Feb. 19, 1929. 1,702,536

E. K. COLE

CABLE ANCHOR

Filed Dec. 6, 1927

Fig. 4

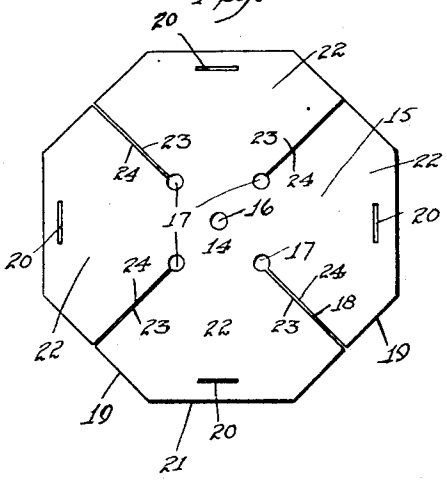


Fig. 3.

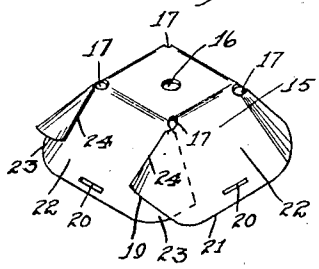


Fig. 1.

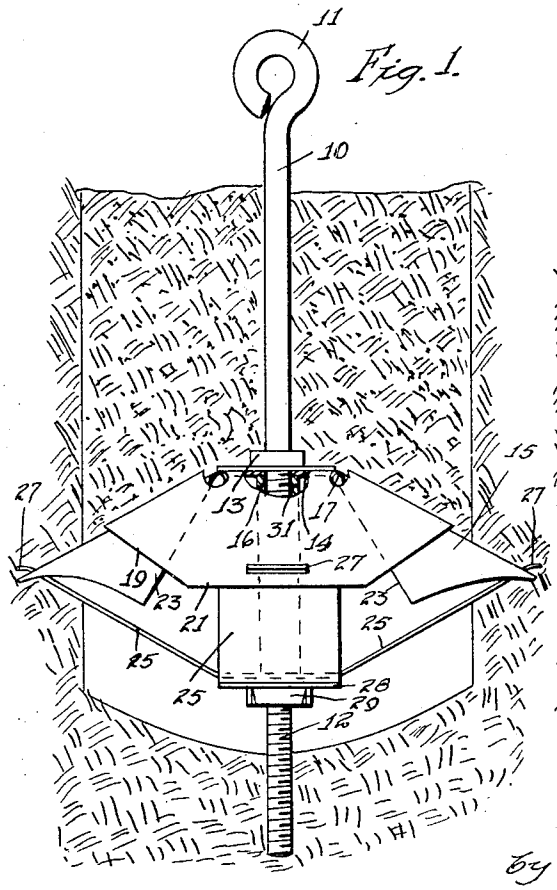
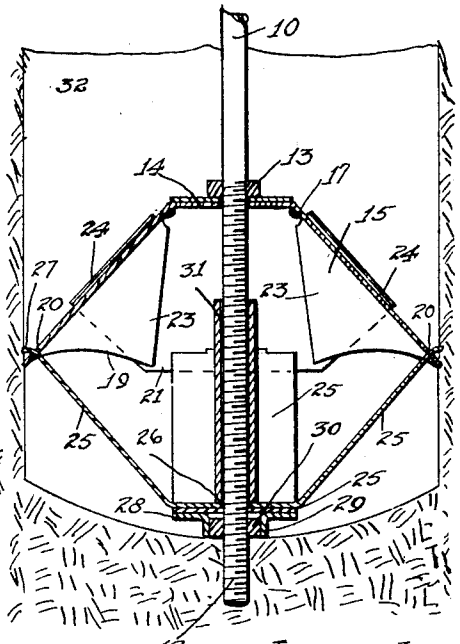


Fig. 2.



Inventor
Elmer K. Cole
by Quinn & Teague Atty's.

Patented Feb. 19, 1929. 1,702,536

UNITED STATES PATENT OFFICE.

ELMER K. COLE, OF WINTERSET, IOWA.

CABLE ANCHOR.

Application filed December 6, 1927. Serial No. 238,101.

The object of my invention is to provide a cable anchor of that type adapted to be placed into a post hole, and after being placed therein, capable of being expanded laterally, so that a portion of the expanded members will enter the solid ground, and when so expanded will have a maximum amount of resistance against being pulled out.

More specifically it is the object of my invention to provide a cable anchor of that type having a series of anchoring flukes capable of being expanded outwardly by means of a movable member moving toward the supporting means for the flukes, and to so construct the flukes that sand and fine material supported above the same will be shielded from the movable member.

A further object is to provide a cable anchor of simple, durable and inexpensive construction, having anchoring flukes capable of being expanded from a partially folded position to an operative position, and when in an operative position will present a maximum anchoring surface.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings in which:

Figure 1 is a side elevation of my improved anchor showing the manner in which it is supported in the ground.

Figure 2 is a sectional view of the same showing the anchor in its folded position, and the manner in which it is placed in a post hole before being expanded.

Figure 3 is a perspective view of the anchoring flukes.

Figure 4 is a plan view of the plate from which the flukes are formed.

My improved anchor comprises an anchor rod 10 having a loop 11 at one end and its opposite end provided with a screw threaded portion 12. The said rod 10 has a collar or shoulder 13 adjacent to the inner end of the screw threaded portion 12. Supported on the screw threaded portion of the shaft 10 is a plate 14 provided with anchoring flukes 15. The plate 14 is first formed octagonal, as shown in Figure 4, and has its center provided with an opening 16 for receiving the rod 10. Four holes 17 are then formed in the plate equidistant from the opening 16 and equidistant apart. Radial slots 18 are then provided in the plate 14, having their outer ends terminating midway between the ends of the edges 19 of the plate 14, said slots being perpendicular to said edges. Slots 20 are also provided in the plate 14 adjacent to the edges 21, there being preferably four slots 18 and four slots 20.

By this arrangement it will be seen that the plate 14 is divided into four sections or flukes 22. The outer edges of two flukes 22 are bent downwardly to an angle of substantially 45° with the plate 14. The radial edges 23 of said flukes are curved inwardly in the manner illustrated in Figure 3. The intermediate flukes 22 have their outer ends bent downwardly with their edges 24 overlapping the edges 23. The said edges 24 are also curved inwardly. Thus a member is provided having the form of a frustum of a right pyramid.

Slidably mounted on the threaded portion of the rod 10 is a pair of arms 25 formed of bendable sheet metal and arranged at right angles to each other, and provided with openings 26 at their central portions for receiving the rod 10. The ends of the arms 25 are provided with tongues 27 adapted to enter the openings 20 of the flukes 22. The under surface of the arms 25 is provided with a reinforcing plate 28 having downwardly extending lugs 29 for receiving a screw threaded nut 30 between them. A sleeve 31 is slidably mounted on the rod 10 between the plates 14 and the arms 25, the sleeve 31 being considerably shorter than the distance between said plate 14 and the arms 25.

The anchor is now ready to be inserted in a post hole 32 in the manner illustrated in Figure 2, after which the rod 10 may be rotated, causing the nut 30 to move toward the plate 14 and the arms 25 to be straightened, causing the outer edges of the flukes 22 to be swung upwardly and outwardly and caused to enter the side walls of the hole 32, in the manner illustrated in Figure 1. This operation is continued until the upper end of the sleeve 31 engages the plate 14. The said sleeve provides means for limiting the upward movement of the nut 30, and enables the operator to know when the proper amount of expansion has been imparted to the flukes, and at the same time provides means for transmitting the lifting strain of the rod 10 from the nut 30 to the plate 14. The load will then be carried by the upper end of the

sleeve 31 and the nut 30. The upper end of the sleeve 31 supports the central portion of the plate 14, while the outer edges of the flukes 22 are supported by the arms 25.

By this arrangement it will be seen that an anchoring plate is provided which substantially covers the entire transverse sectional area of the post hole to prevent sand and dirt from working down between the flukes and filling the space between the arms 25 and the flukes, so that no resistance will be offered by dirt being wedged between the same as the arms are moved to their closed position. The closed plate also increases the active area of the flukes.

I have found by actual experiment that the effectiveness of the anchor is greatly increased by making the plate in the form of a frustum, so that the bearing surfaces of the flukes are inclined downwardly and outwardly so that a certain amount of wedging action is imparted to the earth by any tendency toward pulling the anchor out, the lines of force being exerted upwardly and outwardly rather than in a line parallel with the rod 10. The wedging action has a tendency toward compressing the filled in dirt outwardly against the side walls, so that an anchor having the form of a frustum of a given cross sectional area requires considerably more power to pull it from the earth than one having the form of a flat transverse plate.

Thus it will be seen that I have provided an anchor of simple, durable and inexpensive construction, which may be easily and quickly inserted in the ground, and when so placed will exert a maximum amount of anchorage for a given cross sectional area.

I claim as my invention:

1. A cable anchor comprising a plate having a central opening and radial slots, that portion between said slots being bent downwardly and outwardly with their adjacent edges overlapping to form fluke members, a screw threaded shaft rotatively mounted in said opening, a series of laterally projecting and bendable arms slidably mounted on said shaft, the ends of said arms being bent upwardly and outwardly and pivotally connected to the free end of said fluke portions, and means for causing the central portion of said arms to travel toward said plate as the shaft is rotated.

2. A cable anchor comprising a plate having a central opening and radial slots, that portion between said slots being bent downwardly and outwardly with their adjacent edges overlapping to form fluke members, a screw threaded shaft rotatively mounted in said opening, a series of laterally projecting and bendable arms slidably mounted on said shaft, the ends of said arms being bent upwardly and outwardly and pivotally connected to the free end of said fluke portions, means for causing the central portions of said arms to travel toward said plate as the shaft is rotated, and a sleeve slidably supported on said shaft between said plate and said arm.

3. An anchor comprising a bendable plate having radial slots to form fluke portions, said fluke portions being bent downwardly and outwardly with their adjacent edges overlapping, an anchor rod, and means operated by the rotation of said rod to spread the free outer edges of said flukes upwardly and outwardly.

4. An anchor comprising a bendable plate having radial slots to form fluke portions, said portions being bent downwardly and outwardly, an anchor rod extending through the central portion of said plate, bendable arms slidably mounted on said rod having their free ends bent upwardly and outwardly and pivotally connected to the free ends of said flukes, a reinforcing plate above said plate, a shoulder on said rod for engaging said reinforcing plate, a reinforcing plate on the bottom surface of said arms, said plate being provided with downwardly extending lugs, and a screw threaded nut mounted on said shaft and supported between said lugs.

Des Moines, Iowa, November 22, 1927.

ELMER K. COLE.