My present invention relates to road surface markers, and more particularly, to blocks for road surface marking of the type in which a filling of resilient material such as white or brightly colored rubber is supported entirely or partially within a rectangular or otherwise shaped box or holder and fitted with one or more reflectors which reflect the lights of approaching vehicles.

More particularly, my present invention relates to blocks of the above type in which the filling is constructed and the underside that the reflectors are automatically cleaned by movement of the filling in which the reflector or reflectors are mounted or embedded when the box or marker is travelled over by a vehicle wheel. Road markers of the type are described in my U.S. Patent No. 2,146,359, issued February 7, 1939, and entitled "Block for Road Surface Markings".

It is an object of my present invention to provide a road side marker of the general type disclosed in my above patent which will afford the maximum amount of protection to the filling and to the reflectors which are carried therein, or embedded therein, against injury by any rigid or resilient objects which may pass over them, such, for example, as snow ploughs, scrapers, metal rollers, chains, or heavy metal tired vehicles or vehicles fitted with caterpillar tracks.

More particularly, in the event the markers are equipped with self-wiping reflectors, it is an object of my present invention to provide protection for the reflectors during the automatic cleaning of the same which takes place when the filling is travelled over by vehicles such as are met with in ordinary road traffic.

It is a further object of my present invention to provide an arrangement which so as to reduce movement of the filling in forward direction due to skidding of the tires of vehicles travelling on the road.

It is still another object of my present invention to prevent breaking of the reflectors which occurs in extreme cases in road markers of the type described in my above patent, by forcing the reflectors against adjacent parts of the box or holder.

It is also an object of my present invention to avoid scratching of the reflectors which occurs occasionally in road markers of known type due to too hard contact between the reflectors and the corresponding wiper edge of the filling.

Still another object of my present invention consists in a box construction which will limit the extent of the depression of the filling by low pressure pneumatic tires which depress the filling in the previously known arrangements more than is necessary to obtain a proper wiping of the reflectors and cause occasionally premature cracking of the underside of the filling.

It is still a further object of my present invention to reduce impact forces exerted by pneumatic tires on the filling when the latter is prevented from being depressed by the accumulation of grit or ashes in the box or holder, which in some cases results in the reflectors being squeezed out of their sockets.

Finally, it is also an object of my present invention to provide an arrangement which will prevent grit, chips or ashes used for road repairs and skid preventing from being forced by the tires of vehicles into the joints between the filling and the box or holder.

With the above objects in view, a road surface marker according to my present invention preferably comprises in combination a rigid open top box composed of a bottom wall, two oppositely arranged side walls, and two oppositely arranged end walls each having a lower rim portion forming at least part of the rim of the respective end wall and located under the level of the higher of the oppositely arranged side walls, a resilient filling which may be a rubber pad or block arranged within the rigid open top box with its top surface located not more than slightly above the level of the side walls, or the oppositely arranged side walls, and reflecting members mounted on said resilient filling opposite the lower rim portions of the oppositely arranged end walls of the rigid open top box.

The improved device embodies wiping means so positioned in relation to the front faces of the reflecting members as to cause wiping of the same during up and down movement of the resilient pad or filling, such wiping means conveniently being formed by a part of the rubber pad itself, separated by a slot or slots from the reflector face or faces.

In accordance with a preferred embodiment of my present invention, my new marker is composed of a bottom wall and a surrounding side wall being of substantially equal height and provided with two oppositely arranged gaps in its rim reaching under the level of the same, a resilient filling arranged within the rigid open top box with its top surface located substantially at the level of the rim of the surrounding side wall of the rigid open top box, and reflecting members mounted in the resilient filling opposite the gaps in the surrounding side wall of the rigid open top box.

I have found it advisable to provide the resilient filling arranged within the rigid open top box with a raised surface portion which is spaced from the surrounding side wall or spaced at least from the oppositely arranged side walls of the box so as to prevent formation of any slot between the edges of the filling and the side walls during depression of the same by a vehicle tire.

The novel features which I consider as characteristic for my invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a top view of a preferred road surface marker according to my present invention;
Fig. 2 is a side view of the marker;
Fig. 3 is an end view of the marker;
Fig. 4 is a cross section through the marker shown in Fig. 1, along line 4--4;
Fig. 5 is a longitudinal section through the marker shown in Fig. 1, along line 5--5;
Fig. 6 is a top view of the box alone, with the filling removed therefrom;
Fig. 7 is a cross section of the marker in depressed position with a tire travelling over it.

The road marker shown in Figure 1 is composed of a rigid open top box 20 and a resilient filling 21. The open top box 20 consists of a flat bottom wall 22, two oppositely arranged side walls 23 and 24, and two oppositely arranged end walls 25 and 26. The oppositely arranged end walls 25 and 26 are provided with gaps 27 and 28, respectively.

As clearly shown in Figures 2 and 4, the oppositely arranged side walls 23 and 24 are continuous, gapless and of substantially equal height. As also clearly shown in Figures 3 and 5, the end walls 25 and 26 are of the same height as the side walls, and the gaps 27 and 28 are arranged in the center of the end walls.

Futhermore, the figures mentioned above clearly disclose that all walls of the box, namely the side walls 23 and 24 and the end walls 25 and 26, have inclined smooth outer faces, and that the corners of the box are also rounded so as to eliminate any possible resistance to the blades of snow ploughs and similar road cleaning apparatus sliding over the road surface.

The filling 21 has a centrally raised portion 29 which is arranged spaced from the side walls 23 and 24 and located at the level of the upper rims 30 and 31 of the side walls 23 and 24, respectively.
I wish to note that it is possible to arrange the filling in such a manner that the central raised portion 29 thereof is located slightly above the level of the rims 30 and 31. However, I have found it of advantage not to make the central portion of the filling substantially higher than the side walls.

The filling 21 is provided with holes 32 into which fit the pins 33 arranged on the inner faces of the side walls 23 and 24, as clearly shown in Figures 4 and 5. These pins 33 bold the filling in proper position and prevent it from being accidentally removed from the box.

The reflector members 34 are embedded in the filling 21 and arranged in pairs facing the gaps 27 and 28, provided in the end walls 25 and 26, respectively, of the box 20.

In order to obtain the desired wiping action, slots 35 are provided in the filling adjacent to the embedded reflectors 34 so that the slot edges 36 wipe along the reflectors 34 when the filling 21 is depressed, as shown in Figure 7.

As clearly shown in Figure 7, during depression of the filling 21 by the tire 37 shown in dotted lines, the depressing action of the tire is limited by the side walls 23 and 24 of the box 20. The tire here shown may be considered as a tire of an ordinary road traffic running over a marker in a direction lengthwise of the marker. Furthermore, the fact that the tire 37 is prevented by the side walls from engaging and depressing the side portion 38 of the upper surface of the filling 21 results in lateral pressure of these side portions 38 against the side walls 23 and 24 of the box, preventing formation of slots between the box and the filling during depression of the latter.

Furthermore, it is evident that engagement of the tire 37 with the rim of the side walls 23 and 24 greatly brake any skidding movement of the tire, thereby limiting the action of the tire on the filling to a depression thereof in vertical downward direction, and that this, in turn, prevents and eliminates any possibility of damage to the reflectors by engagement of the same with the metallic end walls 25 and 26 of the box 20 or too strong pressure of the edges 36 of the filling against the reflectors.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of road markers, differing from the types described above.

While I have illustrated and described the invention as embodied in road markers with self-wiping reflectors, I do not intend to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of my invention.

Without further analysis, the foregoing will so fully reveal the gist of my invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. A road surface marker comprising a rigid open-topped box having side walls of substantially the same height throughout and end walls at least one of which is provided with a gap there-through extending downwardly from the upper edge thereof, a resilient pad mounted within said box and having a raised central top portion, spaced from said side walls whose upper surface, when not subjected to downward pressure, is substantially level with the tops of said side walls, said pad having downwardly extending portions adjacent to said side walls with a recess between the same and beneath the bottom of said top portion, reflector means carried by said pad in alignment with said gap, and wiper means carried within said box below a front face of said reflector means except when said pad is depressed, the top portion of said pad being downwardly flexible under pressure to carry said face of said reflector means down into wiping contact with said wiper means, the said side walls being spaced apart such a distance that tires of at least some of the vehicles comprising ordinary pneumatic-tired road traffic, when traveling over the marker approximately longitudinally thereof, contacting the upper edges of said side walls and the upper surface of said pad between them, will depress said pad to an extent limited by the spacing of said side walls, and sufficient in the case of some of such vehicles to cause wiping of said reflector means face over its entire height.

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