.

FIG. 4 is a cross-sectional view as taken on the line 4—4 of FIG. 1.

FIG. 5 is a cross-sectional view as taken on the line 5—5 of FIG. 2.

FIG. 6 is a cross-sectional view as taken on the line 6—6 of FIG. 1.

FIG. 7, to an enlarged scale, is a cross-sectional view as taken on the plane of line 4—4 of FIG. 1, showing a vehicle tire in the process of running over the marker and causing the core thereof to be depressed and the reflectors moved to a position below the road surface.

FIG. 8 is a top plan view of the base housing of said marker.

FIG. 9 is a cross-sectional view as taken on the plane of line 9—9 of FIG. 8 and in which the base housing is modified for installation in existing road pavement.

FIGS. 2, 4, 7 and 9 show a pavement 10 having a surface 11 which, preferably, is a road surface that may or may not be marked with a traffic line 12, indicated in FIG. 1, in which the marker of the present invention is incorporated as part thereof. It will be clear that the traffic line 12, provided with a series of suitably spaced markers, provides a lane-defining means readily seen by the operators of oncoming vehicles from either direction.

In the form of the invention shown in FIGS. 1 to 7, the present marker is anchored in the pavement 10, which is newly laid pavement that forms a seat 13 which the marker occupies. In the form of FIG. 9, a suitably shaped seat 14 is cut into the pavement for receiving the marker, a set of expanded sockets 15 being located in the pavement to receive bolts 16*a*, the purpose of which will be later described. At least part of the seat 14 is undercut, as at 17. It will be necessary, therefore, to fill in cement or concrete around the marker, as represented by the areas 18.

The road surface marker that is illustrated comprises, generally, a base housing 20 of metal and preferably set into the pavement 10, as in FIGS. 2, 4 and 7, or as in FIG. 9 in the manner above described, a compressible and depressible core 21 centered and mounted in said housing 20, light-reflecting units 22 mounted in said core and normally disposed above the surface 11 of the pavement 10, a combined clamp and guard ring 23 around the core 21, the same being fixedly yet removably secured to the housing 20 by the mentioned bolts 16*a*, which have threaded connection with the expanded sockets, or by bolts 16, which engage in tapped seats in the base housing 20, reflector-wiping portions 24 mounted on the guard ring forward of the light-reflecting units 22, and passage means 25 affording rejection passage of grit and other foreign particles when the core returns to normal operating position after being compressed and depressed by a vehicle tire 26 or the like.

The base housing 20 is preferably formed of a light, corrosion-resistant metal, but forming the same of high-impact plastic is contemplated as a possibility. Said housing, as shown in FIG. 8, is preferably rectangular, provided with a smaller, lower cavity 30, and a larger, upper seat 31 that bottoms on a shoulder surface 32 and is circumscribed by a rectangular wall 33. So that storage space for these items may be conserved, the bottom 34 of the housing may be formed to nest into the seat 31. In practice, whether incorporated in new pavement or in old, the upper edge 35 of the wall 33 is set to be flush with

the road surface 11. For accuracy of positioning the housing in the pavement, a centering mark or groove 36 may be used to center the device on a line or a painted stripe.

As can be seen in both forms of housing shown, at least part of the outer surface 37 of the housing tapers from the bottom up, thereby insuring that the housing will be firmly anchored in and closely encompassed by the pavement material. The tapper holes or seats 38 in the housing 20, as in FIGS. 1 to 7, and the clearance holes 39 in the housing, as in FIGS. 8 and 9, are arranged at the corners of the housing and open on the shoulder surface 32.

The core 21 is preferably formed of a material of which sponge rubber is a prime example. The same is molded so as to have a lower rectangular and downwardly tapered part 40 that extends into the cavity 30 of the base housing, a flange 41 that fits into the seat 31 of the base housing and is supported on the shoulder surface 32, and a rectangular upper part 42 that is provided with a domed or rounded top surface 43 and which extends from the flange 41 substantially above the upper edge 35. The opposite front and rear faces 44, as seen in FIG. 5, are preferably parallel and vertical and, where these faces approach the flange 41, are provided water-storing recesses 45. The lateral faces 46 are preferably corrugated, as seen in both FIGS. 4 and 7. The part 40 of the core is substantially smaller than the cavity, as in FIGS. 4, 5, 6 and 9, affording space into which this part may be depressed and compressed by pressure on the surface 43, as by a tire 26 riding thereover.

The light-reflecting units 22 may comprise more or less standard-type reflector buttons which open on the faces 44 of the upper extension 42 of the core 21, these buttons being located above the upper edge 35 of the base housing 20. In this case, said reflector buttons may be attached to a plastic or aluminum mounting 47 which will anchor the buttons in the porous mass of the core part 42.

The combined clamp and guard ring 23 is preferably formed of tough, strong and wear-resistant metal to have a rectangular outer form conforming closely to the outer shape of the upper edge 35 of the base housing, and a lower part 48 that fits into the seat 31 of said housing and bears upon the flange 41 of the core 21. The ring 23 has a generally rectangular central opening 49 into which the core part 42 extends, and is provided with lateral portions 50 that are rounded over along their outer sides and tapered down, front and rear, from the tops thereof toward the level of the housing edge 35. FIGS. 2 and 4 show such rounding of the portions 50, and FIGS. 3 and 5 show the mentioned tapers of said portions, it being clear that an auto tire may ride thereover without damage either to the ring 23 or to the auto tire. FIGS. 4 and 7, at 51, show that the lateral portions of the ring have inner corrugated faces that conform to the faces 46 of the core extensions 21, and FIG. 5, at 52, shows that the front and rear ring portions 53, which connect the lateral portions 50, are relieved at their inner faces opposite to the recesses 45.

Said ring portions 53 are lined with the reflector-wiping portions 24, the same having inwardly directed edges 54 that bear against the parallel faces 44 of the core extension 42 and the reflector buttons set therein. Said portions 24 are preferably made of rubber or comparable non-metallic material.

The passage means 25 extend laterally through the ring portions 50 and serve as exit or rejection passages that eject grit and other foreign particles that may enter the spaces between the faces 46 and 51 when the core is depressed and compressed. Upon release from tire pressure, said core part, returning to its extended position, forces such particles laterally through the passages 25.

Since the core is porous, the same can not only be depressed into the recess 30, but also may be compressed to the point that allows a tire 26 to ride on and over the ring parts 50. In any case, the reflector buttons are depressed below the pavement level, as seen in FIG. 7, enabling the edges 54 of the liner portions 24 to wipe accumulations of grime from said buttons.

Since the rubber core is amply protected by the ring portions 50, heavy metal wheels of whatever type of vehicle cannot damage the same, while said ring portions have sufficient strength and toughness to withstand such wheels.

It will be noted that the recesses 45 are located below the top edge 35 of the base housing 20. It will be clear, therefore, that the same will serve as a means to conserve water which has seeped through the slots 25 from the road surface, having passed along the lower corrugation of the core 42 and along the flange 41. When the core is depressed, it causes the recess 45 to close and squirt water against the inner face of the ring 52, as in FIG. 5. On return of the core portion 42 after such depression, the edges 54 of the portions 24 will wipe the reflectors clean and dry.

The top faces of the reflector-wiping portions 24 are level with the pavement surface 11, which presents minimum obstruction to a wheel passing thereover.

While the foregoing has illustrated and described what is now contemplated to be the best mode of carrying out the invention, the constructions are, of course, subject to modification without departing from the spirit and scope of the invention. Therefore, it is not desired to restrict the invention to the particular forms of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A road surface marker comprising:
   (a) a base housing having an upper edge and adapted to be set into the pavement of the road with said edge substantially flush with the road surface, said base having a top-open cavity with a horizontal seat between said edge and cavity,
   (b) an elastic, compressible, non-metallic core disposed in said cavity with an upper portion extending above said housing edge,
   (c) light-reflecting means carried by said upper portion of the core and normally held thereby elevated above the level of the road surface,
   (d) a flange around said core and disposed to rest upon said seat in the base housing, and
   (e) a ring secured to the top of the base housing to clamp the mentioned core flange against the mentioned seat, said ring encircling the upper portion of the core, and provided with lateral thickened portions to guard said core and spaced on opposite sides of the light-reflecting means to expose the same to view.

2. A road surface marker according to claim 1 in which the mentioned core is provided with a lower portion that extends partly into the base housing cavity and is adapted to move further toward the bottom of said cavity under pressure from above on the upper portion of the core.

3. A road surface marker according to claim 2 in which the top of the upper core portion is domed and the lateral sides thereof are corrugated, the latter guard portions of the ring being provided with corrugated inner edges that conform to and fit against the corrugated edges of the upper core portion.

4. A road surface marker according to claim 3 in which said guard portions of the ring are provided with laterally directed grit- and particle-conducting passages.

5. A road surface marker according to claim 1 in which the light-reflecting means comprise oppositely facing reflector buttons, the upper extension of the core hav-

ing opposite vertical faces in which said buttons are set, and non-metallic button-wiping members affixed to the ring on portions thereof that connect the lateral guard portions.

6. A road surface marker according to claim 5 in which oppositely directed recesses are provided between said core extension and the wiping members above the flange thereof and opposite to the adjacent edges of the vertical faces, the button-wiping members being provided with inwardly directed wiper edges that wipe material from the buttons.

7. A road surface marker according to claim 1 in which a plurality of bolts, extending through the ring and in fixed engagement with the base housing, replaceably hold the mentioned core in operative position.

8. A road surface marker according to claim 1 in which the lateral thickened portions of the clamp and guard ring have elongated rounded top faces with the ends thereof tapered toward the opposite edges of the ring.

References Cited

UNITED STATES PATENTS

1,771,667	7/1930	Vogler	94—1.5
2,073,968	3/1937	Krebs	94—1.5
2,146,359	2/1939	Shaw	94—1.5
2,224,937	12/1940	Stedman	94—1.5
2,703,038	3/1955	Shaw	94—1.5
2,934,633	4/1960	Cumming	94—1.5 X
3,093,038	6/1963	McRobbie	94—1.5
3,216,335	11/1965	Stolarczyk	94—1.5
3,257,552	6/1966	Converso	94—1.5 X
3,292,506	12/1966	Kone	94—1.5

FOREIGN PATENTS

444,033	6/1949	Italy.

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