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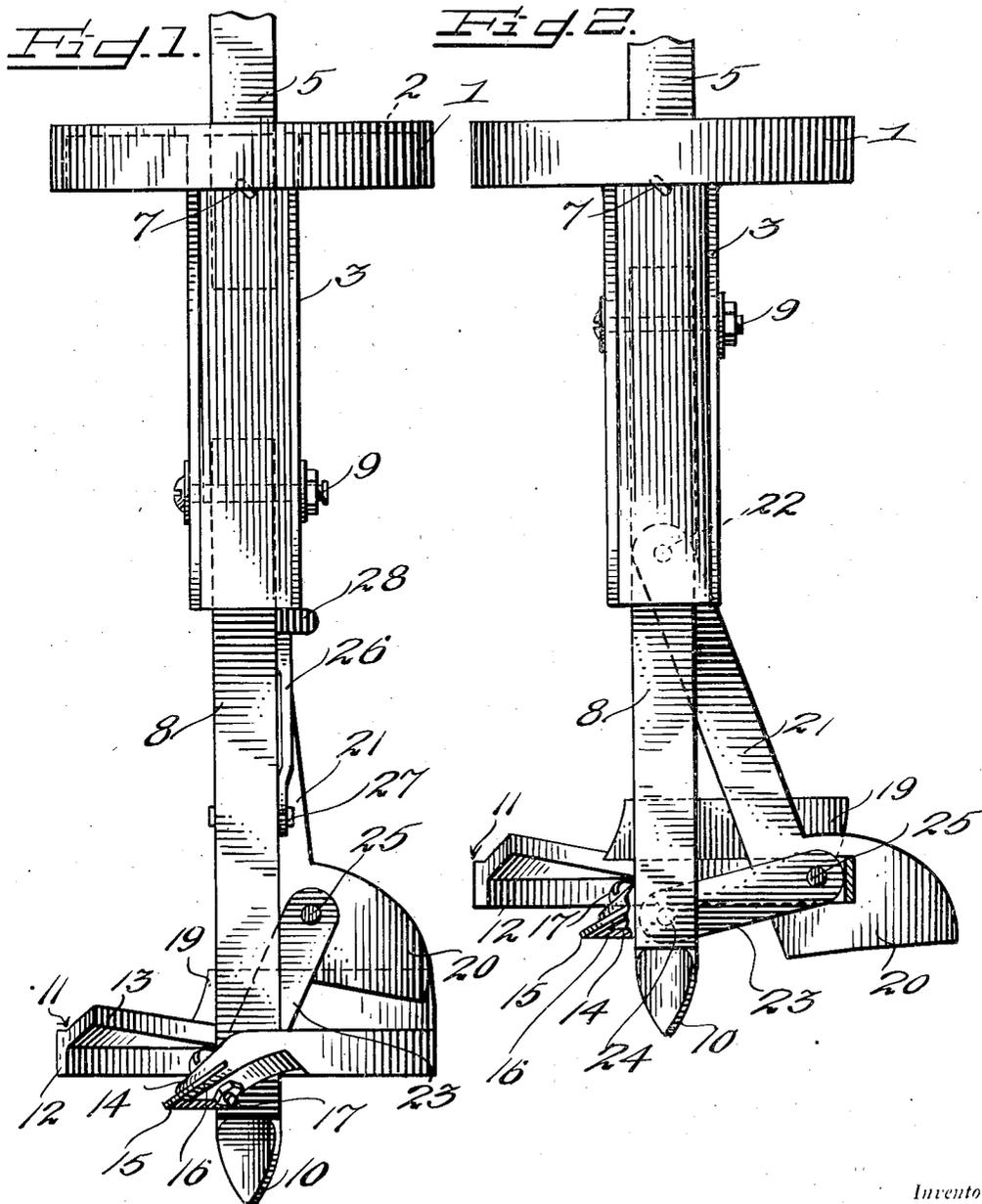
C. D. RAWLINSON, SR

2,481,781

COMBINATION AUGER AND REAMER

Filed Dec. 8, 1945

3 Sheets-Sheet 1



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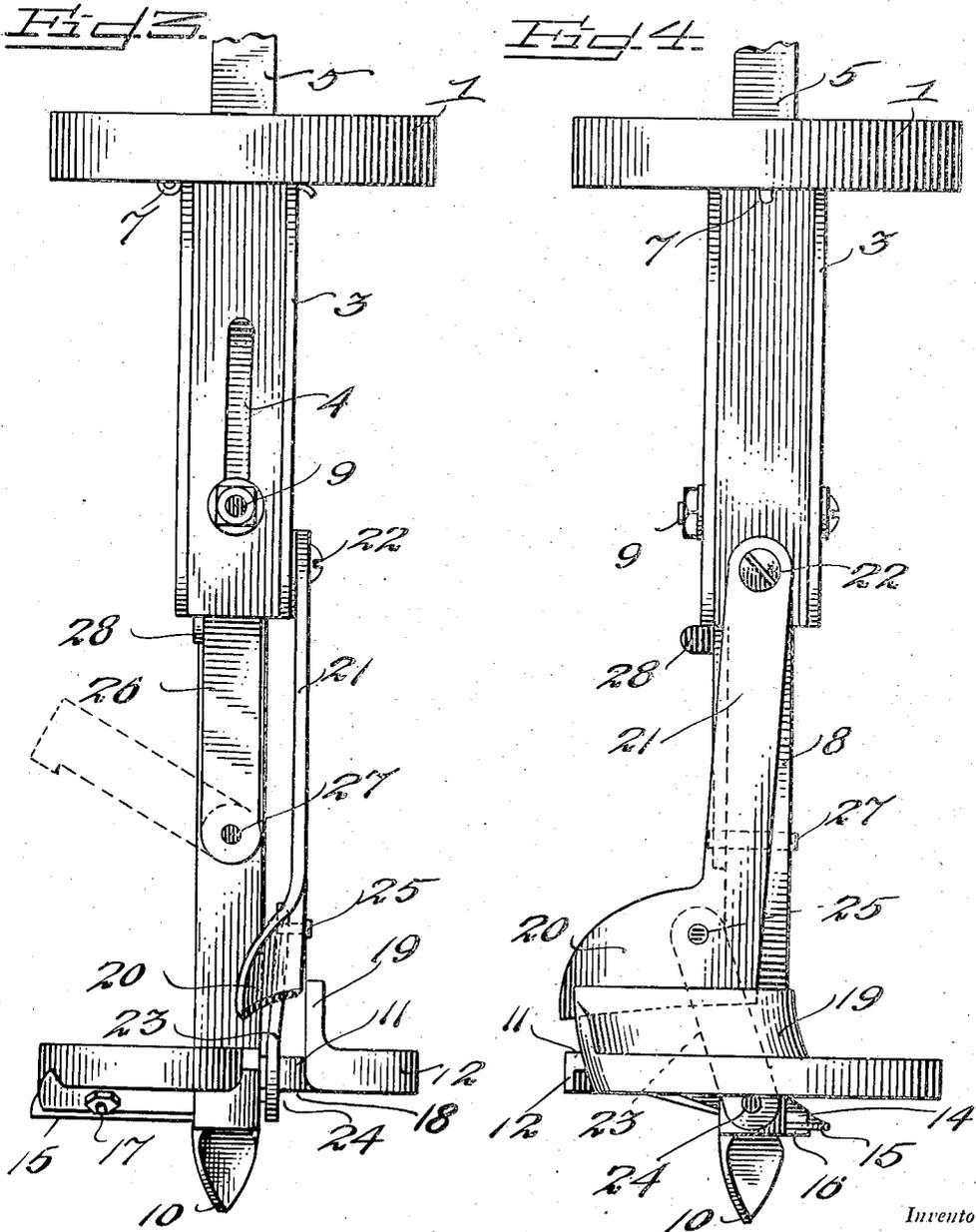
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3 Sheets-Sheet 2



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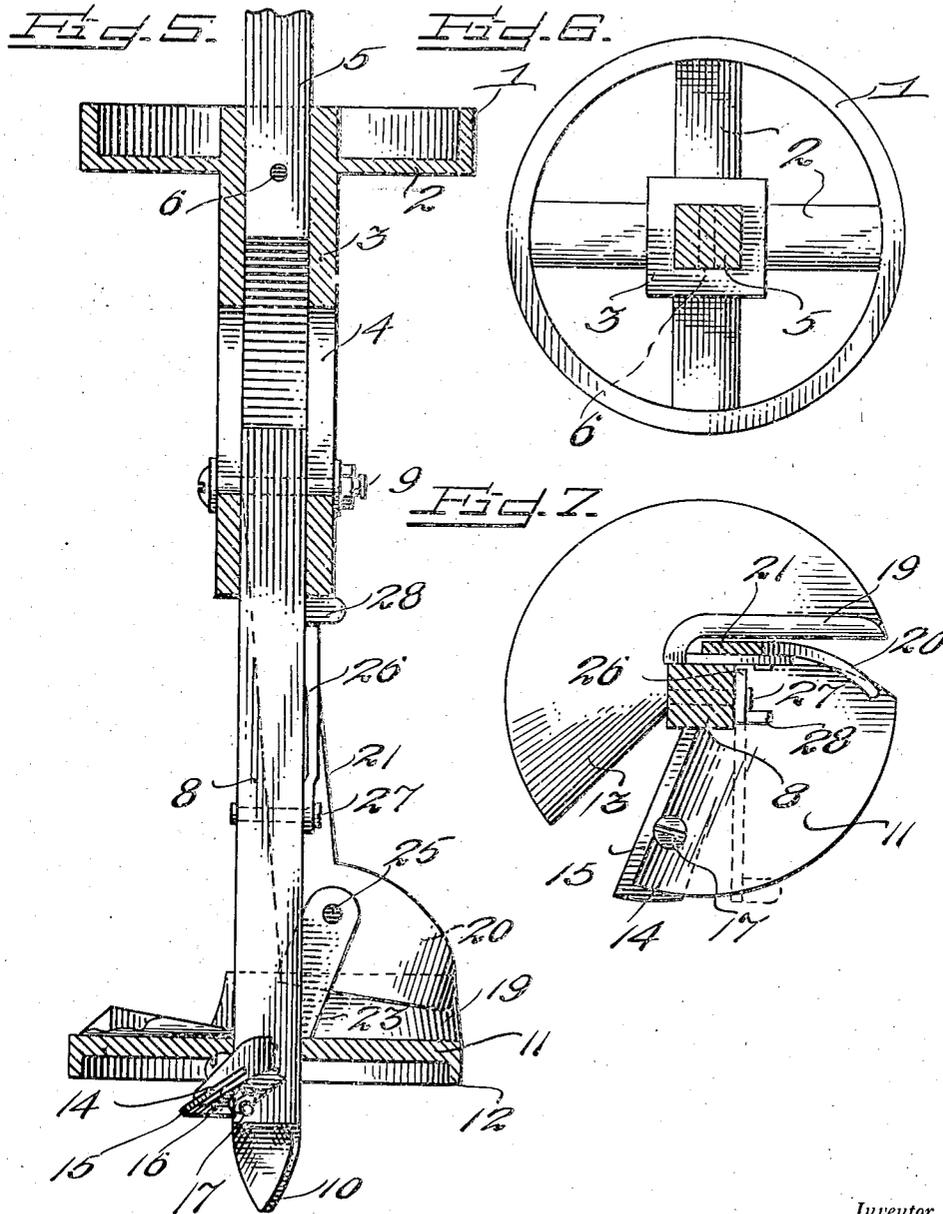
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3 Sheets—Sheet 3



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UNITED STATES PATENT OFFICE

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COMBINATION AUGER AND REAMER

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2 Claims. (Cl. 255-76)

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This invention relates to improvements in combined augers and reamers, and more particularly to a device which will bore a hole, and then ream an enlargement or undercut at the base of the hole, or at any desired level within the vertical limit of the hole.

An object of the invention is to provide an improved combination auger and reamer, which will be adapted to bore a hole, and by tripping a mechanism a reamer blade will be projected beyond the lateral limit of the auger to ream an undercut at any level in the hole.

Another object of the invention is to provide a combination auger and reamer with spaced guide rings for guiding the implement as it bores a hole, and with a pivoted reamer blade adapted to extend through a slot in the lower guide ring as it is projected to reaming position, or retracted to permit the auger to operate.

A still further object of the invention is to provide a highly efficient form of combination auger and reamer which may be manufactured and produced with a minimum of effort and expense.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of this application,

Figure 1 is a front elevation of the combination auger and reamer in position to be used as an auger or drill;

Figure 2 is a front elevation of the combination auger and reamer in position to be used as a reamer;

Figure 3 is a side elevation of the combination auger and reamer taken at right angles to the view shown in Figure 1;

Figure 4 is a rear elevation of the combination auger and reamer as shown in Figure 1;

Figure 5 is a partial vertical sectional view taken through the combination auger and reamer as shown in Figure 1;

Figure 6 is a plan view of the upper guiding ring for the combination auger and reamer, and

Figure 7 is a plan view looking down on the top of the lower guide ring, showing the relative positions of the auger cutting blade and the reamer blade.

Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

In carrying out the invention, there is provided an upper cylindrical guide ring 1 having integrally-formed cross braces 2, and a depending tubular body 3, which is preferably square in

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cross-section, and is provided with the oppositely disposed slots 4 in its sides.

A square drill rod 5 is adapted to be supported in the upper end of the body 3, and is cross bored at 6, as is the said body to receive the cotter pin 7, which will extend through the aligned openings to hold the rod 5 securely in the body 3. A lower drill shank 8, substantially square in cross-section is slidably received in the lower end of the body 3, and is cross-bored to receive the cross bolt 9, which extends through the oppositely disposed slots 4 and exteriorly thereof. The lower end of the drill shank 8 is pointed as at 10, as clearly shown in the drawings.

The combination guide ring or plate 11 is supported on the drill shank 8 at a point near the bottom thereof, and is provided with the downturned annular flange 12, and the cooperating upturned lip 13 and a downturned lip 14 arranged in spaced relation to each other. An auger cutter blade 15 is secured in a slot 16 in the downturned lip 14, and is adjustably and interchangeably held therein by the single bolt 17 extending through the lip 14, slot 16 and blade 15. At a point substantially at right angles to the auger cutting blade 15, the plate 11 is slotted at 18 and formed with the upstanding flange 19 extending from the drill shank 8 to the outer edge of the said plate 11. A reamer blade 20 is supported on the outer end of the arm 21, which is pivoted at 22 to the lower end of the body 3, at right angles to the oppositely disposed slot 4, and at a point below said slot. A second or short arm 23 is pivoted at 24 to the lower end of the drill shank 8, below the plate 11, and extends upwardly through the slot 18 to be pivotally secured at 25 to the reamer blade 20.

The lock or latch member 26 is pivoted at 27 on one side of the drill shank 8, and is formed with a finger 28 for operating the same.

From inspection of the drawings the mode of operation of the combination auger and reamer will be as follows:

When the reamer blade 20 is in its upraised or non-reaming position, as shown in Figure 1 of the drawings, the latch member 26 will be in upright position engaging the lower end of the body 3, to hold the reamer blade out of the way and elevated while the boring operation is taking place.

When it is desired to ream out an undercut, the latch member 26 will be moved from under the lower end of the body 3 to permit the reamer blade to move outwardly and downwardly beyond the lateral limits of the lower guide ring 11, and

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slightly below said guide ring 11, said adjustment causing the body 3 to move downwardly on the drill shank 8, until the cross bolt 9 is at the upper end of the guide slots 4, as shown in Figure 2 of the drawings.

It will be understood that a suitable power-operated mechanism (not shown) will be attached to the drill rod 5 to carry out the boring and reaming operations.

From the foregoing description, it will be apparent that there has been provided a highly efficient form of combination auger and reamer, which will be provided with the spaced guiding rings for guiding the implement as it progresses downwardly in its boring operation. It is obvious that when the reamer blade is in its outermost or cutting position, that an undercut may be made either at the bottom of the bored hole, or at any level within the limit of the hole.

It will be understood that it is not intended to limit the scope of the invention to the specific embodiment thereof as described and illustrated, as many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described the invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. A reaming device comprising a disk having a radially extending guide seat, a shank secured to and extending vertically through the center of said disk, a vertical tubular member having

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opposed vertical slots, said tubular member slidably receiving said shank, a pin extending through said slots and the upper end of said shank, a reamer blade, a first link secured at its lower end to said blade and pivoted at its upper end to said tubular member, a second link terminally pivoted to said blade and to the lower end of said shank beneath said disk, said blade moving through said guide slot, and a releasable latch means for retaining said blade in an elevated inoperative position out of said guide slot and above said disk.

2. The combination of claim 1, wherein said latch means includes a bar pivoted at one of its ends to said shank and a laterally extending lip on the other end of said bar adapted to support said tubular member at its lower end.

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