May 11, 1926. 1,584,420

T. H. BARNARD

EARTH ANCHOR

Filed Dec. 15, 1924

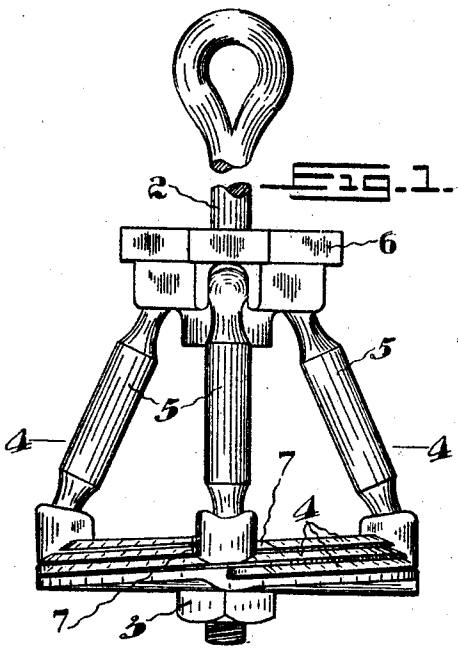


Fig. 1.

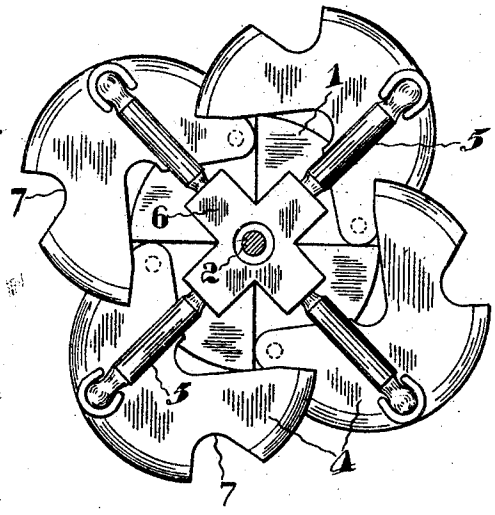


Fig. 3.

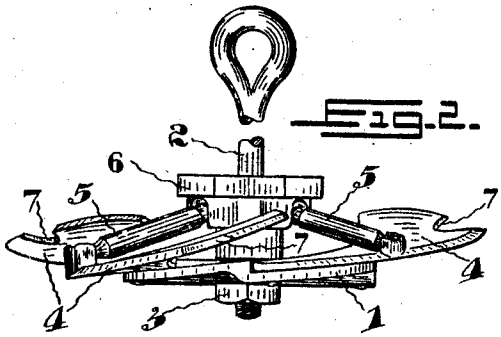


Fig. 2.

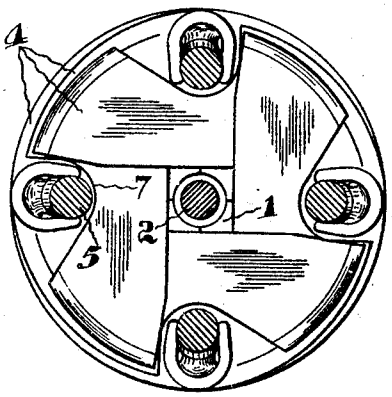


Fig. 4.

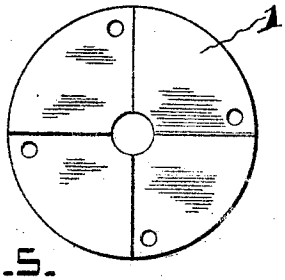


Fig. 5.

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UNITED STATES PATENT OFFICE.

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EARTH ANCHOR.

Application filed December 15, 1924. Serial No. 756,080.

This invention relates to devices used in the ground for anchoring the ends of cables or guy wires used for supporting poles and the like, and the object of my invention is to devise for this purpose an anchor which can be placed in position in holes of minimum size, which may be extended radially when in the hole so that the effective anchoring area of the anchor may be increased and at the same time obtain the resistance of the firm undisturbed earth to the pull of the cable secured to the anchor.

I attain my object by means of the constructions hereinafter described and illustrated in the accompanying drawings in which—

Fig. 1 is a side elevation of the anchor ready to be placed in position;

Fig. 2 a side elevation showing the anchor extended;

Fig. 3 a plan view of the device as shown in Fig. 2;

Fig. 4 a view taken on the line 4—4 in Fig. 1 showing the flukes in retracted position; and

Fig. 5 a plan view of the base.

1 is a base, which is provided with a central opening through which is passed a stock 2, preferably formed as an eyebolt, a nut 3 being set up on the bolt below the base.

4 are the flukes. One end of each fluke is pivotally connected with the upper surface of the base adjacent its periphery so as to swing substantially transversely of the length of the stock.

To each fluke, intermediate its ends, and preferably nearer its pivoted end, is pivotally connected, preferably by means of a ball and socket joint, one end of a link 5. The other ends of these links are pivotally connected, also preferably by means of ball and socket joints, with a sleeve 6 slidable on the bolt 2.

The anchor is used as follows. After a hole of suitable size has been dug in the ground, the anchor is placed in the hole with the base lying on the bottom. A suitable tool is then used to strike the upper surface of the sleeve 6 to force it towards the base. As the sleeve is moved towards the base, the lower ends of the links 5 are forced outwardly to swing the flukes 4 on their pivots to their extended position projecting into the firm soil.

In order to secure the maximum length of fluke, and therefore the maximum anchoring effect when the flukes are extended, together with a minimum size of anchor when the flukes are retracted, I form the base with a plurality of steps, the surface of the base from the bottom of one step gradually rising to the top of the next step. The flukes are pivoted adjacent the bottom of the steps, so that the other ends of the flukes are given an upward inclination, and therefore the free end of one fluke overlies the pivoted end of the adjacent fluke. I also preferably form each fluke as a segment of a helix, so that the fluke adjacent its free end is not only sufficiently spaced above the base to permit the adjacent fluke to swing between it and the base, but also sufficient room is provided for the pivoting of a third fluke.

To enable the flukes to closely encircle the stock, I form in the outer edge of each fluke a notch 7 in which may extend, when the flukes are retracted, the pivotal connection between the adjacent fluke and its connecting link.

It will be seen from the construction of the base and flukes described that the flukes may swing on their pivots without interfering with one another.

It will be evident, of course, that the stock 2 may be formed of cable instead of the stiff bolt shown.

From the above description, it will be seen that I have devised a construction which will satisfactorily attain the object of my invention as set out in the statement of invention of the specification.

What I claim is:—

1. In an earth anchor, the combination of a base; a stock connected with the base; a plurality of flukes each pivotally connected adjacent one end thereof with said base so as to swing in a plane substantially transversely of the length of the stock whereby they may occupy a position partially overlapping one another over said base or extending beyond the edge of said base; and means for swinging said flukes upon their pivots comprising a sleeve slidable on the stock and a plurality of links, each link being pivotally connected with the sleeve and with a fluke, the pivotal connections between the sleeve and links and between the links and flukes being formed as ball and socket joints.

2. In an earth anchor, the combination of a base having a plurality of steps formed on its surface, the surface of the base from the bottom of one step gradually rising to the top of the next step; a stock connected with the base; a plurality of flukes each pivotally connected adjacent one end with the base adjacent the bottom of a step so as to swing in a plane substantially transversely of the stock; and means for swinging said flukes upon their pivots.

3. In an earth anchor, the combination of a base having a plurality of steps formed on its surface, the surface of the base from the bottom of one step gradually rising to the top of the next step; a stock connected with the base; a plurality of flukes each pivotally connected adjacent one end with the base adjacent the bottom of a step so as to swing in a plane substantially transversely of the stock; and means for swinging said flukes upon their pivots comprising a sleeve movable on the stock and a plurality of links, each link being pivotally connected with the sleeve and with a fluke.

4. In an earth anchor, the combination of a base; a stock connected with the base; a plurality of flukes each pivotally connected adjacent one end thereof with said base so as to swing in a plane substantially transversely of the length of the stock whereby they may occupy a position partially overlapping one another over said base or extending beyond the edge of said base; and means for swinging said flukes upon their pivots comprising a sleeve movable on the stock and a plurality of links, each link being pivotally connected with the sleeve and with a fluke, each fluke having a notch formed in its outer edge in which the pivotal connection between the adjacent fluke and its link is received when the flukes are retracted.

Signed at Toronto, Canada, this 9th day of December 1924.

THOMAS H. BARNARD.