No. 804,869. PATENTED NOV. 21, 1905.

J. D. MITCHELL.

VALVE SEAT REFACING DEVICE.

APPLICATION FILED JUNE 13, 1904.

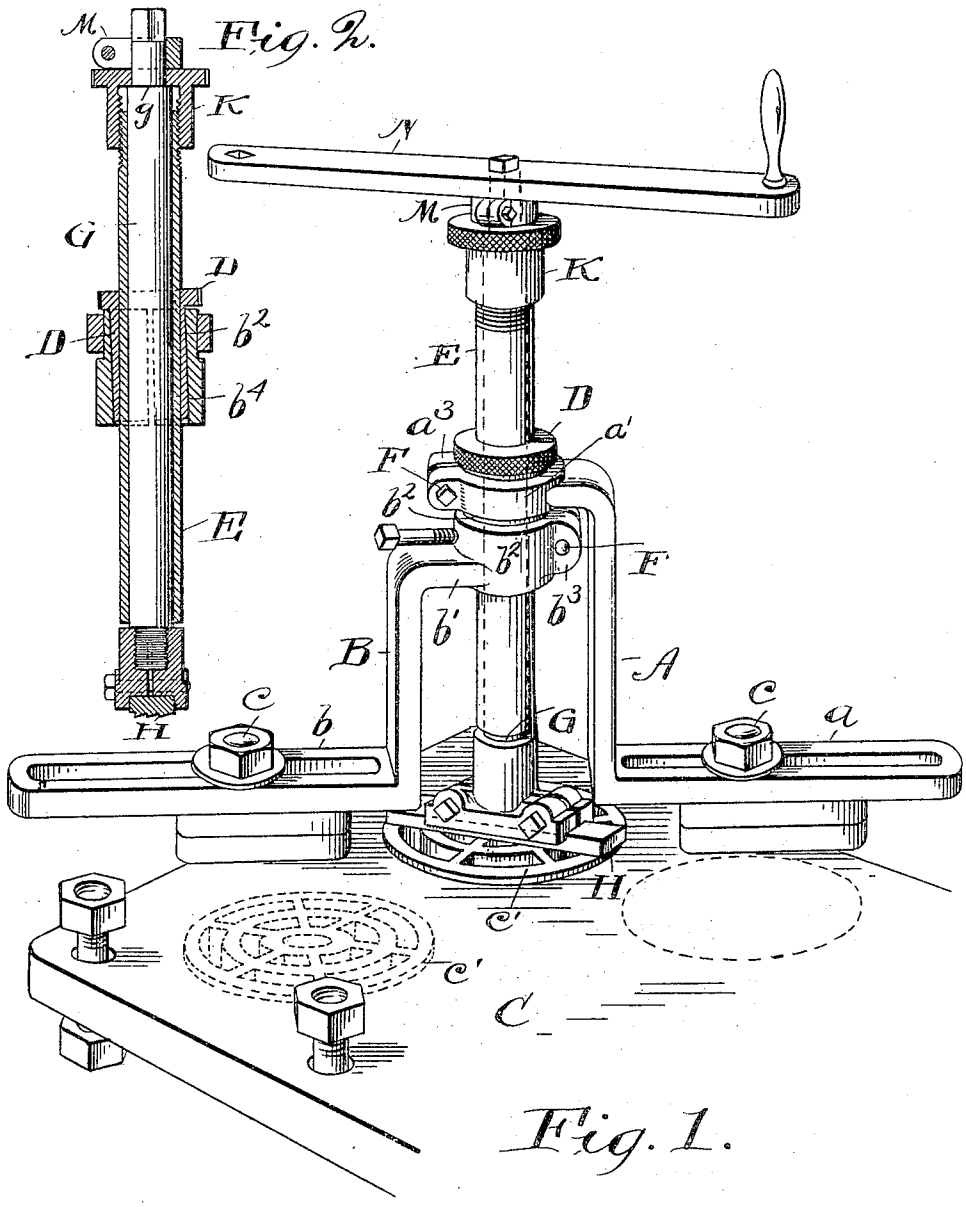

Fig. 2.

Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES D. MITCHELL, OF LAKEWOOD, OHIO.

VALVE-SEAT-REFACING DEVICE.

No. 804,869. Specification of Letters Patent. Patented Nov. 21, 1905.

Application filed June 13, 1904. Serial No. 212,318.

To all whom it may concern:

Be it known that I, JAMES D. MITCHELL, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Valve-Seat-Refacing Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The device embodying my invention is a hand-operated tool adapted particularly for refacing worn valve-seats; and it is capable of ready attachment in almost any convenient position to the plate or piece on which the valve-seat is formed.

The invention consists in certain combinations of mechanism which include the means for positively feeding the tool to the work and means for firmly supporting the operating mechanism in working position, all of which will be hereinafter described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a tool embodying the invention secured in working position to the plate on which the valve-seat is formed, and Fig. 2 is a central vertical section of the column of the tool.

Referring to the parts by letters, A and B represent two frame members which have horizontal slotted feet *a* and *b*. These are adapted to be secured by bolts *c* or other suitable means to a piece C, on which is the valve-seat *c'*, to be refaced, and in suitable position to enable the tool to do its work. These frame members have substantially horizontal arms *a'* and *b'* at their upper ends, lying in different horizontal planes. In one of these arms *a'* is a vertical cylindrical hole, to which is fitted an upwardly-extending cylindrical boss b^2 on the arm *b'*. A cylindrical hole b^4 is formed in the arm *b'*, extending through it and the boss b^2. The ends bf both of these sleeve-like arms are split through to the holes therein and are provided on opposite edges of the slits with ears a^3 and b^3. Bolts F are provided for engagement with said ears to draw them together, so that said arms serve to clamp the members which pass through them.

The cylindrical hole b^4 is preferably inclined slightly to the vertical, and in it is fitted a split bushing D. The axis of the hole through this bushing is not parallel with the axis of the external cylindrical configuration of the bushing, but is slightly oblique thereto. When the bushing occupies one position in the hole to which it is fitted, which position is indicated when the split in the bushing registers with the split in the arm, this central hole through the bushing is vertical. When the bushing is turned in said arm, the axis of this hole becomes slightly inclined to the vertical and is at its greatest inclination when the bushing has moved one hundred and eighty degrees from the position first mentioned. A tube E passes through the hole in the bushing, being fitted thereto and capable of vertical adjustment therein. When the described parts are properly positioned, they are "set" by tightening up the clamps formed by the ends of the arms *a'* and *b'*.

The tool-shaft G is rotatably mounted in said tube E, projecting above and below the same. The facing-tool H is clamped or otherwise secured to the lower end of this shaft. There is an external shoulder *g* on the projecting upper end of the shaft G, which shoulder is formed by reducing the diameter of the shaft above it. A cap-nut K screws onto the upper end of the tube E and abuts this shoulder *g*. By turning this nut K the shaft G is positively fed downward as the work progresses or circumstances require. An operating-lever N is fitted to the squared upper end of the shaft G and furnishes means for turning it. A clamped collar M is preferably fastened to the shaft above the nut and serves to prevent the shaft from dropping down.

Except for the positive feeding device shown and the employment substantially as shown of two frame members instead of one the described device very greatly resembles that which forms the subject-matter of my pending application, Serial No. 220,454.

Having described my invention, I claim—

1. In a valve-seat-facing device, the combination of two frame members having feet by which they may be secured in operative position, and having at their upper ends horizontal arms, of which one has a cylindrical hole and the other a cylindrical boss fitted to said hole, there being a cylindrical hole through said arm and boss, and both of said arms being split and providing contracting devices, a bearing-tube passing through the last-mentioned hole and adapted to be clamped therein, a shaft rotatable in said tube and vertically movable therein, and means for rotating said shaft.

2. In a valve-seat-facing device, the combination of two frame members having feet by which they may be secured in operative position, and having at their upper ends horizontal arms, of which one has a cylindrical hole and the other a cylindrical boss fitted in said hole, there being a cylindrical hole through said arm and boss, and both of said arms being split and providing contracting devices, a bearing-tube passing through the last-mentioned hole and adapted to be clamped therein, a shaft rotatable in said sleeve and vertically movable therein, and means for positively feeding the shaft downward.

3. In a device for refacing valve-seats, the combination of a suitable support having a foot whereby it may be attached in operative position, a non-rotating bearing-tube adjustably secured in said support, a shaft rotatably mounted in said tube and projecting at both ends therefrom, a facing-tool secured to the lower end of said shaft, and means for positively feeding the shaft downward.

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

JAMES D. MITCHELL.

Witnesses:

E. L. THURSTON,

B. W. BROCKETT.