No. 776,610. PATENTED DEC. 6, 1904.

H. L. MITCHELL.

TRUING DEVICE FOR VALVE SEATS.

APPLICATION FILED DEC. 17, 1903. RENEWED OCT. 31, 1904.

NO MODEL.

Fig. 1.

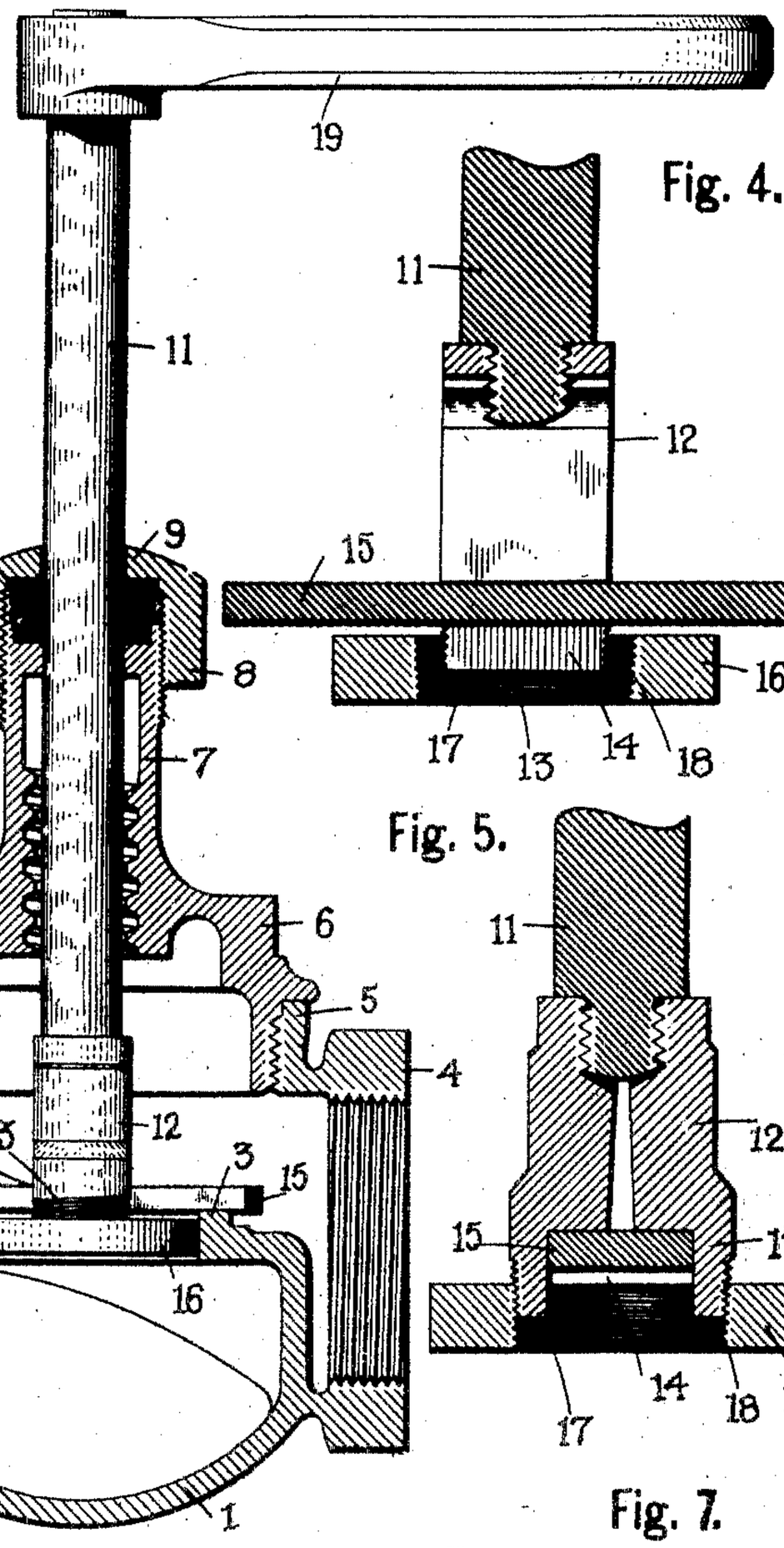


Fig. 2.

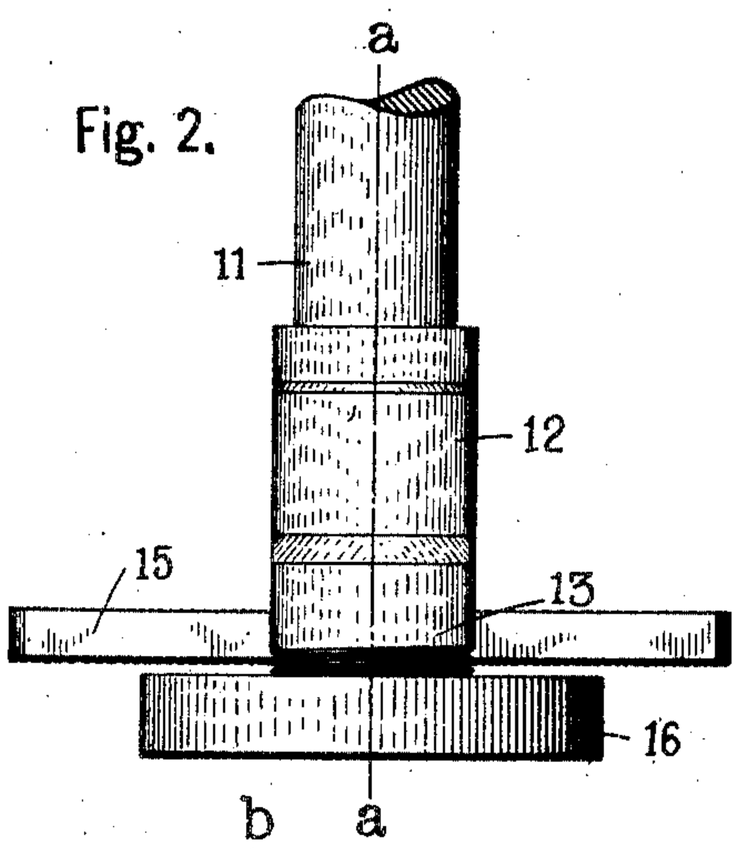


Fig. 3.

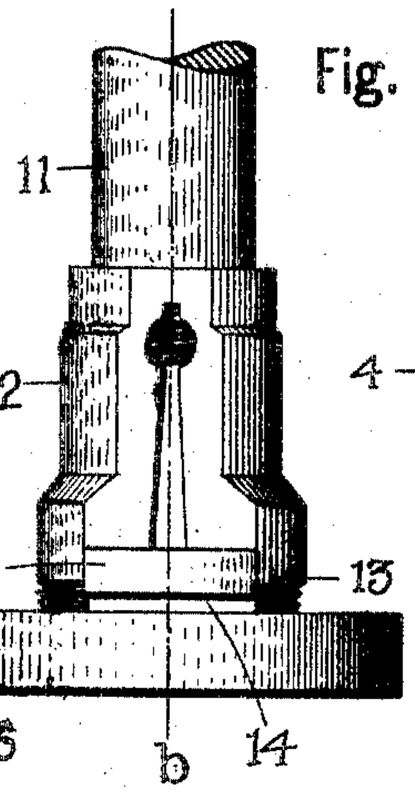
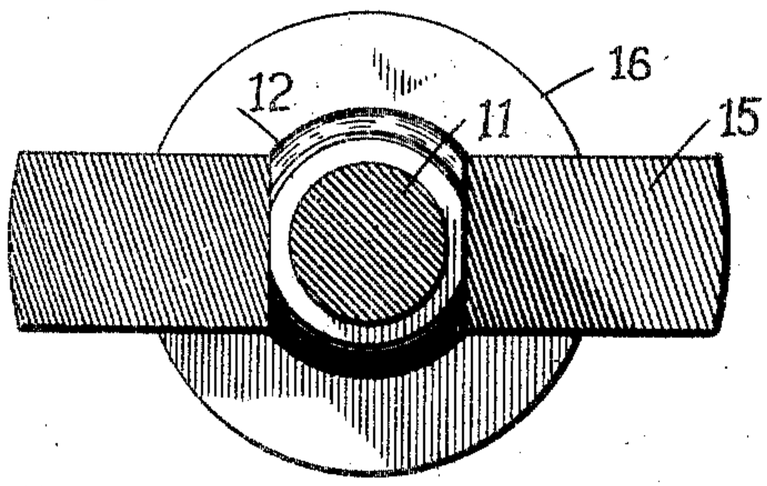


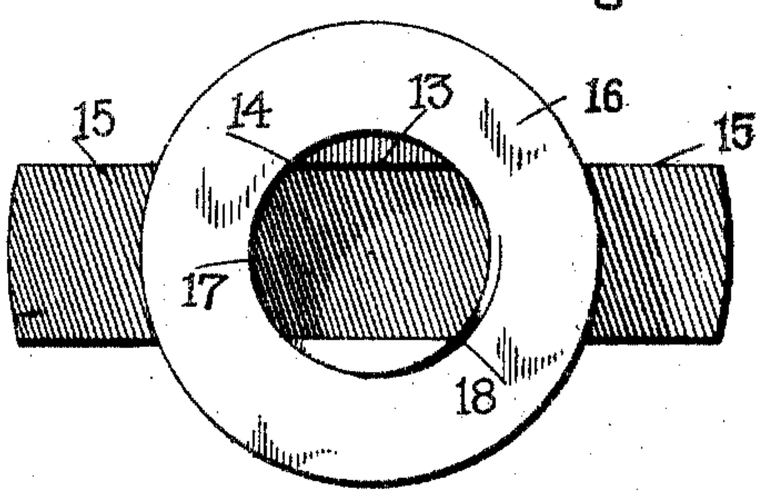
Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.





Witnesses.

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No. 776,610. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

HENRY LAWERENCE MITCHELL, OF MARINE CITY, MICHIGAN, ASSIGNOR TO JAMES D. MITCHELL, OF LAKEWOOD, OHIO.

TRUING DEVICE FOR VALVE-SEATS.

SPECIFICATION forming part of Letters Patent No. 776,610, dated December 6, 1904.

Application filed December 17, 1903. Renewed October 31, 1904. Serial No. 230,748. (No model.)

To all whom it may concern:

Be it known that I, HENRY LAWERENCE MITCHELL, a citizen of the United States, residing at Marine City, in the county of St. Clair and State of Michigan, have invented a certain new and useful Improved Truing Device for Valve-Seats, of which the following is a specification.

This invention relates to an improved device for truing worn, irregular, or defective valve-seats; and it consists of a stem, a truing blade or tool on said stem, centering means, and a means for rotating the stem.

The object of the invention is to provide a simple, comparatively cheap, and efficient valve-seat-truing device in which the truing blade or tool will be arranged so as to true the seat absolutely central with respect to the valve part which is adapted to seat thereon.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which an adaptation of the invention especially designed for globe-valves is shown.

Figure 1 is a central vertical section through a globe-valve with the truing device operatively arranged thereon. Fig. 2 is a detached side elevation of the truing device with a fragment of the stem. Fig. 3 is a detached side elevation of the truing device looking at right angles to the view shown in Fig. 2. Fig. 4 is a central longitudinal section through a fragment of the stem and the truing-blade and the annular screw-threaded combined locking-washer and guide on line *b b*, Fig. 3. Fig. 5 is a central longitudinal section through a fragment of the stem and the truing-blade and the annular screw-threaded combined locking-washer and guide on line *a a*, Fig. 2. Fig. 6 is a detached top plan view of the truing device. Fig. 7 is a detached bottom view of the truing device.

In referring to the drawings in detail like numerals designate like parts.

While in the accompanying drawings I have shown one form of my truing device which is especially designed for globe-valves, I desire to state that the improved device can without any or but slight modification be employed to true the valve-seats of pump-valves and also all other valves which have an annular valve-seat, and therefore do not limit myself to the employment of the truing device in the particular type of valve shown and reserve the right to any and all modifications of the said device that fairly fall within the scope of the hereinafter-set-forth claims.

The globe-valve shown has a valve-casing 1, having an interior wall 2, provided with an annular valve-seat 3, two oppositely-extending tubular horizontal connections 4, which are threaded to receive pipe ends, and a vertical tubular extension 5, upon which a cap 6 is screwed. The cap 6 has a reduced vertical tubular extension 7, with a packing-ring 8 screwed upon its upper end. The packing-ring 8 is inwardly flanged at the top, as shown at 9, and suitable packing 10 is placed between the flange and the extension 7.

The usual valve-stem and valve part are not shown in the accompanying drawings, being replaced by parts of the truing device, as will be more specifically described hereinafter.

In time the annular seat 3 becomes worn or of irregular form, so that the valve part cannot be forced tightly against it at all points, which of course permits the valve to leak and renders it defective. The object of the invention is to return the valve to perfect condition by truing the seat, so as to obtain a perfectly flat or plane seat which will be central with respect to the valve part adapted to seat thereon. The device employed for this purpose consists of a stem 11, a removable socket 12, screwed upon the lower end of the stem and having its lower end bifurcated or forked to provide spring members 13, which are cut away on the inner surface, as shown at 14, to provide a supporting-recess, a serrated truing-blade 15, which is fitted in said recess between the members 13, and an annular ring 16, which has a central circular opening 17, the surrounding wall 18 of which is tapered and screw-threaded and adapted to screw upon the outer surface of the lower extremity of the members 13, which are correspondingly screw-threaded and tapered to

draw the members toward each other, and thus rigidly lock the truing-blade in position in the end of the stem. In operating the device the cap of the valve is unscrewed, the valve-stem and valve part are removed, and a stem 11 of similar diameter is inserted in its place in the cap.

A truing-blade 15 of proper length to operatively engage the annular valve-seat 3 is fitted in the recess formed by the cut-away portions 14 and locked rigidly thereon by the screw-threaded ring 16. The ring is of proper size to fit snugly in the circular opening in the annular valve-seat, and thus also serve as a guide for centering the lower end of the stem with respect to the valve-seat.

A valve-seat-truing kit of my improved character contains a series of stems of different diameters, a series of truing-blades of different lengths, and a series of annular rings of different sizes, so that a truing device can be assembled to fit and true valve-seats in various sizes of valves.

The stem 11 may be rotated by the crank 19 shown or by any other well-known means to cause the truing-blade 15 to cut against the face of the valve-seat.

The great advantage of this device is that as the stem 11 occupies exactly the same position as the valve-stem and the ring 16 fits snugly in the circular opening in the valve-seat the seat is trued exactly to receive the valve part when replaced.

I claim as my invention—

1. In a valve-seat-truing device, a stem having a portion thereof bifurcated to provide spring members which are cut away on the inner surface to form a recess, a truing-blade fitting in said recess and a ring fitting on the lower extremities of the spring members, substantially as set forth.

2. In a valve-seat-truing device, a stem having a portion thereof bifurcated to provide spring members which are cut away on the inner surface to form a recess, and are exteriorly tapered and screw-threaded, a truing-blade fitting in said recess, and a ring screwing on the lower extremities of the spring members, substantially as set forth.

3. A device for truing annular valve-seats comprising a truing-stem of similar size to the stem of the valve and adapted to be fitted in the place of said valve-stem; said stem having a bifurcated part at its lower extremity, a serrated truing-blade fitting between the members of the bifurcated part and adapted to have cutting engagement with the face of the annular valve-seat, and a combined locking-ring and guide screwing on the lower extremities of the bifurcated members and adapted to fit snugly in the circular opening in the annular valve-seat, substantially as set forth.

4. In a valve-seat-truing device, a stem adapted to be fitted in a valve in place of the valve-stem, a socket screwing on the lower end of the stem and having a bifurcated part, a truing-blade between the members of the bifurcations, and an annular ring on the lower end of the socket, substantially as set forth.

HENRY LAWERENCE MITCHELL.

Witnesses:
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