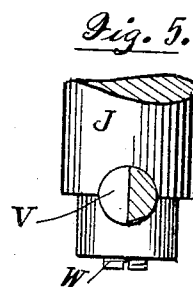
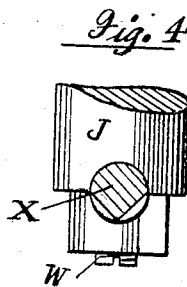
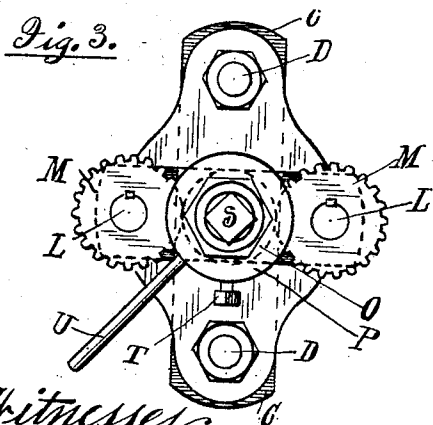
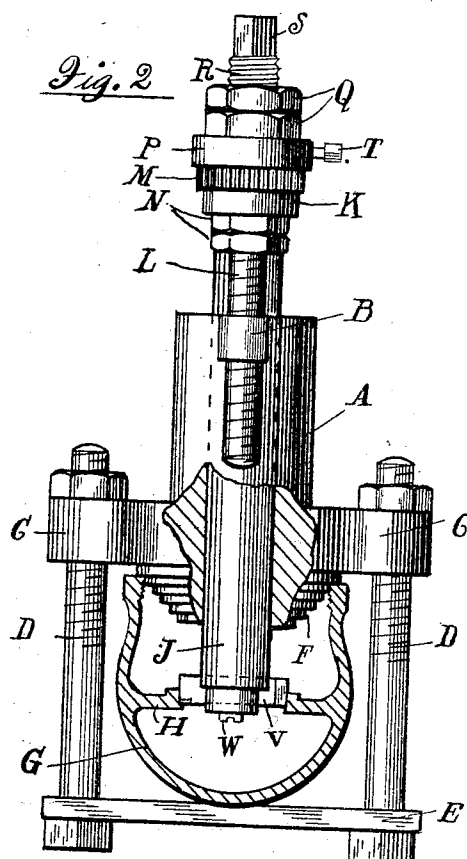
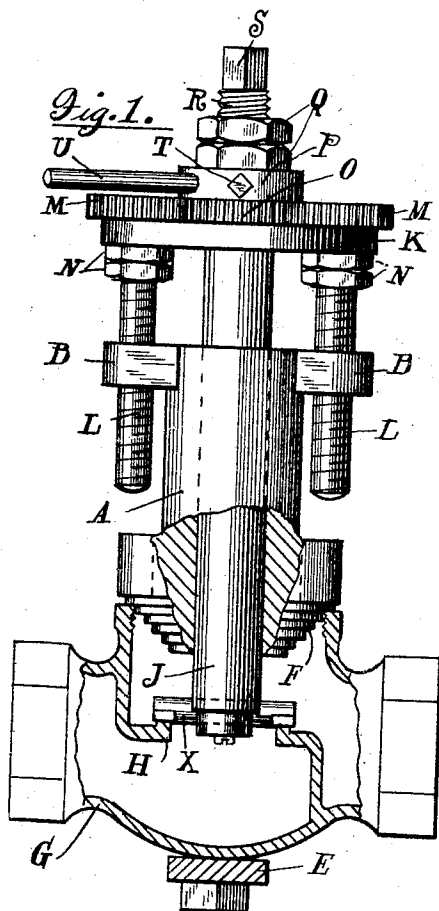


No. 796,731.

PATENTED AUG. 8, 1905.

W. KARDATZKE & M. RADOVICH.
VALVE REPAIRING MACHINE.

APPLICATION FILED JAN. 18, 1905.



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UNITED STATES PATENT OFFICE.

WILLIAM KARDATZKE AND MATTHEW RADOVICH, OF CHICAGO, ILLINOIS.

VALVE-REPAIRING MACHINE.

No. 796,731.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed January 18, 1905, Serial No. 241,604.

To all whom it may concern:

Be it known that we, WILLIAM KARDATZKE and MATTHEW RADOVICH, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valve-Repairing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a novel construction in a machine for boring and grinding valve-seats to effect reparations in valves, the object being to provide a device of this character which can be fitted to valves of different sizes without disconnecting the latter and bore out and face the valve-seat in a very simple, rapid, and efficient manner; and it consists in the features of constructions and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating our invention, Figure 1 is a side elevation, partly in section, of a valve-repairing device constructed in accordance with our invention, showing the same mounted in proper position on the valve to be repaired. Fig. 2 is a similar end elevation of same. Fig. 3 is a top plan view of same. Figs. 4 and 5 are detail fragmentary views in elevation of the end portion of the spindle, showing boring and grinding devices mounted in place therein, the latter being shown in section.

Referring now to said drawings, our machine or device comprises a member A, consisting of a hollow sleeve provided at its upper end at diametrically opposite points with flanges B, and at its lower end at diametrically opposite points, preferably removed ninety degrees from the flanges B, with flanges C. The said flanges C are provided with openings for the passage of bolts D and which at their lower ends engage a plate E, between which and a central projection F on said member A the valve G is adapted to be clamped. The said central projection F is stepped to form a series of annular shoulders of various diameters, which are adapted to bear upon the upper edges of the wall surrounding the central opening in the valve G, in which the member carrying the stuffing-box through which the valve-stem passes is adapted to be mounted and by means of which

the said member A is centered relatively to the valve-seat H of the valve. Passing through said sleeve A is a spindle J, which at its upper end is reduced, said reduced portion passing through a central opening in a plate K, in the ends of which are journaled screw-shafts L, which pass through threaded openings in the flanges B and serve to impart longitudinal movement to said spindle J in the following manner: On the upper ends of said screw-shafts L are mounted spur-gears M, which simultaneously form collars to prevent relative movement longitudinally between said plate K and said shafts L in one direction, the latter being held against relative longitudinal movement in the opposite direction by means of the nuts N, one of which is a jam-nut which serves to hold the other in proper relative position. The said spur-gears M mesh with a spur-gear O, loosely mounted on said reduced end of said spindle J and which is rigid with a disk P. Said spur-gear O and disk P are held against longitudinal movement relatively to said spindle J by means of the nuts Q, disposed on the threaded upper end portion R of the reduced end of said spindle J, one of said nuts forming a jam-nut to hold the other in place on said threaded portion. The extreme upper end of said spindle J is squared, as at S, to receive a wrench crank-arm or the like. In said disk P is a radially-disposed set-screw T, and at another point it is provided with a radial opening adapted to receive the lever U, by means of which said disk, and consequently said spur-gear O, are adapted to be revolved relatively to said spindle J. The said set-screw T is normally held out of engagement with said spindle J, so as to permit said disk and spur-gear to be freely revolved relatively to the latter, said set-screw being turned to bear upon said spindle to lock said disk rigid therewith only when it is desired to impart rapid longitudinal movement to said spindle, as will be more fully explained hereinafter.

Our device is operated as follows: The entire stuffing-box member of the valve-casing, including the valve-stem and valve, are removed, and one of the bolts D being removed the plate C is mounted on the valve-casing so that one of the shoulders of said stepped projection F rests upon the upper edge of the internally-threaded wall receiving the stuffing-box member. The said spindle J is at at this

time raised to the upper limit of its movement, and said plate E and the missing bolt D are first brought into proper position and the valve-casing secured firmly between said plate E and said projection F in an obvious manner. If it is desired to bore out the valve-seat prior to refacing same, as is frequently required, then before mounting said device on said valve-casing a boring-head V is first mounted in the transverse opening in the lower end of the spindle J provided therefor and is clamped therein by means of a set-screw W. After said device has been clamped in place the set-screw T is brought to bear upon the spindle so as to lock said spur-gear first rigid therewith, and then applying a wrench or crank to the head S of the said spindle and revolving the latter rotary motion will be imparted to said screw-shafts L and the latter forced downwardly, thereby obviously carrying said spindle downwardly therewith until the said boring-tool V has been brought into engagement with the valve-seat. The said set-screw T is then released from its engagement with the spindle, and the lever U is employed at intervals during the revolution of the spindle S to feed the same gradually downwardly in an obvious manner. After said valve-seat has been bored out as desired the set-screw is again brought into engagement with the spindle and the latter returned to the upper limit of its movement and said device then removed from said valve-casing. The said boring-tool V is then removed, and in place thereof a facing-tool X is mounted in the lower end of said spindle J, said facing-tool consisting of a cylindrical member cut away at its free ends to provide V-shaped grinding portions, the apexes of which are adapted to rest upon the seat and by scraping the same provide a perfectly-smooth surface, upon which the valve proper will seat to effect an absolutely-tight joint. After said scraping-tool X has been mounted in said spindle the said device is again mounted on the valve-casing and the spindle J fed downwardly until said member X rests upon the valve-seat. The said screw T is then again released and the scraping operation continued in the same manner as the boring operation until said valve-seat shall have been sufficiently scraped or ground to effect the desired purpose.

Our said device is exceedingly simple and efficient.

We claim as our invention —

1. A valve-repairing device comprising in combination, a clamping member adapted to engage the valve-casing, a sleeve carried thereby, a stepped projection concentric with said sleeve for centering the latter relatively to the valve-seat, a spindle journaled in said sleeve and movable longitudinally and revolubly therein, means for securing boring and grind-

ing tools to said spindle at one end, a member revolubly mounted on said spindle adjacent its other end and held against longitudinal movement relatively thereto, screw-shafts journaled in said member and held against longitudinal movement relatively thereto and to said spindle and engaging parts of said sleeve to impart longitudinal movement to said spindle when said shafts are turned, spur-gears rigid with said screw-shafts, a spur-gear loosely mounted on said spindle and meshing with said gears on said screw-shafts, means for rotating said last-named spur-gear, and means on said spindle for receiving a member for revolving the latter.

2. A valve-repairing device comprising in combination, a clamping member adapted to engage the valve-casing, a sleeve carried thereby, a stepped projection concentric with said sleeve for centering the latter relatively to the valve-seat, a spindle journaled in said sleeve and movable longitudinally and revolubly therein, means for securing boring and grinding tools to said spindle at one end, a member revolubly mounted on said spindle adjacent its other end and held against longitudinal movement relatively thereto, screw-shafts journaled in said member and held against longitudinal movement relatively thereto and to said spindle, and engaging parts of said sleeve to impart longitudinal movement to said spindle when said shafts are turned, spur-gears rigid with said screw-shafts, a spur-gear loosely mounted on said spindle and meshing with said gears on said screw-shafts, means for locking said last-named spur-gear rigid with said spindle to rotate said spur-gear simultaneously therewith, and means on said spindle for receiving a member for revolving the same.

3. A valve-repairing machine comprising a member consisting of a sleeve provided at its ends with flanges and at one end with a central stepped projection, a clamping member adapted to be secured to those of said flanges adjacent said stepped projection, screw-shafts adapted to enter threaded openings in the flanges at the other end of said sleeve, a plate in which said screw-shafts are journaled, means for holding said screw-shafts against longitudinal movement relatively to said plate, a spindle journaled in said sleeve and movable revolubly and longitudinally therein, said spindle being provided at one end with means for securing boring and grinding tools therein and having a reduced other end portion journaled in said plate, spur-gears rigid with said screw-shafts, a spur-gear loosely mounted on said reduced end of said spindle and meshing with said spur-gear on said screw-shafts, a disk rigid with said spur-gear, a set-screw therein adapted to bear on said spindle to lock same rigid with said disk, a lever on said disk, a collar on said reduced

end of said spindle adapted to hold the latter against longitudinal movement relatively to said plate and said spur-gear and disk, and means at the upper end of said spindle for receiving a device for rotating said spindle, substantially as described.

In testimony whereof we have signed our

names in presence of two subscribing witnesses.

WILLIAM KARDATZKE.
MATTHEW RADOVICH.

Witnesses:

RUDOLPH WM. LOTZ,
F. SCHLOTFELD.