(No Model.)

F. S. DANGERFIELD.

MACHINE FOR FITTING VALVES.

No. 549,233. Patented Nov. 5, 1895.

Fig. 1.

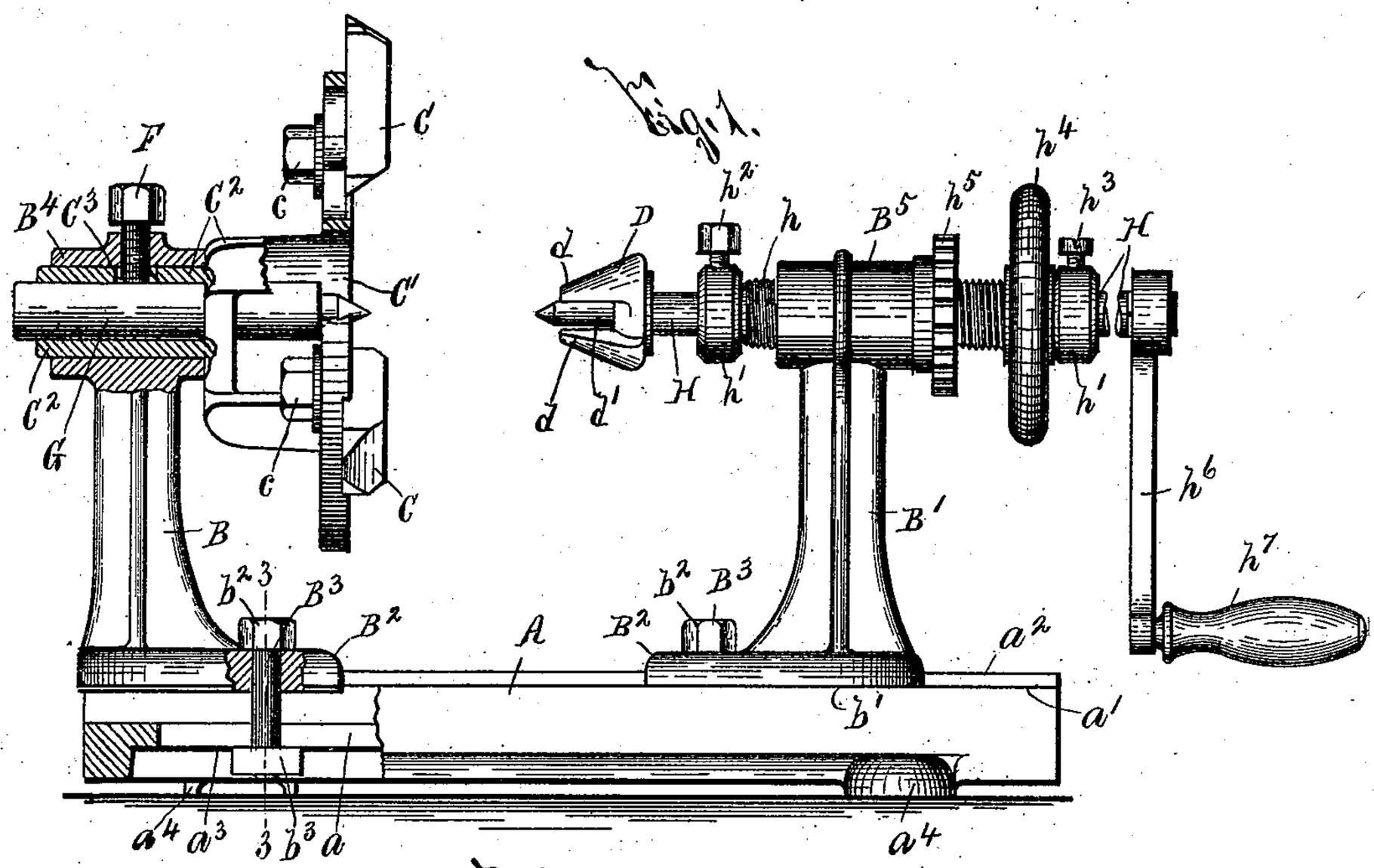


Fig. 2.

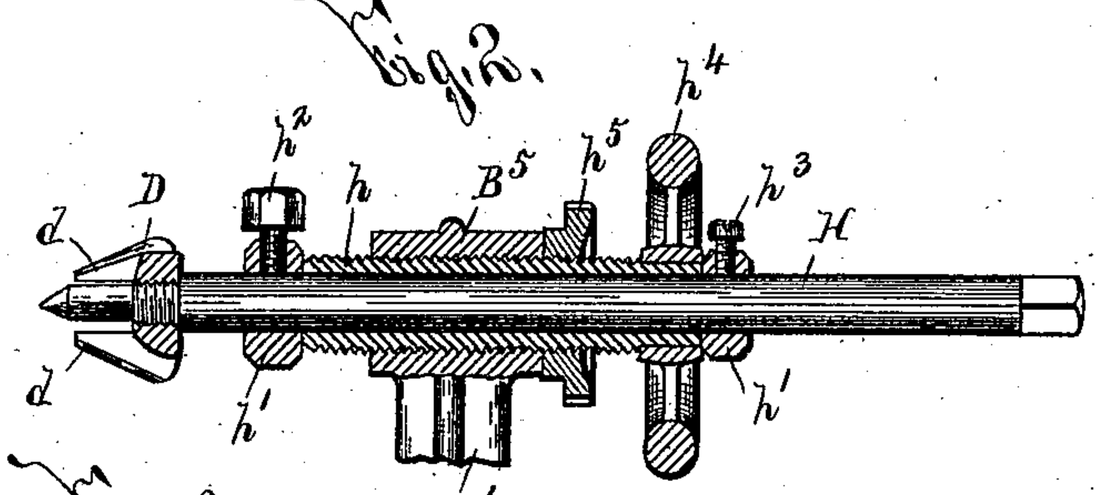


Fig. 3.

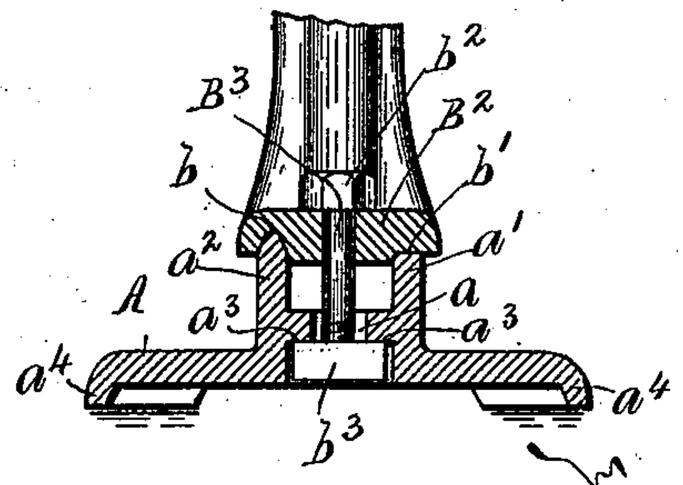


Fig. 4.

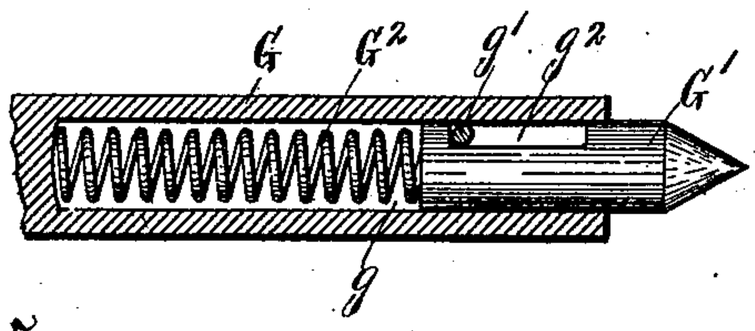
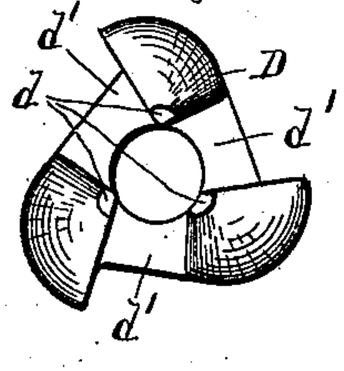


Fig. 5.



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FRANCIS S. DANGERFIELD, OF AUBURN, NEW YORK.

MACHINE FOR FITTING VALVES.

SPECIFICATION forming part of Letters Patent No. 549,233, dated November 5, 1895.

Application filed March 1, 1895. Serial No. 540,134. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS S. DANGERFIELD, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Machines for Fitting Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in machines for fitting valves, and has for its object the production of a device which is particularly economical in manufacture and highly practical and effective in operation; and to this end it consists, essentially, in the general construction and arrangement of the parts of the machine, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an elevation, partly in section and partly broken away, illustrating the general construction and arrangement of my improved machine. Fig. 2 is a longitudinal section, partly in elevation, of the revoluble shaft provided with a valve-engaging dog and the adjacent parts of the machine. Fig. 3 is a detail transverse section taken on line 3 3, Fig. 1. Fig. 4 is a detail section, partly in elevation, illustrating the adjustable stem and the yielding center of the machine. Fig. 5 is a face view of the preferable form of valve-engaging dog.

The base or frame A of my improved machine may be of any desirable form, size, and construction, but is preferably formed rectangular and provided with a substantially central longitudinal slot a, closed at its ends, as seen in section at the left of Fig. 1, a guide consisting of upright guide-ribs a' a^2 projecting from the upper face of the base or frame and arranged on opposite sides and extending beyond the ends of said slot, and a bearing-face a^3, formed by a longitudinal groove in the lower face of said base or frame A. To insure a practical support of said base or frame, its opposite extremities may be provided with supporting-ears a^4.

B B′ are standards or uprights which are movable lengthwise of the base or frame and support the cutter C and the dog D for engaging the valve-disk and its spindle (not illustrated) to be trued by my machine. The standards B B′ are provided with bearing-faces b b' for engaging the upper edges of the guide-ribs a' a^2 and are formed with inwardly-extending feet B^2. Suitable clamps B^3 pass through the feet B^2 and the slot a and are provided at their upper ends with shoulders b^2 for engaging the standards or uprights and at their lower ends with shoulders b^3 for engaging the bearing-face a^3. The clamps B^3 are movable lengthwise of the slot a into engagement with the ends of said slot, and, as clearly seen at Fig. 1, the clamps are separated a greater distance from the outer faces of the uprights B B′ than the ends of the slot a are separated from the end faces of the guide-ribs on the base or frame A. The uprights B B′ may thus be supported upon a comparatively-short frame and separated a greater distance than would otherwise be possible, and this is a feature of great advantage.

The cutter C is of any desirable form, size, and construction for truing the face of the valve-disk, and I have here shown a series of cutters as secured by suitable clamps c to a centrally-perforated support C′, which preferably consists of a disk having one face provided with a projecting shank C^2, formed with a tripod-shaped extremity secured to the support C′. The outer end of the shank C^2 is cylindrical and is arranged in a bearing B^4 in the upright B and is formed with an aperture C^3, into which is movable one end of a clamp F, projecting within the bearing B^4. The shank C^2 is formed hollow, and mounted therein is an adjustable stem G, which is engaged by the inner face of the clamp F, and consequently said clamp operates to secure the cutter-support shank and said yielding stem in position.

The socket g extends inwardly from one end of the stem G, and mounted therein is a yielding center G′, having its outer end pointed for engaging the adjacent face of the valve-disk to be trued. A spring G^2 within the socket g operates to force the yielding center G′ outwardly, and a stop-pin g' is arranged in a longitudinal groove g^2, formed in

the peripheral face of the yielding center, with its opposite ends supported by the walls of the socket *g*. The withdrawal of the stop *g'* through the wall of the socket *g* permits the ready removal of the yielding center, and said stop operates to engage the stop-shoulders at the end of the groove g^2 and limit the inward and outward movement of said center.

The dog D may be of any desirable form, size, and construction; but as my machine is particularly applicable for use in truing valve-disks of check-valves I preferably use a dog formed tapering and provided with engaging teeth *d*, decreasing in thickness and width toward their free extremities, which readily engage the adjacent wings or projections of the check-valve disk. (Not illustrated.) These teeth are preferably arranged substantially equidistant, as clearly seen at Fig. 5, and suitable grooves *d'* are formed between their adjacent faces for receiving said wings or projections of the valve. (Not illustrated.)

The dog D is removably mounted upon the screw-threaded end of a revoluble spindle H, and it is obvious that any other suitable form of dog may be substituted therefor when the particular form of valve-disk to be operated upon demands a change in the form of dog.

The revoluble spindle is passed through a hollow feed-screw *h*, movable lengthwise in a screw-threaded bearing B^5 in the upright or standard B', and is provided with adjustable collars *h'*, removably secured thereto by clamps h^2 h^3, and having their adjacent faces engaged with the opposite ends of the feed-screw *h*. A suitable hand-engaging wheel h^4 is secured to the feed-screw, and a lock-nut h^5 is movable lengthwise of the feed-screw and is engaged with the outer face of the bearing B^5. A crank h^6 is fixed to the outer end of the spindle H and is provided with a hand-piece h^7 for facilitating its revolution.

In the operation of my invention the standards or uprights are adjusted to the desired separation for admitting the valve-disk and its spindle, (not illustrated,) the desired form of dog is mounted on the revoluble spindle, and the adjustable stem and cutters are suitably adjusted. The valve-disk and its spindle is then interposed between said dog and the yielding center, and as the revoluble spindle is actuated the valve-disk engaged by said dog is also revolved and its face is scraped and trued by the cutter. As the valve-disk is scraped or trued, the revoluble spindle is forced toward the yielding center by the feed-screw, and said center yields sufficiently to permit of the slight lengthwise adjustment of the valve-disk effected by the corresponding movement of said spindle, and all chattering of the cutter is obviated by the lock-nut upon the feed-screw, which additionally holds the feeding-screw in its operative position.

The operation of my invention will be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be particularly understood that the same is economically manufactured and is highly practical and effective in use. It is evident, however, that the exact detail, construction, and arrangement of the component parts of this machine may be somewhat varied without departing from the spirit of my invention.

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

1. In a machine for fitting valves, the combination of a base or frame A having a longitudinal groove in its lower face whose bottom wall forms a bearing face and is provided with a substantially central lengthwise slot *a* having closed extremities, guide ribs *a'* a^2 rising from the frame on opposite sides of the slot and extending beyond the extremities of the latter, standards B B' provided with separated bearing faces *b b'* engaging the upper edges of said guide ribs and movable lengthwise thereof, a foot B^2 projecting from the base of each standard toward the center of the machine, a clamp B^3 engaged with said foot and movable lengthwise of the slot *a*, said clamp being separated from the outer ends of the bearing faces of the standard a greater distance than the end of said slot is separated from the adjacent ends of the guide ribs, and a shoulder b^3 on the clamp for engaging said bearing face and holding the standard in its adjusted position, as and for the purpose set forth.

2. In a machine for fitting valves, the combination of a standard B provided with a bearing B^4, a cutter-holder C' having a hollow shank C^2 arranged in said bearing and provided with a side aperture C^3, an adjustable stem G removably mounted within the shank and provided with a socket *g* extending inwardly from its outer end, a clamp F movable in the bearing radially through said aperture in the shank and engaged with the side of the stem for securing the cutter-holder and stem in position and permitting the adjustment of the latter, a yielding center G' movable in the socket and provided with a longitudinal groove g^2 and stop shoulders at its ends, a spring G^2 within the socket forcing the center outward, and a stop pin *g'* having its opposite ends supported by the walls of the socket and its center resting in said groove, as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Auburn, in the county of Cayuga, in the State of New York, this 22d day of February, 1895.

FRANCIS S. DANGERFIELD.

Witnesses:
CHAS. G. ADAMS,
CICERO J. WARNER.