

United States Patent

[11] 3,564,984

[72]	Inventor	Robert C. Alexander 16608 Elm Drive, Hopkins, Minn. 55343
[21]	Appl. No.	800,196
[22]	Filed	Feb. 18, 1969
[45]	Patented	Feb. 23, 1971

1,903,869	4/1933	Meister	94/1.5
3,091,997	6/1963	Byrd.....	94/1.5
3,212,415	10/1965	Byrd.....	94/1.5
3,451,319	6/1969	Gubela	94/1.5

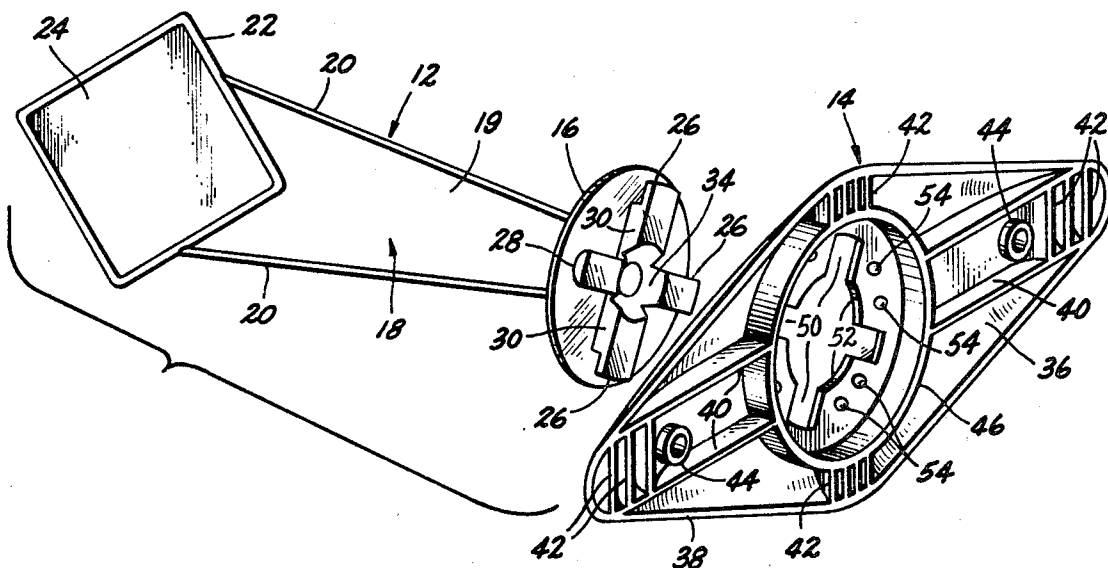
Primary Examiner—Nile C. Byers, Jr.
Attorney—Dugger, Peterson, Johnson & Westman

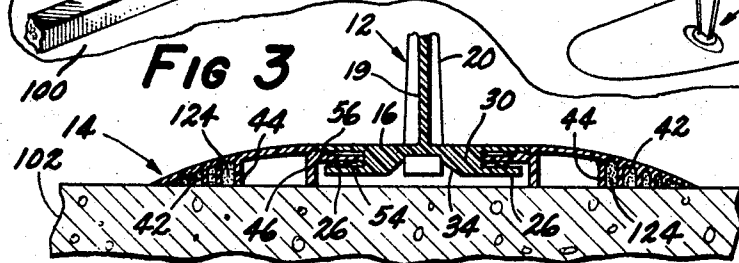
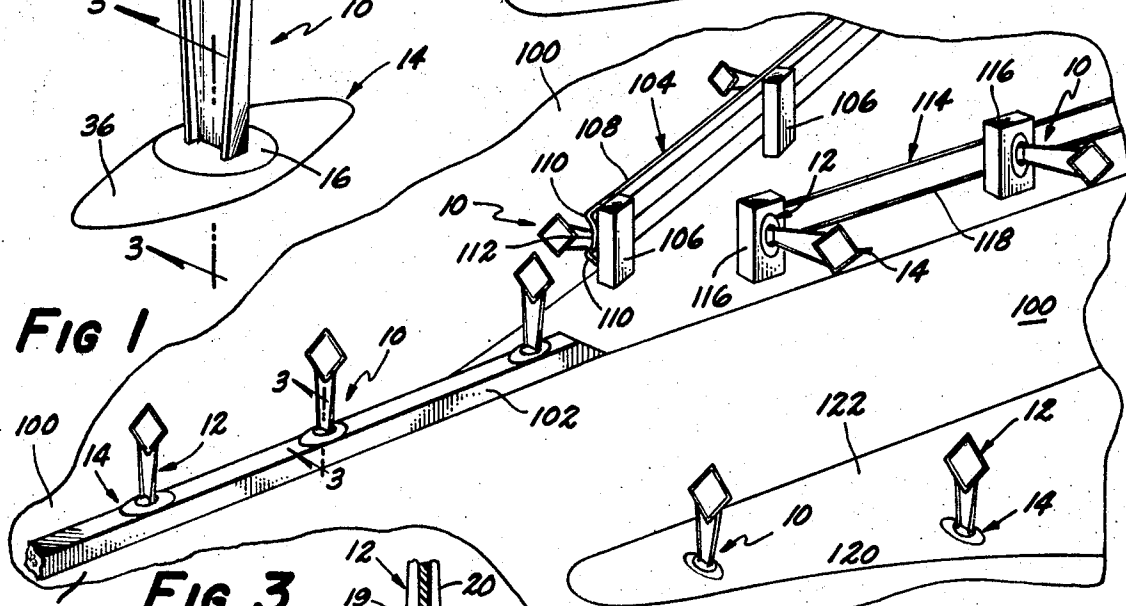
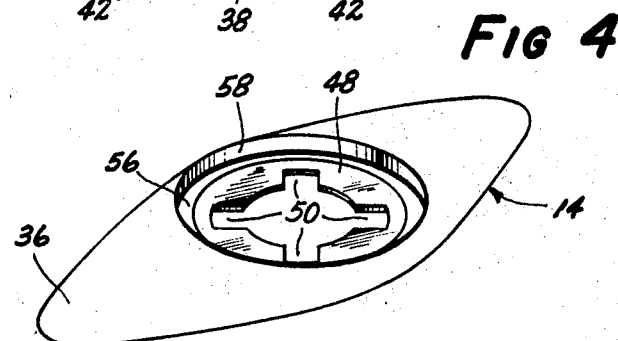
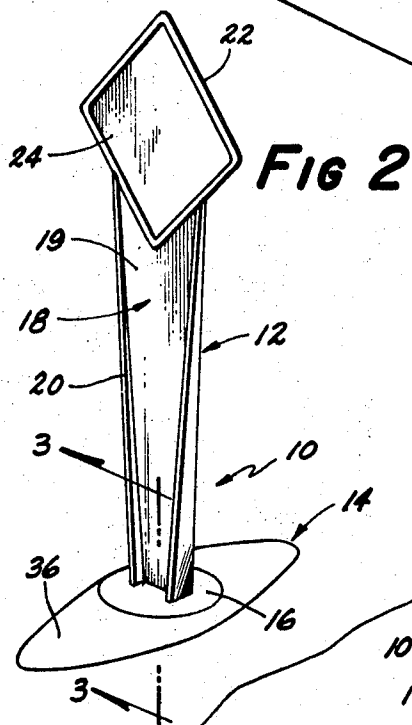
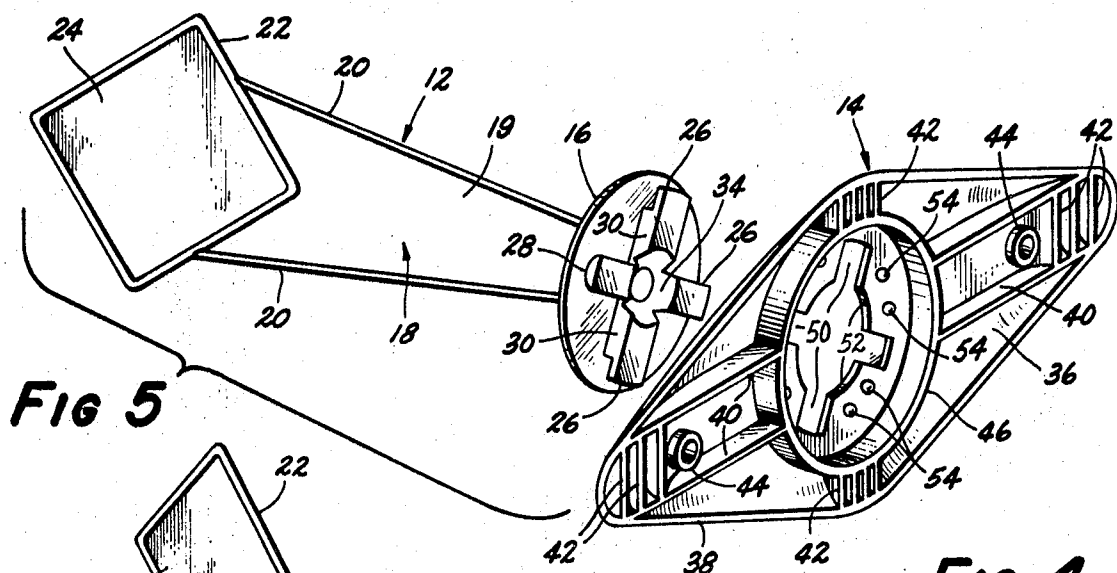
[54] HIGHWAY MARKER
8 Claims, 5 Drawing Figs.

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

[56]		References Cited
		UNITED STATES PATENTS
1,822,916	9/1931	Woods

ABSTRACT: A highway marker comprises a delineator unit and a base unit. The base unit is adhesively secured to a flat surface along the highway so as to indicate the side of the road, thereby serving as a guide for a motorists and maintenance workers. The delineator unit is separable from the base unit and replacement is easily achieved if necessary.





INVENTOR.
ROBERT C. ALEXANDER

BY *Dugger, Peterson,
Johnson & Westman*
Attorneys

HIGHWAY MARKER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to highway markers, and pertains more particularly to a marker in which the delineator unit can be readily detached from the base unit.

2. Description of the Prior Art

Various types of highway markers have been devised in the past. Most of them have been portable for warning motorists of construction work. However, reflectors have been permanently mounted on posts along the roadside, but such reflectors are not always in the best location for the message they are to convey to the oncoming traffic.

While the above-alluded to highway markers have been at least partially satisfactory for their intended purposes, there remains a need for a marker that can be placed closely adjacent the side of the highway and also one that can be attached to various surfaces in order to locate the particular marker where it will do the most good.

SUMMARY OF THE INVENTION

It is within the contemplation of the present invention to utilize a two-piece highway marker constructed. By having the base unit adhesively secured to the pavement or other suitable flat surface, when the delineator unit requires replacement it can easily be detached by a simple twisting action and a new one substituted in its stead.

Accordingly, the invention has for one object the provision of a unit that can be permanently affixed to an appropriate flat surface and a delineator unit capable of being easily removed when circumstances so dictate.

Another object of the invention is to minimize the overall cost of providing highway markers, for if the delineator unit becomes damaged or broken then only that part need be replaced.

Another object of the invention is to provide a highway marker that can be attached to a variety of surfaces. In this regard, it is within the purview of the invention to mount the marker on curbing, a portion of the pavement, a suitable post, such as a guardrail post, or to the sheet steel if the guard includes such a barrier. Also, it is an aim of the invention to allow the base unit to be angularly oriented in a direction best suited for the particular surface, especially if the surface is narrow in one direction, and then allow the delineator unit to be held in the proper position so that it will be completely visible.

Still further, the invention has for a specific object the locating of the highway markers along the left side of a roadway so as to provide a guide for snowplows which equipment usually starts at the left side and thereafter works over to the right on multiple lane highways.

A further object is to provide a highway marker which if struck by a moving vehicle will break in a manner so that it does not constitute an obstruction. More specifically, the fingers or ears that anchor the delineator unit to the base unit are made sufficiently frangible so that they break when the delineator unit is struck with sufficient force.

Yet another object of the invention is to provide a highway marker that will be of a height particularly suitable for providing a warning when vehicles are traveling with their low beam headlights on, this being the majority of the time, and practically all the time when fog is encountered. Actually, the invention has for an aim the provision of delineator units of various heights or lengths so that the particularly reflectorized surface carried thereon will be at the proper location for the particular duty for which it is intended.

Another object of the invention is to provide a two-piece highway marker that will not be vulnerable to freezing conditions. Stated somewhat differently, it is an aim of the invention to provide a seal that prevents the entrance of moisture into the cavity portion of the base unit which would cause breakage from the expansion of the water when it turns to ice.

Still further, another object of the invention is to provide a highway marker that will require little or no maintenance, being virtually self-cleaning by reason of the fact that it can be made of smooth plastic material that does not readily collect dust and dirt but which allows whatever dirt that does accumulate to be washed off when it rains.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a divided highway with a number of my markers installed therealong, together with a portion of an exit ramp with still additional markers at the left thereof;

FIG. 2 is a perspective view, greatly enlarged, of one of the illustrating the markers appearing in FIG. 1; and

FIG. 3 is a sectional view taken in the direction of line 3-3 of FIGS. 1 and 2 for the purpose of illustrating the construction of the lower portion of the base unit and the manner in which it is adhesively held to a flat surface;

FIG. 4 is a perspective view of the base unit, the view illustrating the construction of the upper portion thereof; and

FIG. 5 is a perspective view in exploded form of the two units constituting my highway marker, the view providing an indication of the way in which the two units are detachably engaged with each other.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in detail to the drawing, my highway marker has been designated in its entirety by the reference numeral 10, being composed of a delineator unit 12 and a base unit 14.

Describing first the delineator unit 12, it will be perceived that this unit includes a disc member 16 and a mast 18 having a flat web portion 19 and diverging edge flanges 20 integral therewith. The mast 18 further includes an enlarged panel portion 22 having a reflectorized surface 24 thereon, preferably having such a surface on each side thereof. Consequently, it will be appreciated that the mast 18 extends perpendicularly with respect to the disc member 16.

Referring now to the other face of the disc member 16, it will be noted that four fingers or ears 26 are angularly spaced from each other and reside in a plane slightly offset or displaced from the plane of the disc member 16. The surface of the fingers 26 located nearer the disc member 16 are rounded at 28 for a purpose presently to be explained. It will be understood at this time, though, that the fingers 26 are fixedly held with respect to the disc member 16 by spacing material at 30 in each instance. Hence, when the delineator unit 12 is made of an appropriate plastic, such as polyethylene, material at 30 is simply molded integral with the disc 16 and each of the fingers 26. If desired, a recess may thus be formed at 34.

Passing now to a description of the base unit 14, it will be observed that a concavo-convex shell 36, preferably of strong and tough plastic, such as nylon, has a peripheral edge 38 that resides in a given plane. Since the shell 36 curves downwardly to form the peripheral edge 38, there is a concave configuration imparted to the shell 36 at the side thereof that merges into this edge as is readily discernible from FIG. 5. To not only strengthen the shell 36 but to provide pockets or recesses for a purpose later made manifest, a plurality of longitudinal ribs 40 are formed at the same time that the shell 36 is molded. Further, transverse ribs 42 are also molded into the configuration. In this way, the voids in between the various ribs 40 and 42 hereinafter pockets that will receive the adhesive that will hereinafter be referred to and which adhesive secures the base unit 14 to an appropriate flat surface. Additionally, circular ribs can be molded into the base unit 14, such ribs being illustrated in FIG. 5 and identified by the reference numeral 44. Here again, further pockets are thus formed which receive therein the adhesive that is to anchor the base unit to the flat surface. If it is desired to rivet, nail or screw the shell 36 to the flat surface, the cylindrical ribs 44 will allow passage of such fastening elements and will at the same time reinforce these zones that would otherwise be vulnerable to any impact forces that are developed.

Still another circular or cylindrical rib is formed, this rib being labeled 46. It is in conjunction with the rib 46 that a platform 48 is formed, the platform 48 being disposed in a plane that is offset from the plane containing the peripheral edge 38. From FIGS. 4 and 5 it will be seen that the platform 48 contains quadrantly spaced notches 50 having a width sufficient to allow passage of the fingers 26 therethrough. Intermediate the notches 50 are inwardly directed locking lugs 52, each lug 52 having a pair of spaced rounded or semispherical projections 54 thereon. The purpose of the projections 54 is to assist in the retention of the fingers 26, the spacing being such that when the fingers 26 have been rotated to an angular position between the rounded projections 54, the rounded projections will prevent inadvertent dislodgement of said fingers 26 and hence resist detachment of the entire unit 12.

Whereas the rounded projections 54 are disposed on one side of the platform 48, on the other side of the platform 48 is an annular seal 56, as can be seen from FIG. 4. This seal 56 is only slightly raised from the general plane of the platform 48. A cylindrical wall 58 is integral with the shell 36 and it extends above the general plane of the platform 48 to a distance equaling the thickness of the disc member 16.

From the information presented above, it should be appreciated that the delineator unit 12 can be readily attached to the base unit 14 by angularly orienting the fingers 26 so that they are in registry with the notches 50. Such orientation appears in FIG. 5. Hence, when the delineator unit 12 is longitudinally advanced in the direction of the base unit 14, the fingers 26 will move through the notches 50 until the disc 16 abuts the seal 56, rotation of the delineator unit 12 then causing the fingers 26 to move angularly into juxtaposition between the rounded projections 54. It will be understood that the rounded configuration imparted to the fingers 26 at 28 will cause the fingers 26 to cam or ride over the rounded projections 54.

At this point, it will be well to point out that the fingers 26 are somewhat resilient, being able to flex so as to move over the rounded projections 54. Yet, the fingers 26 are sufficiently thin, especially when made of polyethylene, so as to be frangible enough to break if the delineator unit 12 is struck with sufficient force. In other words, if during actual use a vehicle hits the delineator unit 12, the fingers 26 will simply break so as to release the delineator unit 12 from the base 14 and nothing is left to project upwardly as an obstacle which might puncture a tire.

FIG. 1 has been presented in order to illustrate, at least to some extent, the versatility of my invention. In FIG. 1 there is pictured a divided highway 100, the division being achieved by reason of a curb 102. Also presented in FIG. 1 is a first guardrail section 104 having vertical posts 106 to which a steel sheet 108 is secured, the sheet 108 having triangular corrugations 110 with a flat web 112 therebetween to which base units 14 may be adhesively attached. A second guardrail 114 also is illustrated in FIG. 1, being comprised of posts 116 and cables 118 anchored thereto. In this instance, the base units 16 are attached directly to the posts 116. Still further, FIG. 1 pictures an exit ramp 120 and a shoulder at 122 to which the various base units 14 may be adhesively anchored.

Considering FIG. 3 for the moment, it will be observed that this view is taken in the direction of line 3-3 of FIGS. 1 and 2, thereby showing a portion of the curb 102. Owing to the various pockets formed by the ribs 40, 42 and 44, a suitable adhesive 124, such as epoxy resin, can be confined in such recesses and will secure by adhesive bonding the entire base unit 14 to the curb 102.

On the other hand, when a guardrail such as 104 is encountered, the base unit 14 may be adhesively bonded to the flat portion 112 between the corrugations 110 of the steel sheet 108. In a situation such as this, the base unit 14 would be oriented in the direction in which it is shown in FIG. 5. In other words, the longer dimension of the base unit 14 will extend in a parallel direction with the section 112 of the steel sheet 108.

On the other hand, where a hard shoulder 122 is present, the particular orientation of the base unit 14 will not really matter. Hence, longer dimension of the base unit 14 is depicted as being in a parallel relationship with the web 19 of the mast 18.

Since the highway marker 10 is quite versatile, the manner in which the orientation of the delineator 12 with respect to the base unit 14 is achieved should be understood. Assuming that the highway marker 10 is to be anchored to the upper surface of the curb 102, then the longer dimension of the base unit 14 will extend in the direction of the curb 102 with the consequence that there will be no lateral overhang of the base unit 14. When the base unit 14 is secured, as illustrated in FIG. 3, the delineator unit 12 is lowered so that the fingers 26 will pass downwardly through the notches 50. Since the reflectorized surface 24, quite obviously, should be facing the traffic, the installer only has to turn the delineator unit 12 in the proper rotative direction so as to cause the reflectorized surface 24 to extend transversely of the curb 102, this arrangement perhaps being better noted from FIG. 2 than from FIG. 1.

On the other hand, when the flat surface 112 is to have the base unit 14 attached thereto, the base unit will be oriented in the position in which it is illustrated in FIG. 5. Once again, in attaching the delineator unit 12, one advances the fingers 26 so that they pass through the notches 50 and then the delineator unit 12 is rotated so as to place the reflectorized surface 24 in a vertical plane.

The guardrail 114 requires a 90° angular orientation of the delineator unit 12 with respect to the base unit 14 as compared to what is required with respect to the curb 102. This enables the longer dimension of the base unit 14 to be vertically aligned with the rather narrow posts 116 without overhang to either side.

With respect to the situation involved with the ramp 120 and the shoulder 122, there exists enough space so that the base unit 14 may be oriented either in the direction in which it appears or at right angles thereto. In any event, the delineator unit 12 will then be attached so that the reflectorized surface 24 is facing the traffic that is exiting via the ramp 120.

The versatility that can be derived from a practicing of the instant invention cannot be too strenuously emphasized. The highway markers 10 will find considerable usefulness in outlining the road boundaries in many instances. One such instance is in guiding snowplows. Where guardrails are encountered, then the marker will serve to indicate the existence or presence of the guardrail. Hence, the surface 24 can be color-coded so as to indicate different degrees of danger. Even where the marker 10 is disposed along a curb, such as the curb 102, one side of the enlarged panel portion 22 can have a reflectorized surface 24 of one color and the opposite side a different color. Also, the mast 18 may be of any appropriate length, depending upon the particular role it is to play. In most instances, particularly where fog is apt to be found, the mast unit 18 will be quite short, usually on the order of 12 inches, but to put in a longer mast would require only the detachment of the particular delineator unit 12 from its base unit 14 and a different delineator unit 12 substituted therefore having a longer mast 18.

I claim:

1. A highway marker comprising a disc member residing in a first plane, delineator means projecting from one side of said disc member, and a plurality of angularly spaced anchor fingers secured to the other side of said disc member in a second plane generally parallel to said first plane, a concavo-convex shell including a bottom peripheral edge, a platform in a plane offset upwardly from the plane of said peripheral edge, said platform having a plurality of angularly spaced notches for the accommodation of said fingers and intermediate locking lugs for engaging the upper sides of said fingers when said fingers are rotated out of registry with said notches, and rib means laterally outward of said notches and lugs and extending from beneath the lower surface of said shell into the plane of said peripheral edge providing adhesive-receiving pockets.

5

2. A highway marker in accordance with claim 1 in which said rib means includes a circular rib circumjacent said notches and lugs and a plurality of additional ribs between said cylindrical rib and said bottom peripheral edge.

3. A highway marker in accordance with claim 2 in which said additional ribs extend longitudinally and transversely.

4. A highway marker in accordance with claim 1 in which said delineator means includes a flat panel having a reflectorized surface on at least one side thereof and said plurality of fingers includes a first pair of oppositely directed fingers and a second pair of oppositely directed fingers extending in a 90° relationship with said first pair, whereby said panel may be disposed in at least two perpendicularly oriented positions depending upon the angular orientation of said fingers.

5. A highway marker comprising a delineator unit including a disc member residing in a first plane, a mast projecting from one side of said disc member, and a plurality of angularly spaced anchor fingers secured to the other side of said disc member in a second plane generally parallel to said first plane, and a base unit having a peripheral edge residing in a third plane generally parallel to said first and second planes so as to permit said base unit to be adhesively secured to a substantially flat surface along the highway, said base unit further in-

6

cluding a platform disposed in a fourth plane intermediate said first and second planes, said platform having angularly spaced notches for the accommodation of said fingers and intermediate locking lugs for engaging said fingers when rotated out of registry with the notches, each locking lug having a pair of rounded projections formed on the side thereof toward said peripheral edge and spaced apart a distance sufficient to accommodate therebetween a respective finger, said fingers having a curved surface so as to cam over said rounded projections when being rotated into a position therebetween.

6. A highway marker in accordance with claim 5 including a circular wall surrounding said platform, said wall extending away from said platform a distance generally equal to the thickness of said disc member.

7. A highway marker in accordance with claim 6 in which said disc member projects radially beyond the end of said fingers and said platform has an annular seal against which said disc member bears.

8. A highway marker in accordance with claim 7 including a shell, said platform and peripheral edge being integral with said shell, and said shell having a plurality of ribs forming recesses for the accommodation of adhesive.

25

30

35

40

45

50

55

60

65

70

75

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,564,984 Dated February 23, 1971

Inventor(s) Robert C. Alexander

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 31, after "a" insert --base--. Column 2, line 15, delete "illustrating the" and insert --highway--; same line, delete "and"; line 25, change "wit" to --with--; line 6 delete "hereinafter" and insert --form--. Column 5, line 9, "nd" should be --and--.

Signed and sealed this 29th day of June 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

WILLIAM E. SCHUYLER, J
Commissioner of Patent