United States Patent

Rotheiser

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[54] ROPE RETAINING STAKE

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[52] **U.S. Cl.** .....135/15 PE
[51] **Int. Cl.** A45f 1/16
[58] **Field of Search** .....135/15 PE; 52/155–166; 24/130

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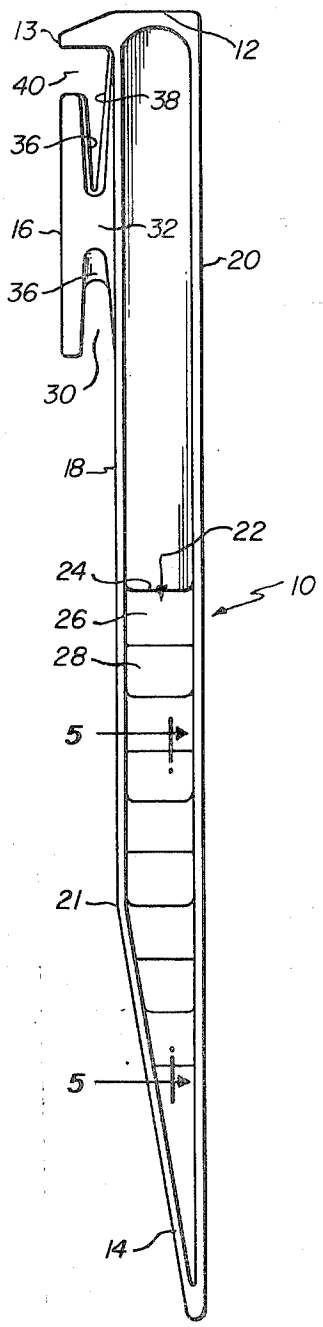
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[57] **ABSTRACT**

A unitary tent stake having a cleat member along a shank edge for rope engagement; and having opposite louver channels for anchoring the stake in the ground.

4 Claims, 5 Drawing Figures



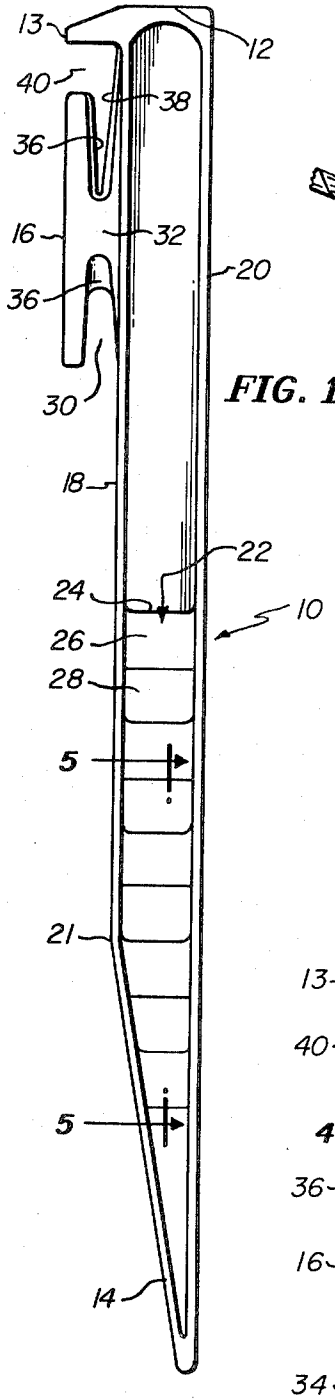


FIG. 1

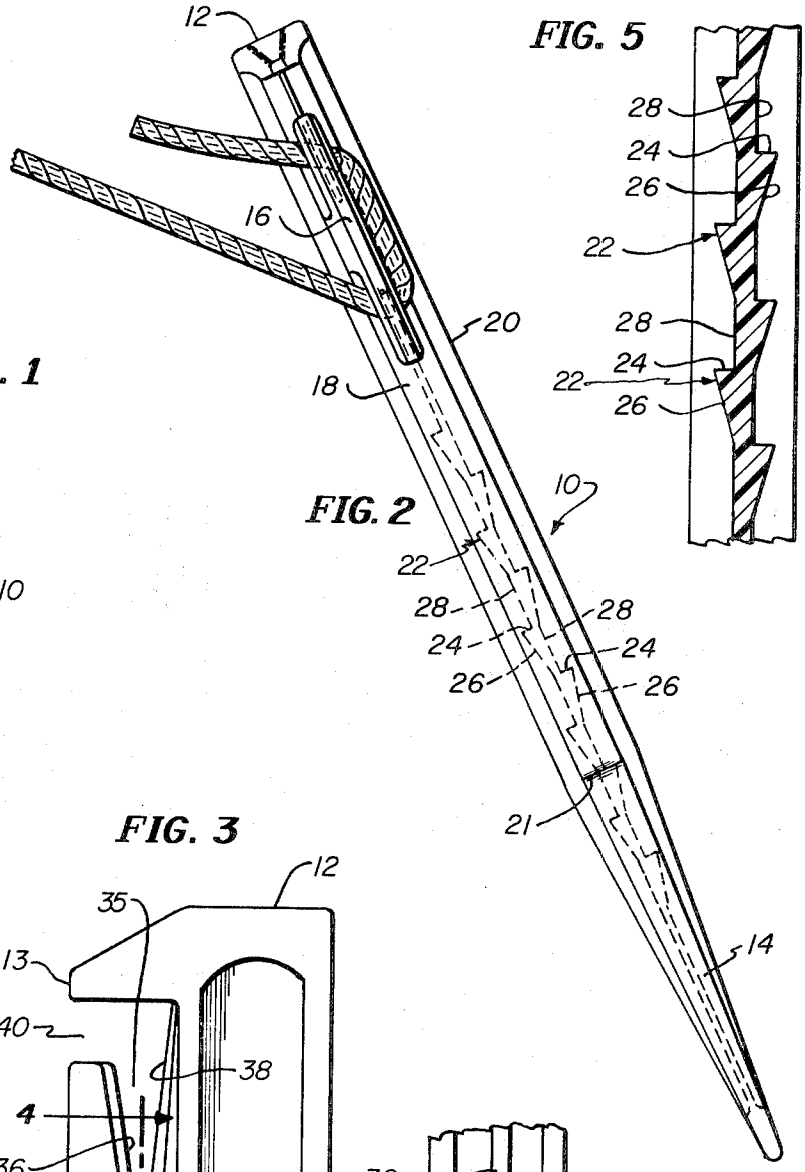


FIG. 2

FIG. 5

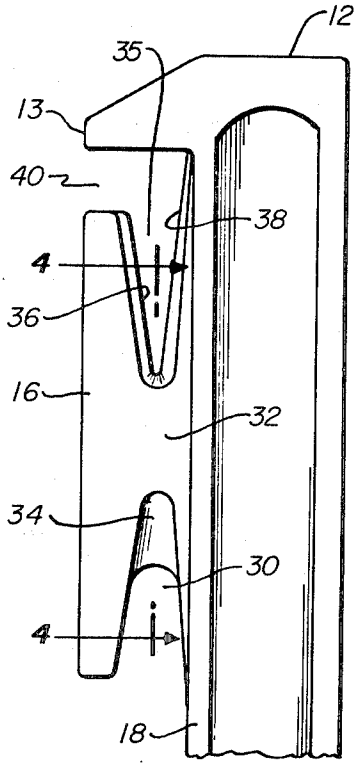


FIG. 3

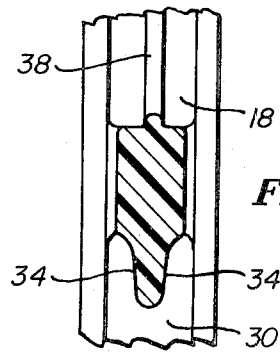


FIG. 4

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ROPE RETAINING STAKE

A stake is the subject of this invention; particularly, a stake with improved features for engaging rope from a tent or the like. The stake of the invention also has improved features to enhance retention of the stake after being driven into the ground.

It is desirable to provide a stake for holding down tent ropes or the like which enjoys as many of the following features as possible. The stake should be economical to manufacture so that cost is not a discouraging factor to the consumer who, for example, uses large numbers of such stakes for camping. The stake should be of sturdy construction so that it can be driven into the ground without breaking. The stake should have features which enable it to be retained within the ground, that is, it should not be easily dislodged or removed. The stake should have means to allow quick and secure rope engagement so that such rope need not be knotted, tied, or the like.

It is accordingly an important object of the present invention to provide a stake which can be used for securing rope tents, and which enjoys the foregoing features.

It is yet another object to provide a stake which has an improved cleat member whereby rope from a tent can be quickly and reliably secured thereto without making knots, tying or the like.

It is another important object to provide a stake which can be used for tents or the like, and which has improved features of anchoring properties when driven into the ground.

It is still another important object of the invention to provide a stake which can be used for tent ropes or the like wherein highly serviceable stakes may be economically manufactured in an integral form, preferably by molding from a strong plastic.

Objects and advantages such as those stated above are attained by the stake of the present invention which is fully disclosed hereinafter, and which is shown in the accompanying drawings, wherein:

FIG. 1 is a side elevational view of the improved stake;

FIG. 2 is an end elevational view of the stake, on which end is mounted the cleat member;

FIG. 3 is a side elevational view of the cleat member portion of the stake, on an enlarged scale;

FIG. 4 is a sectional view along line 4—4 of FIG. 3; and

FIG. 5 is a sectional view along line 5—5 of FIG. 1.

The stake as shown in the drawings may be integrally molded from a strong plastic such as acrylonitrile butadiene styrene (ABS). Such a plastic-molded stake enjoys the advantages of economy while still providing the advantages of serviceability, strength, and durability. The stake has an elongated body or shank **10** with an enlarged head **12** formed partly by extension **13**. One of the features of such an enlarged head is to provide an increased area impact surface for driving the stake into the ground. The opposite end of the shank is formed with a ground-penetrating point **14**. One edge of the shank has a rope engaging cleat **16** which will be described more fully later.

The shank **10** includes an elongated flat body having a flange **18** on the cleat member side or obverse edge of the shank; and another transverse wall or flange **20** on the opposite edge or side of the shank. In the illustrated stake, the obverse flange has a smaller width than the opposite flange. The flanges decrease in width towards the point of the stake, and the obverse flange forms an angle at **21** to meet the opposite flange at the point.

The shank of the stake has ground anchoring elements on opposite sides or faces below the cleat member. These anchoring elements are shown as a plurality of linearly aligned louver elements **22**. The louver elements on one side are shown offset relative to the elements on the opposite side so that unmodified wall portion areas may be reduced. This facilitates molding and provides a better disposition of the louver for anchoring. Each louver element is shown with flat top walls or surfaces **24** flanking the shank and being substantially normal to each of the opposite faces, the elements **22** also have

tapered sidewalls or surfaces **26** extending downwardly and inwardly from the flat top walls to the face at an intermediate portion **28** of the shank. The louver elements on each face of the shank, therefore, define a series wherein each element comprises a flat wall, a tapered sidewall, and an intermediate portion before the succeeding louver flat wall. The louver elements on each side of the shank may also be considered as being channeled along each face or side of the shank. Improved anchoring features are attained when the ground engages such channeled louvered elements on each side of the shank. The louver elements are preferably within the ground-penetrating portion of the shank.

Detailed structures of the improved cleat member may now be seen in the enlarged view of FIG. 3. The cleat member **16** includes an elongated body in which its longitudinal axis lies in a plane normal to the plane of the obverse flange. The cleat member defines a bottom rope passageway **3** formed by the cleat member and the obverse flange. A connecting body portion **32** joins the cleat member to the obverse flange; and the bottom of said connecting portion has reduced opposite sides **34** which allow the rope to set thereagainst in an improved way when such rope is pulled through the bottom passageway **30**.

An upper tapered passageway **35** is formed between the cleat member and the obverse flange. This tapered passageway is defined by an elongated cleat rib **36** and an opposed flange rib **38**. The free end of the rope may be securely wedged in a smaller dimension of such tapered passageway.

In operation, the stake is driven into the ground by applying an impact force to the head **12** and extension **13**. A rope from the tent or the like is then passed through the rope passageway **30**, and the free end of the rope is then moved through entry or guideway **40** which is between head extension **13** and the top of cleat member **16**. The free end of the rope is then tugged downwardly to wedge such free end between the oppositely disposed ribs **36** and **38** in the tapered passageway **35**. The position of such a secured rope is indicated in the view of FIG. 2. The rope is shown passing through the rope passageway, abutting against the connecting portion, and passing through the tapered passageway.

The configuration of the louver elements along opposite sides of the shank of the stake permit the stake to be freely driven into the ground, yet such channeled louver elements lead to improved anchoring of the stake. It is believed that the louver elements form voids as the stake is driven into the ground, and that particles of the earth subsequently fill such voids and grip the shank of the stake. Also, the ground is channeled between the opposite flanges to improve the holding action from the flat surfaces of the louver elements. Be that as it may, improved anchoring features are attained from the louver elements, as such. The obverse flange has been shown to be a narrower width than the opposite flange, but this is not essential. The width of the opposite flange has been made consistent with the width of the head, while the width of the obverse flange has been made consistent with the tapered thickness of the head extension.

The preferred embodiment of the stake has been illustrated to comprise a shank with opposite sides or faces, and flanges along opposite edges to obtain channels. It will be appreciated that other cross-sectional configurations may be devised, with or without channels. For example, a plurality of lower elements may be radially disposed about an oval or circular cross section. Likewise, channels may be formed by depressions, or the like. In the preferred forms, the lower elements will have a flat surface which is normal to the longitudinal axis of the stake, and a tapered surface which terminates at a face of the shank.

Claims are now presented to the features of the invention disclosed herein.

1. A stake for driving into the ground and for being anchored within the ground, including an elongated shank, said shank having opposite faces, a head for receiving impact forces at one end of the shank, a ground-penetrating point at

the opposite end of said shank, a flange extending along the length of one edge of said shank, an opposite flange extending along the length of the opposite edge of said shank, said flanges at the opposite edges of the said shank extending to the opposite faces of said elongated shank to define a channel on each side of said shank, a plurality of louver elements along each face of said shank and enclosed within the respective channel thereof, said louver elements being linearly aligned along said shank and said louver elements along one face of said shank being in staggered relationship with respect to said louver elements disposed along the opposing face of said shank, each louver element having a flat surface substantially normal to a face of said elongated shank and a downwardly and inwardly tapered surface which terminates at the base of the shank, a cleat member on the upper one-half of said shank and disposed below said head, said cleat member having an elongated body, and an intermediate connecting portion adjoining said body to said shank, a rope passageway between said elongated body and said shank on one side of said connecting portion, said rope passageway having a dimension sufficient to allow a rope of selected size to pass therethrough and a tapered passageway between said cleat member and said shank on the other side of said connecting body portion, said tapered passageway having a dimension sufficient to allow a rope of selected size to be wedged in a smaller dimension toward the bottom of said tapered passageway when said rope is turned through said passageway, abutted against said connecting body portion, and moved through said tapered passageway.

2. The stake as set forth in claim 1 above, wherein the width of said flanges along the respective edges of said shank decrease in size toward the ground-penetrating point thereof.

3. The stake as set forth in claim 1 wherein said louver elements along each face of said shank are disposed within the ground-penetrating portion of said shank.

4. The stake as set forth in claim 1 above, wherein said head on said shank has a lateral extension terminating at about the top of said elongated body of said cleat member, whereby said head extension and the cleat member body top define a rope guideway therebetween for the rope prior to wedging the rope in said tapered passageway.

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