

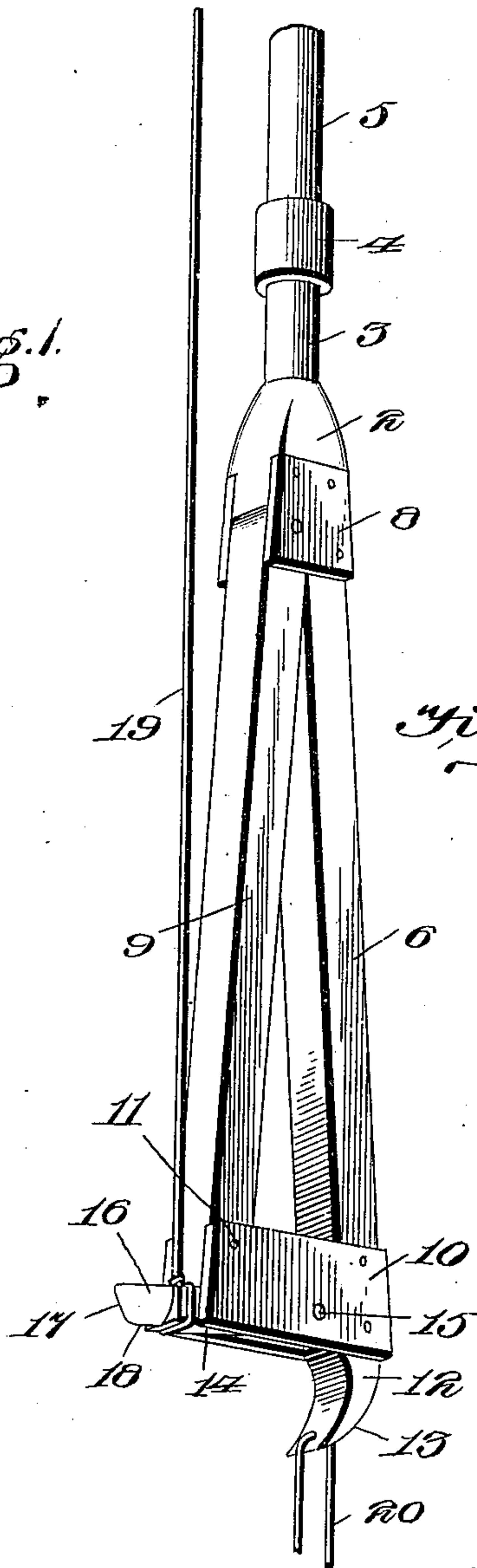
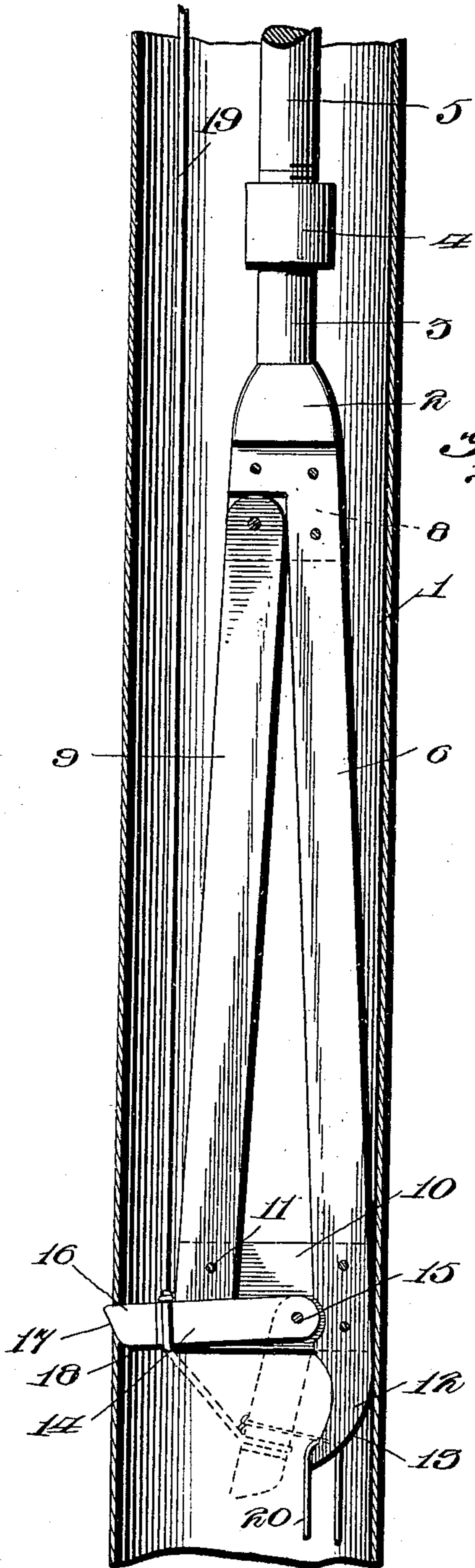
No. 667,180.

Patented Feb. 5, 1901.

E. J. BATES.
WELL CASING PERFORATOR.

(Application filed Sept. 26, 1900.)

(No Model.)



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EUGENE J. BATES, OF BAKERSFIELD, CALIFORNIA.

WELL-CASING PERFORATOR.

SPECIFICATION forming part of Letters Patent No. 667,180, dated February 5, 1901.

Application filed September 26, 1900. Serial No. 31,173. (No model.)

To all whom it may concern:

Be it known that I, EUGENE J. BATES, a citizen of the United States, residing at Bakersfield, in the county of Kern and State of California, have invented a new and useful Well-Casing Perforator, of which the following is a specification.

My present invention relates to a simple and efficient device for perforating the casings of Artesian or other wells to permit water located at various depths to flow therein.

One object of the invention is to provide a tool of this character with a cutter normally located between the planes of the edge faces of the tool, but designed to be moved to a position beyond one edge thereof to cause it to be forced through the wall of the casing as the tool is driven downwardly by power applied to the upper end of a stem extending from the tool to the surface of the ground.

A further object of the invention is to mount the cutter in a cutter-frame designed to be adjusted to fit well-casings of various diameters and provided with a depending rest to which the cutter is attached when not in use and arranged to prevent the cutter or cutter-frame from coming into contact with the bottom of the well.

To the accomplishment of the several objects stated the invention is comprehended in the preferred embodiment thereof to be hereinafter described, illustrated in the accompanying drawings, and succinctly defined in the appended claims.

In said drawings, Figure 1 is a sectional view through a well-casing, showing my perforating-tool in elevation therein and illustrating in dotted lines the inactive position of the cutter; and Fig. 2 is a perspective view of the device complete.

Referring to the numerals of reference employed to designate corresponding parts in both views, 1 indicates the usual tubular casing of an Artesian or other well. As stated, the purpose of the present invention is to provide a tool for perforating the casing at desired points to permit the water from different veins at various depths to be discharged into the well. The tool which I provide for this purpose comprises a head 2, from the upper end of which extends a short shank 3, carrying a coupling 4 for the connection of

the stem 5, and from which depends at one side the elongated stationary leg 6 of what may be defined the "cutter-frame." The leg 6 is given a longitudinal inclination for the purpose of bringing its lower end into contact with the interior wall of the casing, while the head 2 is located coaxially therewith. The opposite side faces of the head, adjacent to its lower end, are cut away, as shown, for the reception of a pair of head-plates 8, between which is pivoted the upper end of the movable leg 9 of the cutter-frame, which frame is completed by the provision of a pair of cutter-supporting plates 10, connecting the lower ends of the legs 6 and 9 and detachably secured, as by screw-bolts 11, to both of the legs. The purpose of this detachable connection is to permit the attachment of plates of different dimensions to the lower ends of the frame-legs for the purpose of regulating the width of the frame to accommodate the tool for use in connection with well-casings of different diameters. The leg 6 is preferably extended below the frame to form a beak-like rest or stop 12, having its outer edge 13 curved, as shown, to permit it to move smoothly over the interior face of the casing to serve the purpose of a runner for the tool as the latter is forced toward the bottom of the casing by pressure applied to the stem. This rest or stop 12 is also designed for the retention of the cutter or perforator 14, pivoted at one end between the plates 10, as indicated at 15, and provided with a reduced cutting end 16, having an inclined terminal cutting edge 17, extended for a short distance along the under longitudinal edge of the cutter, as indicated at 18. The cutter 14 is designed to be swung into position to effect the perforation of the well-casing by a cutter-operating cable 19, connected to the cutter at a point adjacent to its free end and extended upwardly within the well-casing to a point above the ground, where it may be manipulated by an operator.

For the purpose of permitting the dropping of the tool to the proper position within the well-casing the cutter 14 is normally retained in a pendent position, as indicated in dotted lines in Fig. 1, by a more or less fragile binder 20, passed around the cutter and the lower end of the rest 12, this binder being suffi-

ciently delicate to insure its breaking and the consequent release of the cutter when the operating-cable 19 is drawn up for the purpose of swinging the cutter into its horizontal position.

In use the manipulation of my device is as follows: The cutter being retained in the position indicated in dotted lines in Fig. 1 the tool is passed into the well-casing and is moved downwardly until it reaches the point at which the casing intersects a vein of water. A pull upon the cable 19 will then break the binder 20 and cause the cutter to be swung laterally. In this position of the cutter its sharpened edge will be in contact with the interior surface of the well-casing, and as the tool is forced downwardly the cutter will be forced through the wall of the casing and as soon as it strikes the lower end of the leg 9 will be rigidly retained for the purpose of slitting the casing as further movement is imparted to the tool. If, however, it is merely necessary to perforate the casing without slitting it, the tool may be withdrawn as soon as the perforation has been effected by the cutter. If now it is desired to employ the device in connection with well-casings of greater or less diameter, the plates 10 are removed and other plates and cutters of proper dimensions are affixed to the cutter-frame, the movable mounting of the leg 9 permitting such lateral contraction or expansion of the frame as may be necessary.

From the foregoing it will appear that I have invented a simple, ingenious, and efficient well-casing perforator embodying a construction adapted to accomplish the various objects hereinbefore stated; but while the construction and arrangement of the device as illustrated and described is believed to be preferable I desire to reserve the right to effect such changes, modifications, and variations as may be properly comprehended within the scope of the protection prayed.

What I claim is—

1. A well-casing perforator comprising a head, a movable cutter, a fragile binder for retaining the cutter in its inoperative position, and an operating-cable connected to the cutter to effect the release of said cutter and its movement to its effective position.

2. A well-casing perforator comprising a head, a cutter-frame comprising a stationary leg and a laterally-movable leg, a movable cutter disposed adjacent to the rest when not in use carried by the cutter-frame at one side thereof, and means for changing the position of the cutter.

3. A well-casing perforator comprising a head, a cutter extending therefrom, a rest depending below the cutter-frame, a movable cutter, means engaging the rest for positively retaining the cutter in a position adjacent to the rest when not in use, and means for shifting the position of the cutter.

4. A well-casing perforator comprising a head, and a cutter-frame extended to form a

rest located below the frame at one edge thereof to constitute a runner for the tool, a pivoted cutter carried by the cutter-frame and disposed adjacent to the rest when not in use, and means for shifting the position of the cutter to effect its engagement with the well-casing at a point diametrically opposite the rest.

5. A well-casing perforator comprising a head, a depending stationary leg, a movable leg pivotally mounted in the head, cutter-supporting plates detachably connected to the legs, and a movable cutter supported by said plates.

6. A well-casing perforator comprising a head, divergent relatively-adjustable legs and a movable cutter, and means for drawing the cutter into engagement with the lower end of one of the legs.

7. A well-casing perforator comprising a head, a pair of divergent legs one of which is movably mounted in the head, cutter-supporting plates detachably connected to the lower ends of the legs, a cutter pivotally mounted at a point intermediate of the legs and in a plane below the lower end of one of the legs to permit the cutter to be drawn into contact therewith, and a cutter-operating cable connected to the cutter.

8. A well-casing perforator comprising a head, a pair of divergent legs extending therefrom, one of said legs being pivotally connected to the head, a pair of cutter-supporting plates connecting the lower ends of the legs, a cutter operatively mounted between the plates in a plane below the lower end of the movable leg, a cutter-operating cable connected to the cutter, and a longitudinally-curved rest extending below the cutter.

9. A well-casing perforator comprising a head provided with a coupling for the attachment of a stem and with a longitudinally-inclined stationary leg having a longitudinally-curved extension constituting a rest and runner, a movable leg pivoted at its upper end within the head, a pair of cutter-supporting plates detachably connected to the lower ends of the legs, a pivoted cutter mounted between the plates, a cutter-operating cable connected to the cutter, and a fragile binder for connecting the cutter to the rest during the advance of the tool through the well-casing.

10. A well-casing perforator comprising a head, a movable cutter, means for retaining the cutter in an inoperative position, and means for swinging the cutter to effect its release from the retaining means and to present it in its operative position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EUGENE J. BATES.

Witnesses:

S. N. REED,

E. H. ENGLAND.