No. 857,751. PATENTED JUNE 25, 1907.

F. R. PARKER.

LAND ANCHOR.

APPLICATION FILED OCT. 29, 1906.

2 SHEETS—SHEET 1.

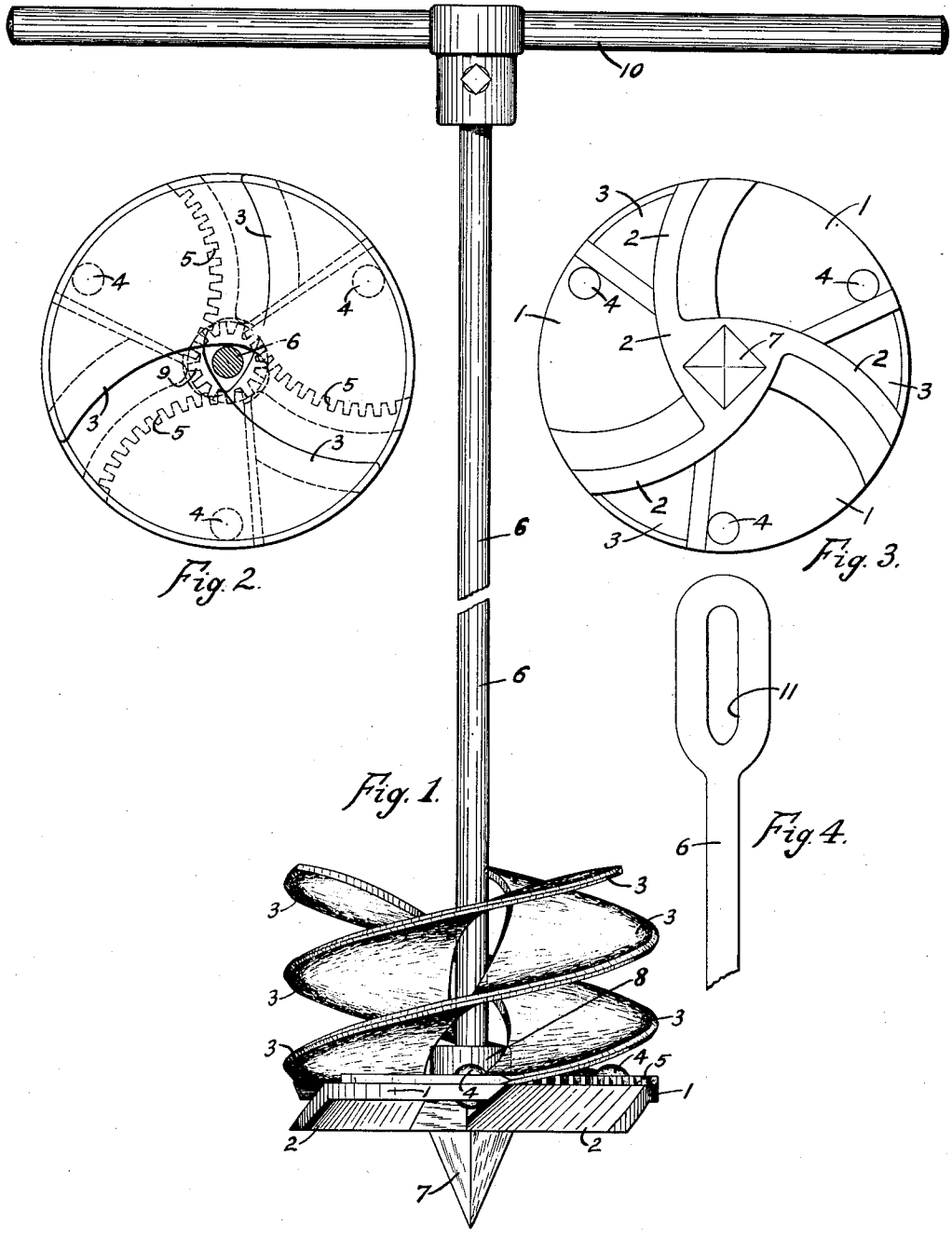

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES:

Robert G. Parker.

F. W. Pardee

INVENTOR:

Frederick R. Parker.

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2 SHEETS—SHEET 2

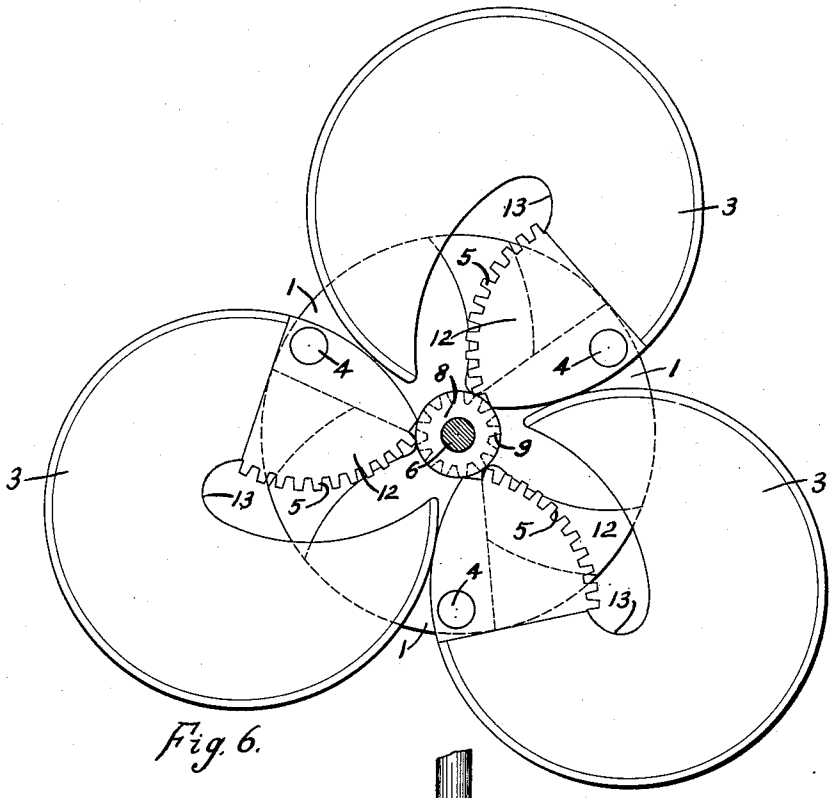

Fig. 6.

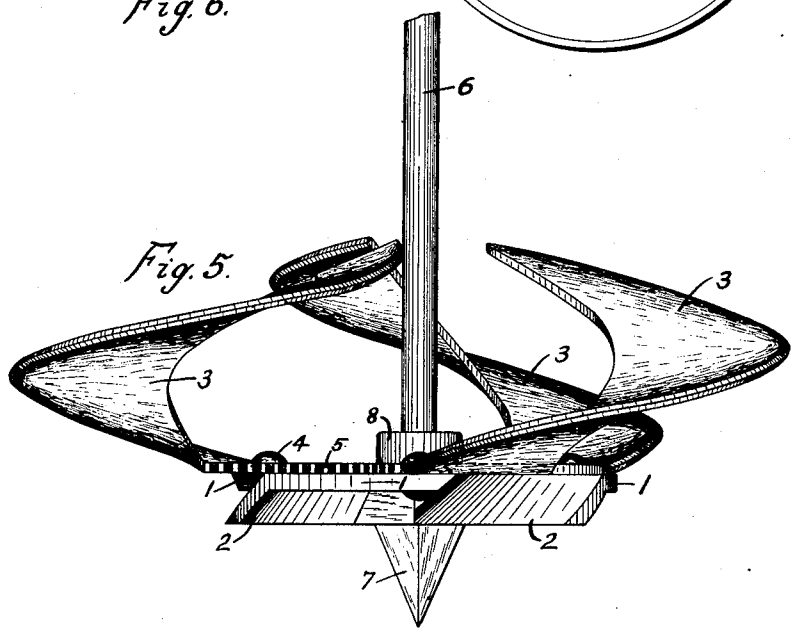

Fig. 5.

WITNESSES:

Robert G. Parker

F. W. Pardee.

INVENTOR:

Frederick R. Parker.

UNITED STATES PATENT OFFICE.

FREDERICK R. PARKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO FRANK B. COOK, OF CHICAGO, ILLINOIS.

LAND-ANCHOR.

No. 857,751. Specification of Letters Patent. Patented June 25, 1907.

Application filed October 29, 1906. Serial No. 341,128.

To all whom it may concern:

Be it known that I, FREDERICK R. PARKER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Land-Anchor, of which the following is a specification, reference being had to the accompanying drawings, illustrating same.

My invention relates to anchors for holding guy strands for guying telephone or telegraph poles, smoke stacks, chimneys or the like, and may be used under various conditions and requirements where anchors are required.

The principal objects of my invention are to provide an improved anchor which may be inserted into the earth and anchored therein without requiring a hole to be dug; to provide extension blades or plates which may be thrown out of the path of the anchor into the solid earth after the anchor is fully inserted into the earth; to provide an improved construction in such an anchor whereby the guy rod therefor also serves as a means for boring the anchor into the earth and as a means for throwing out the extension blades into the undisturbed earth; to provide an improved cutting plate with a plurality of cutting blades thereon for boring the anchor into the earth; to greatly increase the holding surface of such anchors after the extension blades are extended, and to provide efficiency and simplicity of construction therein.

Other objects will be apparent from the following specification.

One class of anchors now in use requires a hole to be dug for each anchor, the anchor inserted therein and then the hole filled with earth to secure the anchor in place. Under this class of anchors comes several different types, some of the older forms being known as "dead men." Then there is another class of anchors in which the latter are simply bored into the earth, depending entirely upon the loose earth above the auger blade for holding the anchor in place. There are also anchors with extension blades adapted to be extended into the solid earth, but these either require a hole to be dug or give only a very small increased holding surface when the blades are extended, none of them having extension blades presenting very large holding surfaces and at the same time being adapted to be bored into the earth.

In my present invention, I provide as an anchor, an auger adapted to be bored into the earth in the usual manner, and large extension blades lying in the path of the auger, each blade being approximately the size of the auger bit and being adapted to be extended nearly entirely out of the path of the auger into the solid earth. I can supply several of these blades to my anchor and thereby increase the holding surface of the anchor several times the surface of the auger bit. Then for simplicity and efficiency I arrange the parts so that the anchor rod when turned in one direction will bore the anchor as a whole into the earth and then when turned in the opposite direction will leave the anchor bit stationary and extend the extension blades out of the path of the bit into the solid or undisturbed earth. The extension blades are preferably spirally formed around the anchor rod, with space between each two adjacent blades at all points therearound. I preferably provide the auger bit with a cutting blade for each spiral extension blade, the earth cut by each cutting blade passing up through the spiral opening between two adjacent extension blades. The spiral extension blades are preferably all alike and are all pivoted on the auger bit and gear with a pinion which is secured to the anchor rod. With this construction I provide an anchor which may be bored into the earth without requiring a hole to be dug and which at the same time presents a very large increased holding surface in the undisturbed earth when the blades are extended, the construction of the anchor being exceedingly simple.

I will more particularly describe my invention by reference to the accompanying drawings illustrating the preferred form thereof, in which,—

Figure 1 is a side elevation of the anchor, with the extension blades closed in in the position to be bored into the earth; Fig. 2 is a top view of Fig. 1 with a portion of the anchor rod removed; Fig. 3 is a bottom view of Fig. 1; Fig. 4 is a view of the eye preferably formed on the upper end of the anchor rod; Fig. 5 is a side elevation of the lower portion of the anchor, taken the same as Fig. 1, showing the extension blades extended as when the anchor is fully anchored into the earth; and Fig. 6 is a top view of Fig. 5, showing the extension blades extended.

Like characters refer to like parts in the several figures.

The auger bit 1 is preferably a heavy cir-

cular disk, flat on top and provided on the underneath side with a plurality of cutting blades 2 2, the circular portion of the plate being cut away in front of each cutting blade 2 so as to permit the earth cut thereby to pass up through the plate 1. The cutting blades are preferably formed so that they will cut the earth when the auger is turned in a right-handed direction. Back of each cutting blade 2 of the flat surface of plate 1 is pivoted a spiral extension blade 3, at 4, 4 being preferably a rivet or bolt which holds the extension blade 3 loose enough to turn relatively to the plate 1. The front edge of each spiral extension blade is preferably provided with gear teeth 5, the teeth 5 of all of the extension blades 3 3 preferably lying in the same plane, that is, on the upper flat surface of plate 1. The outer edges of the extension blades are preferably sharpened so as to readily cut into the earth when the blades are extended. Anchor rod 6 extends loosely through the center of the plate 1 and is provided on its lower end with a point 7, preferably forged thereon, which holds against the plate 1 when the strain is put on the anchor rod 6. It will be seen from Fig. 3 that cutting blades 2 2 preferably lap under portions of the flat plate 1. This construction provides a thick reinforced hub at the center of plate 1, which makes the latter very strong, practically the same as if a solid plate 1 were ribbed. A pinion 8 is placed upon the anchor rod 6 above the flat plate 1 and is rigidly secured to the anchor rod 6, the gear teeth 9 thereon gearing with the teeth 5 5 of all of the spiral extension blades 3 3. On the top end of the anchor rod 6 is preferably placed a hand wrench 10, which is preferably firmly secured to the anchor rod 6, by which the anchor is bored into the earth and the extension blades 3 3 extended or opened out. An eye 11 may be formed on the upper end of the anchor rod 6, if desired, to accommodate a guy strand which may be attached thereto.

In anchoring the anchor into the earth the following operations take place: The point 7 is first stuck into the earth at the point where it is desired to sink the anchor. Then the anchor as a whole is turned by the aid of wrench 10 in a right-handed direction, the pinion 9 engaging the inner cut-away portions 13 13 of the extension blades 3 3 and thereby turning the plate 1 with the rod 6, and the cutting blades 2 2 cutting their way into the earth, the dirt cut by the said blades 2 2 passing up spirally between the spiral blades 3 3 until the anchor is sunk sufficiently into the earth. Then the wrench 10 is turned backward, or in a left-handed direction, the plate 1 and cutting blades 2 2 remaining stationary, and the rod 6, pinion 8 and point 7 turning backward with the wrench 10, the teeth 9 on pinion 8 gearing with the teeth 5 5 on the extension blades 3 3 and thereby turning the latter on pivots 4 4 out of the path of the auger to the positions shown in Figs. 5 and 6, into the solid earth. Each set of teeth 5 may be provided with a wide tooth at the outer end of the gear to limit the outward motion of the extension blade, if desired, or the teeth 5 may be constructed so that the extension blades 3 3 will be extended until they come entirely out of gear with the teeth 9 of pinion 8. I much prefer this latter construction, as when the blades 3 3 are extended until the teeth 5 5 thereof come entirely out of gear with the teeth 9 of pinion 8, anchor rod 6 will turn loosely and thereby indicate to the installer that the blades 3 3 are fully extended. When the anchor is fully inserted into the earth and the extension blades 3 3 are extended as shown in Figs. 5 and 6, the wrench 10 may be removed from the rod 6 and a guy strand or the like attached to the eye 11 of rod 6. If the rod 6 turns loosely after the anchor is installed, the untwisting of the die strand, or any twisting force applied to the strand, cannot cause the pinion 8 to again close up the extension blades 3 3 or affect the position of same in the least.

It will be noted that with the spirally shaped extension blades 3 3 the earth is compressed on the upper surfaces thereof when the blades are extended, thereby wedging the blades tightly under the compressed solid earth. This prevents any back play on the anchor when the guy strand is attached thereto and a strain put upon the strand, which is a great advantage and a very great improvement over other anchors which are bored into the earth. It will also be noted that the flat portions 12 12 of the extension blades 3 3 cover up the openings through plate 1, in front of the cutting blades 2 2, when the extension blades 3 3 are extended as shown in Fig. 6, thereby increasing the holding surface of plate 1 and making it practically a solid disk.

When a strain is put upon the anchor rod 6 the anchor is held in the earth by the extension blades holding in the solid or undisturbed earth and the plate 1 holding in the disturbed earth in the path of the auger, the point 7 holding against the underneath side of plate 1. When it is considered that some anchors depend entirely for their holding power on the bit of the auger holding in the disturbed earth only, it will readily be seen that the anchor of my present invention has a much greater holding power, due to the additional holding of the extension blades 3 3 in the undisturbed earth.

I do not wish to limit this invention to the particular details of construction as herein shown, as many modifications may be made therein without departing from the scope of the invention. Neither do I wish to limit the number of extension blades employed to

three, as other numbers of blades may be used with good results. Four extension blades on this anchor give a construction which works out to good advantage.

It will be noted that the extension blades 3 3 are all alike and that they may be stamped and formed out of sheet metal, preferably sheet steel. The bit portion 1 is preferably made of cast malleable iron, but with a few slight changes from the construction shown in the drawings it may also be made of sheet metal. I may also use a hexagon rod or a square rod instead of round rod 6, if desired. The pinion 8 may be more easily and firmly secured to a hexagon or square rod than to a round rod 6.

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

1. In an anchor of the character described, a bit portion adapted to be bored into the earth, a plurality of spirally formed extension blades lying in the path of the auger, and means for extending the extension blades out of the path of the auger.

2. In an anchor of the character described, a bit portion adapted to be bored into the earth, a plurality of cutters on the bit portion, a plurality of extension blades lying in the path of the auger, and means for extending the extension blades out of the path of the auger.

3. In an anchor of the character described, a bit portion adapted to be bored into the earth, a plurality of cutters on the bit portion, a plurality of spirally formed extension blades normally lying in the path of the auger, and means for extending the extension blades out of the path of the auger.

4. In an anchor of the character described, a bit portion adapted to be bored into the earth, a plurality of cutters on the bit portion, a plurality of spirally formed extension blades pivoted to the bit portion and lying in the path of the auger, and a pinion arranged to gear with the extension blades and thereby turn same out of the path of the auger when desired.

5. In an anchor of the character described, a bit portion adapted to be bored into the earth, a plurality of similar extension blades lying in the path of the auger, and means to gear with the extension blades to move same out of the path of the auger.

6. In an anchor of the character described, a bit portion adapted to be bored into the earth, a rod loosely inserted through the bit portion, a plurality of extension blades pivoted to the bit portion and provided with gear teeth, and a pinion carried by the rod and adapted to gear with the extension blades to move same out of the path of the auger, the said pinion being also adapted to impinge on the extension blades and thereby turn the bit portion to bore same into the earth when desired.

7. In an anchor of the character described, a bit portion adapted to be bored into the earth, a rod loosely inserted therethrough, and means whereby the rod is locked to the bit portion to bore same into the earth when turned in one direction, the said rod being unlocked from the bit portion when turned in the opposite direction.

8. In an anchor of the character described, a bit portion adapted to be bored into the earth, extension blades lying in the path of the auger, a rod loosely inserted through the bit portion and the extension blades, and means whereby the whole is locked together to be bored into the earth when the rod is turned in one direction, and whereby the bit portion is unlocked from the rod and the extension blades are moved out of the path of the auger when the rod is turned in the opposite direction.

9. An anchor of the character described comprising a bit portion, a plurality of spirally formed extension blades pivoted to the bit portion, a cutter for each blade, on the bit portion, adapted to cut the earth and force same up between two of the adjacent said spirally formed blades, means for boring the whole into the earth, and means for spreading the said blades apart after the anchor is bored into the earth.

10. In an auger adapted to be bored into the earth, spirally formed blades therefor, and means whereby the said blades are spread out of the path of the auger while the boring portion remains stationary.

11. In an auger comprising a boring portion and spirally formed portions, mechanism whereby the boring portion and spirally formed portions are locked together during the process of boring, and whereby the spirally formed portions may be spread apart when desired.

12. In an anchor of the character described, a bit portion provided with a plurality of cutters, a rod extending loosely through the bit portion, and means whereby the rod may be locked to the bit portion to bore same into the earth when desired.

13. In anchor of the character described, a flat disk-like bit portion provided with a plurality of cutters on the underneath side thereof, a rod extending loosely through the said disk-like portion and provided with a point underneath the latter, a plurality of spirally formed blades pivoted to the upper side of the said disk-like portion, gear teeth on the said spirally formed blades, and a pinion carried by the said rod and adapted to impinge on the spirally formed blades to lock the parts of the anchor together for boring same into the earth when the rod is turned in one direction, and adapted to gear with the said spirally formed blades to spread same apart when the rod is turned in the opposite direction.

14. In an anchor of the character de-

scribed, the combination of an auger adapted to be bored into the earth, spirally formed extension blades lying in the path of the auger, means for boring the auger into the earth, and means whereby counterboring spreads the extension blades out of the path of the auger.

15. In an anchor of the character described, the combination of an auger adapted to be bored into the earth, spirally formed extension blades lying in the path of the auger, and means whereby counterboring spreads the extension blades out of the path of the auger.

16. In an anchor of the character described, the combination of an auger adapted to be bored into the earth, spirally formed extension blades normally lying in the path of the auger, and a pinion geared with the said blades to spread same out of the path of the auger.

17. In an anchor of the character described, the combination of spirally formed extension blades, and a pinion geared therewith to spread the blades apart when turned.

18. In an anchor adapted to be bored into the earth, spirally formed extension blades adapted to be spread apart and means for spreading the blades apart by counterboring after the anchor is bored into the earth.

19. In an anchor of the character described, the combination of an auger adapted to be bored into the earth, spirally formed cams normally lying in the path of the auger, and means arranged to bore the auger into the earth when turned in one direction and to spread the cams apart when turned in the opposite direction.

20. In an anchor of the character described, the combination of an auger adapted to be bored into the earth, spirally formed cams normally lying in the path of the auger, and a pinion arranged to bore the auger into the earth when turned in one direction and to spread the cams apart when turned in the opposite direction.

21. In an anchor of the character described, a bit portion having a cutter, a rod extending loosely through the bit portion, and means whereby the rod may be locked to the bit portion to bore same into the earth.

As inventor of the foregoing I hereunto subscribe my name in the presence of two subscribing witnesses this 25th day of October, 1906.

FREDERICK R. PARKER.

Witnesses:
F. W. PARDEE,
F. B. COOK.