

(No Model.)

C. F. HALL.
MACHINE FOR REFITTING VALVES.

No. 453,001.

Patented May 26, 1891.

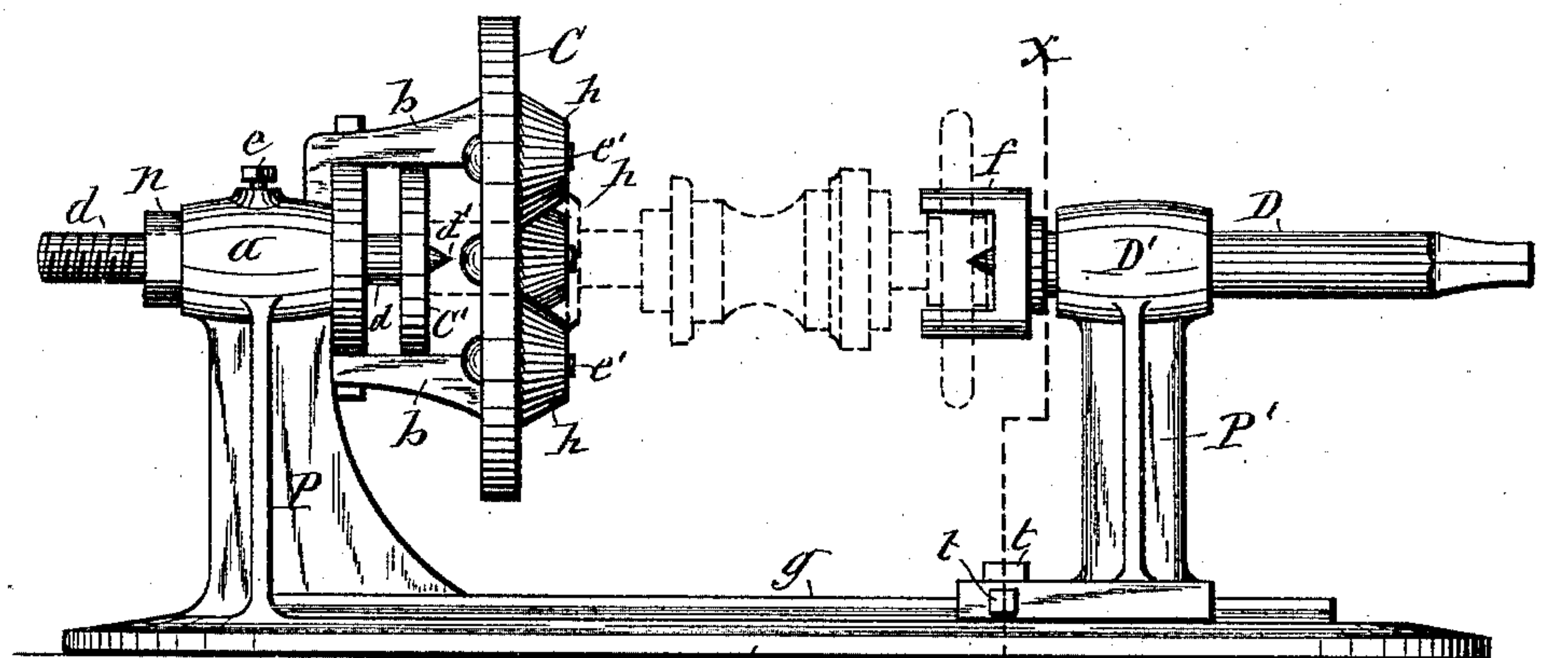


Fig. 1

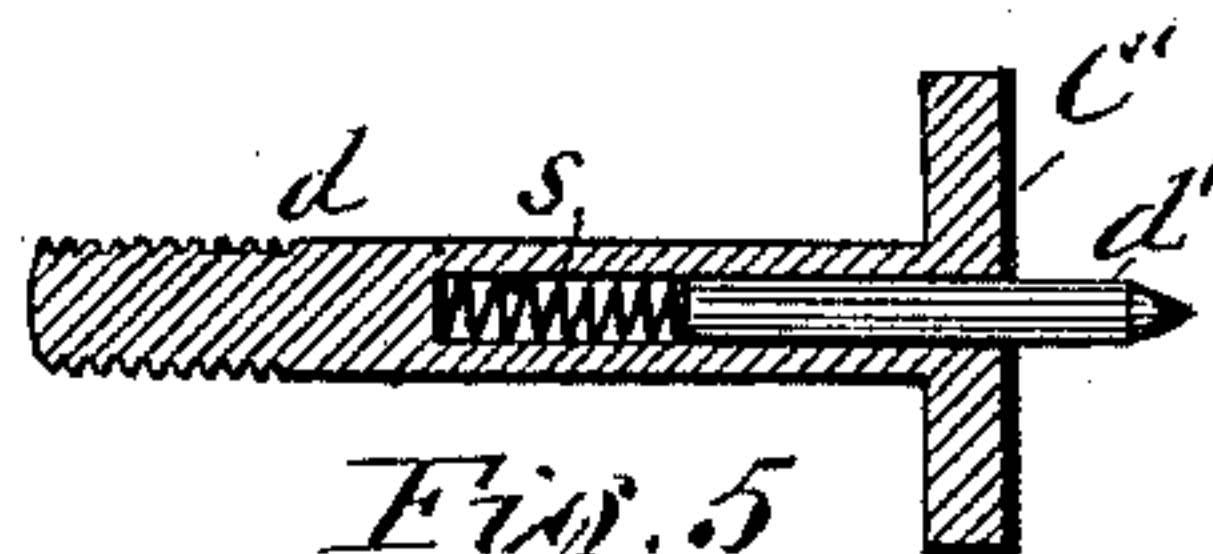


Fig. 5

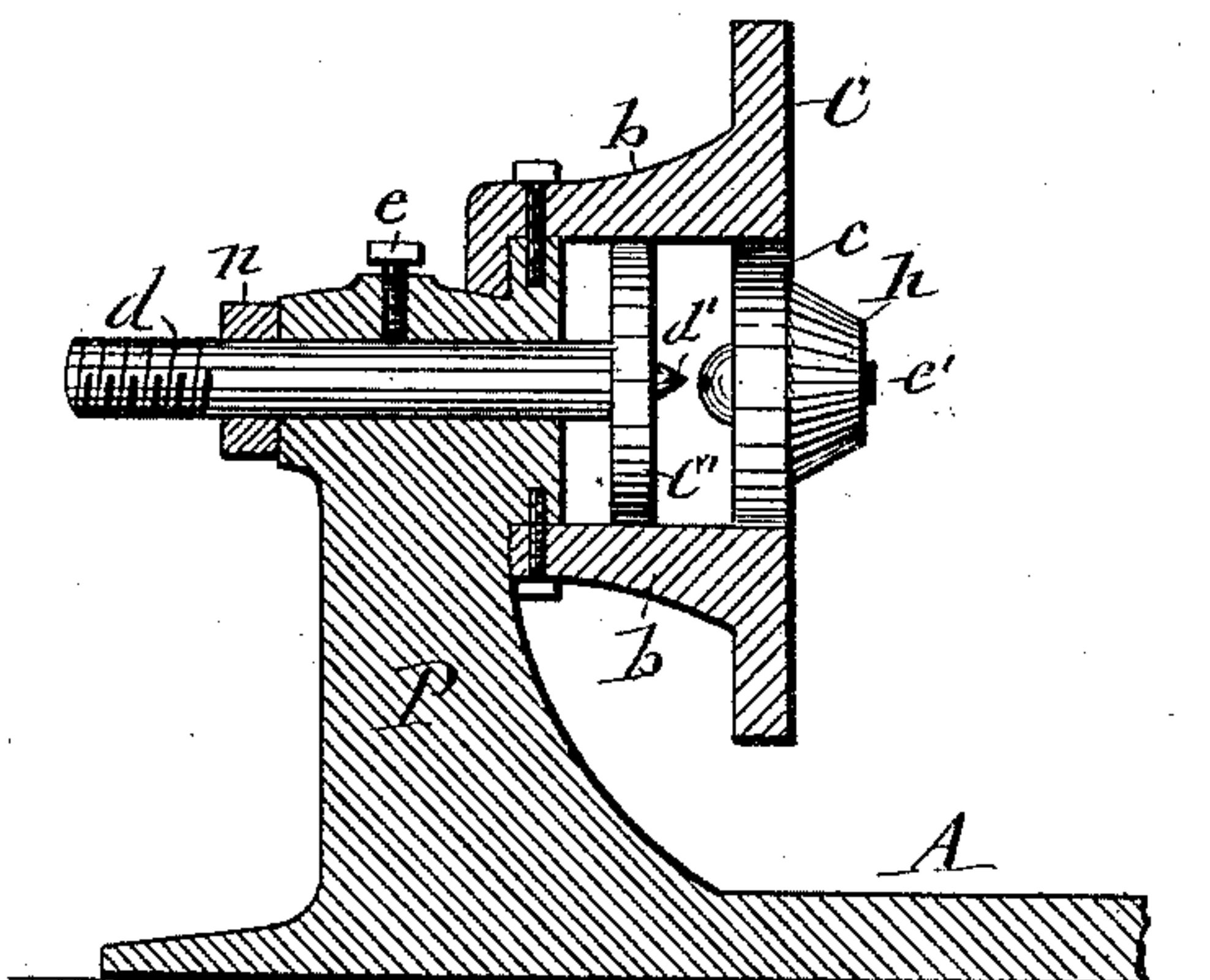


Fig. 2

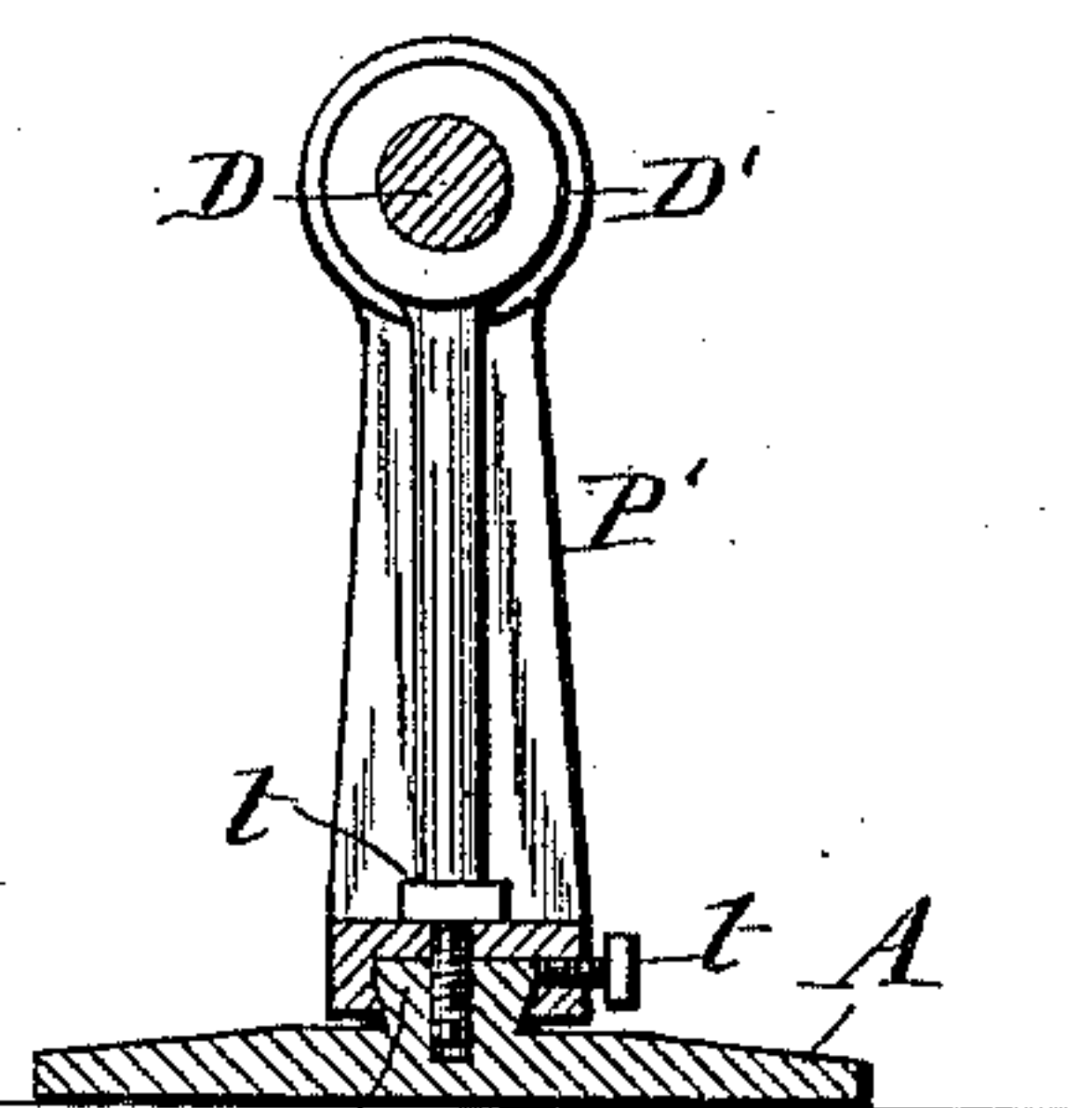


Fig. 3

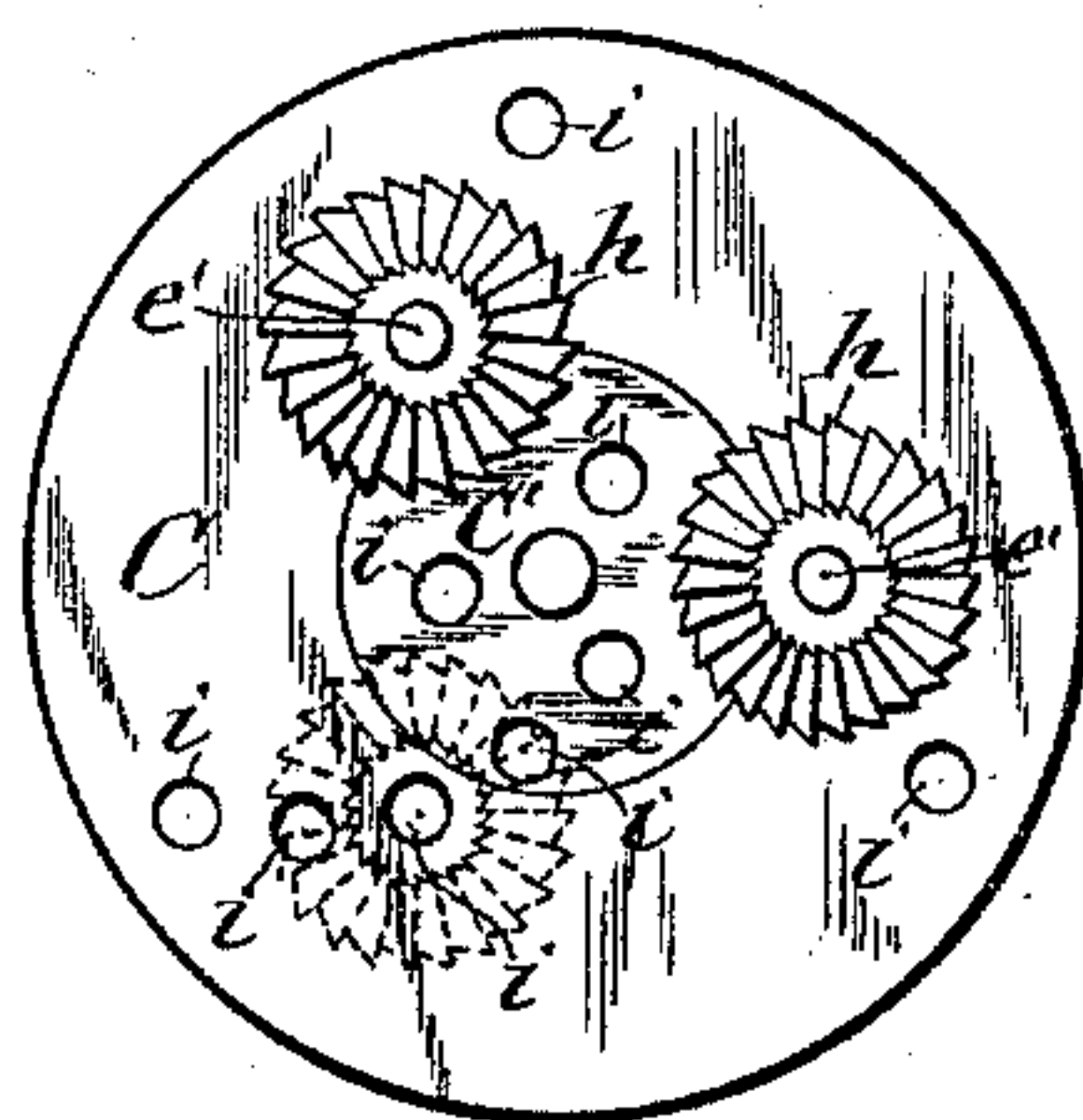


Fig. 4

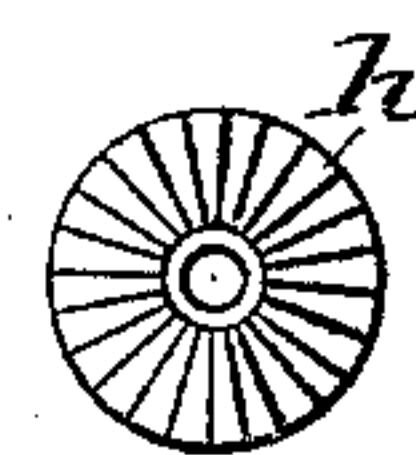


Fig. 6

WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES F. HALL, OF SKANEATELES, NEW YORK.

MACHINE FOR REFITTING VALVES.

SPECIFICATION forming part of Letters Patent No. 453,001, dated May 26, 1891.

Application filed December 3, 1890. Serial No. 373,401. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HALL, of Skaneateles, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Machines for Refitting Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of valve-fitting machines in which a rotary spindle is provided with a dog by which it holds the valve to be refitted and presses said valve between cutters mounted on a face-plate or head.

The object of the invention is to provide a machine which shall afford greater range of adjustment to operate on valves and valve-seats of different diameters, and shall also be simple in construction and convenient and efficient in its operation; and to that end the invention consists in the improved construction and combination of parts hereinafter described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a vertical longitudinal section of that end of the machine on which is mounted the cutter-head. Fig. 3 is a vertical transverse section on line *xx*, Fig. 1. Fig. 4 is a face view of the cutter-head. Fig. 5 is a detached longitudinal section of a modification of the dead-spindle of the machine, and Fig. 6 is a face view of the cutter as used for fitting flat valve-seats.

Similar letters of reference indicate corresponding parts.

A represents the base of the machine. From one end of said base rises the pedestal P, which is rigid in its position and preferably formed integral with said base. The top of said pedestal is formed with a rigid horizontal sleeve *a*, in which is inserted movably longitudinally the dead-spindle *d*, which is secured adjustably in its position by means of a set-screw *e*, and preferably, also, by a jam-nut *n* on the rear end of said spindle, which portion is screw-threaded for that purpose.

To the exterior of the sleeve *a* are rigidly secured forwardly-extending arms *b b*, to the extremities of which is rigidly attached the

cutter head or main head C, which is formed with a central aperture *c*. The aforesaid dead-spindle *d* is axially concentric with the aperture *c*, and has affixed to the end adjacent to the head C a supplemental head C', of the same shape and size as the aperture *c*, into which it can be entered by sliding the spindle *d* toward the main head C. The center *d'* of the spindle *d* may be either rigid thereon or consist of a pin sliding in an axial channel in the spindle, and held yieldingly protruding from the same by a spiral spring *s* back of the pin, as shown in Fig. 5 of the drawings, or said pin *d'* may be otherwise adjustably sustained in the spindle *d*—as, for instance, by screw-threads on the pin working in corresponding screw-threads in the channel of the spindle. (Not necessary to be shown.)

h h h represent the cutters by which to trim and fit the valve, and for operating on a globe-valve said cutters are formed conical and secured with their large ends to the face of the cutter-head C.

To adapt the machine to operate on valves of different diameters, I attach the cutters adjustably in relation to their distances from the center of the cutter-head C, and for this purpose I prefer to provide said cutter-head with a series of bolt-holes *i i i* for each cutter, said bolt-holes being arranged at various distances from the center of the cutter-head and adapted to receive through them the attaching-bolt *e'* of the cutter. The supplemental head C' may also be provided with such bolt-holes as shown in Fig. 4 of the drawings, in which one of the cutters is indicated by dotted lines. For grinding or fitting a valve-seat the cutters *h h* are to be reversed so as to set them with their small ends against the cutter-head. In this latter position the cutters are also placed for operating on a flat valve-seat, such as is required for check-valves and others, and for which purpose I provide the large end face of the cutter with cutting-teeth, as shown in Fig. 6 of the drawings.

D represents the rotary or live spindle, which is journaled in a sleeve D' on the top of the pedestal or post P', which is mounted movably on a guide *g*, secured to or formed on the base A, and one or more set-screws *tt*, passing through the foot of the pedestal and engaging the guide, holds the pedestal in its

desired position. Said pedestal can thus be set a greater or less distance from the cutter-head C, as may be required to bring the valve to be operated on in proper position against the cutters. The end of the live spindle D adjacent to the cutter-head is provided with a suitable dog *f* for engaging the valve-stem so as to compel the valve to rotate with the spindle.

For operating on spindle, wing, and check valves the cutters are secured to the main cutter-head C, the supplemental head C' being in that case removed from the main head to allow the end of the valve to pass through the aperture *c* and become centered on the supplemental head, as shown in Figs. 1 and 2 of the drawings.

Fig. 1 also illustrates the method of operating the machine. The dotted lines represent the valve and its stuffing-box. The valve proper being of a conical form is inserted between the correspondingly-shaped cutters *h h h*, which have been adjusted on the cutter-head, so as to come in contact with the beveled sides of the valve disposed concentric with the cutter-head C. The dead-spindle *d* is pushed toward the end of the valve-stem and centered thereon, while the dog *f* engages the handle of the valve so as to cause the same to turn with the spindle D. By rotating this spindle and at the same time pushing it toward the cutter-head C the valve is rotated between the cutters and forced against the same with the requisite force to cause the cutters to dress and refit the face of the valve.

For operating on small valves the dead-spindle *d* is pushed toward the main head C to seat the supplemental head C' in the aperture *c*, where it is retained by fastening the spindle *d* in the sleeve *a*. The cutters in this case are attached to said supplemental head.

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

1. A valve-fitting machine comprising a rotary spindle, a work-holding dog on the end of said spindle, a head facing said end of the spindle and secured stationary in its position, and cutters attached to said head adjustably in relation to the center thereof, as set forth.

2. In combination with the rotary spindle and a work-holding dog attached to the end of said spindle, a head facing said end of the spindle and provided with a central aperture, cutters rigidly secured to said head, a dead-spindle disposed axially concentric with the aforesaid aperture and movable longitudinally to and from the same, and fastening devices holding the latter spindle adjustably in its position, as set forth.

3. In combination with the rotary spindle provided with a work-holding dog on its end, a main head facing said end of the spindle and formed with a central aperture, cutters secured to said head, a dead-spindle disposed axially concentric with the aforesaid aperture and movable longitudinally to and from the same, a supplemental head of the shape and size of the aperture in the main head and secured to the end of the said spindle adjacent to said main head, and fastening devices holding said latter adjustably in its position, substantially as described and shown.

4. The combination, with the base A, of the pedestal P, formed integral with said base and having the sleeve *a* affixed to it, arms *b b*, rigidly attached to and extending from said sleeve, the main head C, secured to said arms remote from the sleeve and provided with the central aperture *c*, the spindle *d*, sliding in said sleeve, the supplemental head C', attached to said spindle, the set-screw *e* for fastening the spindle, cutters attached to the main head, and the rotary spindle D, provided with the work-holding dog *f*, substantially as described and shown.

5. In a machine for fitting valves, the combination, with the cutter-head, of cutters of conical shape secured reversibly to the cutter-head and provided with teeth on their beveled sides and on their large end faces, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 15th day of November, 1890.

CHARLES F. HALL. [L. S.]

Witnesses:

M. F. DILLON,
CALEB W. DOVE.