March 17, 1936. J. M. HALL 2,034,391

STREET OR ROAD MARKER

Filed March 17, 1933 2 Sheets-Sheet 1

Fig. 1

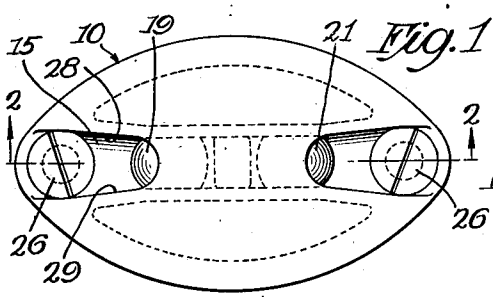


Fig. 3

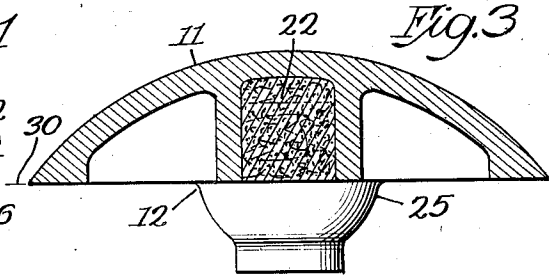


Fig. 2

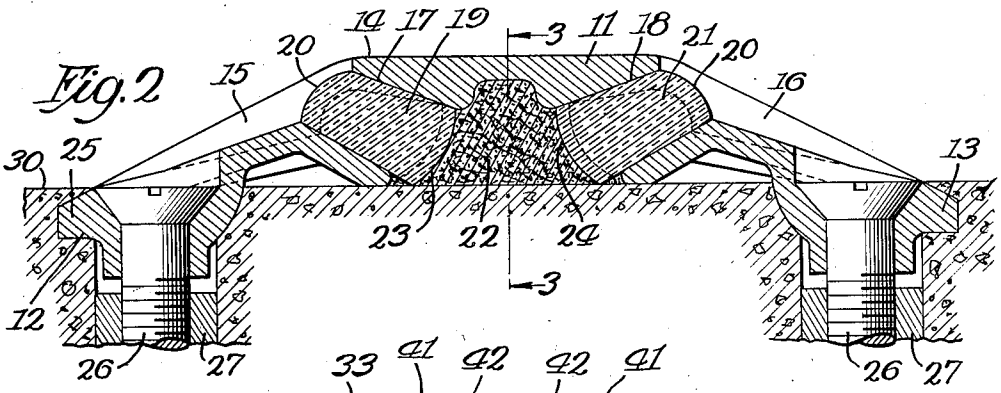


Fig. 4

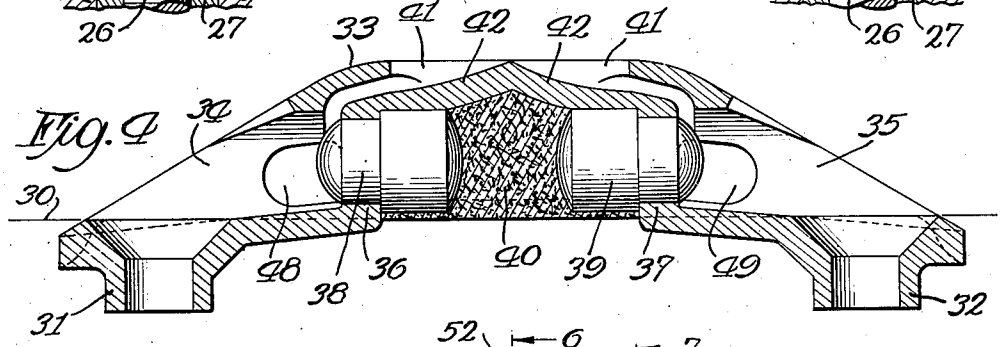
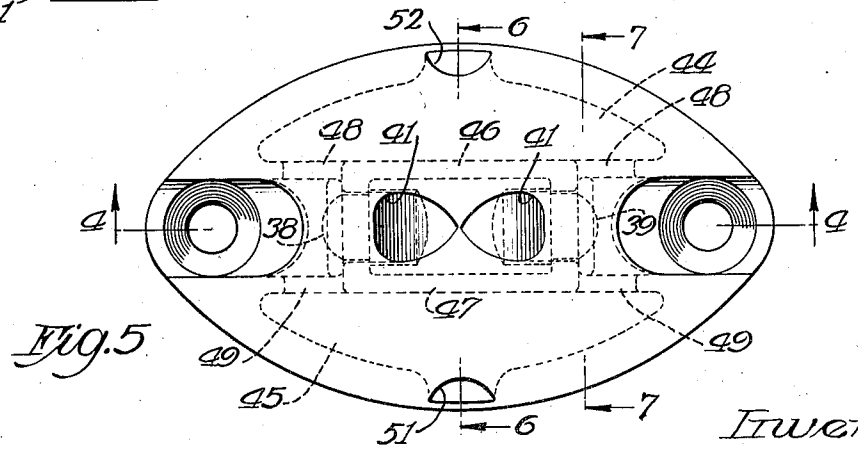


Fig. 5



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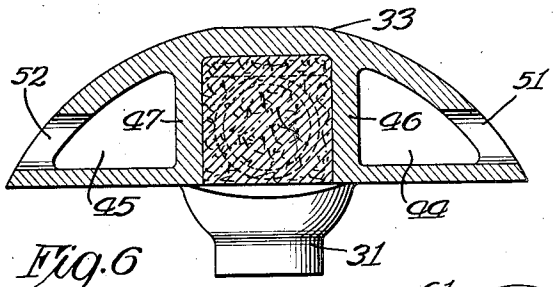


Fig. 6

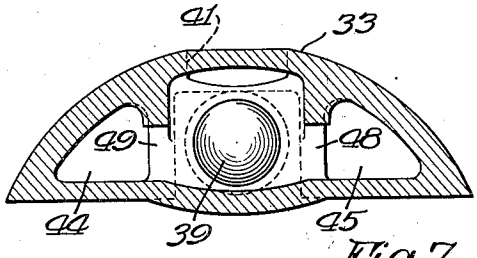


Fig. 7

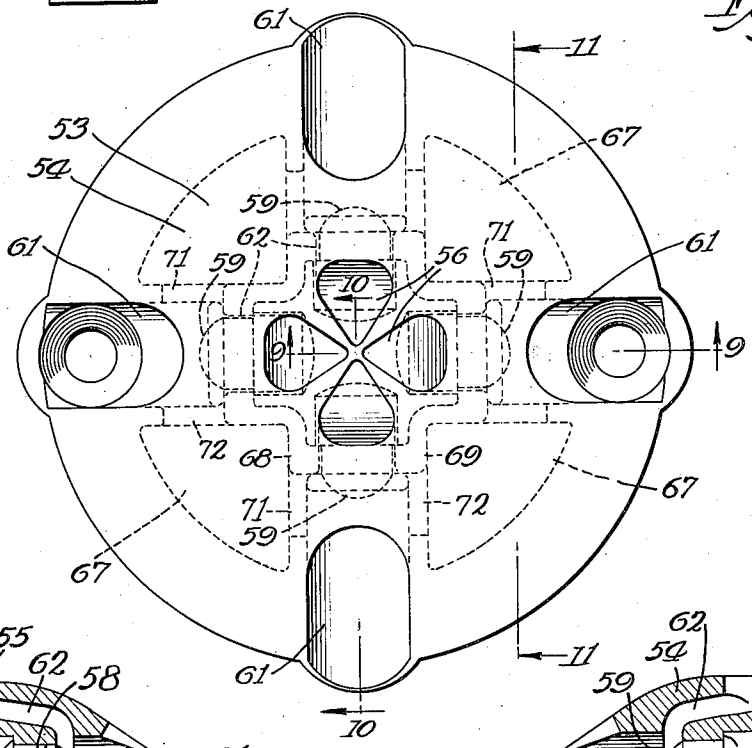


Fig. 8

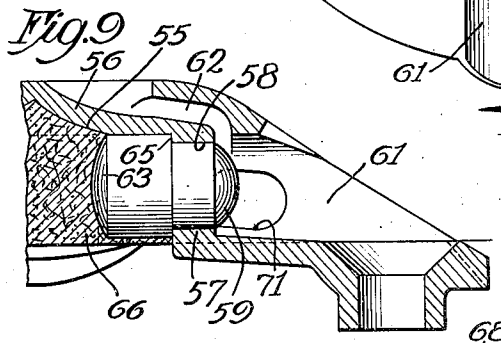


Fig. 9

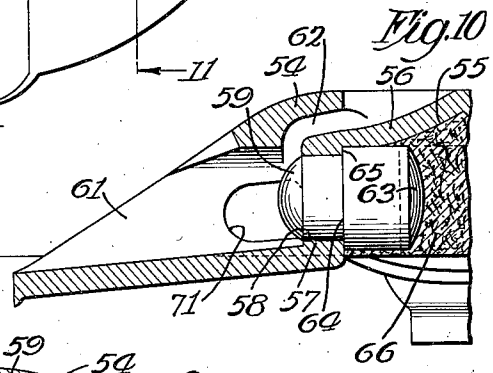


Fig. 10

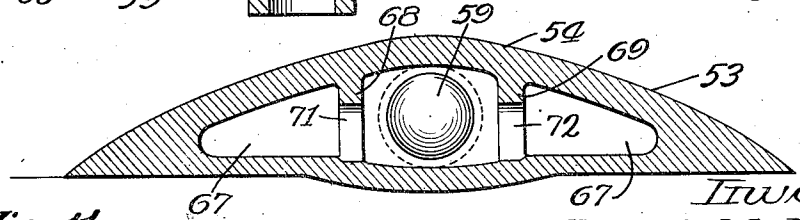


Fig. 11

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UNITED STATES PATENT OFFICE

2,034,391

STREET OR ROAD MARKER

Joseph M. Hall, Chicago, Ill.

Application March 17, 1933, Serial No. 661,280

9 Claims. (Cl. 88—79)

This invention relates to street or road markers, and, more particularly, to markers provided with light reflecting devices.

The principal object of the invention is the provision of a new and improved road marker provided with a light reflecting lens and having novel means for automatically maintaining the face of the lens clean and unobstructed.

Another object of the invention is the provision of a road marker having a reflecting lens therein that is so constructed that when in position in the road or highway, the same will not be injured or displaced by snow plows while removing snow from the highway.

A further object of the invention is the provision of a new and improved road marker having novel means whereby the rain and wind will be utilized for cleaning the face of the lens, and for preventing the accumulation of dust and dirt in front of the lens.

A further object of the invention is the provision of a new and improved road marker having the recess in front of the reflecting lens provided with downwardly inclined bottom walls whereby dirt and water will tend to flow or slide off the floor of the recess.

A further object of the invention is the provision of a new and improved road marker having a novel arrangement of the lenses whereby rain will fall in such a manner on the marker that the water will flow across the face of the lens for washing the same.

Other and further objects and advantages of the invention will appear from the following description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of the device in position on a road or street;

Fig. 2 is a vertical section on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section on the line 3—3 of Fig. 2;

Fig. 4 is a vertical section of a modified form of construction, taken on the line 4—4 of Fig. 5;

Fig. 5 is a plan view thereof;

Fig. 6 is a section on the line 6—6 of Fig. 5;

Fig. 7 is a section on the line 7—7 of Fig. 5;

Fig. 8 is a plan view of a further modified form of construction;

Fig. 9 is a section on the line 9—9 of Fig. 8;

Fig. 10 is a section on the line 10—10 of Fig. 8; and

Fig. 11 is a section on the line 11—11 of Fig. 8.

It is common practice to employ street or road markers on streets and highways to indicate curves, parking spaces, traffic lanes and the like. It has also been proposed to employ on road markers lenses having reflectors thereon which will reflect the rays from automobile head lights for indicating these traffic lines at night. As heretofore constructed, these devices have not been satisfactory for the reason that they have been so constructed that the wind will cause dirt and dust to collect on the device in front of the lens and obscure the lens, or mud thrown upon the lens will remain thereon indefinitely, thereby greatly impairing the usefulness of the lens. Furthermore, these lens markers have been so constructed that they are likely to be disengaged by snow plows in cleaning snow from the street or highway on which they are used.

The present invention seeks to remedy these difficulties by the provision of a marker provided with a lens having means whereby rain falling on the device will be directed across the face of the lens for washing and cleaning the same and air blowing across the device will be directed in such a manner as to assist in removing dirt or other foreign matter that would otherwise be deposited by eddy currents in the channels in front of the lenses.

Referring now to the drawings, the reference character 10 designates the street marker which comprises the body portion 11, and the attaching portions 12 and 13. The body portion 11 may be of any suitable form. Preferably, its side and end walls are inclined inwardly and upwardly. In the construction shown, it is oblong and slopes upwardly and inwardly from each end thereof to form the cap portion 14, the upper surface of which is preferably, though not necessarily, curved transversely of the axis of the marker, as clearly shown in Fig. 3 of the drawings. The cap portion 14 is provided with comparatively shallow channels 15 and 16 at the ends thereof which extend upwardly and inwardly and terminate at their upper ends in inwardly and downwardly extending pockets, or openings 17 and 18 (see Fig. 2 of drawings). The interior of the cap 14 is hollow and the openings 17, 18 are in communication with this hollow portion. These openings extend upwardly and outwardly from the interior of the body portion. Suitable lenses 19 and 21 are secured in the openings 17 and 18 in any suitable manner as by the use of litharge, as shown at 22. These members are provided with reflecting surfaces 23 and 24 on their inner ends, as is usual in such constructions. The lenses are so constructed that when they are in position in a roadbed, light falling on the same from an ap-

proaching automobile will be reflected to the eyes of the driver to indicate the presence of the marker. Since the axes of these lenses are arranged at an angle to the surface of the street or highway, they are specially constructed for properly reflecting the light, as shown in Fig. 2. They are so constructed that their outer faces 20 have their curved portions only extending into the channels 15 and 16. Their width is substantially the same as the width of said channels and material falling on the faces of the lenses will be caused by gravity to move downwardly into the channels. The rain falling on the faces of the lenses will tend to clean the same, and the inclined arrangement of the faces and channels 15 and 16 will, due to the action of gravity, tend to prevent accumulation of foreign matter on the lens or within the channels.

By employing this type of lens, the channels 15 and 16 are made comparatively shallow and since they incline downwardly and outwardly and only the curved portions of the inclined lenses extend into the channels, the wind blowing across the device will not only produce eddies, but will, by mechanical action, assist in preventing the accumulation of dust on or in front of the lenses. In other words, the action of the rain, wind and gravity all cooperate to prevent accumulation of dirt or other foreign matter on the device in such a manner as to obscure the lenses. This is considered an important feature of the invention. The attaching portions 12 and 13 are adapted to be embedded in the roadway and are provided with laterally extending projections 25 which are adapted to extend laterally beneath the surface of the road for assisting in anchoring the marker in position. The attaching portions 12 and 13 are provided with axial openings through which the attaching screws 26 are adapted to extend. Preferably, though not necessarily, these screws are located in the channels 15 and 16 whereby the heads will be protected from snow plows and the like. If desired, sleeves 27 may be embedded in the roadbed 30 for constituting an anchor for the attaching screws or bolts. The side walls 28 and 29 of the channels 15 and 16 extend slightly above and protect the lenses 19 and 21. Since the outer ends of the lenses 19 and 21 are supported above the level of the roadbed 30, foreign matter, such as dust and dirt carried by the wind, falling on the outer end of the lenses will tend to slide by gravity downward along the inclined passages, and rain or moisture falling on the lenses will tend to keep the same clean.

The inclined surfaces of the cap member 14 will deflect a snow plow or the like over the marker without injuring or loosening the same.

In Fig. 4 is shown a modified form of construction. In this form of device, the marker is provided with attaching portions 31 and 32 similar to the attaching portions 12 and 13 of the device described above, and a cap portion 33 also somewhat similar to the cap portion 14 described above. The cap portion 33 is provided with channels 34 and 35 at the ends of the marker. The rear marginal walls 36 and 37 of the channels are provided with openings in which are mounted lenses 38 and 39 having reflecting surfaces on their inner ends. These lenses are held in position by any suitable means, such as litharge 40 which extends about the lenses and between the same. The upper portion of the cap 33 is provided with an opening 41 and with a wall or partition 42 that slopes downwardly from the center toward, and merges with, the lens supporting walls 36 and 37 whereby rain falling through the opening 41 will flow down the inclined portions of the wall 42 across the faces of the lenses 38 and 39 for cleaning the same.

Suitable means are provided for preventing the accumulation of dust and dirt that would otherwise collect in the passages 34 and 35 due to eddies in the air currents and the like.

In the form of construction shown, means are provided whereby the air is caused to blow across the face of the lens. As shown in Figs. 4, 5, 6, and 7 the cap portion 33 is provided with recesses or chambers 44 and 45 at each side of the lenses 38 and 39. The chambers 44 and 45 are separated from the channels 34 and 35 by the walls 46 and 47 (see Fig. 6) each of which has openings 48 and 49 opposite the outer ends of the lenses 38 and 39, as shown in Fig. 7. Suitable passages 51 and 52 (see Fig. 6) are provided through the outer walls of the cap portion 33 for permitting the entrance of air into the chambers 44 and 45.

It will thus be seen that from whatever direction the wind is blowing, the same will tend to blow across the outer faces of the lenses 38 and 39. If the wind is blowing along the longitudinal axis of the device, toward the lens 38, for example, the air will enter one of the channels, say 34, blow across the face of the lens 38 and escape through the opening 48 or 49 into the chamber 44 or 45 and be discharged into the atmosphere through the opening 51 or 52, or it may continue through the other opening 48 or 49 and escape through the channel 35 at the opposite end of the device, thereby cleaning said channel.

If the air blows in such a direction as to enter either the opening 51 or 52, it will flow through the openings 48 or 49 and escape through one or both of the channels 34 and 35 into the atmosphere. In either event, the movement of the air will not only prevent eddy currents with the consequent accumulation of dust in either channel in front of the lens, but the air will also mechanically remove any dust or dirt that may fall in these channels.

The form of construction disclosed in Figs. 8 to 11 differs from that described in that the marker is provided with lenses arranged ninety degrees apart. In this form of construction, the interior of the cap portion 54 is provided with four recesses, or chambers 67, instead of two, as in the previous construction. In this form of construction, the marker is preferably though not necessarily circular and is provided with four depressions.

In use on highways to indicate the intersection of the roads, it is desirable that a device be employed that is provided with lenses facing the driver as he approaches from either direction. Where the roads intersect at right angles, there, of course, will be four lenses—one for each portion of the road.

One form of construction for use at cross roads and the like is shown in Figs. 8, 9, 10, and 11. In the form of construction shown, which is by way of example only, the device is circular and is provided with a portion which is inclined inwardly and upwardly in all directions as at 53 to form the cap portion 54 (see Figs. 8 and 11). The cap portion may, if desired, be curved in cross section, as shown in Fig. 11. The cap portion is hollow at its center to form the central chamber 55, (see Figs. 9, 10, and 11), and the top portion is provided with a depressed wall 56 for each lens. The depressed portions 56 are inclined downwardly and outwardly from the center of the device toward each lens. Each depressed portion 56 is provided at its outer end with a vertical wall 57 having an

opening 58 in which is mounted a lens 59 (see Figs. 9 and 10). A channel 61 extends outwardly from each lens and is adapted to extend above the lens at each side thereof for protecting the same. The vertical walls 57 extend across the channels 61 at their inner ends. These walls 57 are connected together to define the central cavity or chamber 55. The depressed top portion 56 forms with the cap portion 54 channels 62 through which rain falling on the depressed portion 56 may flow downwardly and outwardly and then downwardly across the faces of the lenses 59 for washing the same (see Fig. 10). The lens 59 is substantially the same shape and form as the lenses 38 and 39 in Fig. 4 and has its rear end treated to form a mirror or reflecting surface 63, the same as in the previous construction.

In order to give considerable range to the reflection of the light, the inner end of the lens 59 is enlarged, the same as in the previous construction. This enlargement may be utilized to form a shoulder 64 for engaging the corresponding ledge 65 in the vertical wall 57 for limiting the outward movement of the lens. The central cavity 55 of the cap portion may be filled with suitable material 66, such as litharge, for holding the lens in position and limiting its inward movement. The device is provided with a chamber 67 between each pair of lenses, as shown in Figs. 8 and 11 of the drawings, there being the same number of chambers as there are lenses in each device.

The walls 68 and 69 of each channel 61 are provided with openings 71 and 72 adjacent to the outer ends of the lenses 59 for placing the channels 61 in communication with the chambers 67 whereby air entering a channel 61 may pass outwardly through the opening 71 or 72 into the chamber 67 and from thence into the next adjacent channel and escape or may pass into the next adjacent chamber and from thence into the next channel and escape from the device through the latter channel. In any event, the air will be caused to pass across the face of one or more of the lenses depending on its force and direction and will tend to keep the same clean by its mechanical action. Furthermore, such movement of the air will prevent eddies with the consequent deposit of dirt and other foreign matter in the channels in front of the face of the lens. If the roads intersect at right angles, the device shown on the drawing may be employed, but if the intersection is at an acute angle, the arrangement of the channels will be made to correspond to this angle. In this form of construction as well as those previously described, the holding members may be arranged below the channels whereby the heads of the screws or other holding device will be seated in the channels and protected by the walls thereof. The cap portion being inclined from all directions and the lenses being located beneath the surface of the cap portion within the channels, the device is not likely to be displaced or broken by snow plows in clearing the highway of snow and the like.

I claim as my invention:

1. A road marker comprising a body portion and an attaching portion, said body portion extending upwardly and inwardly from all sides from the lowermost portion of its marginal edges and being provided with a plurality of channels, a lens for each channel secured in said body portion and having its face within the inner portion of the channel below the upper edges of the walls thereof, said body portion being provided with channels vertically above said lenses for conducting water falling on the upper portion of said marker downwardly across the faces of said lenses, thereby cleaning the same, and means for securing said device in position on the surface of a highway.

2. A road marker comprising a body portion having an upper curved surface, a plurality of reflecting lenses secured in said body portion beneath said curved surface, said body portion being provided with channels extending downwardly and outwardly from the faces of said lenses to the edge of said marker, said marker being provided with conduits at opposite sides of said lenses for placing said channels in intercommunication and means for anchoring said marker in position for use.

3. A road marker comprising a body portion having its upper surface inclined upwardly and inwardly from the lowermost portion of its marginal edges and having a channel extending inwardly from one edge thereof, a lens, means for securing said lens in said body portion with its outer face within said channel and below the upper edges of the channel walls, said body portions being provided with a chamber within its interior laterally of said lens, an air passage for conducting air across the face of said lens and into said chamber, and a passage for conducting said air from said chamber.

4. A street marker comprising a hollow body portion sloping upwardly and inwardly from each side thereof, a plurality of pairs of lenses in said body portion, the members of each pair facing in opposite directions, a channel in front of each lens through which light is reflected therefrom and means for conducting air into said body portion and discharging the same therefrom across the faces of said lenses.

5. A street marker comprising a body portion having inclined walls, said body portion being provided with a central cavity, a vertical wall surrounding said cavity, a plurality of channels extending outwardly from said vertical wall, a lens for each channel secured in said cavity and extending through said vertical wall into said channel, a chamber in said body portion laterally of each channel and in communication with adjacent channels, and passages for conducting air and rain across the faces of said lenses.

6. A street marker comprising a body portion curved upwardly and inwardly from its base, said body portion having channels in its upper surface extending downwardly and outwardly in opposite directions from the central portion of said marker, said marker having a cavity in said central portion on its under side opening downwardly, said body portion having openings leading from said cavity into the upper portions of said channels, lenses having portions reduced in cross section extending through said openings into said channels and facing outwardly within said channels, the bottom walls of said channels being provided with countersunk openings for receiving attaching means, a unitary mass of composition material in said cavity engaging the inner ends of said lenses for holding them in operative position and preventing their withdrawal into said cavity, the outer curved portions of said lenses extending outwardly into said channels beyond the vertical planes of the margins of said openings for exposing the outer surfaces of said lenses to falling rain for cleansing said surfaces, the outer ends of said body portion containing said channels terminating beneath the plane of the lower portion of said

central portion whereby when said marker is secured in position on a pavement said ends will be below the surface of said pavement with said composition material resting on the pavement.

7. In combination with a pavement, a traffic marker comprising an oblong body portion having an upper surface curved both longitudinally and transversely, said body portion having its under surface seated on said pavement and the ends of said oblong body portion terminating beneath the surface of said pavement, said body portion having channels extending downwardly and outwardly from its central portion longitudinally of said body portion and terminating approximately at the surface of said pavement, said central portion having a cavity and having openings between said cavity and said channels, lenses in said cavity and having reduced portions extending through said openings into said channels beyond the vertical plane of the marginal edges of said openings whereby rain may fall on said lenses and flow across the faces thereof and into said channels for cleaning said lenses, composition material within said cavity seated on said pavement for holding said lenses in position, and attaching members extending through openings in the bottom walls of said channels into said pavement for securing said marker in position on said pavement.

8. A road marker comprising a body member having its upper surface curved in transverse cross section and having tapered end portions terminating at their outer ends below the plane of the lower surface of the central portion of the body member, each end portion being provided with a channel extending downwardly and outwardly from the central portion toward the end of the corresponding end portion, a pair of lenses facing in opposite directions secured in said central portion and extending into said channels between the ends thereof below the upper marginal edges of said channels, said lenses having their exposed faces inclined downwardly and outwardly, and attaching portions depending downwardly from the ends of said end portions.

9. A street marker adapted to be attached to a highway surface, comprising a body member oval in plan view, the central portion thereof having a downwardly opening cavity, said body member having its upper surface curved in transverse cross-section whereby when said marker is in operative position on the highway snow plows and the like engaging said marker will be deflected over the same, the end portions of said body member extending below the plane of the central portion of said body member, said end portions having their upper surfaces tapering from the ends of said marker upwardly to said central portion and each provided with a water conducting passage extending downwardly and outwardly from said central portion, a lens for each passage mounted within said central portion and extending therefrom into the corresponding passage between the ends thereof, the faces of said lenses being spaced below the upper edges of said passages, and filling material in said cavity engaging the inner ends of said lenses, the plane of the lower surface of said filling material being above the outer extremities of said end portions, whereby said marker may be positioned with said filling material resting on the surface of said highway with the outer ends of said end portions entirely below said surface.

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