

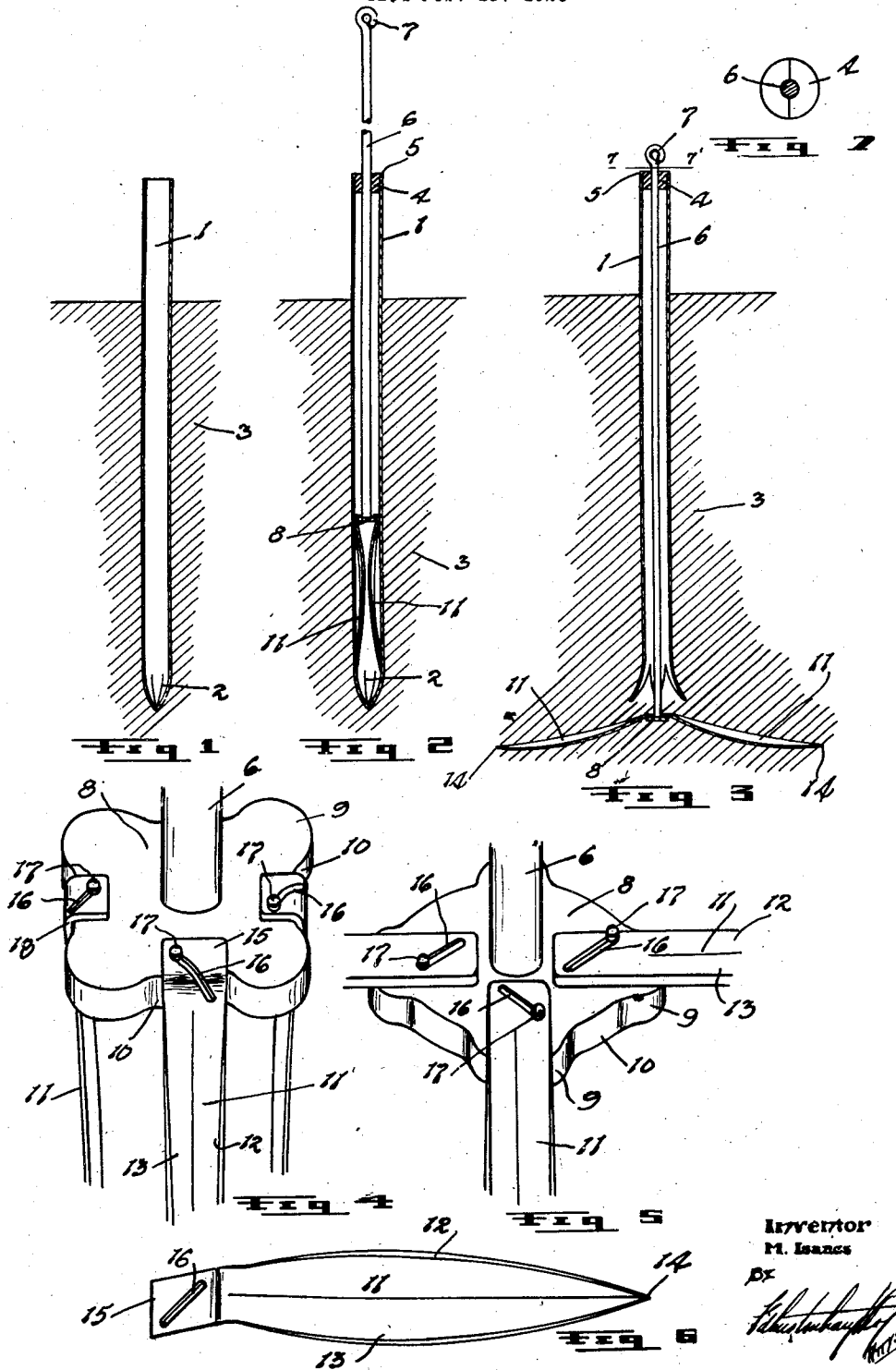
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GROUND ANCHOR

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GROUND ANCHOR.

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The invention relates to improvements in ground anchors and an object of the invention is to provide an anchor which can be readily driven into and anchored to the ground below ground level and which cannot be withdrawn without entailing the displacement of a considerable quantity of earth.

A further object is to construct the ground anchor from comparatively few parts and which can be manufactured inexpensively and which does not require special tools to be used in the placing thereof.

With the above more important objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawing, in which:—

Fig. 1 is a vertical sectional view centrally through the tube employed and showing it in the ground.

Fig. 2 is a vertical sectional view centrally through the complete anchor and with the fingers contained in the tube and the rod shown in side elevation.

Fig. 3 is a view similar to Figure 2 and showing the parts of the anchor in the final driven position.

Fig. 4 is an enlarged detailed perspective view of the head and showing the manner in which the fingers are attached thereto and with the fingers in a down hanging position.

Fig. 5 is a view similar to Figure 4 but with the fingers extending outwardly and with the head rotated.

Fig. 6 is a perspective view of one of the fingers.

Fig. 7 is an enlarged detailed horizontal sectional view at 7—7' Figure 3.

In the drawing like characters of reference indicate corresponding parts in the several figures.

The present device is designed for anchoring the ends of cables, ropes and such like to the ground so that they cannot pull out except under very exceptional or extreme conditions.

In constructing my device, I first provide a hollow tube or pipe 1 of predetermined length which has the one end thereof split as indicated at 2 and brought to a tapering shape so that the said tube can be readily driven into the ground 3 into a position such as shown in Figure 1.

I provide also a two piece or split plug 4 for the upper end of the tube, the plug entering the end of the tube and being provided with an outstanding flange 5 which prevents it from dropping down. A rod 6 of predetermined length is passed slidably through the tube and has the upper end bent to provide an eye 7 and the lower end fitted with a head 8, the head being permanently secured to the end of the rod and being also of such dimension that it can be passed through the tube. The rod passes slidably through the plug.

The head 8 is provided with rounded corners 9 and has the sides thereof cut out between the corners to provide side recesses 10. To the head I connect similar anchoring fingers 11 and each finger has the body part thereof centrally bent to provide angularly disposed flanges or wings 12 and 13 which are tapered to a point 14 and at the end remote from the point a flat attaching lug 15 is formed which normally takes a position more or less at right angles to the body of the finger. The lug is supplied with an angularly disposed slot 16. The upper or lug carrying ends of the fingers normally enter or pass across the recesses 10 of the head and the lugs are attached to the head in a depending position by pins 17 secured to the head and passing slidably through the slots.

When it is desired to place the anchor in the ground, the tube is first driven into the ground into the position as best shown in Figure 1. One then gathers the fingers together and enters them in the upper end of the tube and then forces the rod down until the fingers take the position shown in Figure 2. It is desirable that the fingers have a natural tendency to spring outwardly when so placed in the tube. One next places the two part collar around the rod and inserts it in the upper end of the tube. The next operation is to place a rod or filler in the eye and then drive the eye and consequently the rod downwardly. As the rod moves down, the fingers spread or open up the previously closed lower end of the tube and with the result that in the further driving of the rod the fingers enter the ground and take an outward course radial to the head.

The shape of the fingers is such that they will work outwardly in the ground as the rod is driven down and as the fingers expand or move outwardly, the right angled

bend 18 at the upper end of each finger straightens out, that is, the bodies of the fingers tend to come into the same horizontal plane as the lugs. As the bend 18 is flattened by the spreading of the fingers the latter travel inwardly upon the head 8 with the result that the pins 17 in conjunction with the slots 16 cause a rotary movement of the head 8 so that in the final position of the anchor, the fingers are overlying the corners of the head more or less in the position as shown in Figure 5 and the pins are at the then outer ends of the slots.

Accordingly it is practically impossible for the fingers to buckle downwardly upon the rod being pulled upwardly with the result that the rod will serve effectively to anchor cable, rope, pulling line or such like attached to the eye 7 thereof.

What I claim as my invention is:—

1. A ground anchor comprising a pipe adapted to be driven into the ground, a rod extending lengthwise through the pipe, a head secured to the lower end of the rod and designed to pass through the pipe, said head being substantially rectangular and having vertical slots in the sides thereof, pendent fingers crossing the slots of the head and fitted at their upper ends with inturned angularly slotted lugs, pins passing through the slots of the fingers and into the head and slidably attaching the fingers to the head, said fingers being lengthwise bowed and having their lower ends pointed whereby in the down driving of the rod the fingers will straighten out in the soil at the end of the pipe bending at the bases of the lugs and will take a radial position overlying the corners of the head.

2. A ground anchor comprising a plurality of fingers attached to and normally depending from a suitable carrying means, said fingers being adapted to spread apart when driven into the ground, a plurality of supplemental finger supports positioned intermediate said fingers in the normal depending position of the fingers and means for shifting said supplemental supports in a direction to position same beneath and in supporting engagement with the fingers in the spread-apart position of the latter.

3. A ground anchor comprising a plural-

ity of fingers attached to and normally depending from a suitable carrying means, said fingers being adapted to spread apart upon being driven into the ground, supplemental supports for said fingers positioned out of engagement therewith when the fingers are in normal depending position and means actuated by the spreading of the fingers for shifting said supplemental supports into engagement with the fingers to sustain the latter in spread apart position.

4. A ground anchor comprising a head, a plurality of fingers normally depending from the head and having the upper terminals thereof bent substantially at right angles to the body portions of the fingers and supported upon the upper surface of the head, and a slot and pin connection securing the bent terminal of each finger to the said head, the slots of said connections being inclined with reference to the longitudinal axis of the fingers, said fingers being adapted to spread apart when driven into the ground and to travel inwardly across the head whereby the latter is rotated through the co-action of the pins and inclined slots forming the connection therebetween and the several fingers and a plurality of supplemental finger supports normally positioned between the several fingers out of engagement therewith but adapted to be shifted into supporting engagement with said fingers by the aforesaid rotation of the head.

5. A ground anchor comprising a tube adapted to be driven into the ground, a head slidable within said tube, a plurality of fingers attached to the head and normally depending therefrom, said fingers being adapted to spread apart when driven into the ground beyond the lower end of the tube, corner projections carried by the head and positioned intermediate said fingers when the latter are in normal depending positions, and means for turning the head relatively to the fingers during spreading of the latter to position said corner projections beneath the fingers and in supporting engagement therewith.

Signed at Winnipeg this 27th day of January, 1926.

MARK ISAACS.