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Plate anchor.

The plate anchor includes a plate having flexible lines attachable at opposite sides. The plate is adapted to be forced into the ground with one of the opposite sides foremost, whereafter the line attached to the leading side line can be pulled to cause rotation of that side against the soil or sand until the desired resistance to further rotation of the plate is established. The line attached to the leading side is attached to the object required to be anchored; and the line attached to the other, trailing side is arranged to remain above the surface of the soil for access to a withdrawing pull when desired.

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BACKGROUND OF THE INVENTION

This invention relates to an anchor for a variety of applications for use in various soil types such as for guy ropes for tents, beach umbrellas and other beach items, and also for other situations where it is desired to anchor an object in soil which has little or no cohesion.

SUMMARY OF THE INVENTION

According to the invention an anchor includes a plate having flexible lines attached at opposite sides, the plate being adapted to be forced into the ground with one of the opposite sides foremost, whereafter the line attached to the leading side line can be pulled to cause rotation of side against the soil or sand until the desired resistance to further rotation of the plate is established, the line attached to the leading side being attachable to the object required to be anchored; and the line attached to the other, trailing side being arranged to remain above the surface of the soil for access to a withdrawing pull when desired.

According to another aspect of the invention, there is provided an anchor for use in anchoring an article in soil, comprising: a substantially flat plate having flexible lines attached adjacent to opposite leading and trailing sides, the plate being adapted to be forced into the soil with the leading side foremost, whereafter the line attached to the leading side can be pulled to cause rotation of the leading side against the soil to cause the soil to be compacted against the rotation of said leading side until a desired resistance to further rotation is established, the line attached adjacent to the leading side being adapted to be attached to the article to be anchored; and the line attached adjacent to the trailing side being arranged to remain above the soil for access to a withdrawing pull when desired.

A sliding hammer or other device may be provided to assist the insertion of the plate into the soil and the plate may be pointed at its side of entry for easy insertion.

When the lower line is pulled, that side or edge rotates upwardly while the trailing edge may also rotate in the opposite direction, to cause the soil to compact in front of the rotating edges of the plate until the degree of compaction is so large that further rotation is so difficult that an adequate anchorage is established.

The upper line attached to trailing side may have a ring at its extremity so that an upward pull may be exerted when the plate anchor is required to be removed. The pull will be generally vertical and in most cases will merely involve a reverse rotation of the plate against soil which has not been compacted and which, in fact, has been loosened

by the rotation of the plate in the anchoring situation. However, if difficulty is experienced, the sliding hammer may be used to assist the pull and may, if necessary, be used a lever.

According to an alternative embodiment of the invention, a plate anchor includes a plate having a formation adapted to receive a line, the formation being located at or near the leading edge of the anchor when inserted into ground for the anchor to be pulled in a direction in which the soil resistance is increased, the other end of the line being attachable to an object desired to be anchored.

In one form of the invention the plate may also include a second formation (at or near the trailing edge), which may be a simple orifice so that a second line may be attached when it is desired to remove the anchor. The first formation may take the form of a loop and the line may be a wire.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention is described below with reference to the accompanying drawings in which:

FIGURE 1 is an isometric view of a plate anchor according to the invention;

FIGURE 2 illustrates a method of inserting the plate anchor in soil;

FIGURE 3 illustrates rotation of the plate anchor;

FIGURE 4 illustrates one method of removal of the plate anchor;

FIGURE 5 illustrates another method of removal of the plate anchor; and

FIGURE 6 illustrates an isometric view of an alternative embodiment of the plate anchor.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

In Figure 1, a plate anchor 10 has one side 12 pointed and has a line 14 attached near the point of the leading side and line 16 attached at the opposite trailing side.

The plate is inserted into the soil as shown in Fig. 2, which can be assisted by a sliding hammer 18, for example, and when at the desired depth, the line 14 is pulled as shown in Fig. 3, thus causing rotation of the lower side 12, as shown by the arrow 20. Other similar devices for inserting the anchor plate may also be used. The trailing side may also rotate, compacting soil at the trailing side to some degree also. The soil 22 in front of the rotating portions of the anchor becomes compacted due to the rotation of the plate and this compaction is sufficient to provide adequate anchorage. The article requiring to be anchored is attached to the spring clip 24, or other fastening means.

When it is desired to remove the anchor plate,

the other line 16 connected to the trailing side is pulled and the sliding hammer 18 may be used for this purpose as shown in Fig. 4, or in Fig. 5, where it is used as a lever.

The plate anchor of the invention has particular utility in cohesionless soils and sands including beach sand. The present invention is particularly useful for supporting fences, trellises for fruit growing, power line poles, aerials and virtually anything which needs permanent or semi-permanent support.

In Fig. 6, illustrating an alternative embodiment of the plate anchor, a plate 30 has a loop 32 adjacent its pointed leading end 34. The loop 32 is located on a thickened portion 36 of the plate 30. A wire, rope or other line (not shown) is attached to the loop on one end, and the object to be anchored on the other end.

The plate may be driven point first into the ground by means of a hammer in a vertical or near vertical state, and the wire connected to the leading side is then pulled so that the plate pivots on the edge remote from the point and the soil is then compacted in front of the movement of the plate.

A hole 38, may be provided adjacent the trailing side for attachment of a second line such as line 16, so that if, or when the plate is required to be removed, the second line attached to the plate through the hole 38 can be used for pulling the plate vertically upwards.

Claims

1. An anchor for use in anchoring an article in soil, comprising:

a substantially flat plate having flexible lines attached adjacent to opposite leading and trailing sides, the plate being adapted to be forced into the soil with the leading side foremost, whereafter the line attached to the leading side can be pulled to cause rotation of the leading side against the soil to cause the soil to be compacted against the rotation of said leading side until a desired resistance to further rotation is established, the line attached adjacent to the leading side being adapted to be attached to the article to be anchored; and

the line attached adjacent to the trailing side being arranged to remain above the soil for access to a withdrawing pull when desired.

2. At the anchor as claimed in Claim 1, in which the leading side of the plate is pointed.

3. The anchor as claimed in Claim 1, in which the line attached to the leading side has means for attachment of the article to be anchored.

4. An anchor for use in anchoring an object to the ground, comprising:

a substantially flat plate having a leading edge, a trailing edge, and a formation adapted to receive a line, the formation being located adjacent to the leading edge of the anchor when the anchor is inserted into the ground to permit the anchor to be pulled to rotate at least said leading edge in a direction in which resistance of the ground to further rotation is increased by compaction of the ground in the direction of rotation of the leading edge, the other end of the line being attachable to an object to be anchored.

5. The anchor in Claim 4, in which means for attaching a second line is provided adjacent to the trailing edge.

6. The anchor of Claim 4, in which the formation adjacent to the leading edge is a loop.

7. The anchor of Claim 4, wherein the means for attaching a second line is an orifice.

8. The anchor of Claim 4, wherein the means for attaching a second line is a loop.

FIG. 1

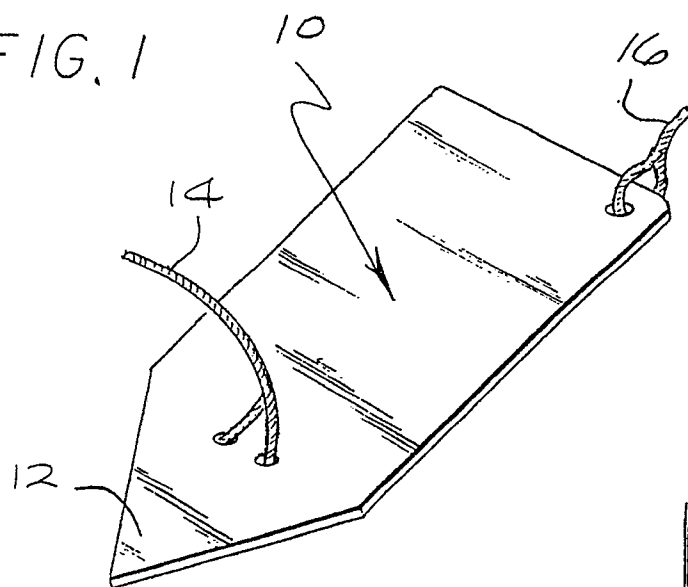


FIG. 2

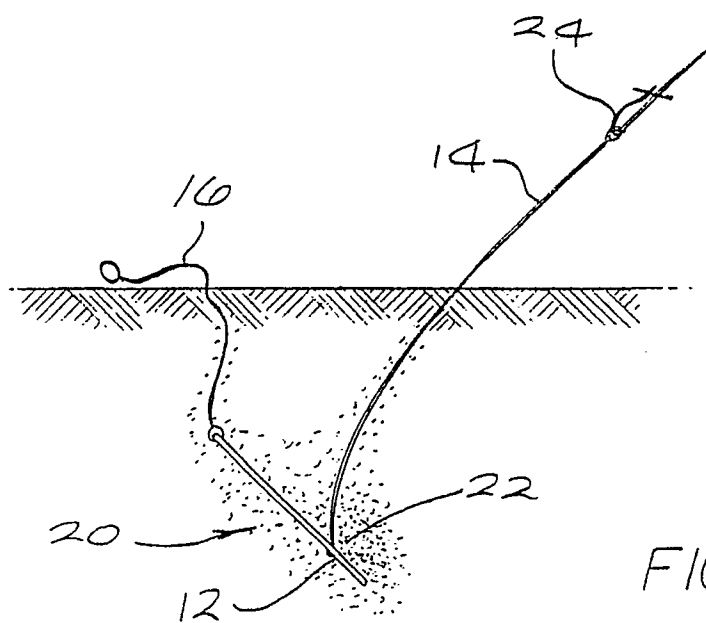
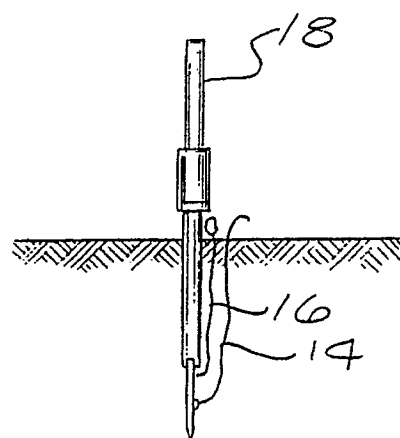


FIG. 3

FIG. 4

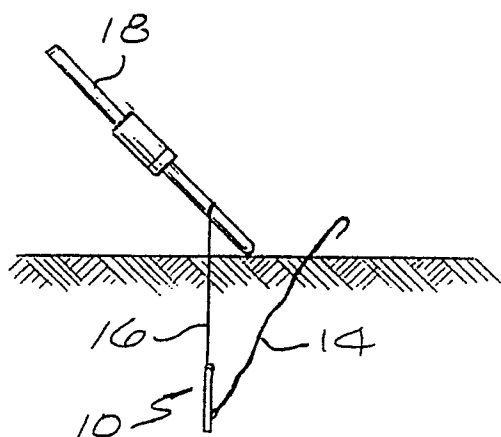
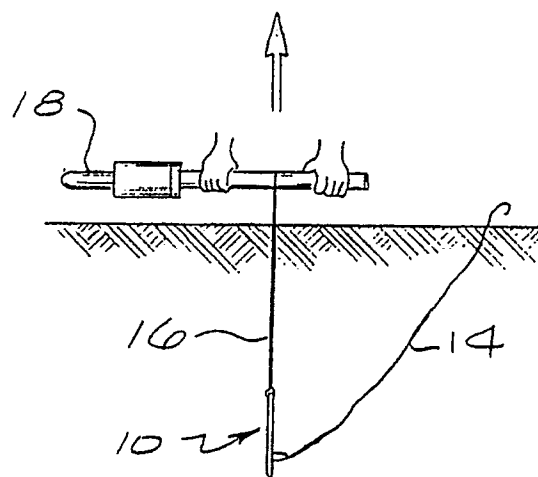


FIG. 5

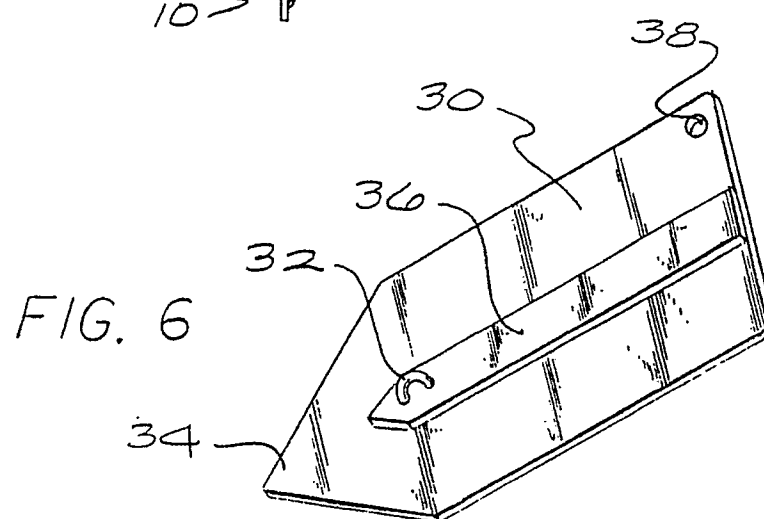


FIG. 6