J. BLACKBURN.

EXPANDING SCREW ANCHOR.

APPLICATION FILED JULY 16, 1919.

**1,343,384.** **Patented June 15, 1920.**

Fig. 1.

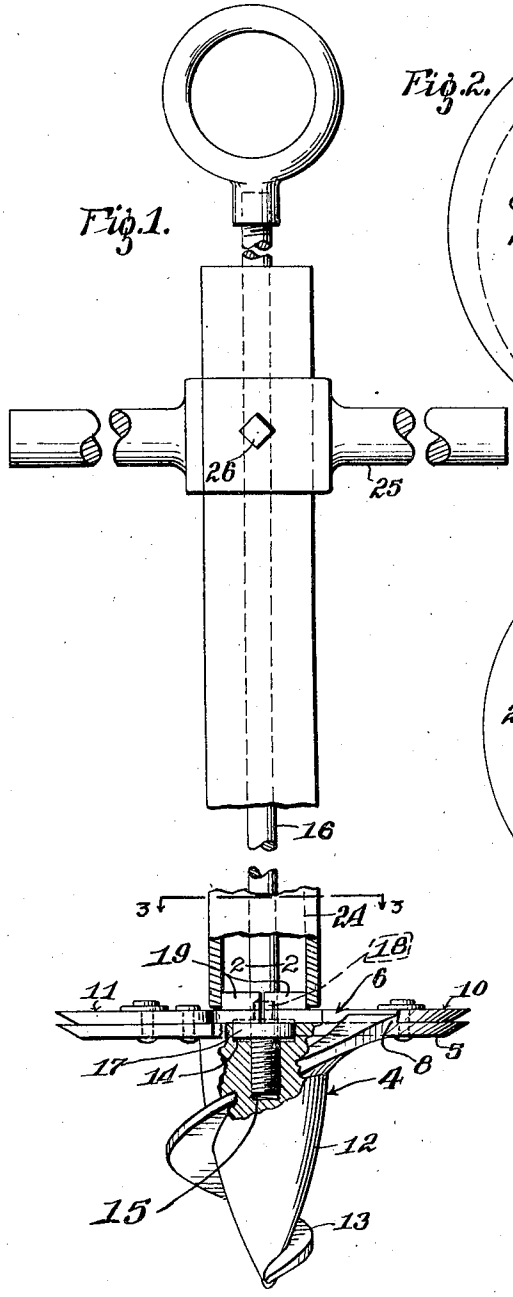



Fig. 2.

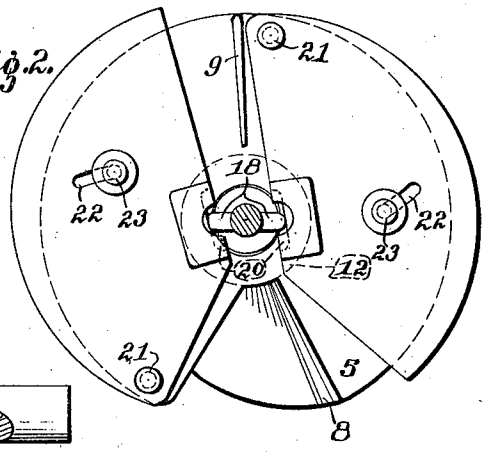
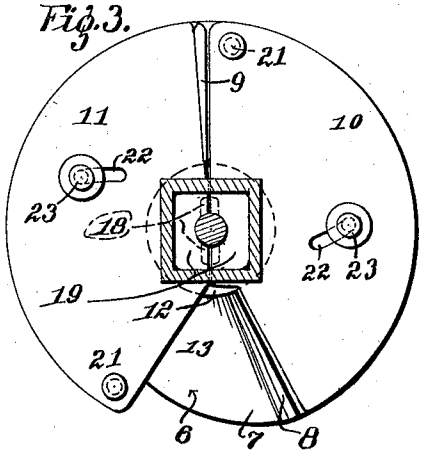



Fig. 3.




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# UNITED STATES PATENT OFFICE.

JASPER BLACKBURN, OF WEBSTER GROVES, MISSOURI.

## EXPANDING SCREW-ANCHOR.

1,343,384. Specification of Letters Patent. **Patented June 15, 1920.**

Application filed July 16, 1919. Serial No. 311,295.

*To all whom it may concern:*

Be it known that I, JASPER BLACKBURN, a citizen of the United States, and resident of Webster Groves, St. Louis county, Missouri, have invented certain new and useful Improvements in Expanding Screw-Anchors, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to new and useful improvements in expanding screw anchors and has for its principal object the construction of an anchor with the screw or auger type which may be inserted in the ground by a twisting or boring movement, and when inserted blades carried thereon may be expanded into the solid ground surrounding the bore so as to afford an increased bearing in the ground.

In the drawings

Figure 1 is a side elevation of my device with portions broken away and in sections.

Fig. 2 is a plan view of the anchor with the wrench removed and the blades expanded.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1 and showing the expanding blades collapsed.

Referring to the drawings 4 indicates the boring member, the body portion of which is formed of a flat disk 5 which is provided with a slot 6. One side or edge of the slot 6 is beveled as indicated by the numeral 7 and the other side provided with an upwardly extending flange 8. Diametrically opposite the slot 6 and on the upper surface of the disk 5 is the rib 9, the flange 8 and the rib 9 acting as a stop for the expanding rings or blades 10 and 11, when closed.

The under side of the disk 5 is provided with a downwardly projecting portion 12 which is preferably conical in form, and around this portion 12 the helix 13 is formed, its upper end integral with the flange 8.

The plate or disk 5 is provided with a central recess 14, and the conical shaped projection 12 with a screw-threaded bore 15. In this screw-threaded bore 15 the anchor rod 16 is secured. This anchor rod is provided with a collar 17 which fits in the bore 14 and with a pair of cam arms 18. These are formed integral with the collar 17 and turn therewith. On the upper surface of each of the plates 10 and 11 I form projections 19, these projections forming substantially a square when the blades 10 and 11 are in collapsed position.

These projections are undercut as indicated by the numeral 20, so as to allow the cam arms 18 to enter when the rod 16 is turned and force the blades 10 and 11 outwardly.

These blades are pivotally secured to the disk 5 at the point indicated by the numeral 21 and are provided also with slots 22 through which rivets 23 extend. These rivets keep the blades 10 and 11 from tilting and at the same time allow a free outward movement thereof.

Over the projections 19 is placed a square tube 24 which is used as a wrench to drive the anchor into the ground. This tube is provided with a handle 25 which is slidably secured thereto by means of the set screw 26 so that the operator can adjust the handle as the anchor is forced into the ground.

When the anchor has reached the desired depth the entire tube or wrench 24 is withdrawn and a pipe wrench applied to the rod 16 which is then turned, causing the cam arms 18 to enter the undercut portion 20 of the projections 19 and force the blades 10 and 11 outwardly and into the solid earth surrounding the bore.

The blades 10 and 11 may have their underside tapered or chambered so as to provide a cutting edge which will allow their digging into the ground more quickly.

It is to be understood, of course, that the top of the rod 16 is also screw threaded so that an eye to which a guy rope is secured may be attached thereto.

It is to be observed as previously pointed out that the angular projections 19 are under cut so as to form a housing for the cam arms 18 when the anchor plates are closed or collapsed. The collar 17 and cam arms are threaded on to the rod 16 and after this is done the entire plates are galvanized which will prevent the collar and cam arms from turning on the rod.

I claim—

1. An anchor comprising a boring member in the form of a disk provided with a slot, a conical projection formed on the under side of the disk, a helix encircling the conical shaped portion, and integral with the conical shaped projection and disk, ex-

panding blades provided with slots pivotally secured to the upper surface of the disk, rivets carried by the disk and located in said slots for limiting the outward movement of said blades, an anchor rod screw seated in the conical projection formed on the disk, a collar provided with cam arms carried by the anchor rod, rectangular undercut projections formed on the expanding blades adapted to receive a wrench for inserting the anchor into the ground, said cam arms being completely housed in the under cut projections, and means for rotating the anchor rod and cam arms to force the expanding blades outwardly after the anchor has been seated in the ground.

2. An anchor comprising a disk with a slot formed therein, a conical shaped projection formed integral with the disk, a helix formed integral with the conical shaped projection and disk, expansion blades pivotally secured to the disk and provided with slots, rivets carried by the disk and mounted in said slots for limiting the degree of expansion of the blades, shoulders formed on the disk for limiting the inward movement of the blades, angular projections formed on the upper surface of the disk, said angular projections being undercut for forming a housing when the blades are closed, an anchor rod screw seated in the conical projection formed on the disk, and cam arms non-rotatably secured to the anchor rod and located in the under cut portions of the angular projections for expanding the blades.

In testimony whereof I have signed my name to this specification, in presence of two subscribing witnesses.

JASPER BLACKBURN.

Witnesses:
EDWARD E. LONGAN,
E. L. WALLACE.