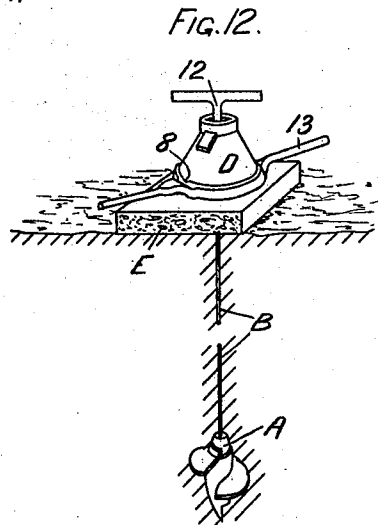
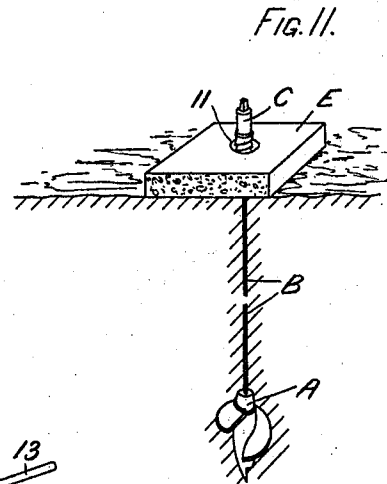
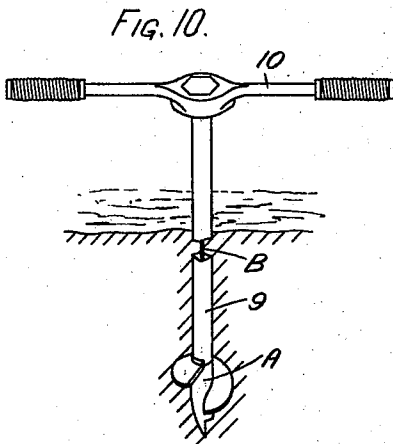
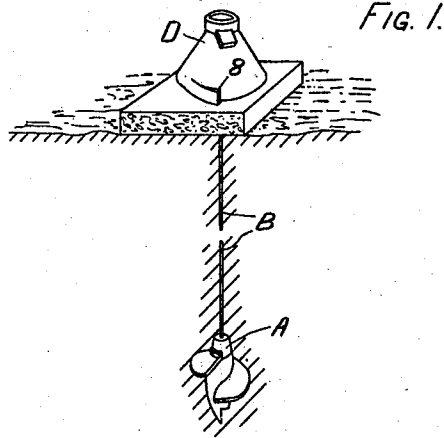


H. T. R. DRAY.
ANCHORING MEANS.
APPLICATION FILED JULY 29, 1920.

1,388,031.

Patented Aug. 16, 1921.

3 SHEETS—SHEET 1.



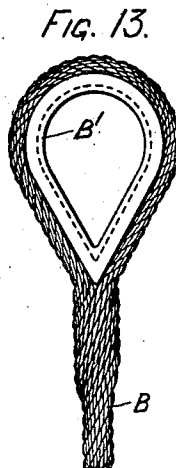
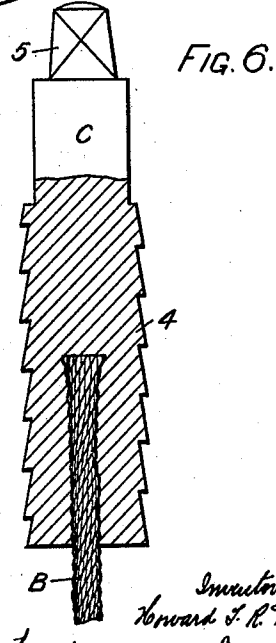
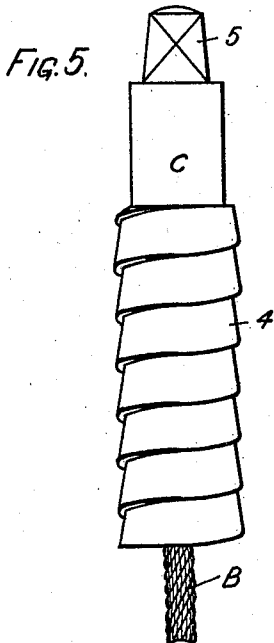
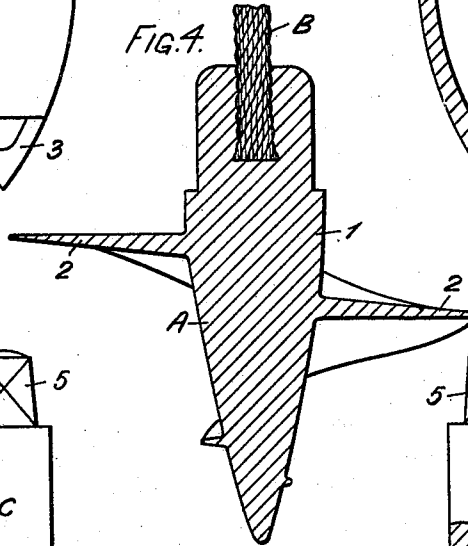
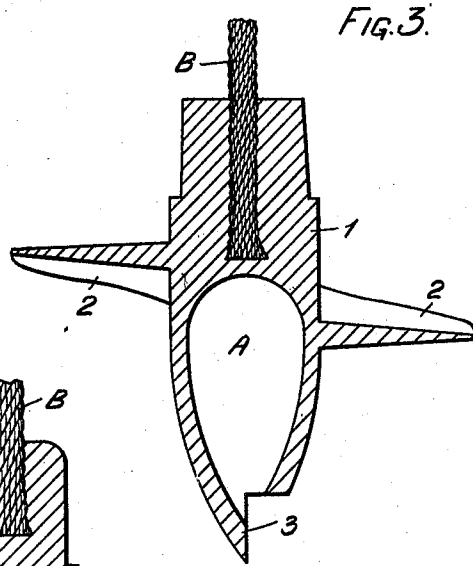
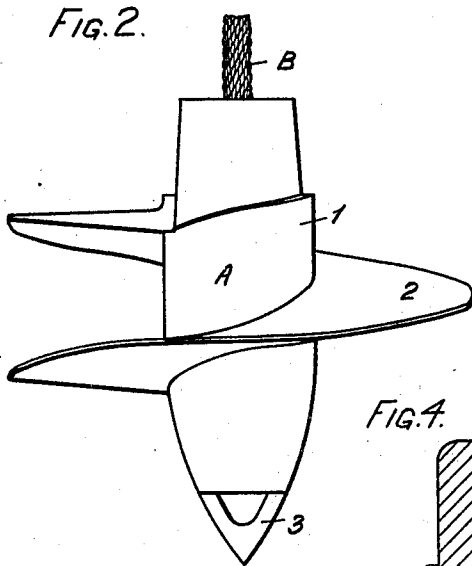
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

FIG. 7.

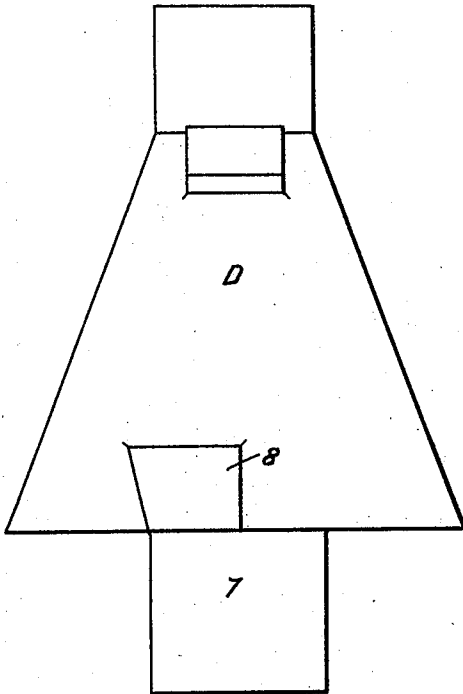


FIG. 8.

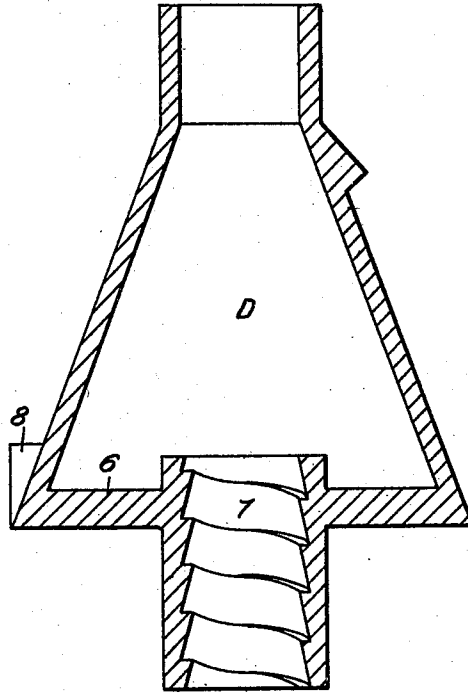
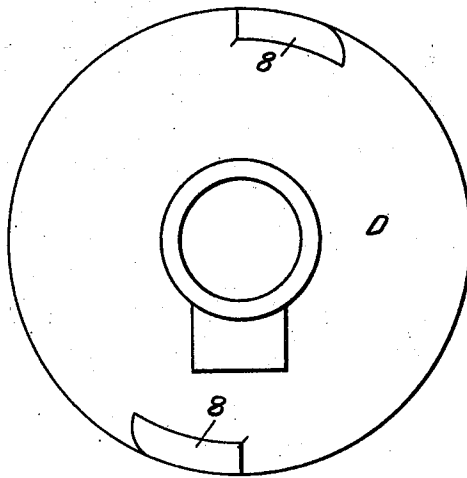


FIG. 9.



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UNITED STATES PATENT OFFICE.

HOWARD THOMAS RYTON DRAY, OF BOULAC, CAIRO, EGYPT.

ANCHORING MEANS.

1,388,031.

Specification of Letters Patent.

Patented Aug. 16, 1921.

Application filed July 29, 1920. Serial No. 399,958.

To all whom it may concern:

Be it known that I, HOWARD THOMAS RYTON DRAY, a subject of the King of Great Britain, and resident of Boulac, Cairo, Egypt, have invented a new or Improved Anchoring Means, of which the following is a specification.

This invention relates to anchoring means applicable for securing to the ground in a permanent manner any desired fixture such as land-marks, boundary marks, attachments for guy ropes, anchor rings or like devices for holding marine or air craft.

The objects of the present invention are to provide simple and efficient anchoring means capable of being produced at a comparatively low cost of manufacture, to enable the anchoring device to be screwed into the ground to any desired depth, and to insure that the device anchored to the ground cannot be removed without great difficulty.

According to this invention the fixture to be anchored to the ground is attached to the one end of a wire rope, chain or a metal rod of the desired length and to the opposite end of this rope or rod is attached a pile screw. The pile screw is adapted to receive a detachable hollow shank whereby the pile screw is screwed into the ground to the desired depth and then the hollow shank is removed, leaving the pile-screw and the wire rope or metal rod buried in the ground as a permanent fixture.

The accompanying drawings illustrate the application of the present invention, by way of example to fixing a boundary-mark or other land-mark.

Figure 1 is a perspective view illustrating the boundary mark or other land-mark in its fixed condition.

Fig. 2 is a view in side elevation and

Fig. 3 a view in vertical section of the pile screw.

Fig. 4 is a sectional view of a modified construction of pile screw.

Fig. 5 is a view in side elevation and

Fig. 6 a sectional view of the pile head.

Fig. 7 is a view in side elevation.

Fig. 8 a vertical section and

Fig. 9 a plan view of the cap which is secured to the pile head.

Figs. 10, 11 and 12 illustrate different stages in the building of the boundary or other land mark.

Fig. 13 illustrates a modification.

In the construction illustrated the pile

screw A is constructed with a body portion 1 preferably tapered toward its lower end and around the body portion is a screw thread or helix 2. The tapered portion of the body may be hollow and be cut away at the end in such a manner as to form a pointed end 3 triangular in shape as shown in Figs. 2 and 3 or the body portion may be solid as shown in Fig. 4. The upper end of the body portion has secured thereto in any suitable manner one end of a wire rope B or a chain or a metal bar the length of which corresponds with the depth the pile screw A is to be inserted into the ground. The other end of this wire rope, chain or bar, is attached to a pile head C composed of metal in the form of a rod with square or buttress threads 4 thereon terminating at the outer end thereof in a head 5 adapted to receive a key or box spanner. On this pile head is fitted a metal cap D which may be in the form of a hollow cone or other desired shape the base 6 of which is formed with a corresponding projection 7 to screw on to the pile head C or the connection may be made by means of a bayonet joint or the like. The top of the cap is open and holes may be formed in the wall of the cap through which bars are passed to screw the cap on to the pile head, but by preference the cap is formed with lugs 8 which are engaged by a spanner to turn the cap.

The pile screw A is screwed into the ground by means of a tube 9 (Fig. 10) through which the pile-head and wire-rope are passed and then the lower end of the tube is engaged with the upper end of the pile screw. A lever or levers 10 is or are now attached to the tube 9 and the latter thereby turned to force the pile-screw A into the ground to the extent of the length of the wire rope B. This having been done the tube is removed and, as shown in Fig. 11 a block E of concrete or a stone slab with a central hole 11 is now placed over the pile head C with a portion of the latter projecting through the hole and above the face of the concrete or stone to receive the cap D. The base of this cap is then screwed on to the pile-head as shown in Fig. 12. This is effected by means of a box-spanner 12 which is passed through the opening in the top of the cap D and placed over the upper end of the pile-head. This head is now held while the cap D is screwed thereon by means of a spanner 13 which engages the lugs 8

formed on the walls of the cap. The cap D having been screwed down on to the concrete block E the interior of the former is then filled with cement which serves when
5 set to bind the cap and the concrete block together.

The boundary mark or the like thus constructed being anchored at a depth below the surface of the ground cannot readily
10 be removed, and it will also be seen that the elements employed are simple in construction, convenient for transport and the labor required to fix the boundary mark is comparatively light.

15 It will be obvious that the invention above described is applicable to fixtures other than boundary marks, as apparatus similar to that described may be constructed in a manner adapted to serve as anchoring means for
20 whatever purpose desired, either on land or beneath the surface of water, or the apparatus may be adapted for use as a bench mark in survey work, that is to say a fixture on the ground, the height of which above sea level
25 is known.

In some cases the employment of a hollow cap may be dispensed with and the pile screw inserted into the ground to such a depth as to bury or partially bury the pile-

head, which may be of any desired construction according to the purpose for which it
30 is intended to be used. For example as shown in Fig. 13 the end of the rope B is formed with an eye B' to receive a shackle or the like.

35 What I claim as my invention and desire to secure by Letters Patent is:—

1. Anchoring means comprising a pile screw adapted to be screwed into the ground, a pile head, means for connecting the pile
40 head to said pile screw, a slab adapted to be arranged about the pile head, a hollow cap secured over the pile head above the slab and a cement filler in the cap to bind the pile head and slab together, substantially as de-
45 scribed.

2. Anchoring means comprising an anchor adapted to be embedded in the ground, a head adapted to rise from the surface level
50 of the ground, means connecting the anchor to said head, a slab adapted to be arranged on the surface of the ground about said head, a hollow cap secured to the head and bearing upon said slab, and a body of binding material arranged in the cap for secur-
55 ing said head and slab together, substantially as described.

HOWARD THOMAS RYTON DRAY.