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 Continuation-in-part of application Ser. No. **655,166**, July 21, 1967, now abandoned, and a continuation-in-part of **734,609**, June 25, 1968, now abandoned.

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**ABSTRACT:** In a pavement marker capable of service in snow areas and having a reflector for establishing a marking visible from an oncoming vehicle on a roadway surface, a base member constructed for securing the pavement marker to the roadway surface and for protecting the reflector against damage from an oncoming snowplow blade during snow plowing operations, the base member having a body of high strength material, preferably a metal, and including sidewalls with inclined ramps at either side of the reflector for guiding an oncoming snowplow blade over the reflector without damaging contact, and securing surfaces extending longitudinally along the body parallel to one another and projecting downwardly into complementary grooves in the pavement, the securing surfaces preferably lying on downward extensions of the sidewalls and perpendicular to the roadway surface. Auxiliary surfaces may be provided adjacent the inclined ramps and parallel to the roadway surface for resting upon the roadway surface and providing increased resistance to downward movement of the body when the inclined ramps are contacted by a snowplow blade. In addition, the downward extensions may terminate in a series of steps which follow a generally arcuate path so that the grooves in the pavement may be arcuate, but the steps will resist rocking movement of the extensions in the grooves.

[54] **PAVEMENT MARKER AND MOUNTING BASE MEMBER**

17 Claims, 12 Drawing Figs.

[52] U.S. Cl. .... 94/1.5,  
 350/67  
 [51] Int. Cl. .... E01c 23/16  
 [50] Field of Search ..... 94/1.5;  
 350/67

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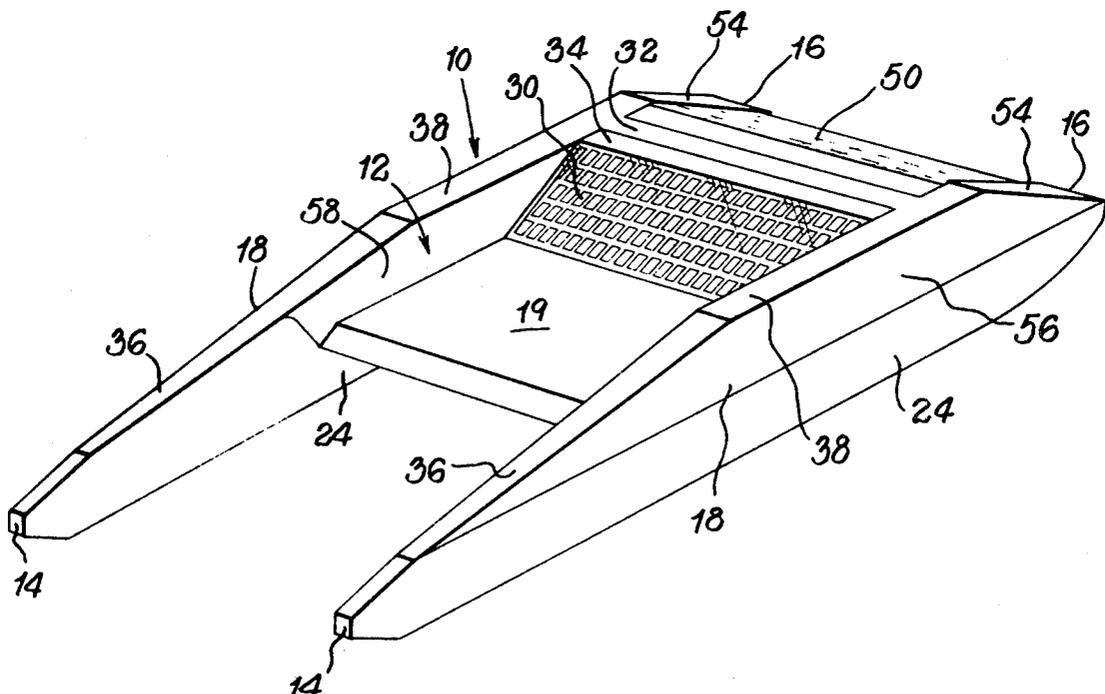


Fig. 1.

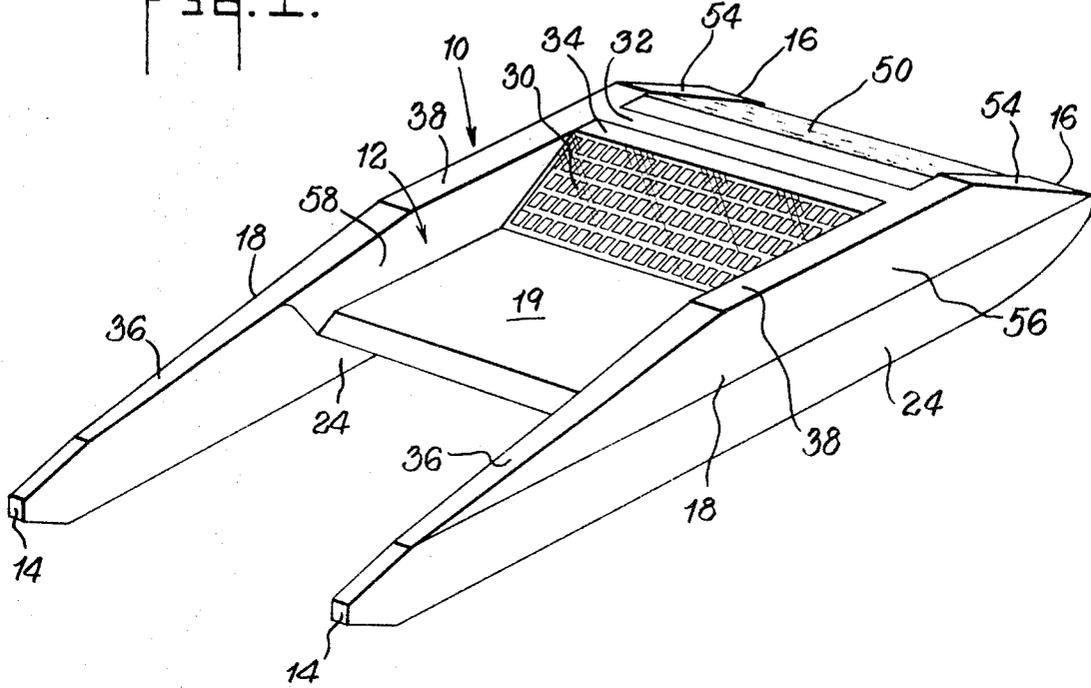
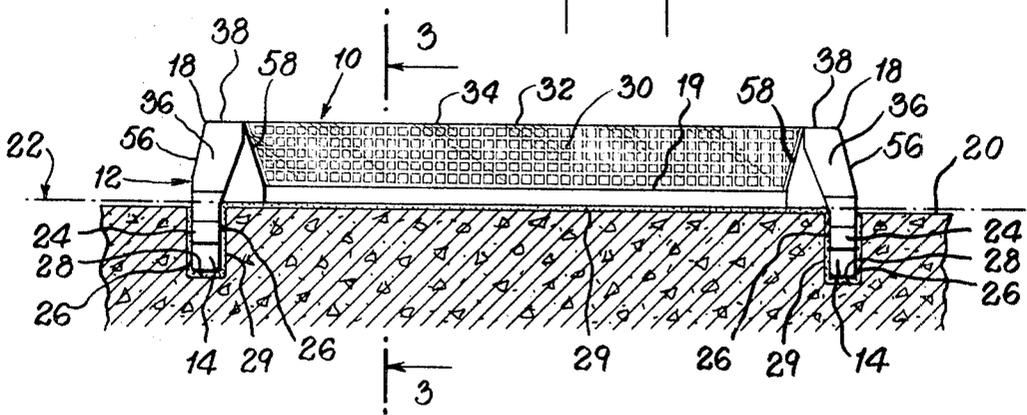


Fig. 2.



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Fig. 3.

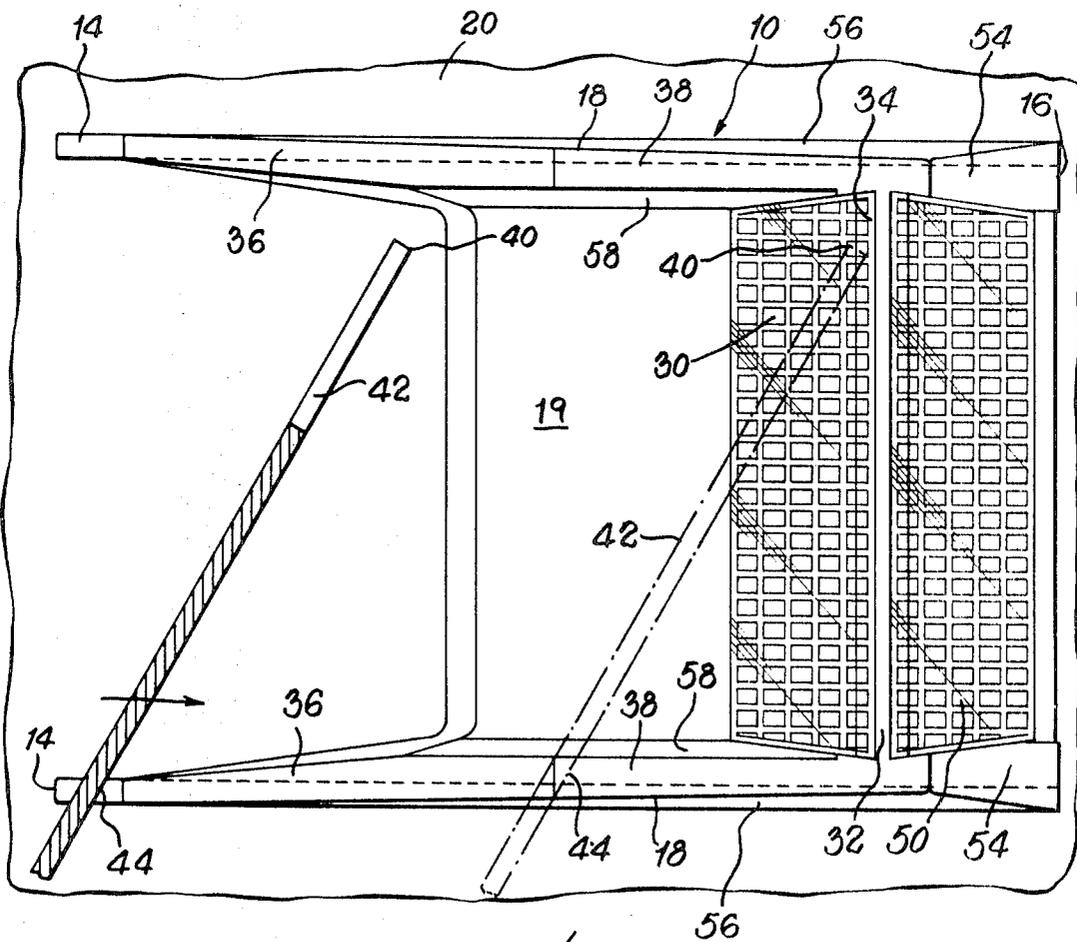
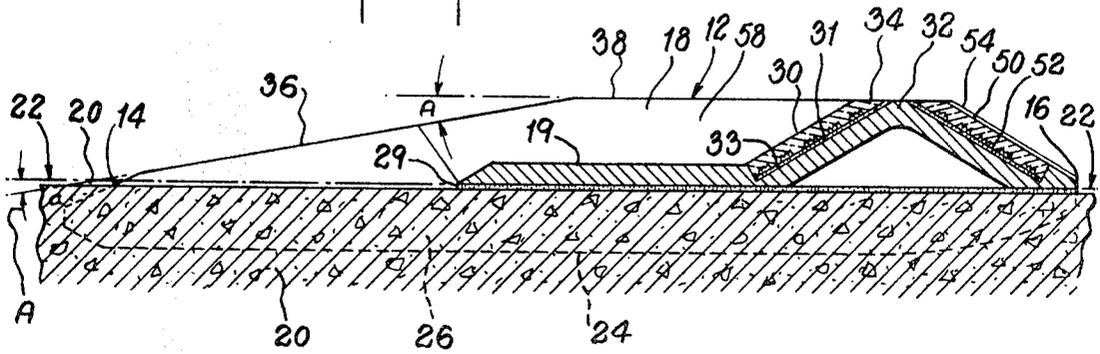


Fig. 4.

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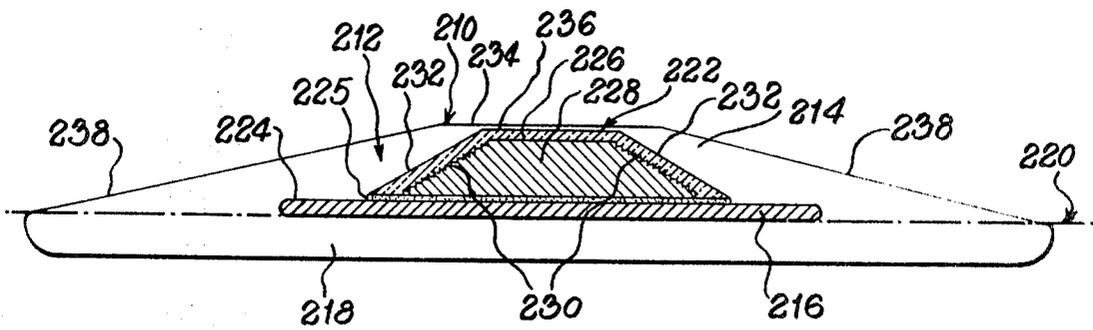
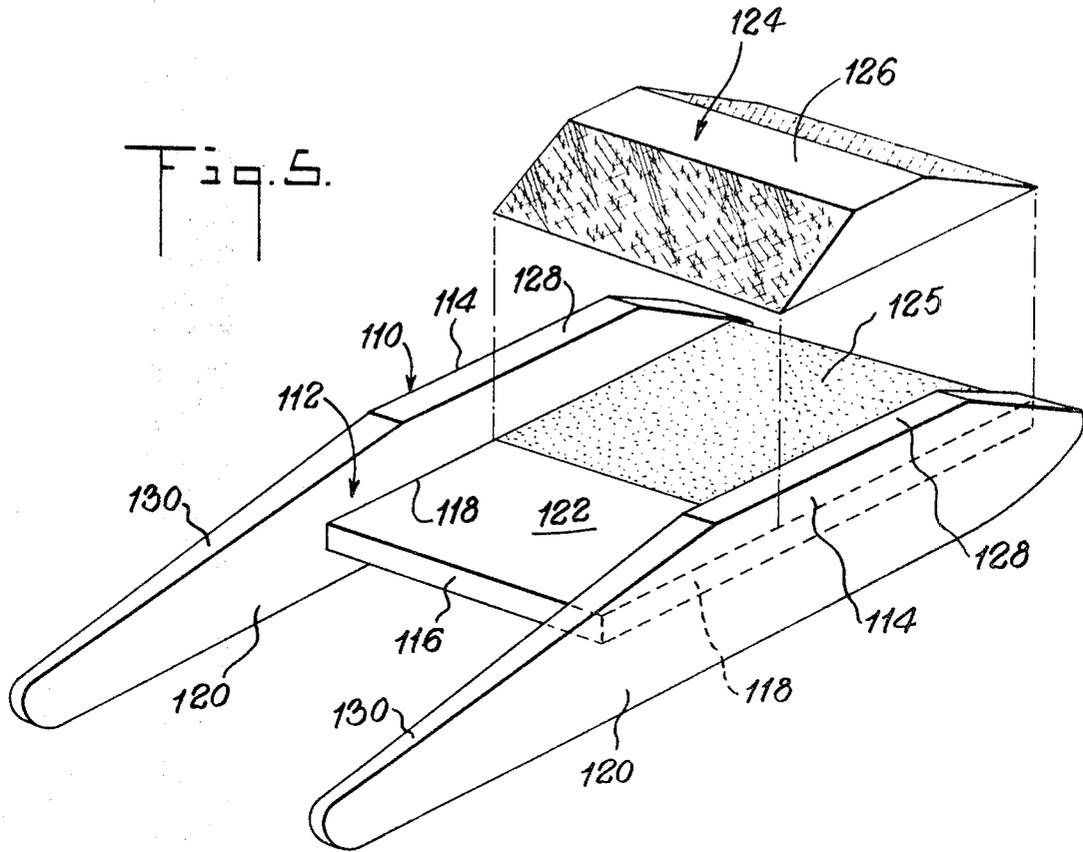


Fig. 6.

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Fig. 7.

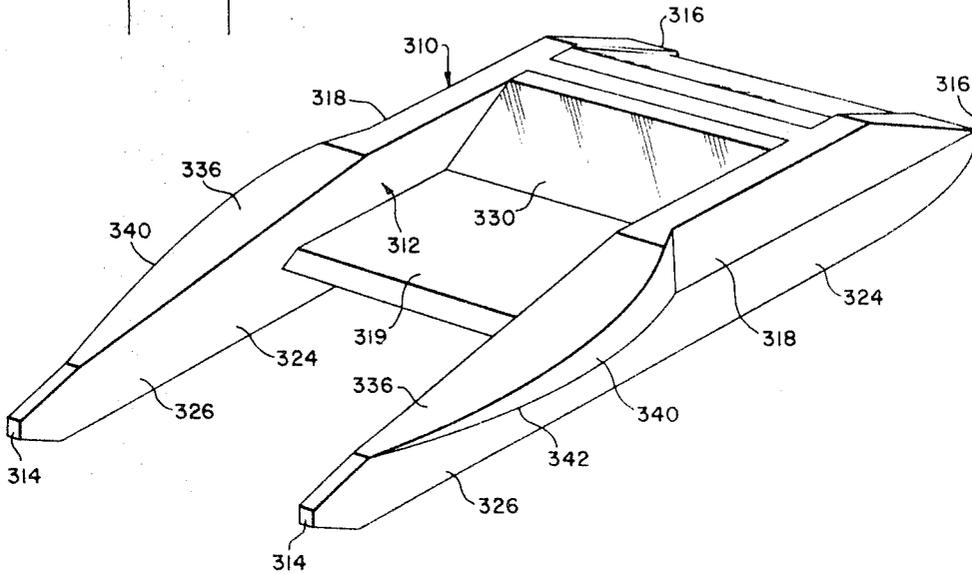
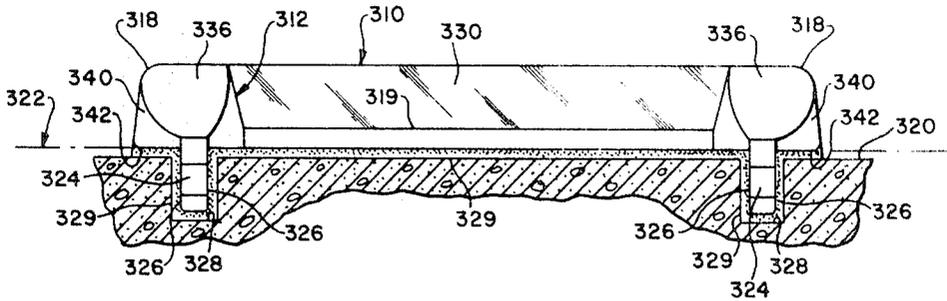


Fig. 8.



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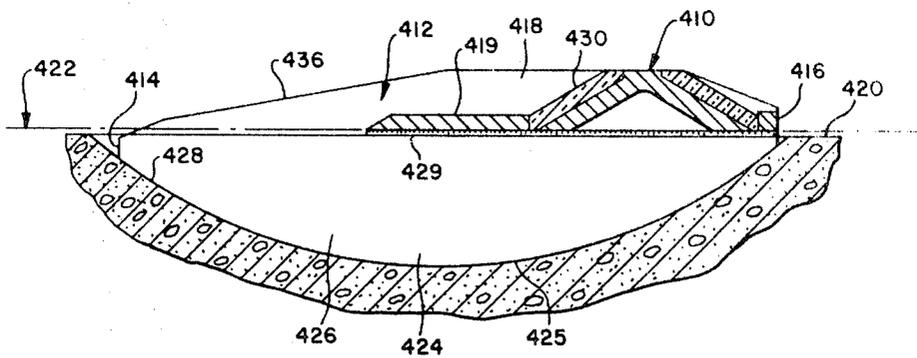
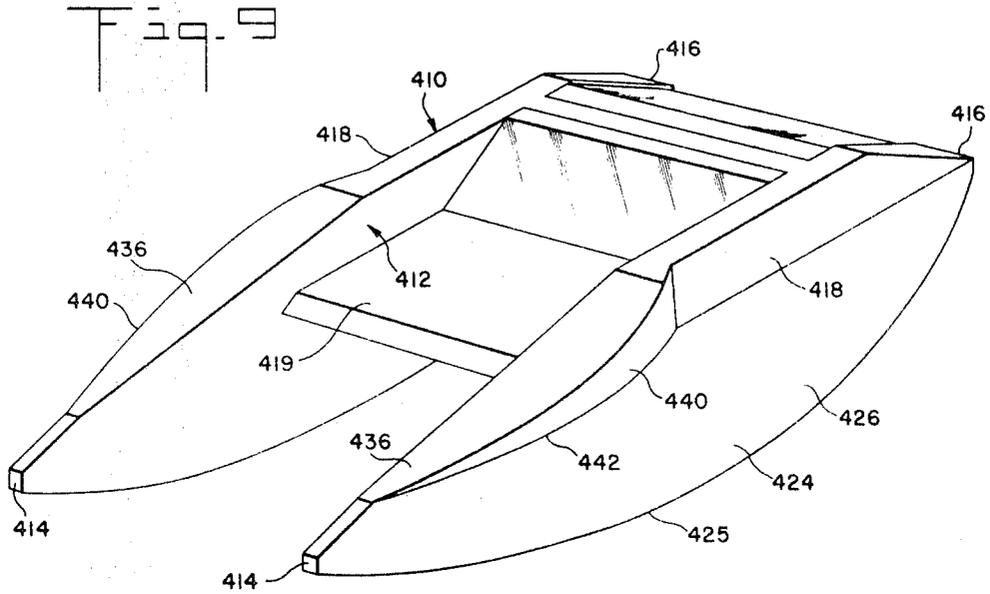


Fig. 10.

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Fig. 11

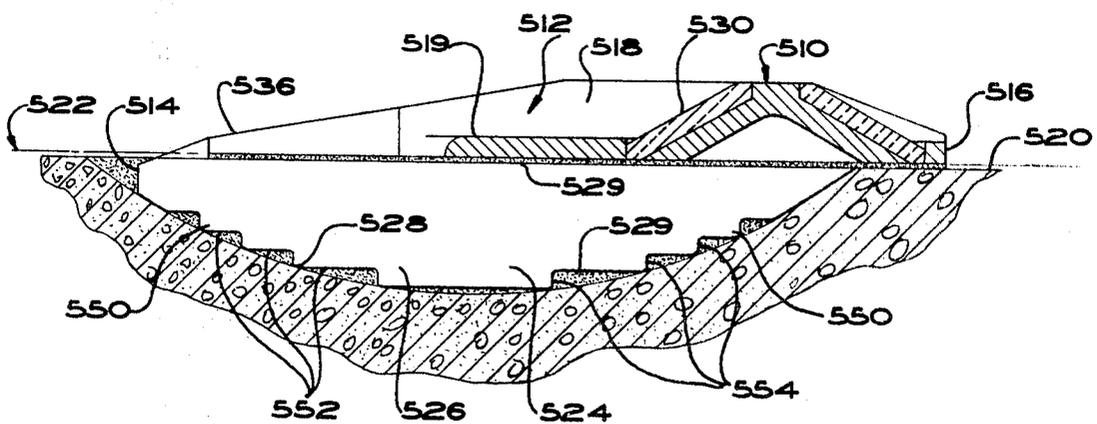
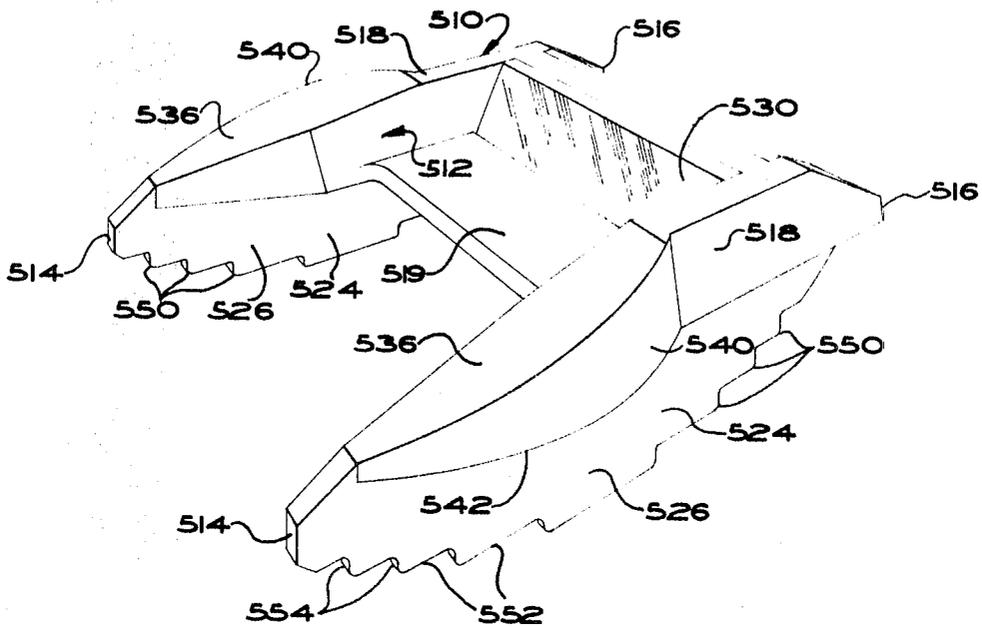


Fig. 12

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**PAVEMENT MARKER AND MOUNTING BASE MEMBER**

This is a continuation-in-part of applications Ser. No. 655,166, filed July 21, 1967, and Ser. No. 734,609, filed June 25, 1968, both now abandoned.

The present invention relates generally to pavement markers and pertains, more specifically, to pavement markers constructed for service in geographical locations where weather conditions include snow and to base members for use in such pavement markers.

Pavement markers have become more widely accepted as permanent installations for marking traffic lanes and controlling the flow of traffic on roadways in connection with or in place of conventional painted traffic lines. Because of their greater optical effectiveness and longer life, such markers have found wide use despite the fact that their initial cost has often been greater than the initial cost of conventional painted lines.

One factor which has limited the use of earlier pavement markers is their inability to withstand brutal encounters with snowplow blades in areas where a significant amount of snow is likely to fall upon roadways. It would be advantageous, then, to have available a pavement marker which could be employed successfully and economically in such geographical locations.

It is therefore an important object of the invention to provide a pavement marker construction which can withstand the rigors of weather and snow plowing operations in geographical areas of use where weather conditions are a significant factor in the feasibility of pavement markers.

Another object of the invention is to provide a high strength pavement marker which is relatively easy to install and will remain in place despite brutal encounters with snowplow blades during snow plowing operations.

A further object of the invention is to provide a pavement marker of the type outlined above which is self-cleaning in that the reflector is cleaned by contact with the tires of oncoming vehicles.

A still further object of the invention is to provide a pavement marker of the type outlined above which includes a construction that may be installed in the roadway surface with a minimal excavation of the pavement.

The above objects, as well as further objects and advantages of the invention, are attained in the invention which may be described briefly as a mounting base member of relatively high strength material for use in a pavement marker capable of service in snow areas, the pavement marker including a reflector for establishing a marking visible from an oncoming vehicle on the surface of the roadway, the base member being constructed for securing the pavement marker to the roadway and for protecting the reflector against damage from an oncoming snowplow blade during snow plowing operations, the base member extending longitudinally between a forward portion and an opposite rearward portion and extending laterally between opposite side portions, the base member including means forming a lower surface for fixing the base member to the roadway, a portion of the lower surface lying in a basal plane adapted to extend parallel with the roadway surface when the base member is secured to the roadway, means forming a side wall integral with the base member adjacent to each of the side portions, the sidewalls extending longitudinally and upwardly with respect to the basal plane, means forming a reflector-receiving surface integral with the lower surface forming means and extending laterally between the sidewalls and raised above the basal plane for receiving the reflector of the pavement marker when the reflector is secured to the mounting base member and holding the reflector in position above the roadway surface when the mounting base member is secured to the roadway, each sidewall including an inclined upper surface forming an inclined ramp extending from the forward portion located at an elevation corresponding approximately to the basal plane to an uppermost portion located at an elevation corresponding at least to the elevation of the uppermost extent of the reflector-receiving surface, the inclined ramp being located longitudinally for-

ward of the reflector-receiving surface and making an acute angle with the basal plane such that the oncoming snowplow blade will ride up the ramp and will be deflected from contact with the reflector on the reflector-receiving surface as the snowplow blade passes over the pavement marker, and securing means projecting downwardly with respect to the basal plane and forming a plurality of lower surface portions extending generally perpendicular to the lateral extent of the base member and parallel to the longitudinal extent of the base member for adhesively securing the base member within complementary longitudinal grooves in the roadway against shear forces along the lower surface portions arising out of contact between the oncoming snowplow blade and the pavement marker. The side members may include laterally opposite side portions extending laterally away from one another adjacent each inclined ramp for establishing auxiliary surfaces lying within the basal plane below at least a portion of each inclined ramp for resting upon the pavement. In addition, the securing means may project downwardly in a plurality of steps, each step having a pair of surfaces generally perpendicular to the lower surface portions with one of the pair of surfaces being parallel to the basal plane while the other of the pair of surfaces is perpendicular to the basal plane, the steps generally following an arcuate path extending downwardly from adjacent the forward portion to adjacent the opposite rearward portion of the base member.

The invention will be more fully understood and further objects and advantages thereof will become apparent in the following detailed description of embodiments of the invention illustrated in the accompanying drawing, in which:

FIG. 1 is a perspective view of a pavement marker employing the invention;

FIG. 2 is a front elevational view of the pavement marker of FIG. 1 installed upon a roadway;

FIG. 3 is a longitudinal cross-sectional view taken along line 3-3 of FIG. 2;

FIG. 4 is a diagrammatic plan view of the installed pavement marker illustrating a snowplow blade during snow plowing operations;

FIG. 5 is a perspective view of a base member and separate reflector before assembly into another pavement marker;

FIG. 6 is a longitudinal cross-sectional view of still another pavement marker illustrating another embodiment of the invention;

FIG. 7 is a perspective view of another pavement marker illustrating still another embodiment of the invention;

FIG. 8 is a front elevational view of the pavement marker of FIG. 7 installed upon a roadway;

FIG. 9 is a perspective view of another pavement marker illustrating a further embodiment of the invention;

FIG. 10 is a longitudinal cross-sectional view of the pavement marker of FIG. 9 installed upon a roadway;

FIG. 11 is a perspective view of still another pavement marker illustrating a still further embodiment of the invention; and

FIG. 12 is a longitudinal cross-sectional view of the pavement marker of FIG. 11 installed upon a roadway.

Referring now to the drawing, and especially to FIGS. 1, 2 and 3, a pavement marker employing the invention is illustrated at 10 and is seen to have a mounting base member 12 made of metal or some other suitable relatively high strength material. The body of the base member 12 extends longitudinally from a forward portion 14 to an opposite rearward portion 16 and laterally between opposite sidewalls 18 spaced apart by an interconnecting web 19.

As best seen in FIGS. 2 and 3, pavement marker 10 is adapted to be installed upon a roadway 20 and base member 12 has a basal plane 22 which extends parallel with the surface of roadway 20 when the lower surface of the base member is affixed to the roadway surface.

The sidewalls 18 of the base member are provided with securing means in the form of depending ribs 24 which project downwardly below the basal plane 22 and extend longitu-

inally to establish lower surface portions in the form of vertical surfaces 26 extending in planes generally perpendicular to the basal plane 22 and parallel to one another longitudinally along the body of the base member 12. Ribs 24 are engaged with complementary grooves 28 in the roadway 20 to affix the pavement marker to the roadway surface, preferably through the use of an adhesive 29. The additional area gained by the vertical surfaces 26 of the longitudinal ribs 24 provides the additional resistance to shear forces placed upon the pavement marker 10 when the marker is contacted by a snowplow blade to prevent the marker from being torn from the roadway surface. It has been found that the holding power of an adhesive placed along the vertical surfaces is much greater than the holding power of the same adhesive placed on horizontal surfaces since the adhesive can apparently withstand greater forces in shear than in tension. Hence, the parallel longitudinal ribs 24 provide easily fabricated means for securing the pavement marker to a roadway surface.

In addition, the parallel ribs 24 make available a simplified method and procedure for installing a well-secured pavement marker upon a roadway surface by requiring only the provision of parallel grooves 28 in the pavement. Such parallel grooves may be cut in the pavement simultaneously and effectively with standard circular saws mounted on a common arbor which would extend transverse to the roadway and travel along the roadway to be run into the pavement periodically, corresponding with the spacing between adjacent pavement markers installed in a line. Once the grooves 28 are cut, it is a relatively simple matter to place the pavement marker on the roadway surface with the ribs 24 inserted within the grooves 28. Thus, the pavement marker is installed without the necessity for excavating the roadway surface.

Pavement marker 10 includes a reflector 30 which is affixed to a reflector-receiving surface in the form of a front face 31 of an upstanding portion 32 of the body of the base member 12 by means of an adhesive 33 and faces forward in order to receive incident light from oncoming vehicles and reflect such light to establish a marking visible at night. The reflector 30 is constructed so as to also provide surfaces for specularly reflecting ambient daylight to establish a marking visible under daytime conditions as well as the marking visible only at night. The reflector 30 is raised above the surface of the roadway in order to provide a marking which may be effectively viewed at reasonable viewing distances. Additionally, the reflector 30 is advantageously placed at an acute angle to the roadway surface so that the face of the reflector will be cleaned by wiping contact with the tires of oncoming vehicles. Although a wide variety of reflectors may be employed in connection with base member 12, the illustrated reflector 30 is a retrodirective reflector of the cube-corner type which is constructed of a light-transmitting synthetic resin, such as methyl methacrylate, and which is affixed to the outer surface of upstanding portion 32 of the base member by an adhesive or like means. Such a reflector, as well as almost any other reflector, must be protected from contact with a snowplow blade during snow plowing operations since such contact could either mutilate the reflector or peel the reflector from the base member and thus render the pavement marker inoperable.

In order to protect the reflector 30 from being gouged or stripped from the base member 12 by an oncoming snowplow blade, the reflector is placed between the sidewalls 18 with the uppermost edge 34 of the reflector 30 no higher than the uppermost extent of the sidewalls. Each of the sidewalls 18 is provided with an inclined ramp 36 which extends from the roadway surface at the forward portion of the pavement marker to a vertically uppermost portion 38 toward the rear of the marker. The uppermost portions 38 of the sidewalls 18 are at least as high as the uppermost edge 34 of the reflector 30 so that as a snowplow blade approaches the reflector 30, the blade will ride up the inclined ramps 36 and thus be deflected away from the reflector.

It is noted that each sidewall 18 includes an uppermost portion 38 which is generally flat and parallel to the basal plane

22, the uppermost portions 38 establishing a path for a snowplow blade which will ensure that the snowplow blade will completely avoid contact with the reflector 30.

As best seen in FIG. 4, during snow plowing operations it is likely that only the corner 40 of a snowplow blade 42 will usually contact the pavement marker 10 since the pavement marker will delineate a traffic lane and ordinary snow plowing operations call for the plowing of one lane at a time. Additionally, although it is desirable to space the sidewalls 18 apart a distance great enough to admit the tires of oncoming vehicles between the sidewalls for the purpose of permitting contact between the tires and the reflector so that the tires will wipe the reflector clean, such a measure increases the chance that the corner 40 of the oncoming snowplow blade 42 will fall between the sidewalls 18 with the blade riding upon only one sidewall, as seen in FIG. 4. Because snowplow blades are generally set at an angle to the direction of travel of the blades and since the corner of a snowplow blade is very likely to fall between the sidewalls of the pavement marker, it will be seen that the point or corner 40 of the snowplow blade 42 will arrive at the reflector 30 ahead of the portion 44 of the blade which contacts and rides upon the inclined ramp 36. Thus, unless the elevation of the portion 44 of the blade which rides upon the sidewall 18 is great enough to raise the corner 40 of the blade above the uppermost edge 34 of the reflector 30, the reflector will be gouged or even destroyed by contact with the corner of the snowplow blade. However, by providing the flat uppermost portions 38 with a longitudinal length great enough to assure that portion 44 of the blade 42 is raised to an elevation sufficient to raise the corner 40 of the blade above the upper edge of the reflector prior to the arrival of the corner of the blade in the vicinity of the upstanding portion 32 of the base member 12, contact between the corner of the blade and the reflector is precluded.

The inclined ramps 36 make an acute angle A with the basal plane 22 (see FIG. 3). Angle A is best held to a minimum in order to reduce the forces generated by contact between the traveling snowplow blade 42 and the base member 12 of the pavement marker 10. Additionally, an angle A of large magnitude would cause the snowplow blade to hop with concomitant ill effects on the roadway surface as well as on the blade. On the other hand, an exceptionally small angle A would require an inordinately long base member 12 in order to attain the necessary elevation. It has been found that for most snow plowing operations at speeds well below 40 miles per hour angle A may be approximately 5° to 15°. For high-speed snow plowing operations, in the vicinity of 40 to 45 miles per hour, an angle A of about 8½° has been found preferable.

The base member must be fabricated of a material strong enough to withstand contact with the snowplow blade. It has been found that base members fabricated of pearlitic ductile iron are well suited to withstanding the shock of contact with a snowplow blade and are rugged enough to remain serviceable over a long period of time without being worn away by contact with oncoming traffic including snowplow blades. In the illustrated embodiments, the body of the base member has been successfully fabricated in the form of a unitary casting of ductile iron, such as pearlitic ductile iron (ASTM A536-65T) or ferritic nodular iron (ASTM A536-67), which was then heat treated to obtain a core hardness of about 26 to 34 Rockwell C and the sidewalls, especially in the vicinity of the inclined ramps, were hardened, either by induction or flaming hardening. To a surface hardness of about 50 to 55 Rockwell C for a depth of about 0.050 to 0.100 inch. The above core hardness provides the toughness necessary to withstand brutal encounters with snowplow blades while the surface hardness is great enough to withstand the abrasion of the snowplow blade as it passes over the sidewalls.

A second reflector 50 may be affixed to the rear face 52 of the upstanding portion 32 of the base member 12 to establish a bidirectional pavement marker. Since the second reflector 50 is bounded on both sides by extensions 54 of the sidewalls 18, a snowplow blade will not come into contact with the

second reflector body as the blade returns to the roadway surface 20 from the uppermost portion 38 of the sidewalls.

It is noted that the vertical surfaces of each sidewall 18 are inclined toward one another in the upward direction (see FIG. 2). The inclination of the exterior surfaces 56 of the sidewalls 18 reduces the shock upon the tires of oncoming vehicles should these tires strike the outer surfaces of the sidewalls. The inclination of the interior surfaces 58 of the sidewalls 18 facilitates the engagement and contact of the tires of the oncoming vehicles with the outer surface of the reflector 30 so that the reflector is wiped clean by contact with the tires.

Turning now to the embodiment illustrated in FIG. 5, a pavement marker 110 is shown assembled of various component parts. Thus, the base member 112 is fabricated from separate sidewalls 114 which are welded to a web 116 along weld lines 118 to establish an integral structure. As in the embodiment described above in connection with pavement marker 10, each sidewall 114 is provided with a depending longitudinally extending rib 120 for securing the base member 112 within complementary grooves in a roadway surface.

The web 116 provides a platform 122 between the sidewalls 114, upon which platform may be located a reflector unit 124, in this instance a molded plastic reflector unit which is to be secured to the platform with an adhesive 125. The height of the reflector unit 124 does not exceed the height of the sidewalls 114 so that the top 126 of the reflector unit will not project above the uppermost portion 128 of each sidewall. As in pavement marker 10, the sidewalls 114 are each provided with an inclined ramp 130 leading to the flat uppermost portion 128 and the flat uppermost portions 128 are of sufficient length to assure that the pointed corner of a snowplow blade will not contact the reflector unit 124.

The welded construction of base member 112 permits the use of different materials for the sidewalls and the web and allows a wider latitude in the choice of specific materials tailored for withstanding the particular conditions encountered by individual component parts. Additionally, a wider latitude in the construction of the reflector unit is permitted by merely providing a flat web 116 to which may be affixed any one of a number of possible reflector units.

Referring now to FIG. 6, still another embodiment of the invention is shown in the form of pavement marker 210 which is constructed in a manner similar to pavement marker 110 in that the base member 212 has similar sidewalls 214 (only one of which is illustrated) joined together by a connecting web 216. Each sidewall 214 has a longitudinal rib 218 projecting downwardly below the basal plane 220 for securing the pavement marker 210 upon the surface of a roadway.

A reflector unit 222 is secured to the platform 224 of the web 216 by an adhesive 225. In this instance, the reflector unit 222 is a shell 226 molded of light-transmitting synthetic resin and filled with a reinforcing material, such as an epoxy resin, which serves as a core 228 for reinforcing the shell 226. The reflector unit 222 is bidirectional in that a retrodirective reflector 230 is molded into each face 232 of the reflector unit 222.

Pavement marker 210 is particularly suited to locations where a snowplow may approach the marker from either direction, such as where a series of such markers define a centerline in a roadway having only one traffic lane in either direction. Thus, sidewalls 214 are each provided with an uppermost portion 234 which is not only above the top 236 of the reflector unit 222, but which extends beyond the reflector unit 222 in each direction for a sufficient length to assure that a snowplow blade which will ride up either inclined ramp 238 will avoid contact with the reflector unit 222. The inclined ramps 238 are located adjacent the forward portion and the rearward portion of each sidewall 214 and are inclined in opposite directions, but at similar acute angles with the basal plane 220 so that pavement marker 210 is rendered bidirectional not only from the standpoint of reflecting incident light from either direction, but from the standpoint of withstanding contact with snowplow blades traveling in either direction along the roadway.

It has been found that when a snowplow blade contacts the inclined ramps of the body of a pavement marker as described above, there is a tendency for the body of the marker to move downwardly into the pavement upon which the marker is installed as a result of the forces applied by the snowplow blade. The embodiment of FIGS. 7 and 8 incorporates means for precluding such movement and shows a pavement marker 310 having a base member 312 extending longitudinally from a forward portion 314 to a rearward portion 316 and including laterally spaced sidewalls 318 interconnected by a web 319.

Pavement marker 310 may be installed upon a roadway surface 320 and has a basal plane 322 which will extend parallel to the roadway surface when so installed. As in the earlier-described embodiments, pavement marker 310 includes downwardly depending parallel ribs 324 which provide vertical securing surfaces 326 which are adhered to the surfaces of grooves 328 in the pavement by means of an adhesive 329.

A reflector 330 is affixed to the base member between the sidewalls 318 and is protected from oncoming snowplow blades by inclined ramps 336 as described above.

In order to preclude downward movement of the base member 312 in the vicinity of inclined ramps 336 when a snowplow blade contacts and rides up the ramps, the sidewalls 318 are provided with laterally opposite sidewall portions 340 which extend laterally outwardly and away from one another adjacent the forward portion of the body of the pavement marker base and adjacent the inclined ramps. These sidewall portions 340 establish auxiliary lower surfaces 342 lying in the basal plane 322 so that an increased horizontal surface area is presented to the pavement adjacent the forward portion of the body thereby providing added resistance to downward movement. Thus, the laterally extending sidewall portions 340 serve as sponsonlike structures for maintaining the correct position of the pavement marker upon the roadway surface.

Turning now to FIGS. 9 and 10, there is illustrated a pavement marker 410 having a base member 412 very similar to that of earlier described embodiments in that the base member extends from a forward portion 414 to a rearward portion 416 and includes laterally spaced sidewalls 418 interconnected by a web 419.

The pavement marker 410 is shown, in FIG. 10, installed upon a roadway surface 420 and has a basal plane 422 which extends parallel to the roadway surface when so installed.

In pavement marker 410, the downwardly depending ribs 424 are provided with a radius of curvature 425 which increases the surface area of vertical securing surfaces 426 and which matches the radius of curvature of a circular saw blade (not shown) that is employed to cut the grooves 428 into which the ribs 424 are placed during installation of the pavement marker. Thus, the saw blade may be rotated and driven downwardly into the pavement to cut an arcuate slot and then raised again to leave behind the arcuate groove 428. No longitudinal translation of the saw blade is required and the grooves 428 are completely filled by the arcuate ribs 424. This installation procedure is much simplified and the increased area of vertical securing surfaces 426 provides even greater holding power for the adhesive 429.

As in the earlier-described embodiment of FIGS. 7 and 8, pavement marker 410 has a least a forward reflector 430 lying between the sidewalls 418 and is provided with inclined ramps 436 adjacent which are sponsonlike sidewall portions 440 providing auxiliary lower surfaces 442 of increased area lying in the basal plane 422 below at least a portion of each inclined ramp 436.

Referring now to FIGS. 11 and 12, a still further embodiment of the invention is shown in the form of pavement marker 510 having a base member 512 very similar to that of the earlier-described embodiments in that the base member extends from a forward portion 514 to a rearward portion 516 and includes laterally spaced sidewalls 518 interconnected by web 519.

The pavement marker 510 is shown, in FIG. 12, installed upon a roadway surface 520 and has a basal plane 522 which extends parallel to the roadway surface when so installed.

In pavement marker 510, downwardly depending ribs 524 are provided with vertical securing surfaces 526 which cooperate with grooves 528 into which the ribs 524 are placed during installation of the pavement marker as described in connection with the earlier embodiments. The grooves 528 each have a radius of curvature which matches the radius of curvature of a circular saw blade (not shown) that is employed to cut an arcuate slot and then raised again to leave behind the arcuate groove 528. No longitudinal translation of the saw blade is required. Hence, as in the embodiment of FIGS. 9 and 10, the installation procedure is much simplified and the increased area of vertical securing surfaces 526 provides an even greater holding power for the adhesive 529.

As in the earlier described embodiment of FIGS. 7 and 8, pavement marker 510 has at least a forward reflector 530 lying between the sidewalls 518 and is provided with inclined ramps 536 adjacent which are sponsonlike sidewall portions 540 providing auxiliary lower surfaces 542 of increased area lying in the basal plane 522 below at least a portion of each inclined ramp 536.

In view of the arcuate configuration of grooves 528 there may be a tendency for the base member 512 to rotate in a counterclockwise direction when the inclined ramps 536 are struck by an oncoming snowplow blade. In order to defeat such a tendency, the downwardly depending ribs 524 are provided with a plurality of steps 550 which generally follow an arcuate path so as to be confined within an arcuate boundary and permit the downwardly depending ribs 524 to follow generally the arcuate contour of the arcuate grooves 528, but provide locking surfaces 552 and 554 which deviate from the arcuate configuration and cooperate with adhesive 529 which fills the voids between the arcuate groove 528 and the steps 550 to prevent such unwanted rotation of the base member 512. Thus, although downwardly dependent ribs 524 follow generally a radius of curvature extending from adjacent the forward portion 514 to adjacent the rearward portion 516, the steps 550 each provide a pair of locking surfaces which extend generally perpendicular to the vertical securing surfaces 526. One of the pair is a locking surface 552 which is generally parallel to the basal plane 522 and the other of the pair is a locking surface 554 which is generally perpendicular to the basal plane. The pavement marker 510 thus attains all the advantages of the simplified installation procedure resulting from the use of a circular saw blade and the increased surface area of vertical securing surfaces 526 resulting from the contour of the downwardly depending ribs 524 while being locked even more securely in place upon the roadway surface.

It is to be understood that the above detailed description of preferred embodiments of the invention are provided by way of example only. Various details of design and construction may be modified without departing from the true spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

I claim:

1. A mounting base member of relatively high strength material for use in a pavement marker capable of service in snow areas, the pavement marker including a reflector for establishing a marking visible from an oncoming vehicle on the surface of a roadway, said base member being constructed for securing the pavement marker to the roadway and for protecting the reflector against damage from an oncoming snowplow blade during snow plowing operations, said base member extending longitudinally between a forward portion and an opposite rearward portion and extending laterally between opposite side portions, said base member including:

means forming a lower surface for affixing the base member to the roadway, a portion of said lower surface lying in a basal plane adapted to extend parallel with the roadway surface when the base member is secured to the roadway;

means forming a sidewall integral with the base member adjacent each of said side portions, said sidewalls extending longitudinally and upwardly with respect to the basal plane;

means forming a reflector-receiving surface integral with said lower surface forming means and extending laterally between the sidewalls and raised above said basal plane for receiving the reflector of the pavement marker when the reflector is secured to the mounting base member and holding the reflector in position above the roadway surface when the mounting base member is secured to the roadway;

each sidewall including an inclined upper surface forming an inclined ramp extending from said forward portion located at an elevation corresponding approximately to said basal plane to an uppermost portion located at an elevation corresponding at least to the elevation of the uppermost extent of the reflector-receiving surface, the inclined ramp being located longitudinally forward of the reflector-receiving surface and making an acute angle with the basal plane such that the oncoming snowplow blade will ride up the ramp and be deflected from contact with the reflector on the reflector-receiving surface as the snowplow blade passes over the pavement marker; and securing means projecting downwardly with respect to the basal plane and forming a plurality of lower surface portions extending generally perpendicular to the lateral extent of the base member and parallel to the longitudinal extent of the base member for adhesively securing said base member within complementary longitudinal grooves in the roadway against shear forces along the lower surface portions arising out of contact between the oncoming snowplow blade and the pavement marker.

2. The base member of claim 1 wherein:

the sidewalls are spaced apart for permitting a tire of an oncoming vehicle to fall between the sidewalls and contact the reflector; and

the uppermost portion of each sidewall extends generally parallel to the basal plane, and the top of the inclined ramp is located forward of the uppermost extent of the reflector-receiving surface for extending said uppermost portion forward of the reflector-receiving surface a distance great enough to assure that all portions of the oncoming snowplow blade will avoid contact with the reflector.

3. The base member of claim 1 wherein said securing means includes at least two ribs projecting downwardly below the basal plane for being embedded in the complementary grooves of the roadway and extending longitudinally to form said lower surface portions.

4. The base member of claim 3 wherein the ribs follow a generally arcuate path from adjacent the forward portion to adjacent the opposite rearward portion of the base member and include a plurality of steps each providing locking surfaces which deviate from the arcuate path.

5. The base member of claim 4 wherein each said step includes a pair of said locking surfaces extending generally perpendicular to the lower surface portions of the securing means, one of said pair of locking surfaces extending generally parallel to the basal plane and the other of said pair of locking surfaces extending perpendicular to said basal plane.

6. The base member of claim 1 including laterally opposite sidewall portions extending laterally away from one another adjacent to the forward portion of the base member establishing auxiliary lower surfaces of increased area lying in said basal plane adjacent the forward portion of the base member for resting upon the roadway surface when the base member is affixed to the roadway and providing added resistance to downward movement of the forward portion of the base member when the oncoming snowplow blade rides up the ramps.

7. The base member of claim 1 wherein the acute angle between the inclined ramp and the basal plane is approximately 5° to 15°.

8. The base member of claim 1 wherein the acute angle between the inclined ramp and the basal plane is about 8.5°.

9. The base member of claim 1 wherein each sidewall includes a further inclined ramp extending between the rear-

ward portion of the base member at an elevation corresponding to the level of the roadway surface when the base member is affixed to the roadway, and said uppermost portion of the base member, said further inclined ramp making an acute angle with the basal plane similar to the acute angle made by the inclined ramp between the forward portion of the base member and the uppermost portion.

10. The base member of claim 1 wherein the high strength material is a metal tough enough to withstand the shock of contact with an oncoming snowplow blade and hard enough to withstand the abrasion of the snowplow blade as it passes over the sidewalls.

11. The base member of claim 1 wherein the high strength material is ductile iron having a core hardness of about 26 to 34 Rockwell C and a surface hardness of about 50 to 55 Rockwell C.

12. A base member for a pavement marker which includes a reflector, the base member comprising:

at least two longitudinal side members spaced laterally from one another;

a web interconnecting said side members and having at least a lower portion thereof lying in a basal plane;

means forming a reflector-receiving surface integral with said web and extending laterally between said side members for receiving the reflector of the pavement marker when the reflector is secured to the base member;

said side members each having a sidewall rising above the basal plane and including an inclined upper surface portion forming an inclined ramp extending in a direction from one end toward the other end of a side member and rising at an acute angle to the basal plane from the basal plane to the uppermost portion of the sidewall, said uppermost portion being at an elevation corresponding at least to the elevation of the uppermost extent of the reflector-receiving surface, each sidewall extending below the basal plane and including longitudinally extending parallel surfaces projecting below the basal plane

and perpendicular thereto for being embedded in the pavement.

13. The pavement marker base member of claim 12 wherein said side members include laterally opposite side portions extending laterally away from one another adjacent each said inclined ramp and providing auxiliary surfaces lying within the basal plane below at least a portion of each said inclined ramp for resting upon the pavement.

14. The pavement marker base member of claim 12 wherein each sidewall extends below the basal plane to a generally arcuate boundary extending from adjacent one end to adjacent the other end of the side member and including a plurality of steps providing locking surfaces which deviate from the arcuate boundary.

15. The pavement marker base member of claim 14 wherein each of said steps includes a pair of said locking surfaces, one of said pair extending parallel to the basal plane and the other of said pair extending generally perpendicular to said basal plane.

16. A pavement marker employing the base member of claim 12 and including:

a reflector affixed to the reflector-receiving surface between the uppermost portions of the sidewalls and rising above the basal plane to a level no higher than the uppermost portion of each sidewall, said reflector facing toward one of the ends of a side member.

17. The pavement marker of claim 16 wherein: the side members are spaced apart laterally for permitting a tire of an oncoming vehicle on the pavement to contact the reflector when the pavement marker is installed; and the uppermost portion of each sidewall extends generally parallel to the basal plane and the top of the inclined ramp is located forward of the uppermost extent of the reflector for extending each said uppermost portion forward of the reflector a distance great enough to assure that all portions of the oncoming snowplow blade will avoid contact with the reflector.

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