W. W. ALLMAND.

Machines for Refitting Valves.

No. 146,633. Patented Jan. 20, 1874.

Fig. 2.

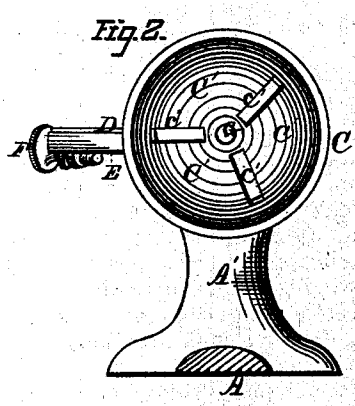


Fig. 1.

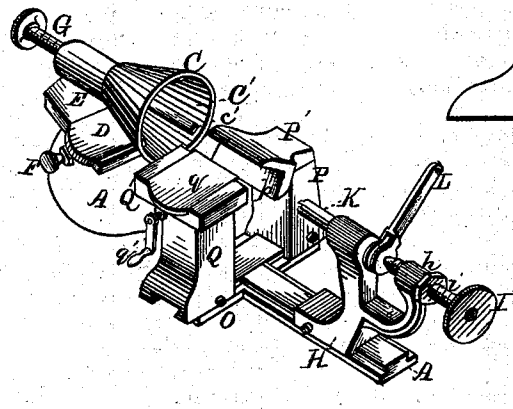
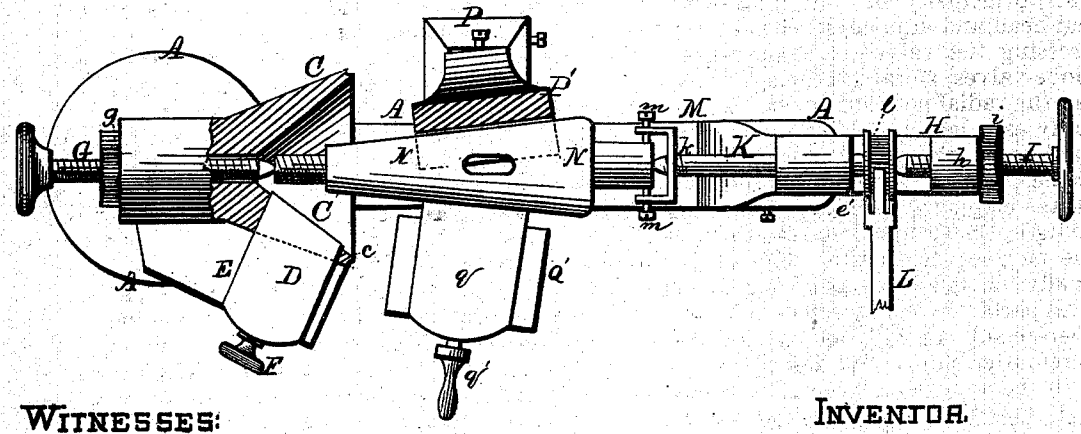


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM W. ALLMAND, OF EAST BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR REFITTING VALVES.

Specification forming part of Letters Patent No. **146,683**, dated January 20, 1874; application filed July 24, 1873.

To all whom it may concern:

Be it known that I, WILLIAM W. ALLMAND, of East Boston, in the county of Suffolk and in the State of Massachusetts, have invented certain new and useful Improvements in Valve-Refitting Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of my apparatus. Fig. 2 is an elevation of the inner side of the head; and Fig. 3 is a plan view of the upper side of said apparatus as arranged for dressing the tapering plug of an ordinary cock, a portion of the head and of the back rest being broken away, so as to better show the position of said plug.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable the plugs and valves of water and steam cocks to be easily and quickly dressed whenever rendered necessary by reason of wear; and it consists, principally, in combining, with the conical head and adjustable cutter employed for dressing the valves of compression-cocks or globe-valves, suitable bearing-strips for insuring the radial position of said valves, substantially as is hereinafter specified. It consists, further, in the peculiar construction of the frame, and in combination therewith of the means employed for rotating the plug or valve being operated upon, substantially as and for the purpose hereinafter shown. It consists, finally, in the device as a whole, when its several parts are constructed and combined to operate substantially as and for the purpose hereinafter shown and described.

In the annexed drawing, A represents the bed-plate of the machine, consisting of a narrow strip of metal, having its upper corners grooved so as to form a V-shaped slide, and provided at one end with a circular enlargement, A′, from which extends upward a standard, B, that furnishes a support for a head, C. The rear end of the head C is cylindrical, while its front end is made bell-shaped, and is provided with a conical recess, C′, which has an inward inclination of sides, that corresponds to the usual angles of the face of compression or globe valves. Within one side of the head C is provided a slot, *c*, which extends horizontally and radially from near the inner end of the recess C′ to a point near its outer end, and contains a cutter, D, which, outside of said cone, rests within a suitable way or guide, E, and is moved inward or outward by means of a screw, F. Within the recess C′, at equidistant points from each other and from the slot *c*, are provided two radial grooves, within which are placed corresponding strips of metal, *c′*, that form bearings for and upon which the faces of valves rest while being operated upon. A screw-center, G, passing inward through the axis of the head, completes the same. Fitting upon and sliding over the bed-plate A is a tail-stock, H, which has the form shown in Fig. 1, and is provided with a screw-center, I, that passes inward through the rear arm *h* of said stock, upon a line with the axis of the head C. Within the front arm is provided a circular opening, which coincides with the centers G and I, and furnishes a bearing for a corresponding bar, K, the forward end of which is provided with a screw-thread, *k*, and is made conical, while its rear end is squared, so as to receive a ratchet-wheel, *l*, that is operated by means of a lever, L, and pawl *l′*, as in case of a ratchet-drill.

As thus constructed, the device is ready for use in refitting the valves of globe or compression cocks, said operation being as follows: The center G is withdrawn from the recess C′, the valve placed within said recess, and the bar K placed against the outer end of the valve-stem, with the conical end of said bar resting within the center opening of said stem. A dog, M, provided with two binding-screws, *m*, (or with projecting arms,) and screwed upon the threaded end *k* of said bar, is now caused to engage with said valve-stem or with its hand-wheel, and the tail-stock H is moved forward until the back center I can be caused to engage with the center opening in said bar, after which the ratchet-lever is operated, so as to cause said bar and valve to rotate. The cutter D is now moved inward until it engages with and cuts the face of the valve in the usual manner, the rear center being used as a means for feeding said valve forward, while

the head-center operates as a stop to prevent said valve from moving suddenly forward in case said cutter runs into a soft place.

By means of the arrangement of the two bearings and of the cutter within the head, a valve that is badly out of shape may be made perfectly round and true, while, if said valve were permitted to bear directly against the inner side of said head, its inequalities would be perpetuated and the cutter caused to chatter, so as to produce an uneven surface.

For use in refitting the tapering plugs of ordinary cocks, a plug, N, is suspended upon the head-center G and the pointed end of the bar K, so as to be capable of rotation, as in an ordinary lathe. The dog M being attached to the squared end of said plug, the latter and said bar may be rotated by means of the ratchet-lever. Two jam-nuts, *g* and *i*, respectively, are placed upon the screw-centers G and I, and, when said centers are adjusted to relative position, are employed for locking them in place. Upon the bed-plate A, immediately in front of the head C, is secured a cross slide or way, O, upon which are placed two square posts, P and Q, that are capable of being adjusted transversely toward or from the center of the machine, and, when so adjusted, secured in place. Within the upper end of the rear post P is pivoted a block, P′, which is provided within its forward side with a V-shaped groove, *p*, the center of which is exactly in a line vertically with the centers of the machine. The block P′, being pivoted within its post, is adjusted horizontally, so as to bring its groove *p* in a line parallel to the rear side of the plug N, after which said block is secured in position and the post P moved forward until said grooved block bears firmly against said plug and forms for the latter a back rest. Within the forward post Q is, in a like manner, pivoted a block, Q′, within the upper side of which is formed a slide or bearing for a cutter, *q*, which cutter is moved toward or from the center of the machine by means of a hand-screw, *q′*. The block Q′ is now adjusted so as to bring the inner or cutting edge of the tool *q* in a line with the forward side of the plug N, after which the post Q is moved forward until said tool nearly touches said plug, and is then secured in place. The plug being now rotated by means of the ratchet-lever, the cutter is fed inward and the surface of said plug cut away in the usual manner.

The machine thus constructed is simple, efficient, and durable, and can be made to produce results heretofore unattainable except by the use of the expensive power machinery employed in the construction of valves and cocks, the co-operative action of the several parts being such as to render perfect hand-work a comparatively easy matter. The employment of a ratchet-lever and of a fixed pressure-center in place of the usual screw-tap lever and the pressure of the hand against the cutter, when the machine is used for dressing the valves of globe-cocks, prevents all chattering of the cutters, and enables the device to be used in places where otherwise no hand-machine could be operated.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. As an improvement in valve-refitting machines, the bearing-strips *c′*, fitted into the conical recess C′ of the head C, and arranged within the same at points equidistant from each other and from the cutter D, substantially as and for the purpose specified.

2. The frame A, head C and C′, tail-stock H, centers G and I, bar K, provided with the squared end *k*, and the ratchet L, *l*, and *l′*, when constructed and combined to operate substantially as and for the purpose shown.

3. The improved machine hereinbefore described as a whole, when its several parts are constructed and combined to operate substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of July, 1873.

WM. W. ALLMAND.

Witnesses:
W. J. MOORE,
J. FRED. MARSHALL.