

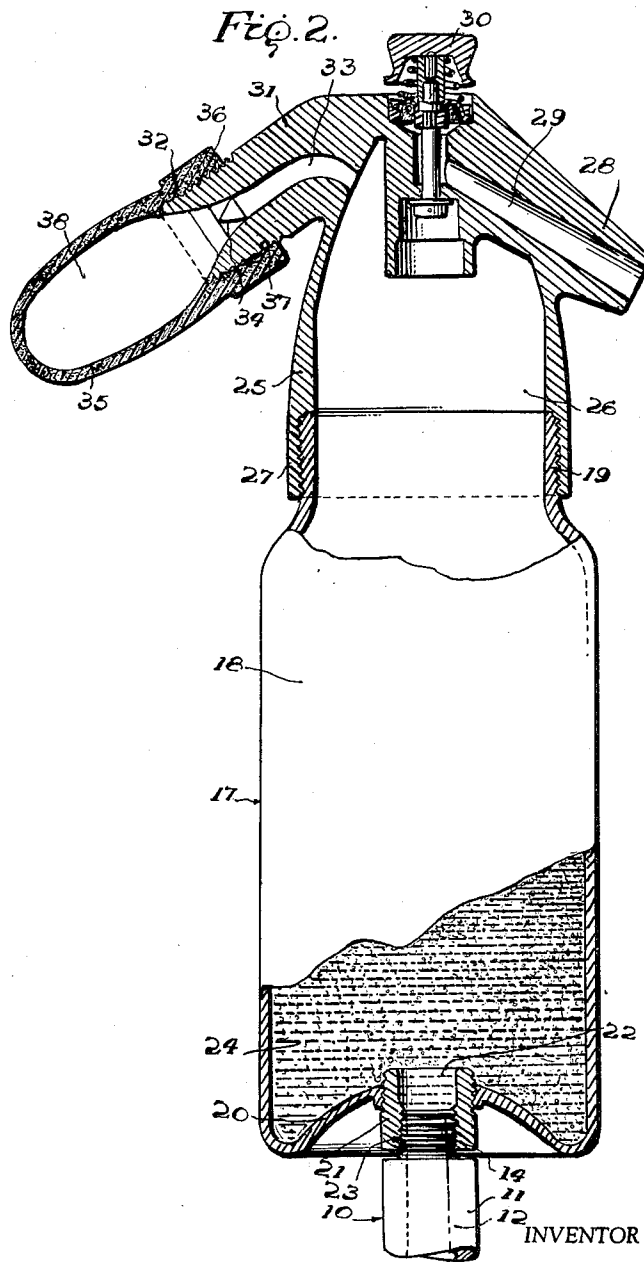
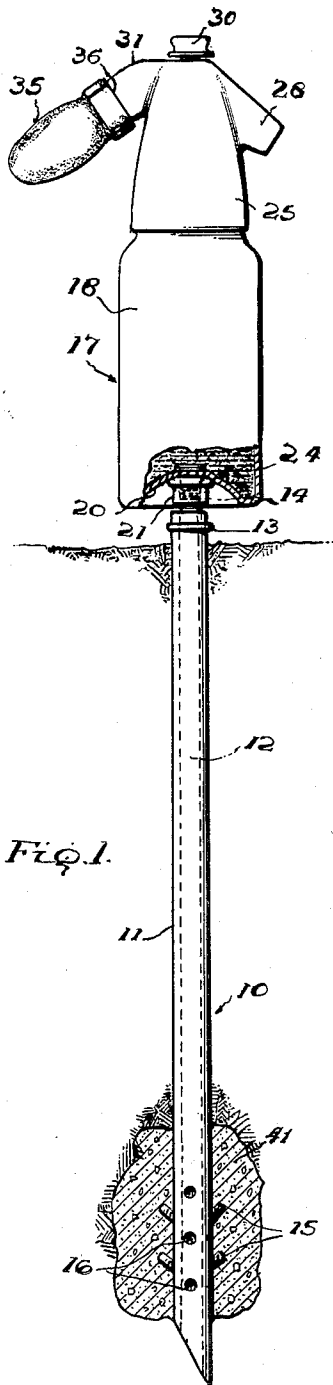
Oct. 12, 1965

P. E. WHITTINGTON
GROUND ANCHOR SECURING DEVICE

3,210,897

Filed May 14, 1962

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

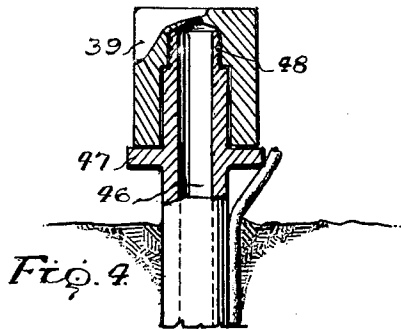


Fig. 4

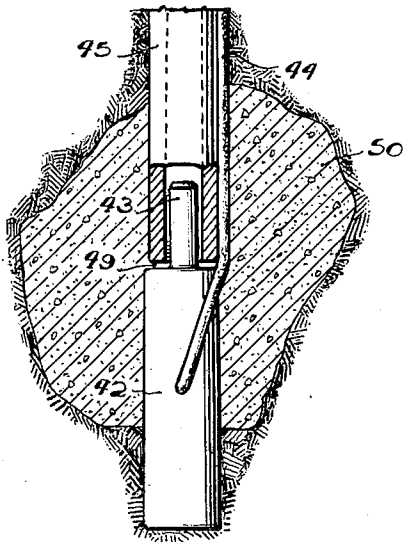


Fig. 5

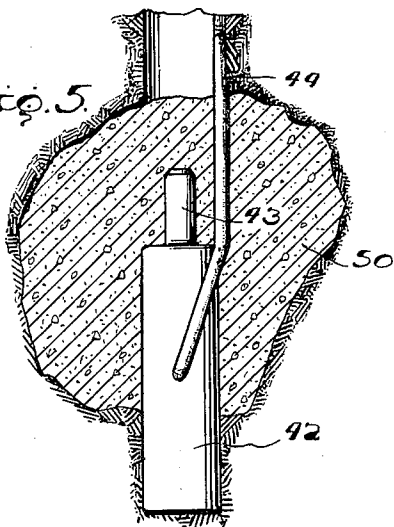
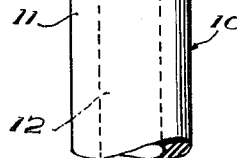
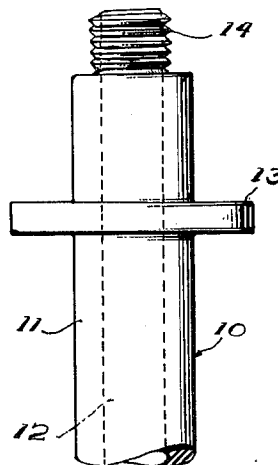
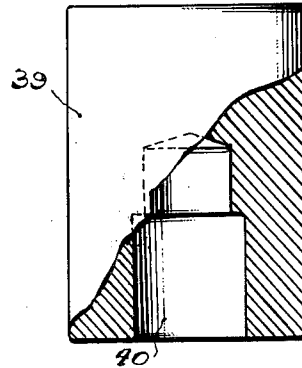


Fig. 3



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3,210,897

GROUND ANCHOR SECURING DEVICE

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Filed May 14, 1962, Ser. No. 196,032

8 Claims. (Cl. 52-156)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

My invention relates to a ground anchor securing device to hold anchors in loose or sandy soil.

Heretofore it has been extremely difficult to pitch a tent on loose or sandy soil due to the fact that the tent pins or anchors tended to pull out of the ground when the guy lines were pulled taut to support the tent. In addition adverse weather conditions place a strain on the guy lines that frequently dislodge the tent pins or anchors.

It is, therefore, a primary object of my invention to provide a means for securing ground anchors and/or anchor pins in loose or sandy soil.

Another object of my invention is to provide a compact portable device which can easily be carried and operated by one man to secure a plurality of anchors in the ground.

Still another object of my invention is to provide a device for securing varying types of ground anchors and/or ground anchor pins in loose or sandy soil.

An additional object of my invention is to provide a self contained fluid pressure device for securing ground anchors in the ground.

A further object of my invention is to provide a device for securing ground anchors in loose or sandy soil which is simple and economical to manufacture and requires no maintenance.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this application, and in which like numerals are employed to designate like parts throughout the same —

FIGURE 1 is a side elevational view of my device in use with an anchor pin;

FIGURE 2 is a detailed side elevational view of the dispensing unit;

FIGURE 3 is a fragmentary exploded view of the upper portion of the anchor pin and the driving cap;

FIGURE 4 is a modification of my invention showing a fragmentary side elevational view thereof; and

FIGURE 5 is a side elevational view of the modification shown in FIGURE 4 with the driving rod removed.

In the drawing wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 indicates generally an anchor pin employed in the form of the invention shown in FIGURES 1-3, which comprises an elongated rod 11 having a centrally disposed bore 12 therein, a circular flange 13 adjacent its upper end, and a threaded boss 14 at its upper end. The lower portion of the elongated rod 11 is provided with exterior flutes 15 and a plurality of openings 16 communicating with the bore 12.

A portable dispensing unit generally indicated at 17 includes a container 18 having a threaded neck portion 19 and a concaved base 20. The base 20 has a nipple 21 secured therein providing a passageway 22 having a threaded portion 23. As will be seen in FIG. 2, the nipple 21 terminates above the bottom of the container 18. The container 18 is filled with cement slurry or the like 24 for a purpose to be disclosed hereinafter.

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The container 18 is closed by means of a cap 25 which has a cavity 26 therein. The lower portion of the cap 25 is threaded internally as at 27 so as to engage the neck portion 19 of the container 18.

A nozzle 28 is provided on one side of the cap 25 having a passageway 29 communicating with the cavity 26 and controlled by a manually operative valve 30. On the side opposite the nozzle 28 is a nipple 31 which terminates in an exterior threaded portion 32. The nipple 31 has a passageway 33 extending throughout its length communicating with the cavity 26. A piercing point 34 is secured in the passageway 33 adjacent its outer end by any suitable means. The numeral 35 designates a removable hollow handle with an open end 36 having an internally threaded portion 37. A replaceable CO₂ cartridge 38 is carried in the handle 35.

In operation the anchor pin 10 is driven into the ground by any suitable means until the flange 13 is close to the surface. I prefer to utilize a hammer or the like (not shown) and a driving cover 39 (see FIG. 3) which has a cavity 40 adapted to fit over the upper portion of the anchor pin 10 and rest on the flange 13 to protect the threaded boss 14. The nipple 21 of the dispensing unit 17 is then screwed onto the threaded portion 14 of the anchor pin 10. The slurry is poured into the container 18 and the cap 25 is placed on the container 18. The handle 35 is advanced upon the nipple 31 until the piercing point 34 pierces the CO₂ cartridge 38 which enables the gas to escape through the passageway 33 and into the cavity 26 forcing the slurry of cement or the like 24 through the passageway 22 in the nipple 21 and into the bore 12 of the anchor pin 10. The slurry 24 is then forced through the openings 16 and forms a concrete block 41 around the anchor pin 10 and its flutes 15. A tent line or the like (not shown) is then secured to the flange 13 of the anchor pin 10. When this operation is completed and it is desired to release the dispensing unit 17 from the anchor pin 10, the valve 30 is opened to allow the gas in the cavity 26 to escape through the passageway 29 in the nozzle 28. If desired, the container 18 can be filled with slurry 24 prior to attaching it to the anchor pin 10. In this event the nipple 21 can be closed by a cork (not shown) or any suitable means.

The modification illustrated in FIGS. 4 and 5 shows how my dispensing unit 17 may be employed to secure different types of ground anchors. In this form of the invention the anchor 42 includes a stem 43 and carries an anchor line 44 which is secured to the anchor 42 by any suitable means. The anchor 42 is driven into the ground by a driving rod 45 which has a centrally disposed bore 46 having a diameter greater than the diameter of the stem 43 extending throughout its length and is provided with a flange 47 adjacent its upper portion which is threaded as indicated at 48. The driving cover 39 of FIG. 3 is utilized in driving the anchor in the ground. The dispensing unit 17 is secured to the driving rod in the manner said unit is secured to the anchor pin 10 recited in the first mentioned form of my invention. The driving rod 45 is raised slightly prior to piercing the CO₂ cartridge 38 to provide a space indicated at 49 to permit the slurry of cement 24 to escape and form a block of cement such as 50 above and around the anchor 42.

It will be readily appreciated that the blocks of cement (41 of FIG. 1 and 50 of FIGS. 4 and 5) will secure the anchors 10 and 42 in loose or sandy soil where conventional anchors and anchor pins would not hold.

It is to be understood that the forms of the invention herewith shown and described are to be taken as preferred embodiments of 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.

I claim:

1. A method of securing a ground anchor having a hollow rod member or the like in loose or sandy soil comprising the placing of the anchor beneath the surface of the ground, leaving a hollow anchor rod member having egress means at its lower end projecting above the surface of the ground, securing a portable dispensing unit having an opening in the bottom containing cement slurry or the like and having a pierceable gas cartridge adjacent a piercing point therein to the upper portion of the anchor rod member, compressing the cartridge to engage the piercing point, and piercing the cartridge to force the cement slurry out of the dispensing unit, through the rod member and out of the egress means to form a block of cement around the ground anchor.

2. An anchor securing device, adapted to be used with an embedded ground anchor having a rod member with a bore therein extending above the surface of the ground and having egress means adjacent its lower end, comprising a portable dispensing unit having an opening in the bottom portion containing cement slurry or the like, means adapted to detachably secure the bottom portion of said unit at said opening to the upper portion of the ground anchor, a nipple provided at the upper portion of said unit, a piercing point incorporated in said nipple, a hollow handle moveably secured to said nipple, a pierceable gas cartridge disposed within said handle, and cooperating means between said nipple and said handle for advancing said handle on said nipple whereby said cartridge is pierced by said point to force the cement slurry out of said dispensing unit.

3. An anchor securing device comprising an anchor pin having a bore therein partially embedded in the ground, the lower portion of said anchor pin having openings communicating with the bore, a portable dispensing unit having an opening in the bottom portion containing cement slurry or the like, means detachably securing the bottom portion of said unit at said opening to the upper portion of said anchor pin, a nipple provided at the upper portion of said unit, a piercing point incorporated in said nipple, a hollow handle moveably secured to said nipple, a pierceable gas cartridge disposed within said handle, and cooperating means between said nipple and said handle for advancing said handle on said nipple whereby said cartridge is pierced by said point to force the cement slurry out of the bottom portion of the dispensing unit, through the bore and out of the openings in the lower portion of the anchor pin to form a cement block around the anchor.

4. The structure of claim 3 wherein the lower portion of the anchor pin is provided with a plurality of flutes.

5. The structure of claim 3 wherein said dispensing unit is provided with fluid pressure venting means.

6. A device for securing a ground anchor in loose or sandy soil wherein said anchor is embedded in the ground and has an upwardly directed stem, comprising a driving rod having a bore therein of a diameter greater than the diameter of the stem of the ground anchor, the lower end of said driving rod receiving said stem and the upper portion projecting above the surface of the ground, a portable dispensing unit having an opening in the bottom portion containing cement slurry or the like, means detachably securing the bottom portion of said unit at said opening to the upper portion of the driving rod, a nipple provided at the upper portion of said unit, a piercing point incorporated in said nipple, a hollow handle moveably secured to said nipple, a pierceable gas cartridge disposed within said handle, and cooperating means between said nipple and said handle for advancing said handle on said nipple whereby said cartridge is pierced by said point to force the cement slurry out of the bottom portion of said unit, through the bore and out of the lower end of the driving rod to form a cement block above and around said ground anchor.

7. The structure of claim 6 wherein said dispensing unit is provided with fluid pressure venting means.

8. The combination with a ground anchor embedded in the ground, an anchor rod member having a bore therein extending from said anchor to a point above the surface of the ground; of an anchor securing device comprising a portable dispensing unit having an opening in the bottom portion adapted to hold cement slurry or the like, means detachably securing the bottom portion of said unit at said opening to the upper portion of said anchor rod member, a nipple provided at the upper portion of said unit, a piercing point incorporated in said nipple, a hollow handle moveably secured to said nipple, a pierceable gas cartridge disposed within said handle, and cooperating means between said nipple and said handle for advancing said handle on said nipple whereby said cartridge is pierced by said point to force the cement slurry out of the bottom portion of the dispensing unit and through the bore in the anchor rod member to form a cement block above and around the ground anchor.

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