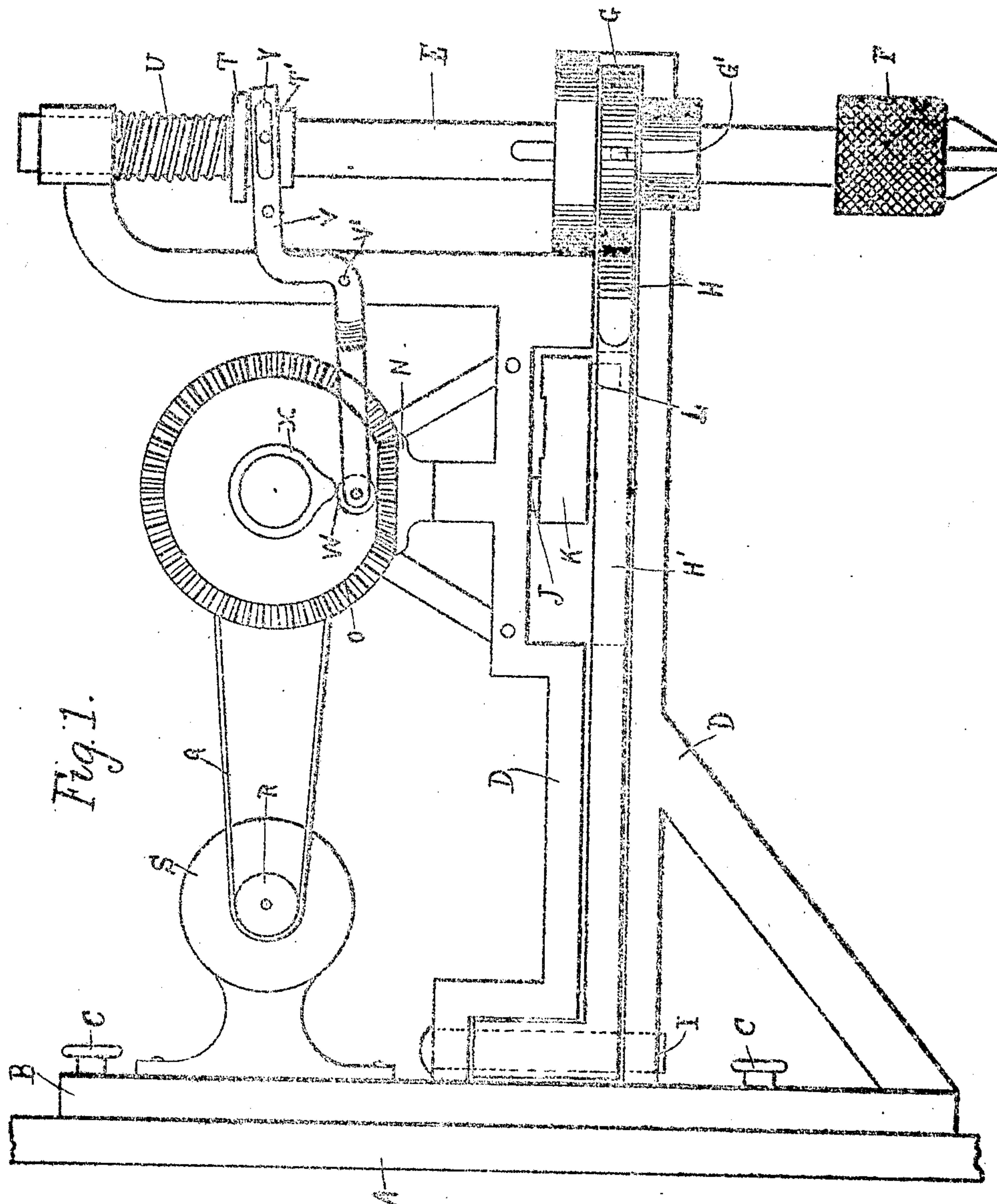


No. 869,647.

PATENTED OCT. 29, 1907.

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GRINDER FOR VALVES.  
APPLICATION FILED MAR. 23, 1907.

2 SHEETS—SHEET 1.



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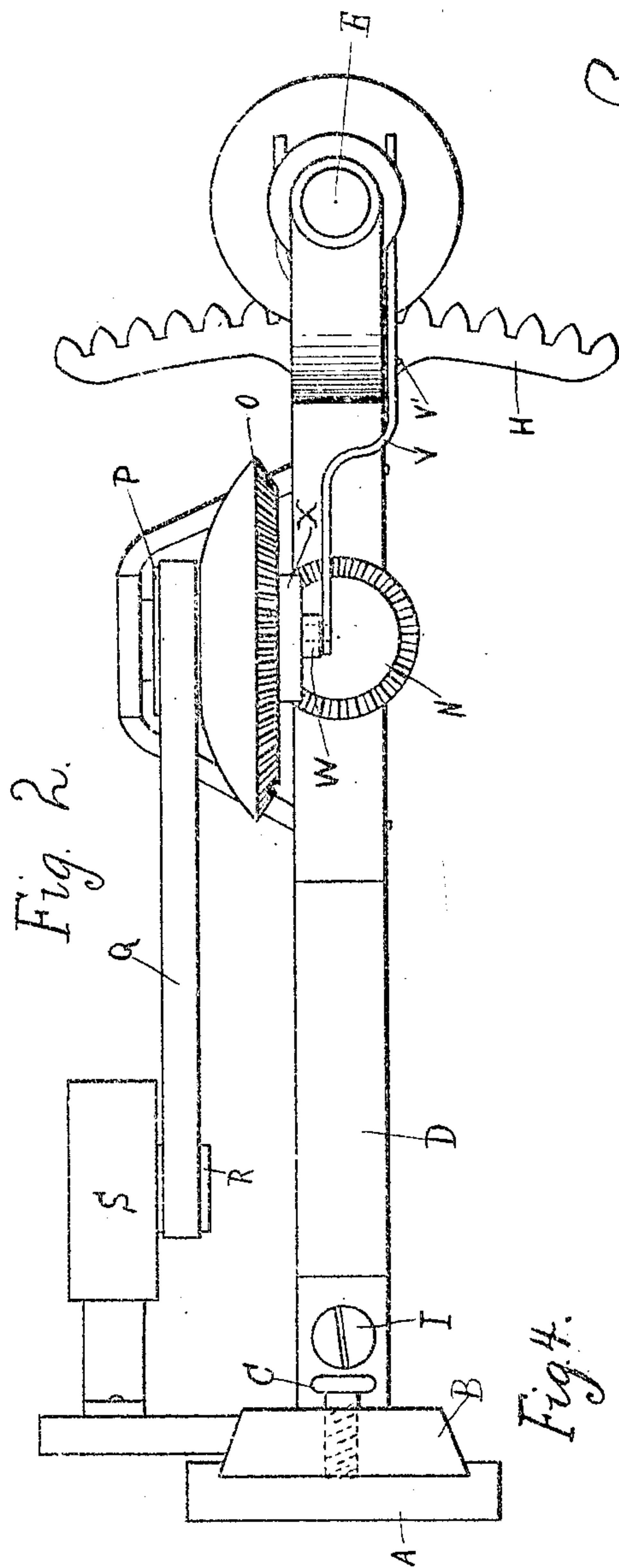


Fig. 2.

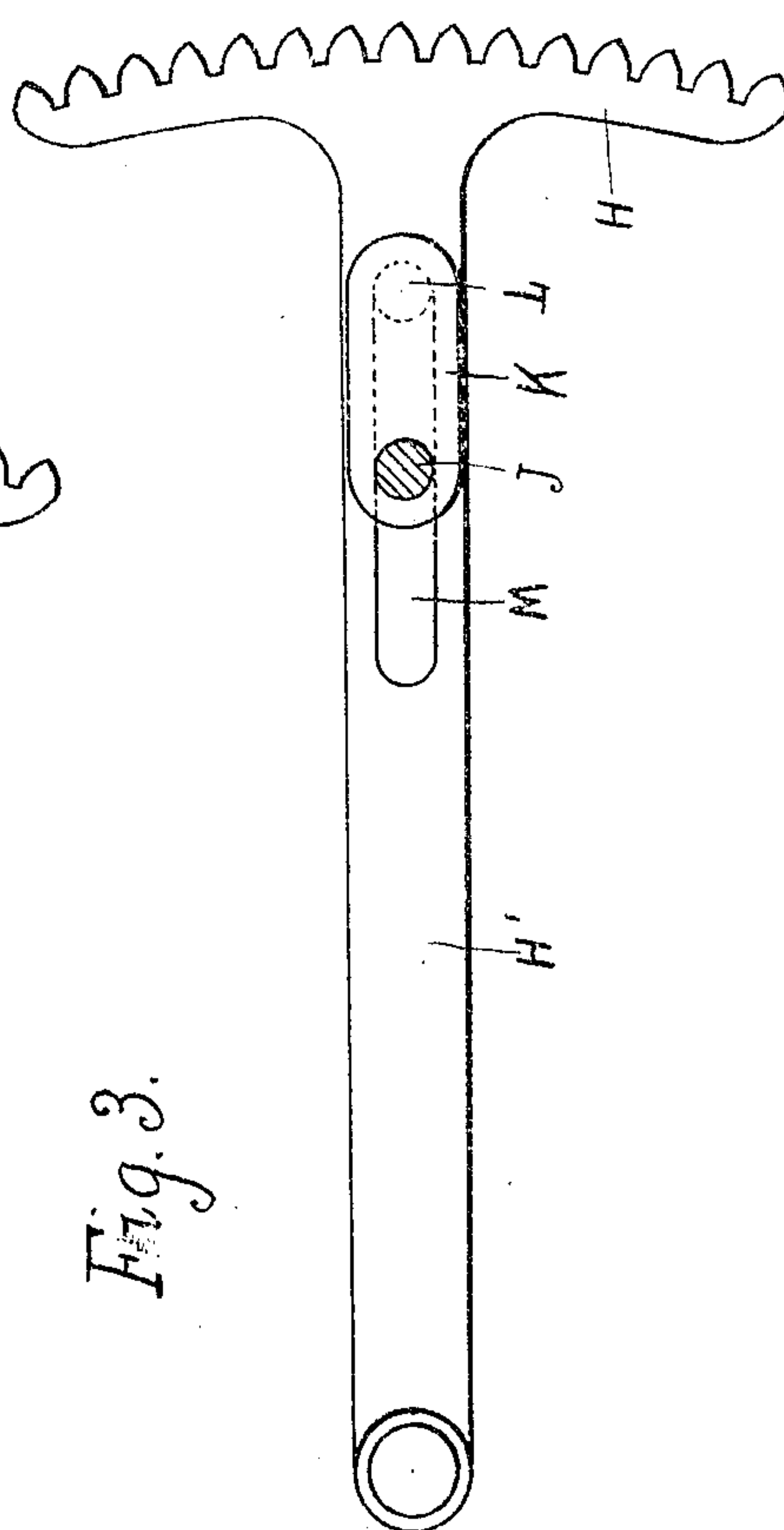
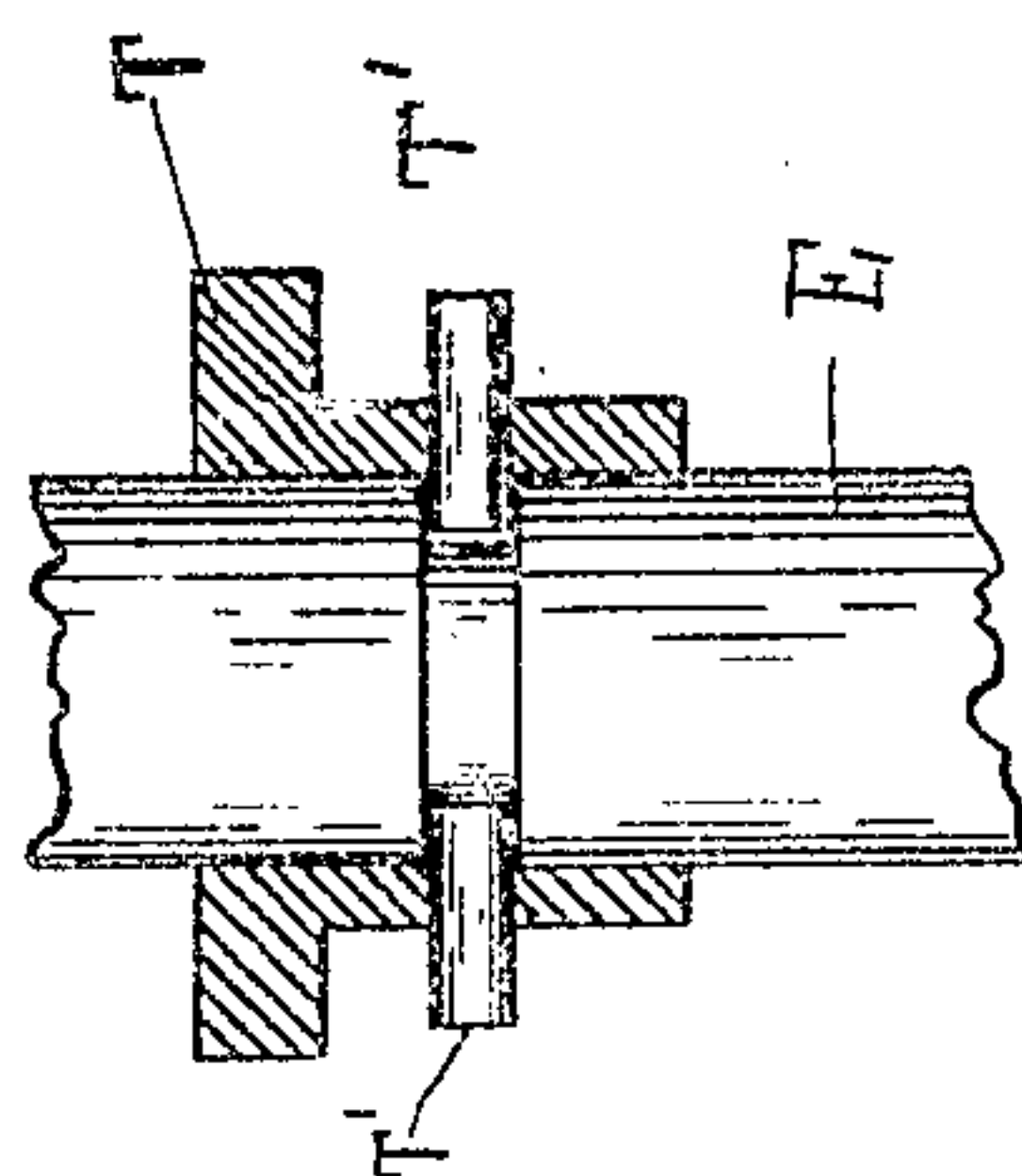


Fig. 3.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

PHILIP F. PILLINER, OF PHILADELPHIA, PENNSYLVANIA.

## GRINDER FOR VALVES.

No. 869,647.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed March 23, 1907. Serial No. 364,127.

To all whom it may concern:

Be it known that I, PHILIP F. PILLINER, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Grinders for Valves and the Like, of which the following is a specification.

My invention relates to a new and useful improvement in grinders for valves and the like, and has for its object to provide a simple and effective mechanism for operating a grinding disk whereby valve seats and the like may be properly ground by first revolving the disk in one direction and then in the other, lifting the grinding disk from the seat being ground and replacing it thereon.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my improved grinding mechanism. Fig. 2, a plan view thereof. Fig. 3, a detail view of the oscillating segment, showing the crank for operating the same. Fig. 4, is a detail section of the collar and pins.

In carrying out my invention as here embodied, A represents a grooved bar, adapted to be secured to a wall or other suitable surface, and B is a slide bar fitted within the groove of the bar A, so as to slide vertical therein, and C are jam screws by which the last named bar may be held in any adjustment. Formed with or secured to the slide bar B is the frame D, having journaled in its outer end the spindle E, the lower end of which carries a chuck F for holding the shank of the grinding disk, and keyed upon this spindle by means of the key G' is a pinion G, the latter being so housed by the frame as to prevent any longitudinal movement thereon.

If is a segmental gear formed upon the outer end of the lever H', which latter is pivoted within the frame by the stud I, and this segmental gear meshes with the pinion G so that when the lever is oscillated the pinion will be revolved first in one direction and then in the other, as will be readily understood.

J is a short vertical shaft journaled in the frame, and to the lower end of this shaft is secured the crank K, carrying the crank pin L, which projects into the slot M formed in the lever H'.

A beveled pinion N is secured to the upper end of the shaft J and meshes with the beveled gear O, which latter is journaled in an extension of the frame, and has formed therewith the belt wheel P, which is connected

by the belt Q with the belt wheel R of the motor S, this motor being supported upon the frame. By this arrangement when the motor is put in operation the beveled gear O will revolve the pinion N and consequently the crank K, thus oscillating the lever H', which in turn will revolve the spindle E a certain number of revolutions in one direction and a corresponding number of revolutions in the reverse direction.

The spindle E has set thereon a collar T, between which and the upper bearing of the spindle is located a coil spring U, the tendency of which is to force the spindle downward, and V is a lever pivoted at V', the outer end of which is forked around the collar, while its inner end carries a roll W upon which the cam X acts, said cam being secured to or formed with the beveled gear O, so that at every revolution of this beveled gear the spindle E will be lifted and again lowered. The collar T has the pin T' set therein which extends into a groove in the spindle, and also into slots Y in the forked end of the lever V, in order that the spindle may revolve independently of the collar.

From this description the operation of my improved device will be as follows: In practice, when it is desired to grind a valve seat such as used in gasoline engines or automobiles, the stem of the screw-driver or wrench intended to hold the valve or grinding disk is secured in the chuck F and the motor put in operation, which will, as before described first revolve the spindle E in one direction a certain number of revolutions and then in the reverse direction a like number of revolutions and at a predetermined time controlled by the cam X will lift the spindle against the action of the spring U, thus lifting the grinding disk off of the valve seat and again replacing, the object of which is to change the seating of the disk so as to prevent the formation of rings upon the seat or the valve, if the valve is used as the grinding disk, it being noted that the grinding disk will be held against the seat by the pressure of the spring U.

Of course I do not wish to be limited to the exact details here shown, as any source of power may be used and any number of revolutions may be given to the chuck spindle within certain limits by changing the ratio of the segmental gear and pinion G, or the chuck spindle may be lifted a greater number of times relative to the number of its revolutions by adding more points to the cam X.

Having thus fully described my invention, what I claim as new and useful, is—

1. In a grinding machine, a frame, a chuck spindle journaled in said frame so as to slide vertical in its bearings, means for forcing said spindle downward, a lever adapted to lift said spindle, a cam adapted to actuate said lever, means for revolving the spindle first in one direction and then the other at predetermined times relative to the raising and lowering of the spindle, as specified.

2. In combination, a slide bar, means for holding said slide bar in various adjustments, a frame carried by the slide bar, a chuck spindle journaled in the frame and adapted to slide vertically therein, a pinion splined upon the chuck spindle, a segmental gear meshing with said pinion, a lever upon which said gear is formed, a crank shaft adapted to oscillate said lever, a shaft upon which said crank shaft is secured, a beveled pinion also secured upon said shaft, a beveled gear meshing with said beveled pinion, a cam carried by the beveled gear and a cam lever adapted to be actuated by said cam and lift the chuck spindle, as and for the purpose set forth.

3. In a machine of the character described, a grooved bar, a slide bar fitted within the first named bar, means for holding the slide bar in any adjustment, a frame carried by the slide bar, a chuck spindle journaled in the outer end of said frame and adapted to slide vertically within its bearings, a pinion splined upon the chuck spindle, a lever pivoted to the frame, a segmental gear formed with said lever and meshing with said pinion, a short shaft

also journaled in the frame, a crank carried by said short shaft, a pin carried by the outer end of the crank projecting into a slot formed in the lever whereby the rotations of the crank will cause the lever to oscillate, a beveled pinion secured to the upper end of the short shaft, a beveled gear meshing with said beveled pinion, a cam carried by the beveled gear, a lever pivoted to the frame, the inner end of which is adapted to be actuated by said cam, a collar secured to the chuck spindle around which the outer end of the cam lever extends, a spring interposed between said collar and the upper bearing of the chuck spindle and a motor adapted to revolve the beveled gear, as and for the purpose set forth.

In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

PHILIP F. PILLINER.

Witnesses:

JOSEPH C. SMITH,  
S. M. GALLAGHER.