

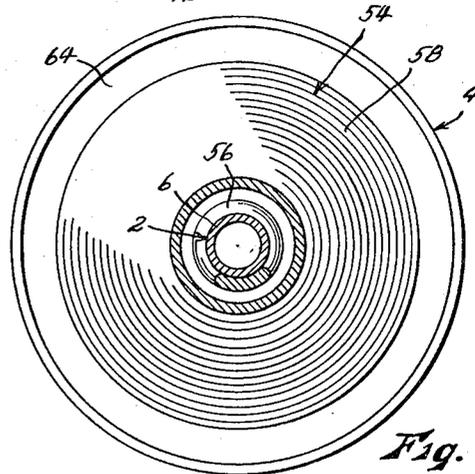
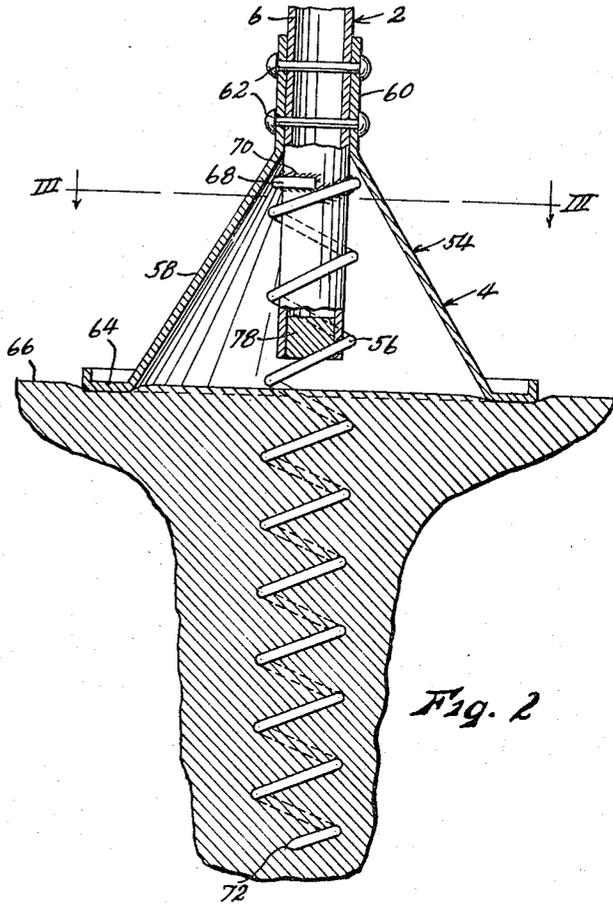
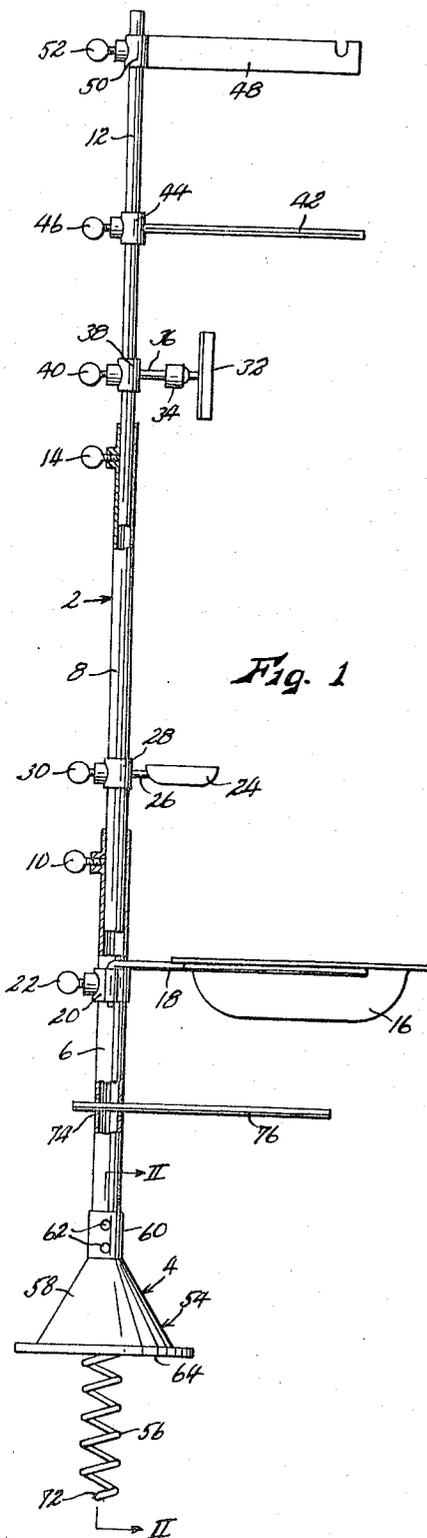
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OBJECT-SUPPORTING STANDARD AND GROUND ANCHOR THEREFOR

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**OBJECT-SUPPORTING STANDARD AND  
 GROUND ANCHOR THEREFOR**  
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This invention relates to new and useful improvements in ground anchors for posts, standards or the like adapted to be secured at their lower ends in the ground, particularly such posts, standards or the like which are adapted to support objects thereon above the ground, whereby said standard is subjected to lateral stresses and strains which might tend to loosen said standard in the ground. The standard actually illustrated is intended for use as a lavatory "tree" by campers, in that it supports such objects as a wash basin, soap dish, shaving mirror, towel rack and lantern hanger, but it will be apparent that the ground anchor has general application to standards for many different uses.

The principal object of the present invention is the provision of a ground anchor of the character described which may be inserted easily and conveniently into the ground, and which will support the standard rigidly and securely over extended periods of time, despite repeated and substantial lateral forces which may be exerted on said standard. Generally, the invention involves an enlarged ground-engaging foot secured to the lower end of the standard, and a heavy helical spring secured at its upper end to the standard in spaced relation above the ground and extending downwardly below said foot. Said spring enters the ground in the manner of a corkscrew to draw said foot into abutment with the ground, and continued rotation of the spring after engagement of the foot with the ground causes that portion of the spring above the ground to be elongated elastically to urge said foot still more tightly against the ground.

Other objects are simplicity and economy of construction, efficiency and dependability of operation, and adaptability for use in a wide variety of applications.

With these objects in view, as well as other objects which will appear in the course of the specification, reference will be had to the accompanying drawing, wherein:

FIG. 1 is a side elevational view of a standard equipped with a ground anchor embodying the present invention, with portions broken away, said standard being equipped to serve as a portable lavatory for campers,

FIG. 2 is an enlarged fragmentary sectional view taken on line II—II of FIG. 1, with the anchor operatively engaged in the ground, and

FIG. 3 is a sectional view taken on line III—III of FIG. 2.

Like reference numerals apply to similar parts throughout the several views, and the numeral 2 applies generally to a vertical standard which is adapted to be secured in the ground at its lower end by a ground anchor embodying the present invention and indicated generally by the numeral 4. As shown, standard 2 includes a lower section 6 of tubular metal, an intermediate section 8 of tubular metal having its lower end telescoped slidably into section 6 and secured adjustably therein by set screw 10, and an upper section 12 which may or may not be tubular having its lower end telescoped slidably into section 8 and secured adjustably therein by set screw 14. The objects carried by said standard in the particular illustration shown, and fitting the device for use as a portable lavatory for campers, include a wash basin 16 supported by arms 18 mounted in a collar 20 which is vertically slidable on standard section 6 and secured thereon by set screw 22, a soap dish 24 supported by an arm 26 affixed to a collar

28 which is vertically slidable on standard section 8 and secured thereon by set screw 30, a shaving mirror 32 attached by a universal joint 34 to an arm 36 affixed to a collar 38 which is vertically slidable on standard section 12 and secured thereon by set screw 40, a towel bar 42 affixed to a collar 44 which is vertically slidable on standard section 12 and secured thereon by set screw 46, and a hanger arm 48 for a camper's lantern or the like affixed to a collar 50 vertically slidable on standard section 12 and secured thereon by set screw 52. Thus the standard and the objects carried thereby can be easily disassembled for convenient storage in a small space.

The ground anchor 4 forming the central subject matter of the present invention includes a foot member 54 and a helical spring 56. Foot member 54 includes a sheet metal wall 58 of inverted frusto-conical form, arranged coaxially with the standard at the lower end thereof. The smaller end of said cone is uppermost, and is provided with a cylindrical extension 60 which snugly encircles standard section 6 in spaced relation above the lower end thereof, and which is rigidly and permanently affixed to said standard as by rivets 62. At its lower end, conical wall 58 is provided with an outwardly extending peripheral flange 64 disposed at right angles to the axis of the standard, and adapted to abut the ground surface 66, as shown in FIG. 2. For a reason which will presently appear, the plane of flange 64 is slightly below the lower end of the standard, also as shown in FIG. 2. Helical spring 56 is also disposed coaxially with the standard, the upper turns thereof encircling the lower end portion of standard section 6, with the topmost convolution 68 thereof being rigidly affixed to the standard as by welding as indicated at 70. All other convolutions are freely movable longitudinally of the standard, and the spring extends well below the level of flange 64 of the foot 54. The lower end of the spring is sharpened as indicated at 72 to form a point for easy insertion into the ground.

In use, the standard 2, or at least the lower section 6 thereof, is held vertically and the point 72 of spring 56 is pressed firmly against the ground. The standard is then rotated about its axis so that spring 56 enters the ground in the manner of a corkscrew. To assist in this operation, a hole 74 is formed transversely through standard section 6 above foot member 54, into which hole a bar 76 may be inserted, said bar serving as a handle by means of which substantial twisting torque may be applied to the standard. Spring 56 is screwed into the ground by this means until flange 64 of foot 54 abuts the ground, thereby arresting downward movement of the standard, and further until the upper convolutions of the spring are longitudinally extended to some degree, as shown in FIG. 2. This extension of the spring is of course confined largely to that portion of the spring above the ground level, although the first convolutions thereof immediately beneath the ground surface may be somewhat extended if the ground is loosely packed. It is of course essential that the spring be of sufficient length that at least the lower convolutions thereof reach and become embedded in firm ground. Thus the flange 64 of the foot is drawn very tightly against the ground surface by the tension of the extended spring, usually indenting the ground as shown, and braces the standard securely in its vertical position. Even if the standard should subsequently be subjected to lateral blows or excessive lateral pressure, causing it to tilt about an edge of flange 64, this will merely cause the portion of the spring above the ground to be extended further. The spring will then recover after the pressure on the standard is relieved, returning the standard firmly to its vertical position. Even if the tilting of the standard should be so extreme as to pull the entire spring slightly upwardly in the soil, said

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spring will still return the standard to vertical so long as the spring is left with some degree of longitudinal extension.

Flange 64 of the foot is provided to give said foot a substantial area of ground contact, in order to prevent said foot from merely slicing into the ground without enough resistance to cause effective elongation of the spring. The conical shape of wall 58 is optional, though it has been found effective in providing a maximum bracing strength with a minimum of material. In essence, however, it is necessary only that the foot provide a support base substantially larger than the standard itself, and that said base be rigidly affixed to the standard. Spring 56 is of course attached to the standard at a point well above the ground to leave enough of said spring above the ground to provide ample elongation. The standard extends downwardly in the spring below the point of attachment of the spring thereto, so as to brace the standard against lateral movement. This prevents swaying of the standard, as might otherwise occur due to flexure of wall 58 of foot 54. While the standard preferably terminates above the ground as shown, the portion of the spring between the ground and the bottom end of the standard is so short, and the spring itself so heavy, that virtually no lateral yielding of the spring can occur at this point, at least not within the range of stresses likely to be encountered even under extreme conditions. The standard is terminated above the ground, or more particularly above the plane of foot flange 64, in order to avoid the necessity of forcing the standard itself into the ground. The standard, which preferably has its lower end closed by a plug 78 to prevent the entry of mud and dirt therein, could be forced into the ground only with considerable difficulty which would increase the force required to set the anchor without appreciably increasing the holding power thereof. However, if desired, the lower end of the standard could be sharpened, and extended below flange 64 to enter the ground. Also, and still within the scope of the invention, spring 56 may be regarded as consisting of two separate elements, the lower portion thereof consisting of any anchor member adapted to be fixed in the ground, and being of any suitable form such as a simple or fluked stake, and the upper portion thereof consisting of resilient means interconnecting said ground member to the standard.

Thus, while I have shown and described a specific embodiment of my invention, it is readily apparent that all of modifications above discussed, as well as many other minor changes of structure and operation, could be made without departing from the spirit of the invention as defined by the scope of the appended claims.

What I claim as new and desire to protect by Letters Patent is:

1. In combination with a generally vertical standard, a ground anchor for affixing the lower end of said standard in the ground, said ground anchor comprising:
  - a. a foot member affixed to the lower end of said standard and having a planar horizontal base substantially larger than said standard and adapted to abut the ground,
  - b. an anchor member adapted to be engaged immovably in the ground beneath said foot member and within the transverse confines thereof, and
  - c. a vertically disposed, resiliently extensible member affixed at its lower end to said anchor member and affixed at its upper end to said standard at a point spaced above the base of said foot member, said anchor member and said resiliently extensible

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member conjointly constituting a single helical spring, the lower portion of said spring being adapted to be screwed into the ground in the manner of a corkscrew and the upper portion of said spring being disposed above the plane of the base of said foot member and affixed at its extreme upper end to said standard.

2. The combination as recited in claim 1 wherein said standard extends axially into the upper portion of said helical spring and is engaged snugly therein, said standard extending into said spring to a point substantially below the point of attachment of said spring thereto, whereby to brace said standard and said spring against relative lateral movement throughout the interengaged portions thereof.

3. The combination as recited in claim 1 wherein said standard extends axially into the upper portion of said helical spring and is engaged snugly therein, said standard extending into said spring to a point substantially below the point of attachment of said spring thereto, said standard terminating at a point just above the plane whereby to brace said standard, and said spring against relative lateral movement throughout the interengaged portions thereof, said standard terminating at a point just above the plane of the base of said foot member, whereby said standard does not enter the ground.

4. The combination as recited in claim 1 wherein said foot member constitutes an inverted conical member arranged coaxially with said standard and having its upper end affixed to said standard adjacent the lower end of the latter, the lower end of said conical member defining said ground-engaging base, said spring being affixed to said standard within said conical member.

5. The combination as recited in claim 4 wherein said conical foot member is provided at its lower end with a planar peripheral flange at right angles to the axis of the cone, said flange constituting the ground-engaging base of said foot member.

6. The combination as recited in claim 4 wherein said standard extends axially into the lower portion of said conical member, terminating just above the plane of the ground-engaging base thereof, and wherein said standard extends snugly into the upper portion of said spring, said spring being affixed to said standard at a point within the upper portion of said conical member and spaced above the lower end of said standard.

References Cited by the Examiner

UNITED STATES PATENTS

50	832,565	10/1906	Wilson	52—157
	928,108	7/1909	Colver	52—157
	1,409,255	3/1922	Smith	211—71
	1,423,612	7/1922	Jewett	248—125 X
	2,168,830	8/1939	Schroth	248—44
55	2,263,138	11/1941	Olson	248—44
	2,264,082	11/1941	Kintz	248—125
	2,626,304	1/1953	Telecky et al.	248—125 X

FOREIGN PATENTS

60	798,426	7/1958	Great Britain.
	85,654	2/1936	Sweden.

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