No. 719,902. PATENTED FEB. 3, 1903.

J. W. SWEETING.

REAMER.

APPLICATION FILED JULY 11, 1902.

NO MODEL.

Fig. 1.

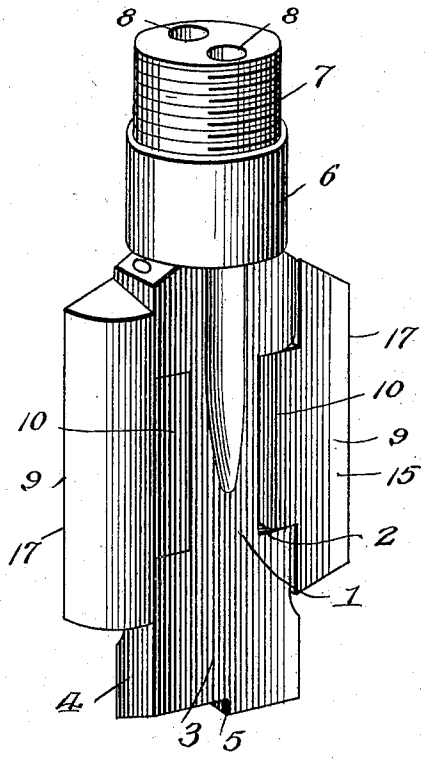


Fig. 2.

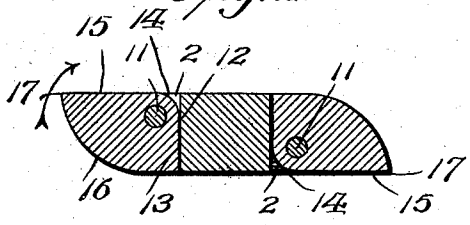
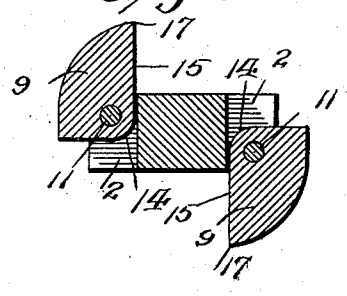


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN W. SWEETING, OF CAIRO, ILLINOIS.

REAMER.

SPECIFICATION forming part of Letters Patent No. 719,902, dated February 3, 1903.

Application filed July 11, 1902. Serial No. 115,208. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SWEETING, a citizen of the United States, residing at Cairo, in the county of Alexander and State of Illinois, have invented new and useful Improvements in Reamers, of which the following is a specification.

This invention relates to a reamer for use in wells, and particularly adapted for boring ahead of a tube or casing in sinking the latter; and the object of the same is to provide a simple and effective device which is durable and efficient in use and by means of which tube and case drilling operations may be conveniently performed, the improved reamer having such construction that it may be easily drawn upwardly through the tubes or casings after the latter have been inserted in proper position.

To this end the invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a reamer embodying the features of the invention. Fig. 2 is a horizontal section through the same, showing the reaming-wings expanded for enlarging the opening ahead of a tube or casing. Fig. 3 is a view similar to Fig. 2, showing the reaming-wings drawn inwardly and in condition for withdrawal upwardly through a tube or casing.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates the body of the reamer, constructed of suitable metal and having oppositely-disposed side walls 2 and a lower terminal bead 3, with angular edges 4 and a central projection 5 at the bottom to facilitate the leading penetration of the reamer during the operation thereof. The body has an upper attaching-head 6, with a terminal screw-threaded section 7, formed with a pair of vertical sockets 8, for the purpose of attaching the reamer to a suitable connection or operating-rod and to impart thereto a rotary movement, as will be readily understood by those skilled in the art. On opposite side edges of the body 1 are reaming-wings 9, having central extensions 10 at their inner edges, which are movably mounted in the slots 2 and held in pivotal relation to the body 1 by pintle-rods 11, passing downwardly through the said body and the extensions 10. The slots 2 are cut entirely through the opposite sides of the body 1 and have inner vertical straight walls 12, and the inner edges 13 of the wings 9 are also vertically straight to abut against the walls 12 to hold the wings in rigid projected condition when drawn outward to perform the reaming operation. The pintles 11 eccentrically pass through the inner portions of the extensions 10 and in the opposite extensions are reversely arranged in diagonal alinement, so that the said wings will turn inwardly or fold in reverse directions, as shown by Fig. 3. Each extension 10 has the corner thereof adjacent the pintle 11, passing therethrough, rounded, as at 14, to provide a clearance for the wings when they infold, and each wing has a straight face 15, intersecting with a convex back 16, the convex backs of both wings conforming to the circular contour of the bore of a tube or casing to permit the reamer when the wings are infolded to be drawn upwardly through the said tube or casing. The intersection of the straight faces 15 of the wings with the straight backs 16 form cutting-points 17, and it will be seen that the straight faces and backs of the wings are reversely arranged for obvious reasons.

In the operation of the device it is attached to a suitable rotating device, such as a rod or other tool used in well-drilling, and is inserted through a tube or casing to be positioned in a drilled hole, the improved device being projected in advance of the lower end of the tube or casing. In this condition the tube or casing and the reamer in advance thereof are inserted in the drilled opening and the reamer rotated in the direction of the arrow. (Shown by Fig. 2.) The wings 9, meeting with an obstruction, as will be understood, will be drawn out and clear and enlarge the opening ahead of the tube or casing and facilitate the introduction of the latter, and after the tube or casing has been placed in proper position the reamer is rotated in a reverse direction to cause the wings 9 to infold, as shown by Fig. 3, and permit it to be drawn upwardly through the sunken tube or casing.

The improved device will be found very

efficient for the purpose for which it has been devised, and by its use a material saving will result in well-drilling operations without employing separate tools as well as expedition in disposing tubes or casings in place.

Changes in the dimensions, proportions, and minor details may be resorted to without in the least departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. A reamer comprising a body with a lower head and an upper attaching-head, the said body having slots cut through the intermediate portions of the opposite sides thereof, and reversely-movable reaming-wings having extensions pivotally mounted in the said slots, the pivot devices for the wings extending eccentrically through the latter in reverse positions, the inner edges of the extensions of the wings and inner walls of the slots in the body being vertically straight.

2. A reamer for the purpose set forth, comprising a body having wings pivotally secured to the opposite sides thereof, and reversely movable, the pivot devices for the wings passing eccentrically through portions of the latter diagonally arranged in relation to each other, the said wings having reversely-arranged straight faces and convex backs.

3. A reamer for the purpose set forth, comprising a body having reaming-wings pivotally held at opposite sides thereof and provided with reversely-arranged straight faces and convex backs intersecting to provide cutting-points, the said faces being flush with the opposite sides of the body.

4. A reamer of the class set forth, comprising a body having slots in the opposite sides thereof with inner vertical straight walls, wings having extensions projecting into said slots and formed with inner vertical straight edges with reversely-arranged rounded corners and also provided with reversely-arranged straight faces and convex backs, and pivot devices extending eccentrically through the extensions and diagonally arranged in relation to each other.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. SWEETING.

Witnesses:
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