June 24, 1969 H. E. GUBELA 3,451,319

ROAD GUIDEPOST

Filed Oct. 11, 1965 Sheet 1 of 2

Fig. 2.

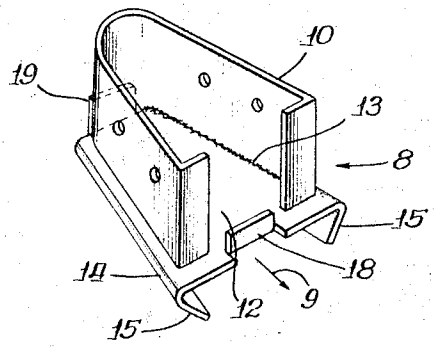


Fig. 1.

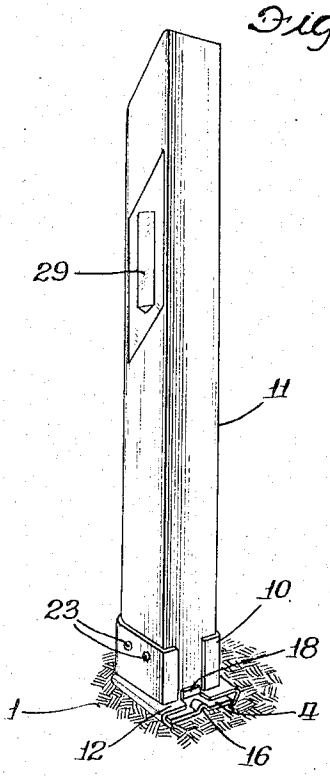
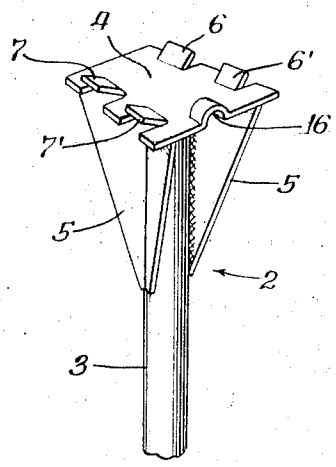


Fig. 3.



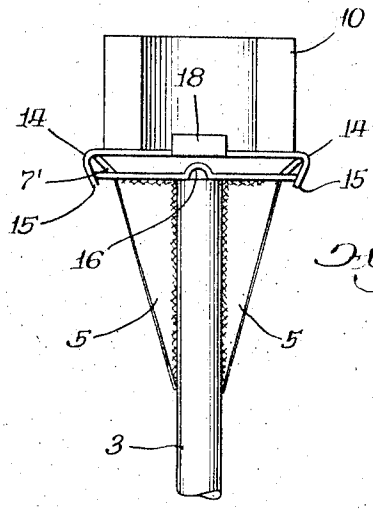


Fig. 4.

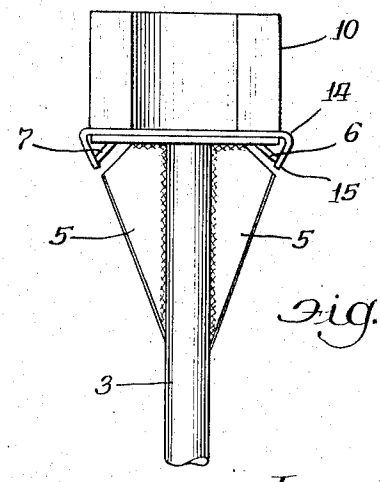


Fig. 5.

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Fig. 8.

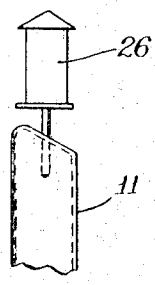
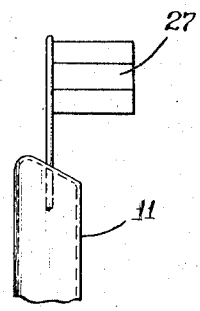


Fig. 9.



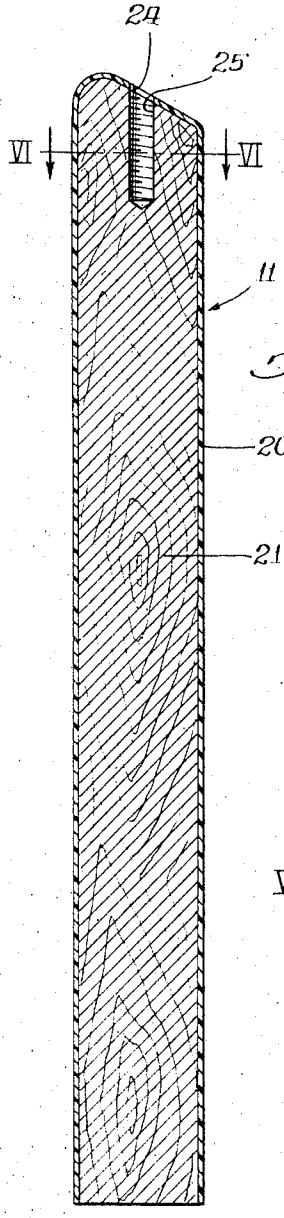


Fig. 7.

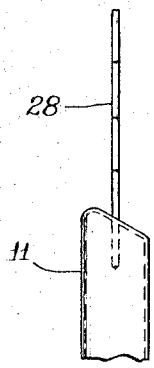
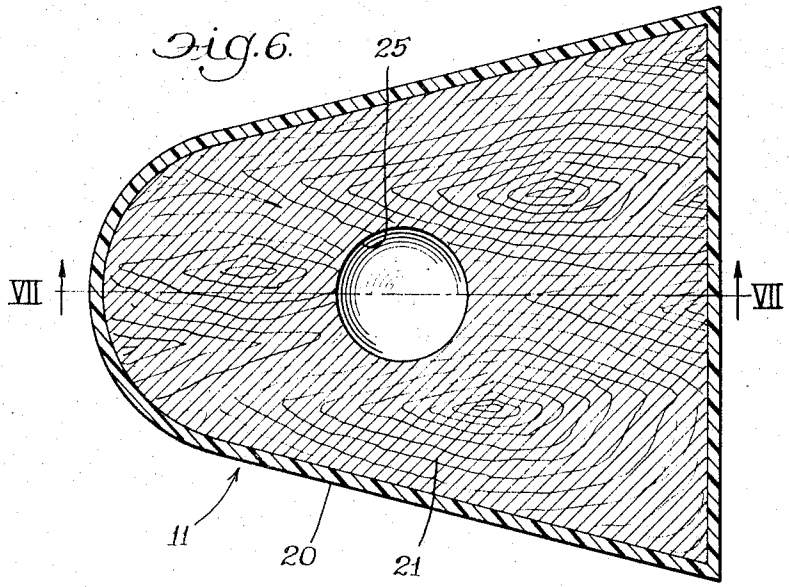


Fig. 10.

Fig. 6.



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ROAD GUIDEPOST

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Claims priority, application Germany, Oct. 9, 1964, G 41,746; Jan. 23, 1965, G 42,648; May 20, 1965, G 43,650
Int. Cl. E01f 9/02
U.S. Cl. 94—1.5 8 Claims

ABSTRACT OF THE DISCLOSURE

A guidepost assembly for road traffic comprises in combination a base portion adapted to be driven into the ground, a post shoe detachably connected to the base portion, and a post releasably attached to the shoe. The post is formed of a thin walled external case of high quality material, preferably plastic, and a separable solid core of less valuable material. The core fills the case and the case covers all but the bottom of the core. Thereby the case and the core may be separated for the replacement of one or the other. The releasable connection between the shoe and the post also attaches the case to the core. The detachable connection of the shoe and the base portion is formed by a dovetail and spring walls fitting about the dovetail whereby substantial force applied to the post causes the spring wall to deflect and detach from the dovetail.

PRIOR ART

A guidepost is known consisting of glass fiber reinforced plastic as a case with a liner of heat-resistant and solvent-proof resin foam such as phenolic resin foam, polyester resin foam, or else also of wood, pressed wood, pressed straw or the like. With this prior art guidepost the core surrounded by a glass fiber mat is inserted in a mould having the shape of the standardized guidepost, and liquid casting resin, such as polyester resin or methacrylate casting resin is cast around it. In this prior art guidepost case and core when finished constitute an inseparable integral part. In the utility model it is not stated how this guidepost is erected and anchored.

Further, guideposts made from plywood are prior art. In addition, a guidepost is known consisting of a post made from wood or concrete and wherein a hood of plastic or metal, carrying the marking (reflector) is slipped over the top portion of the post. Concrete posts are relatively heavy, thereby rendering difficult the transportation thereof, and if a vehicle hits the post, the latter may cause considerable damage on the vehicle.

A wood post, however, becomes very soon unsightly if it is not constantly attended to and is readily exposed to weathering. Also nothing is said therein on the manner in which the guidepost is erected and anchored.

A guidepost is known consisting of a base to be rigidly anchored in the ground and of a hollow body of resiliently flexible material such as polyvinyl chloride, mounted thereon. The connection between these two parts is adapted such that the upper portion may be torn off from the base under the influence of a vehicle bounding thereagainst. It has shown in practice that guideposts designed as plastic hollow body only will generally be destroyed under the impact of a vehicle. More particularly, however, they are also subjected to the danger of wilful destruction by passers-by. To make such merely hollow body sufficiently rigid, it must have relatively large wall thicknesses. Because of this requirement it will become quite expensive because of a relatively high-quality material it consists of.

Mountings for road guideposts are known consisting

of a base portion driven into the ground, having removably secured thereto a base shoe connected with the guidepost. The joint between the base portion and the post shoe acts as breaking point so that the guidepost when hit by a vehicle will be broken down without substantial damage thereto, but may then be firmly connected again with the base portion. For prior art embodied forms of such mountings, for instance loose wedges are required which are inserted beneath anchoring members of the base portion, passing through a bottom plate at the post shoe. When a guidepost is broken down, these wedges will usually be destroyed or damaged and have to be replaced.

THE INVENTION

It is the object of the present invention to avoid the disadvantages as hereinbefore described of the prior art arrangements.

More specifically, it is the object of the present invention to provide a guidepost designed such that it will not be damaged substantially in general when hit by a vehicle and may subsequently be restored to its original position.

It is a further object of the invention to provide for inexpensive manufacture of a guidepost. It is a further object of the invention to provide a strong guidepost with relatively small mass which when being hit will generally disconnect from its anchorage without substantial damage to the motor vehicle.

It is a further object of the invention to provide a guidepost which may resist wilful damage or breakage by passers-by.

It is a further object of the invention to simplify the manufacture and transportation of guideposts.

A further object of the invention consists in finding a design of such type that upon damage to individual components the others will be re-usable to a possibly great extent.

Finally, it is the object of the invention to provide a guidepost which, at possibly low expense, has a weather-resisting surface requiring no maintenance.

The invention resides in the fact that the guidepost is a two-piece comprising a thin-walled hollow body constituting the case and a profile body as core inserted therein, and that core and hollow body are jointly connected with a post shoe which in turn is secured to a base portion driven into the ground via a connection detachable with a given amount of applied force.

The plastic hollow body with wooden core is so strong that it will in general not be damaged upon impact of a motor vehicle (as, say, a simple hollow body) and the mounting will be disconnected. It is so light-weight that there will also not be any considerable damage to the vehicle. The stability of the plastic hollow body with wooden core (or the like) permits such tight adjustment of the detachable mounting that though being disconnectable when hit by a vehicle, cannot be disconnected manually. The guidepost according to the invention is generally capable of absorbing these forces without damage thereto, particularly since due to the light weight of the guidepost the relative resistance when being hit will mainly be caused by the mounting and not by the inertia of the guidepost. Also the post itself is hard to damage by passers-by.

The guidepost is moderate in price and nevertheless weather-resistant since it has only a relatively thin case of relatively high-quality material such as plastic. On account of its core it is nonetheless quite strong.

In contract to prior art arrangements in the guidepost in accordance with the invention case and core are two separate components which are jointly secured to the guidepost shoe. This will offer various substantial advantages:

The case may be manufactured in a shop specifically adapted to the processing of metal or plastics and may, since a relatively lightweight component is involved, also be transported over longer distances to the site, if necessary. The core, however, may be made from wood or the like in the vicinity of the site. For the prior art one-piece guideposts the case together with the core must be transported from the plastic-processing shop to the site.

If, when a vehicle is bounding against the guidepost, the case were damaged though, for instance, splits, then the guidepost may be provided with a new case and the undamaged core may be re-used. In practice, the prices of case and core are as about 1:1 so that the two-piece design means a substantial saving as against prior art guideposts.

It is a further object of the invention to so design the guidepost mounting as that the connection can be established between base portion and post shoe without additional loose parts and that the breaking force at which this connection will disconnect, may be predetermined and rated within relatively narrow limits.

In further modification of the invention this is attained by providing that the base portion is detachably connected with the post shoe by a dovetail guide, one member of which is formed by a spring steel sheet being provided with rounded off edge portions which at a predetermined action of force will yield and snap out of the guide.

EMBODIMENTS

A few embodiments of the invention are presented in the drawings and described as follows, wherein

FIG. 1 illustrates a road guidepost with post shoe being connected with the base portion driven into the ground.

FIG. 2 is a perspective view of the post shoe with the bottom plate of spring sheet steel.

FIG. 3 is a perspective view of the base portion with the bottom plate.

FIG. 4 illustrates the mounting of the post shoe and base portion as viewed from the front.

FIG. 5 is a view corresponding to FIG. 4, of a further embodied form.

FIG. 6 shows a cross-section of the guidepost of FIG. 1.

FIG. 7 shows an associated longitudinal section along line VII—VII of FIG. 6.

FIGS. 8 to 10 show the guidepost with various signaling means mounted thereon.

Into the ground **1** there is driven a base portion **2** (FIG. 3). Base portion **2** comprises a tubular supporting shaft **3** and a bottom plate **4**. Bottom plate **4** is reinforced relative to the supporting shaft **3** by radial bracing ribs **5** of triangular configuration. Ribs **5** also are driven into the ground and thus securing the base portion **2** against rotation.

At two opposite peripheral areas individual tongues **6**, **6'**, **7**, **7'** are cut out of the bottom plate **4** from the edge thereof and bent upwardly (see FIG. 3).

The longitudinally extending edges of the bottom plate **4** from which the bent-up tongues (**6**, **6'**, **7**, **7'**) originate, are not parallel to each other, but converge.

A post shoe **8** (FIG. 2) triangular in plan is slipped over the bottom plate **4** and the upwardly angled tongues **6**, **6'** and **7**, **7'** in the direction of arrow **9**. The shoe **8** comprises a shoe-like upper portion **10** forming a post holder. Attached to upper portion **10**, as by screws or the like, is a guidepost **11**, and a base plate **12** which in a manner according to the invention consists of spring sheet steel. The connection of the spring steel plate **12** with the shoe portion **10** is accomplished by a weld **13**.

Two opposite peripheral areas of the spring steel plate **12** are bent downwardly and inwardly at an angle in excess of 90°. Thus the sides form spring grippers fitting about the sides of the dovetail plate **4**. The bend **14** of the spring sheet steel has a radius of curvature rather than a sharp angled bend. Between the bend **14** and the edges of the plate are planar portions **15**.

When slipping the guidepost shoe **8** over the base portion **2** the spring steel plate **12** bears on the upwardly angled ends of tongues **6**, **6'** and **7**, **7'** and the bends **14** of spring steel plate **12** grip resiliently around the plane bottom edge of bottom plate **4**.

FIG. 5 illustrates an embodied form wherein the tongues **6** and **7** are angled downwardly, the spring steel plate **12** being designed and angled at two opposite longitudinally extending edges in principally the same manner. Here, however, the spring steel plate **12** with the plane underside thereof rides on the bottom plate **4**.

It is also possible for a design according to FIG. 5 instead of bending downwardly individual tongues **6** and **7** to bend downwardly the peripheral area for the total length thereof. Though the supporting area of the spring steel plate **12** on the bottom plate **4** will be somewhat smaller, it will be sufficient nonetheless.

To slip the guidepost shoe **8** over the base portion **2**, it is expedient to use a hammer. In order that the shoe **8** may be separated from the base portion **2**, an upwardly protruding tongue or projection **16** is provided on the longest edge extending transversely to the bent-away peripheral areas of bottom plate **4** of the base portion **2**. Using a pick which with the front end thereof grips behind the upwardly protruding projection **16** and bears against the guidepost **11** with a further surface portion, then by lever action of the pick the guidepost **11** with post shoe **8** can easily be pushed off from the bottom plate **4**.

To prevent a pick from bearing directly against the guidepost **11** and to prevent damage to the post which might be caused thereby and to protect the coat of paint of the guidepost **11**, the spring steel plate **12** of the post shoe **8** also has provided thereon an upwardly angled tongue **18** at the wide front edge thereof. Tongue **18** is spaced from the projection **16** of bottom plate **4** when the shoe **8** is slipped on. A tool may be inserted from above between projection **16** of bottom plate **4** and tongue **18** and the manual swing or lever action of the tool will then effect movement of the post shoe **8** relative to the base portion **2**. This is effective to prevent the loosening tool from coming into contact with the guidepost **11** itself so that there will be no damage to the guidepost **11**.

In order also not to damage the post shoe **8** by the blow of the hammer or the like when driving the shoe into the base portion **2** the front edge of the spring steel plate **12** is also provided with an upwardly angled tongue **19** serving as striking surface when driving in the post shoe **8** with the guidepost **11**. By the arrangement as hereinbefore described not only is a detachable mounting for two-piece road guideposts obtained which is simple to manufacture and quite safe in its effect, but additionally there is no spring wedge considered necessary hitherto and thus no important third component which may easily be lost due to the small size thereof as it generally is expelled far when the guidepost is sheared off.

As can be seen from FIGS. 6 and 7, the guidepost **11** comprises a case in the form of a plastic hollow body **20** having inserted therein a corresponding solid wooden core **21**. The case **20** and the core **21** are two separate components which are detachably connected with each other and with the post shoe **10** as by screws **23** (FIG. 1).

At the upper face thereof the case **20** is formed with an aperture **24** and the core **21** therebelow with a vertical bore or threaded bore **25**. If necesary, lamps or traffic signs **26** (FIG. 8), signal flags **27** (FIG. 9) or snow rods **28** (FIG. 10) may be inserted or screwed into the bore.

Core **21** and case **20** are further formed with cut-out portions for receiving reflectors **29** (FIG. 1).

The core **21** may consist of wood, or else of molded material or the like. It may advantageously be impregnated against decay. It is advantageous to have the case **20** consist of plastic. It may however also consist for instance of metal.

The invention is claimed as follows:

1. A guidepost assembly for road traffic comprising in combination:

a post formed of a thin-walled external case of high quality material and a separable solid core of less valuable material, said core filling said case, said case covering all but the bottom of the core, whereby the core and case may be separated for the replacement of one or the other;

a base portion adapted to be driven into the ground;

a post holder at the bottom of the post;

first means releasably connecting the holder to the post and attaching the case to the core; and

second means detachably connecting the holder and the base portion to permit the holder to separate from the base portion when a substantial force is applied to the post, said second means comprising two parts connected together, one of the parts being attached to the holder and the other of the parts being attached to the base portion, the first of the parts forming a male dovetail guide, the second of the parts having spring grippers fitting about opposite sides of the dovetail guide to releasably hold the second part and the first part together.

2. A guidepost assembly for road traffic comprising in combination:

a post formed of a thin-walled external case of high quality material and a separable solid core of less valuable material, said core filling said case, said case covering all but the bottom of the core, whereby the core and case may be separated for the replacement of one or the other;

a base portion adapted to be driven into the ground;

a post holder at the bottom of the post;

first means releasably connecting the holder to the post and attaching the case to the core; and

second means detachably connecting the holder and the base portion to permit the holder to separate from the base portion when a substantial force is applied to the post, said second means comprising a spring steel sheet having its two opposite longitudinally extending peripheral areas bent downwardly and inwardly at an angle in excess of 90°, said sheet being affixed to said holder, and a bottom plate which is generally planar with portions of the peripheral edges

thereof being bent out of the plane of the plate at an angle of less than 90°, said edges of said sheet fitting about said edges of said plate and resiliently gripping the same, said plate being affixed to said base portion.

3. An assembly as set forth in claim 2 wherein said portions of said plate are bent upwardly and said sheet rests on said upwardly extending portions.

4. An assembly as set forth in claim 2 wherein said portions of said plate are angled downwardly and comprise the total length of the respective sides, and the sheet rests on the planar portion of said plate with said edges of said sheet extending about the downwardly extending edges of said plate.

5. An assembly as set forth in claim 2 wherein the part of said sheet immediately adjacent said edges is planar with the planar parts joining the central part of the sheet by a radius of curvature.

6. An apparatus as set forth in claim 2 wherein a respective end of each of the plate and sheet are longer than the opposite respective end of each of the plate and sheet, said ends being between said sides, and wherein the longer end of said bottom plate has an upwardly extending projection, said projection being spaced from the corresponding end of said sheet.

7. An assembly as set forth in claim 6 wherein said sheet has an upwardly extending tongue adjacent and spaced from said projection.

8. An assembly as set forth in claim 6 wherein at the shorter end of said spring steel sheet, said sheet has an upwardly angled tongue.

References Cited

UNITED STATES PATENTS

2,126,622	8/1938	Davis	72—127 XR

FOREIGN PATENTS

5,130	2/1912	Great Britain.
1,146,904	4/1963	Germany.
1,186,489	2/1965	Germany.
1,194,890	6/1965	Germany.

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U.S. Cl. X.R.

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