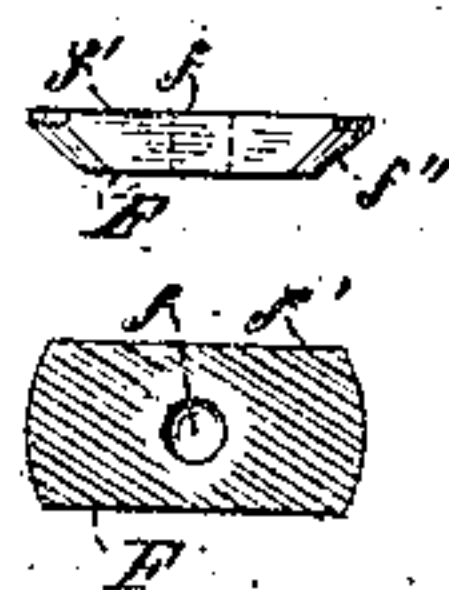
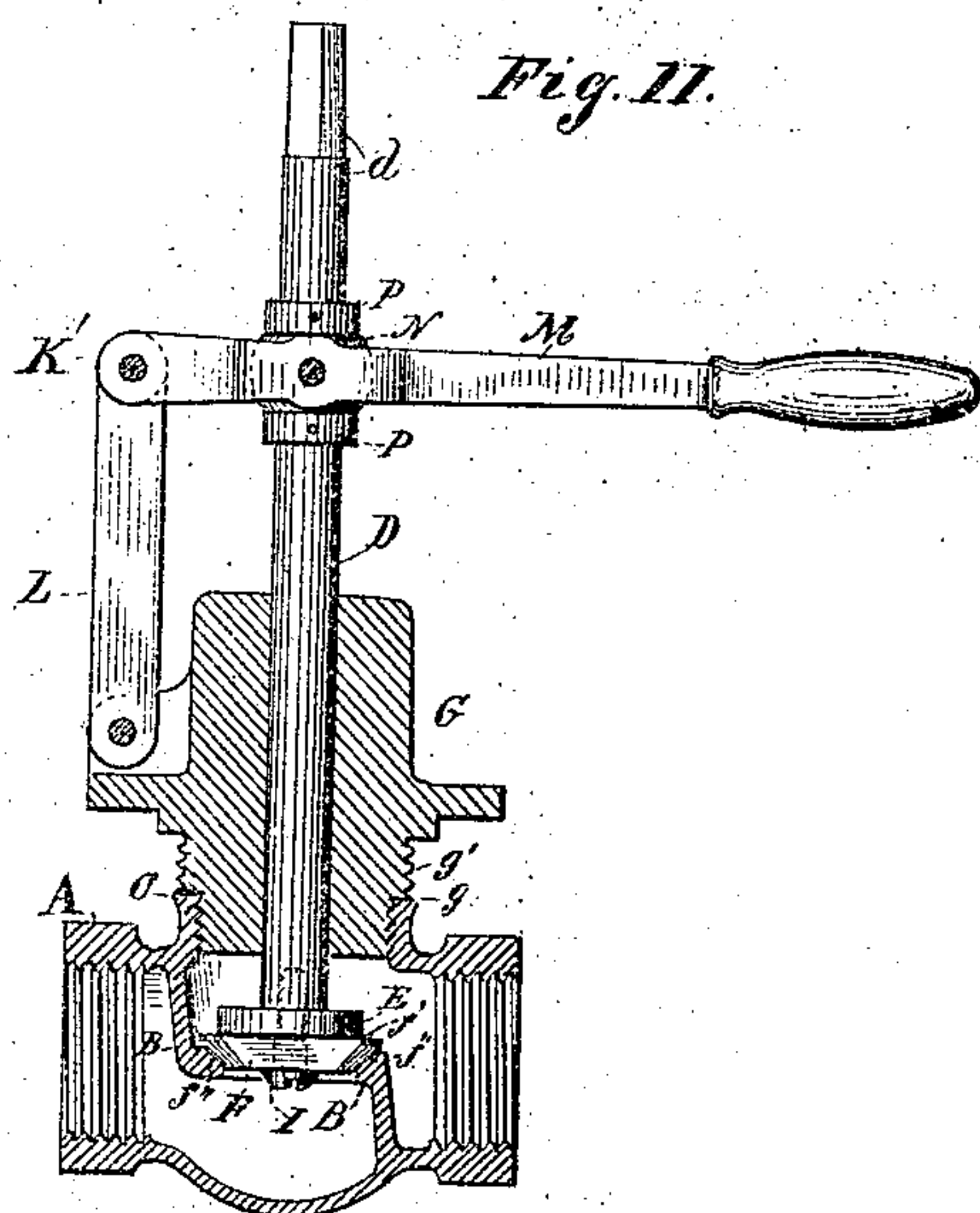
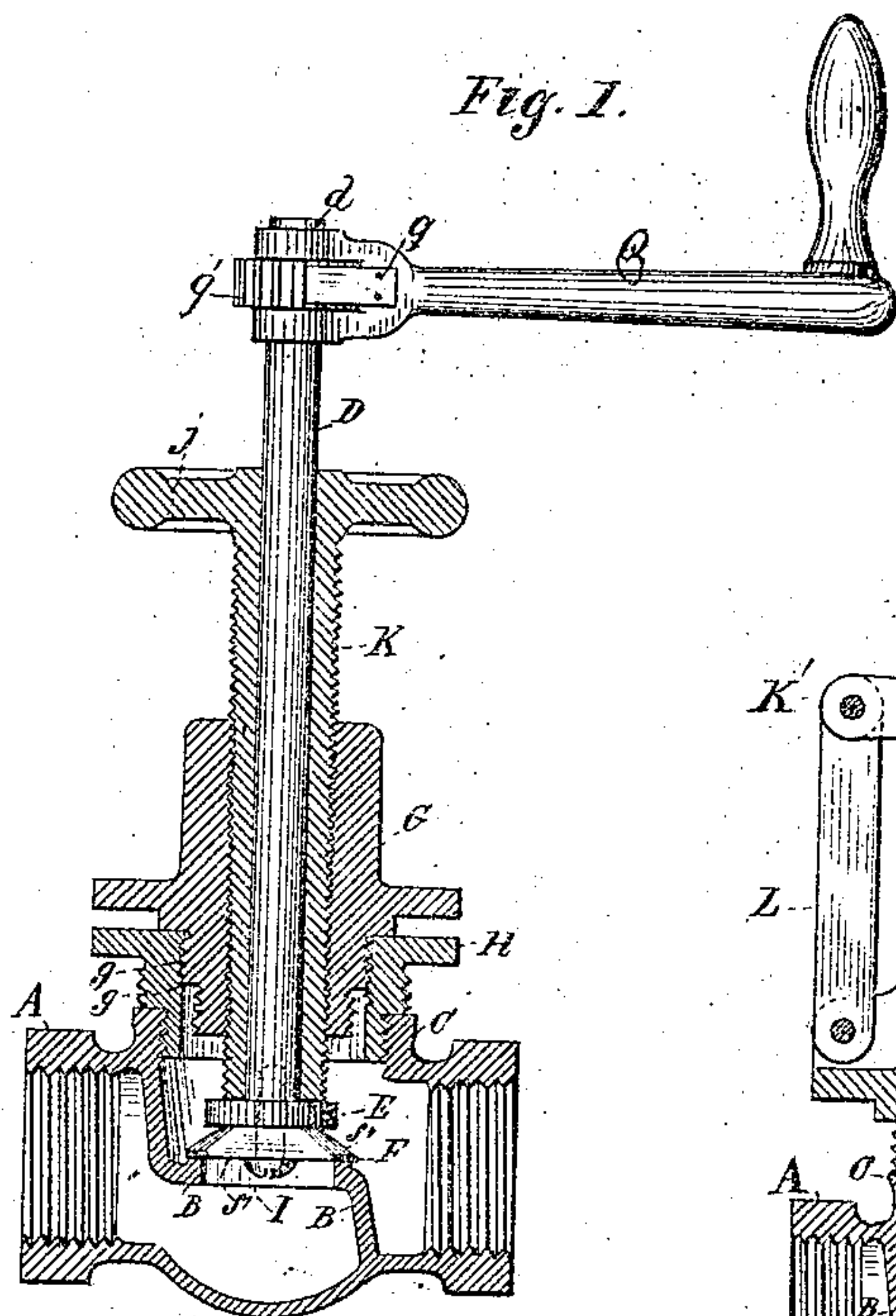


(No Model.)

P. J. WRIGHT.
VALVE RESEATING TOOL.

No. 400,989.

Patented Apr. 9, 1889.



2 Witnesses.
Emma F. Elmore,
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Inventor.
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By his Attorney
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UNITED STATES PATENT OFFICE.

PLINY J. WRIGHT, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF
TO CLARA E. SAMPSON, OF SAME PLACE.

VALVE-RESEATING TOOL.

SPECIFICATION forming part of Letters Patent No. 400,989, dated April 9, 1889.

Application filed August 24, 1888. Serial No. 283,625. (No model.)

To all whom it may concern:

Be it known that I, PLINY J. WRIGHT, a citizen of the United States, and a resident of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented a certain new and useful Improvement in Valve-Re-seating Tools, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to valve-seat-dressing tools, and is in the nature of an improvement on the construction shown in the patent granted to myself and Samuel Rust of date May 29, 1883, under No. 278,478. In my former patent I used a disk-shaped cutter on the end of a revoluble tool-shaft and a guide below the tool adapted to fit the opening in the valve-seat for the purpose of centering the cutter. In practice, however, I found that this construction was imperfect. I found that the guide in the valve-seat opening could not be relied on to hold the tool-shaft at right angles to the valve-seat, and therefore a true surface could not be produced. I found that the disk-cutter would not clear itself of the filings. I also found it impracticable to get sufficient pressure on the tool without throwing it off its center.

My present invention was designed to overcome these defects; and it consists of the construction hereinafter described, and particularly pointed out in the claims.

In the drawings, like letters referring to like parts, Figure 1 is a vertical section of the preferred form of my device. Fig. 2 is a similar view of a modification, and Figs. 3 and 4 are detached views, in side elevation and plan, respectively, of my improved form of cutter.

A is a valve-seat section of pipe.

B is the valve-seat in the same.

C is the cap-seat or opening in the top of the pipe giving access to the valve-seat.

The valve-seat B may either have a horizontal face adapting it to a flat valve, as shown in Fig. 1, or have a conical face adapting it to a ball-valve, as shown in Fig. 2.

D is the tool stem or shaft.

E is a cutter-head or bearing-disk on the lower end of said shaft, formed integral there-

with. The lower end of the tool-stem is provided with a screw-threaded hole in the line of its axis.

F is the cutter, provided with a small central hole, *f*.

I is a headed retaining-screw whose stem passes through the hole in the cutter and engages with the screw-threaded hole in the stem of the tool-shaft, thus removably securing the cutter to the cutter-head.

The cutter F is of a special construction. It is in shape like the frustum of an oblong pyramid. The lower surface, *f'*, has a file finish with diagonal grooving, and its inclined surfaces *f''* are also files with diagonal grooves. This constitutes a flat and a conical file in one piece, both of which are self-clearing. The flat file-face adapts the cutter to dress the horizontal valve-seats and the conical file-face to the conical valve-seats. In virtue of its oblong shape and the diagonal grooving of the file-surfaces it is self-clearing. It does not clog with the filings.

G is a centering device or valve-stem guide. It consists of a block provided with annular shoulders *g* at right angles to its axis and reduced sections *g'*, having screw-threaded peripheries, adapting the same to different-sized cap-seats. It is also provided with a hollow axis adapted to allow the outward passage of the tool-stem. When screwed down into position in the cap-seat, the adjacent shoulder will come to a true bearing with the top thereof. In case the form of pressure device shown in Fig. 2 be used, the bore of the guide-block G should be of a size just to fit the valve-stem.

H is a supplementary bushing or guide-seat for adapting the device to a greater diversity of sizes of cap-seat openings. Its use is obvious on reference to Fig. 1.

K and K' are pressure-producing devices. In Fig. 1 I have shown for the purpose a sleeve adapted to closely fit the tool-stem, having a screw-threaded exterior adapted to fit the screw-threaded interior of the guide-block G, the lower end being adapted to bear against the top of the cutter-head with a pressure variable at will by a hand-wheel, *j*. In Fig. 2 I dispense with the screw and sub-

stitute a link, L, a lever, M, and a sleeve, N, between flanges P on the tool-stem. The lever M is fulcrumed on the sleeve N, and is connected by the link L to the guide-block G.

5 The upper end of the tool-shaft D is provided with a suitable head, *d*, for the application of a crank, Q. This crank is preferably a pawl-and-ratchet crank, as shown in Fig. 1, the crank being swiveled to the head
10 of the tool-stem and provided with a spring-pawl, *q*, for engaging with the ratchet *q'*, rigidly attached to the tool-shaft head. The purpose of the ratchet-crank is to better adapt the tool to work in corners and close to a wall.

15 It will be understood that instead of making the cutter with both the flat and the inclined file-surfaces separate cutters may be used for the two classes of seats, cutters with oblong flat file-surfaces for dressing flat valve-
20 seats, and oblong cutters with inclined file-surfaces for the ball-valve seats. The material point is, that the file-surfaces on the cutter be not continuous. There must be clearing-spaces between them. The cutter
25 may take any form having a broken periphery—as, for example, a star or a cross; but a continuous surface will not clear itself.

The operation of the device is evident. The tool being in position, with the cutter on
30 the valve-seat, pressure is applied thereto through the screw or the lever, and the crank

is revolved. As the shaft is perfectly centered at right angles to the plane of the cutter, the seat is readily brought to a true bearing. In this manner a valve may be seated on an old
35 seat as well as to a new one quickly and cheaply, effecting a large economy.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a valve-reseating device, the combination, with a revoluble shaft, of a file connected to the lower end of said shaft at right angles to its axis, of a size to cover at any one time only a part of the surface to be dressed, whereby the file is rendered self-clearing,
45 substantially as described.

2. In a valve-reseating device, the combination, with a revoluble shaft, of a cutter detachably connected thereto, having a flat file-surface on its under side and inclined file-sur-
50 faces on its ends, substantially as described, whereby the tool is adaptable to dressing both flat and conical valve-seats.

3. The combination, with the shaft D, of the cutter F, having flat and inclined file-surfaces
55 *f' f''*, the centering-guide G, the bushing H, the screw K *j*, and the ratchet-crank Q *q q'*, substantially as described.

PLINY J. WRIGHT.

In presence of—

JAS. F. WILLIAMSON,
EMMA F. ELMORE.