

United States Patent [19]
Ebinger

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[45] **Jan. 9, 1973**

[54] **GUIDE PICKET**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 768,374, Oct. 17, 1968.

[52] U.S. Cl. **94/1.5, 256/13.1**

[51] Int. Cl. **E01f 9/00**

[58] Field of Search 94/1.5; 52/309, 720; 256/13.1

[56] **References Cited**

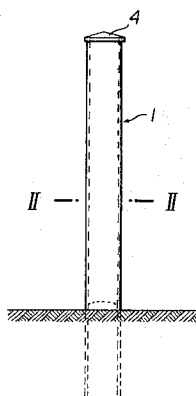
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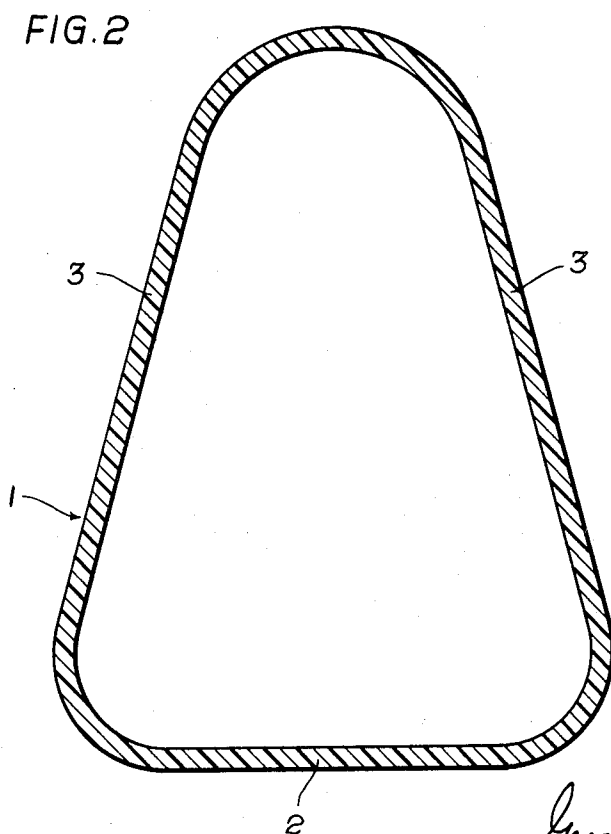
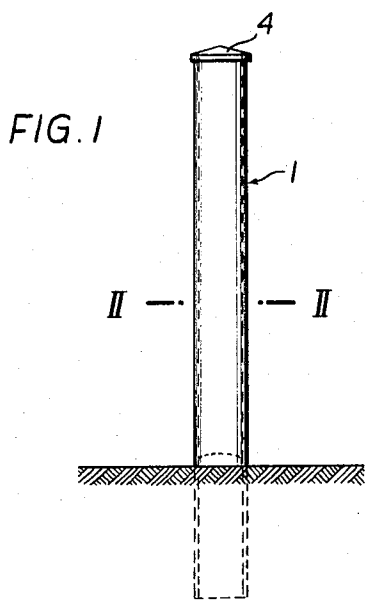
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[57] **ABSTRACT**

A hollow guide post made of elastic polyethylene and of triangular cross section so that it will right itself after being run over by a vehicle. The post has reflective side surfaces and also has rounded corners which facilitate its ability to right itself. The post is filled, preferably to about ground level, when placed in the ground.

9 Claims, 2 Drawing Figures





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GUIDE PICKET

This application is a continuation-in-part of application Ser. No. 768,374, filed Oct. 17, 1968 for Guide Picket.

This invention relates to new and useful improvements in road guide posts.

The present invention refers to a guide post or picket for demarcating traffic areas such as roads. Usual road guide posts are manufactured of rigid material such as concrete, metal plate or the like, with the result that such post becomes damaged and unusable when struck by a vehicle. The vehicle may also become damaged. Under certain circumstances the road guide post may cause the accident. To avoid such accidents it is frequently demanded that a road guide post resist only a certain load, but such has the disadvantage that once struck by a vehicle it is useless and must be replaced by another guide post. Another disadvantage is that traffic security is reduced until the damaged post is replaced by a new one.

Some known road guide posts are tubular in shape and particularly have a triangular cross section, the triangular cross section of the road guide post providing the advantage that the luminescent or light reflecting parts, usually fixed thereto, are better visible. It has also been proposed to manufacture road guide posts from polyester resins or polyvinylchloride resins. The elasticity of polyester resins and polyvinylchloride resins must be adjusted by means of plasticizers. If the elasticity of such materials is adjusted such that the road guide post is sufficiently rigid at higher temperatures accompanied with direct sun radiation particularly in summer time then such a road guide post will be ruptured if struck by a vehicle at the low temperatures occurring in winter time. If, however, the elasticity of such materials is adjusted to be existent at low temperatures then the stability of road guide posts will be insufficient at the high summer temperatures and under the influence of direct sun radiation the road guide posts will not maintain its erect position. Polyvinylchloride resins and polyester resins are further subjected to a natural aging at the varying climate conditions and become brittle, in which case the road guide post becomes ruptured. Road guide posts consisting of polyester resins or polyvinylchloride resins provide the advantage of not endangering vehicles, but suffer, however, from the disadvantage of becoming destroyed when struck. It is thus necessary to replace destroyed road guide posts.

The invention now particularly refers to a road guide post consisting of plastic material and having over its whole length a hollow tubular shape preferably of triangular cross section. The invention comprises providing a road guide post of elastic polyethylene and is, particularly in its portion located beneath ground surface, filled with bulk material, i.e. with loose material, such as sand or earth or with hardening material, for instance concrete or a cement. Elastic polyethylene becomes somewhat softer on heating and somewhat harder on cooling but, it always maintains its elasticity and does not become brittle. A road guide post consisting of elastic polyethylene and being well anchored in the ground is always usable and need not be substituted for another guide post. Even though repeatedly struck by vehicles it will right itself. Since the post of the invention has its whole length of hollow tubular shape,

anchoring thereof within the ground in the manner commonly used for posts of full cross section is difficult because when ramming earth around the post, the walls of the post yield elastically and cannot be reliably fixed in position. Good anchoring of the post within the ground, however, is required so that it will remain in the ground even though struck repeatedly, and for this purpose, the hollow post, particularly the portion thereof which is located below ground surface, is filled with loose or hardened bulk material. Said bulk material prevents the post from elastically yielding as a result of outer ground pressure. The filling in the post also anchors it more firmly within the ground. With such a filling the advantages of a plastic road guide post can fully be made use of in that by suitably selecting the height of the filling in the post the rigidity of the latter can be adjusted at will. It is preferred that the filling be kept at about ground level so that the post will bend over readily if struck by an automobile but will immediately spring back up after the vehicle passes over it.

There have been proposed hollow tubular road guide posts provided with a reinforced socket at its portion located within the ground. Such posts have the disadvantage that they cannot be manufactured from tubes of greater length by simply cutting off portions of the desired length. The production of the known road guide posts is thus much more complicated and expensive.

Road guide pickets according to the invention may be produced both from a low density polyethylene and a high density polyethylene. It has been found that polyethylene, low density polyethylene as well as high density polyethylene, has an elasticity particularly favorable for the purposes of the invention if the melt index (ASTM D 1238) of such a polyethylene is not more than 5. The melt index of polyethylenes of different quality apparently has no lower limit, because suitable road guide posts can also be produced from polyethylenes of a melt index of 0.1 or 0.2, respectively; polyethylenes of a lower melt index were up until now not commercially produced.

It is convenient to manufacture road guide posts according to the invention from a polyethylene, the density of which is, with a melt index of not more than 5, 0.918 to 0.930 for low density polyethylenes and 0.950 to 0.960 for high density polyethylenes. Polyethylenes of such quality enable the production of road guide posts showing a high elasticity at extremely high ambient temperatures and at extremely low ambient temperatures.

For improving diffused light reflection by the posts it is recommended that pigments, preferably white pigments, be incorporated in the polyethylene. It is, however, not possible to provide large quantities of fillers within the polyethylene used without substantially reducing the elasticity of polyethylene. Road guide posts according to the invention are therefore preferably produced from a polyethylene containing maximally 2 percent, preferably less than 1 percent, of filler material. The filler material preferably used is titaniumdioxide (TiO₂).

The invention is further illustrated by the accompanying drawing in which an embodiment of a road guide post according to the invention is shown.

In the drawings

FIG. 1 illustrates a road guide post of the invention, with its lower portion embedded in the ground, and

FIG. 2 illustrates on an enlarged scale a cross section taken along the line 2—2 of FIG. 1.

The road guide post 1 shown in the drawing has its lower portion embedded in the ground and has a height of 70 to 100 cm above the ground. The post 1 consists of a tube formed from polyethylene and has a triangular cross section. The wall thickness of the post is a about 2 to 4 mm. The base line 2 of the triangular cross section is opposite to the road and both sides 3 of the triangular cross section are arranged such that said sides, which can be provided with commonly used luminescent foils, are plainly visible from the road. The upper end of the tubular road guide post is closed by a cover 4. The lower portion of the hollow post is filled with bulk material preferably to about ground level to permit the post to bend over when struck. The bulk material used can be a loose material, such as sand or earth, or a hardening material, such as concrete or a cement. With the use of the filling, the walls of the post are pressed by both the ground and the filling, whereby it is securely anchored within the ground.

The triangular cross section of the road guide post comprises an effective shape for use as a road guide since the sides can provide a reflective surface and when struck the post can right itself after being passed over by a vehicle. Also, the post has rounded corners whereby the area of the post which bends flattens out with opposed walls being disposed in substantially parallel relation. The round corners in such flattened condition of the post do not crack or otherwise rupture, as would sharp corners, and thus serve to urge the post back to its upright position.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims. The post, being hollow may be used as a sleeve to support winter snow stakes upon removal of the cap.

Having thus described my invention, I claim:

1. In a road guide post, the combination comprising a hollow body member formed of a material having the characteristics of elastic polyethylene, said body member being triangular in cross section uniformly throughout its length and having all of its corners rounded, the body member being of sufficient length to have an upper marker portion extending above ground and a bottom anchor portion set in and extending below the ground surface, the elasticity of the body member and the radius of said rounded corners being such that when the body member is bent over at the ground level the corners thereof can flatten out substantially without damage to the material and said tube will right itself to its original straight upright position.

2. The road guide post of claim 1 wherein said post has a filling of bulk material in that portion only which is to be inserted into a hole in the ground.

3. The road guide post as claimed in claim 2 characterized in that the bulk material is a loose material, selected from the group consisting of sand and earth.

4. The road guide post as claimed in claim 2, characterized in that the bulk material is a bound material selected from the group consisting of concrete and a cement.

5. The road guide post as claimed in claim 1, characterized in that the polyethylene has a melt index of not more than 5.

6. The road guide post as claimed in claim 1, characterized in that the polyethylene is a low density polyethylene with a melt index of not more than 5 and a density of 0.950 to 0.960.

7. The road guide post as claimed in claim 1, characterized in that the polyethylene is a high density polyethylene with a melt index of not more than 5 and a density of 0.950 to 0.960.

8. The road guide post as claimed in claim 1, characterized in that the polyethylene comprises as filling material 2 percent white pigments maximally.

9. The road guide post as claimed in claim 1, characterized in that the polyethylene comprises as filling material 2 percent titaniumdioxide maximally.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,709, 112 Dated January 9, 1973

Inventor(s) GEORG EBINGER

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

Column 4, line 32, change "0.950 to 0.960" to --0.918 to 0.930--.

Signed and sealed this 6th day of August 1974.

(SEAL)
Attest:

McCOY M. GIBSON, JR.
Attesting Office

C. MARSHALL DANN
Commissioner of Patents