

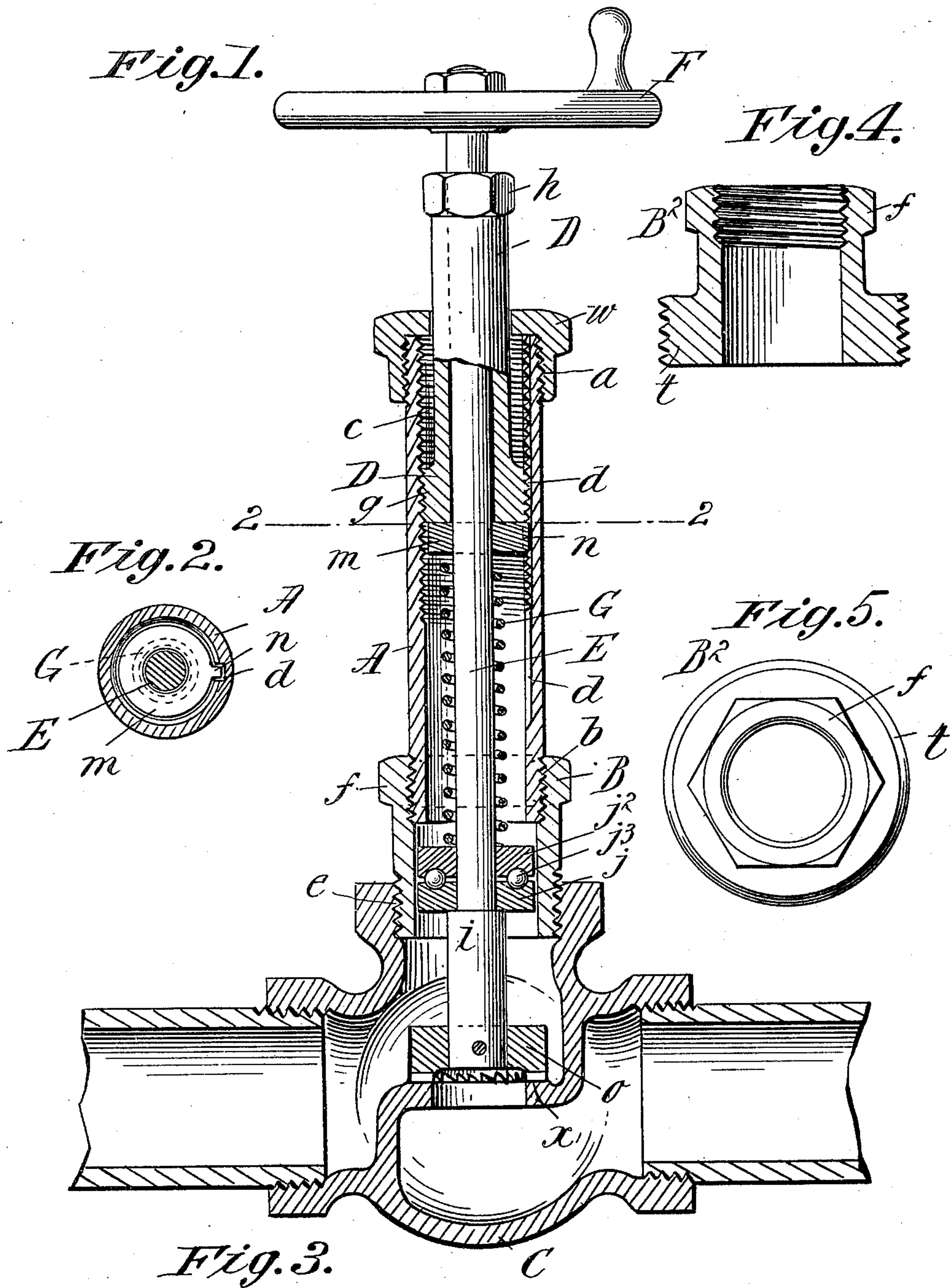
No. 692,459.

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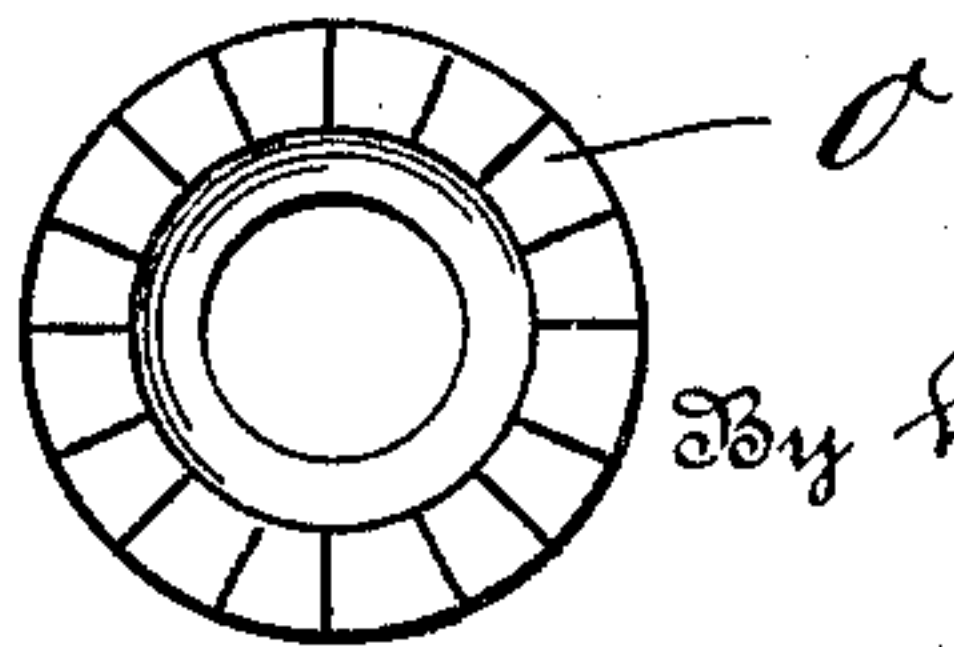
J. C. LANGLOIS.
VALVE RESEATING DEVICE.

(Application filed May 16, 1901.)

(No Model.)



Witnesses
J. D. Garfield
M. A. Campbell



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UNITED STATES PATENT OFFICE.

JOSEPH C. LANGLOIS, OF GREENFIELD, MASSACHUSETTS.

VALVE-RESEATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 692,459, dated February 4, 1902.

Application filed May 16, 1901. Serial No. 60,487. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. LANGLOIS, a citizen of the United States of America, and a resident of Greenfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Valve-Reseating Devices, of which the following is a full, clear, and exact description.

This invention relates to improved tools or devices for truing the seats of valves after the same have become worn or lapped out after protracted use.

It is the purpose of this invention to produce a device of the character indicated which shall be comparatively simple and cheap of construction and adaptable conveniently for use for truing the seats of valves of varying sizes.

The invention consists in the constructions and combinations of parts, all substantially as hereinafter described, and set forth in the claims.

The improved valve-reseating device is fully and clearly illustrated in the accompanying drawings, in which—

Figure 1 is substantially a central vertical section of the device, shown as in working connection on a valve the seat of which is to be trued. Fig. 2 is a cross-sectional view on line 2 2, Fig. 1. Fig. 3 is a plan view of the working face of the tool or cutter. Figs. 4 and 5 are respectively central longitudinal sectional and plan views of an interchangeable part to be hereinafter referred to.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the tubular body or casing of the tool or device, the same being externally threaded at both its upper and lower end portions, as indicated at *a* and *b*. The said part A is also internally tapped or screw-threaded, as indicated at *c*, from its upper end portion downwardly quite a distance, and this said part A is provided with the internal longitudinal groove or spline *d*.

At the lower end of the tubular casing is screw-engaged the annular section B, the lower end of which is externally threaded, as at *e*, to screw into the hub of the valve-body C, of which body *x* represents the seat. The upper end portion of the said section B is

polygonal, as indicated at *f*, whereby the same may be rotated conveniently to engage and disengage the valve-body.

D represents a sleeve, the lower end portion of which is enlarged and screw-threaded, as indicated at *g*, to screw-engage in the internally-threaded casing, the upper end of said sleeve D being formed polygonal, as indicated at *h*, to enable the said part to be rotated for longitudinal adjustment.

E represents the spindle or working shaft of the device, the same having a bearing and guidance in and through the aforesaid sleeve D. This shaft is provided at its upper end with the hand-wheel F, or it may be otherwise equipped or constructed to afford convenient means or provisions whereby the shaft may be rotated. The said shaft E has its lower end portion enlarged, whereby the shoulder *i* is produced, against which is set the annular member *j* of a ball-bearing device, between which and the annular member *j*² thereabove are the balls *j*³.

Next below the lower end of the sleeve D is a sleeve or washer *m*, the same having a spline or projection *n* engaging in the aforesaid spline-groove *d*.

G represents a spiral spring of considerable power interposed between the sleeve *m* and the annular member *j*² above the balls. The ends of this spring may advantageously be engaged with or fastened to the said parts *m* and *j*². The said parts *j* and *j*², substantially fitting the bore of the annular section B, serve materially to maintain the spindle or shaft E in its proper concentric position.

o represents the valve-reseating tool or cutter affixed on the lower end of the operating-shaft. These tools may be variable both as to size and contour to accord with the different sizes and shapes of the valve-seats which are to be trued.

Preparatory to using the device the sleeve D is turned in a direction to elevate it and lessen or entirely relieve the reaction of the spiral spring. The device is then applied in the hub of the valve-body, the cutter resting on the valve-seat. The sleeve D is now turned and caused by its downward movement to compress the spring to impart the desirable compression and reactive stress to the spring G, whereby it causes the spindle or shaft E to

be forced downwardly and with it the cutter for the proper "take" by the latter into the metal of the valve-seat. The hand-wheel is now turned, whereby the cutter is rotated, this action being continued until the seat is trimmed and trued.

It may be found desirable after the valve-seat has been partially trued to increase in some cases and to lessen in some cases the stress on the spring, which may be done by turning the sleeve D to adjust the latter in a downward or in an upward direction. The provision of the washer *m*, spline-engaged within the casing, insures that the rotation of the sleeve D to compress or relieve the spring will not cause a twisting of the spring, and the ball-bearing member *j* being fast to the shaft and the member *j*² being loose about the shaft insures an easy and frictionless rotation of the shaft.

In order to adapt the device for its use in connection with valves having different sizes of openings in their bodies, the part B may be unscrewed and replaced by another one, B², as indicated in Figs. 4 and 5, which is like the one B in all respects with the exception of the portion *t*, the diameter of which is increased in accordance with the size of the opening in the valve-body in connection with which the device is to be used.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a valve-reseating device, the combination with the tubular casing, internally screw-threaded at its upper end portion, and internally longitudinally spline-grooved, of the sleeve having a screw-thread engagement within the upper portion of the casing, the shaft or spindle rotatable through said sleeve, and having at its lower end the tool or cutter, a washer next below the aforesaid sleeve,

having a spline engagement in the casing, a spiral spring encircling the shaft, the upper end of which is in engagement with the washer, and exerting a downward reaction on the tool-carrying shaft, and means for connecting the said casing to the body of the valve to be worked upon, substantially as described.

2. In a valve-reseating device, the combination with the tubular casing, of a tool-carrying shaft rotatable therein, and endwise movable in relation thereto, a spring located within said casing and reacting downwardly on said shaft, means accessible from the exterior of the casing for regulating the tension of said spring, and means for connecting the casing with the body of the valve.

3. In a valve-reseating device, in combination, the tubular casing A, internally screw-threaded at its upper end portion and provided with the longitudinal spline-groove, and provided at its lower end with means for its connection with the body of a valve, of the sleeve D screw-threading in the upper portion of the casing, and longitudinally adjustable, the tool-shaft E rotatable in, and movable endwise through said sleeve, having at its lower end the cutter, and having near its lower end the shoulder *i*, and a ball-bearing member *j*, a second ball-bearing member *j*² thereabove, free of the shaft, and the interposed balls, the washer *m*, next below the sleeve D, spline-engaged with the groove of the casing, and the spring G interposed between said washer and the ball-bearing member *j*², substantially as described.

Signed by me at Springfield, Massachusetts, this 30th day of April, 1901.

JOSEPH C. LANGLOIS.

Witnesses:

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