

No. 674,971.

Patented May 28, 1901.

H. J. KIMMAN.

COMBINED HANDLE AND THROTTLE VALVE FOR PNEUMATIC TOOLS.

(Application filed Oct. 8, 1900.)

(No Model.)

Fig. 1.

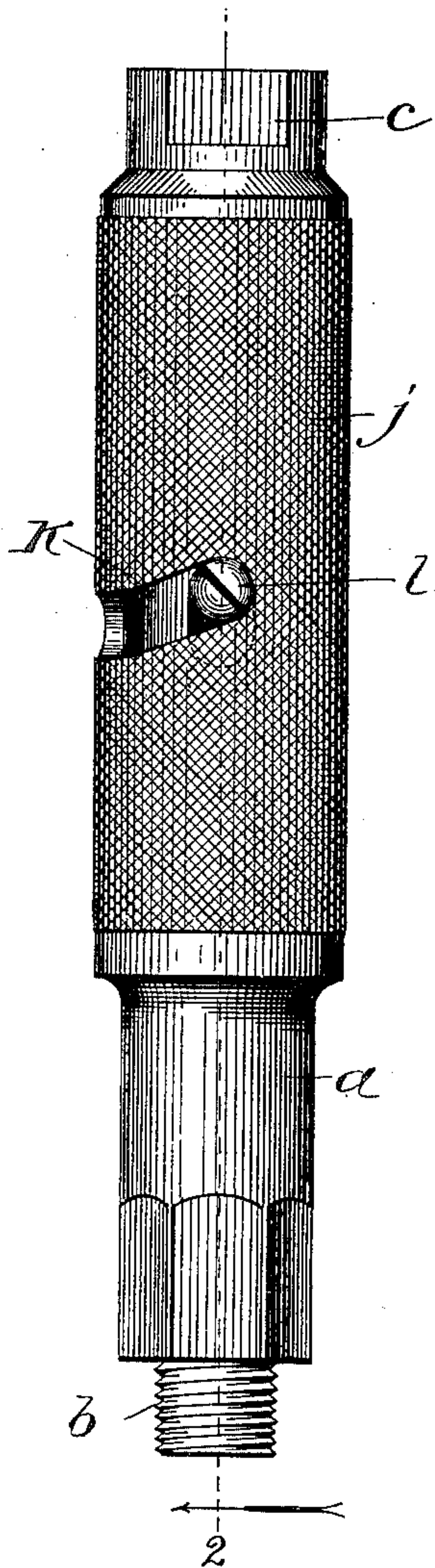


Fig. 3.

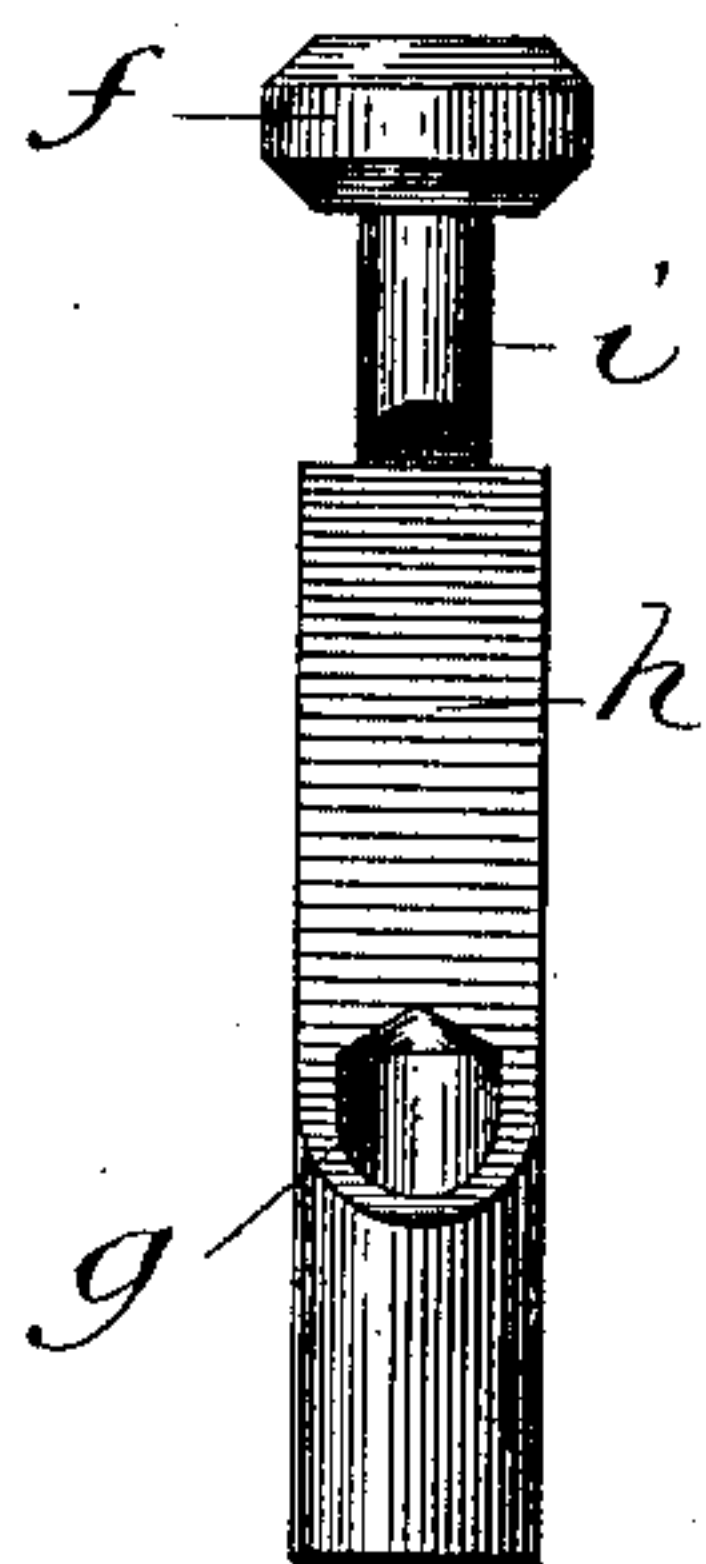


Fig. 2.

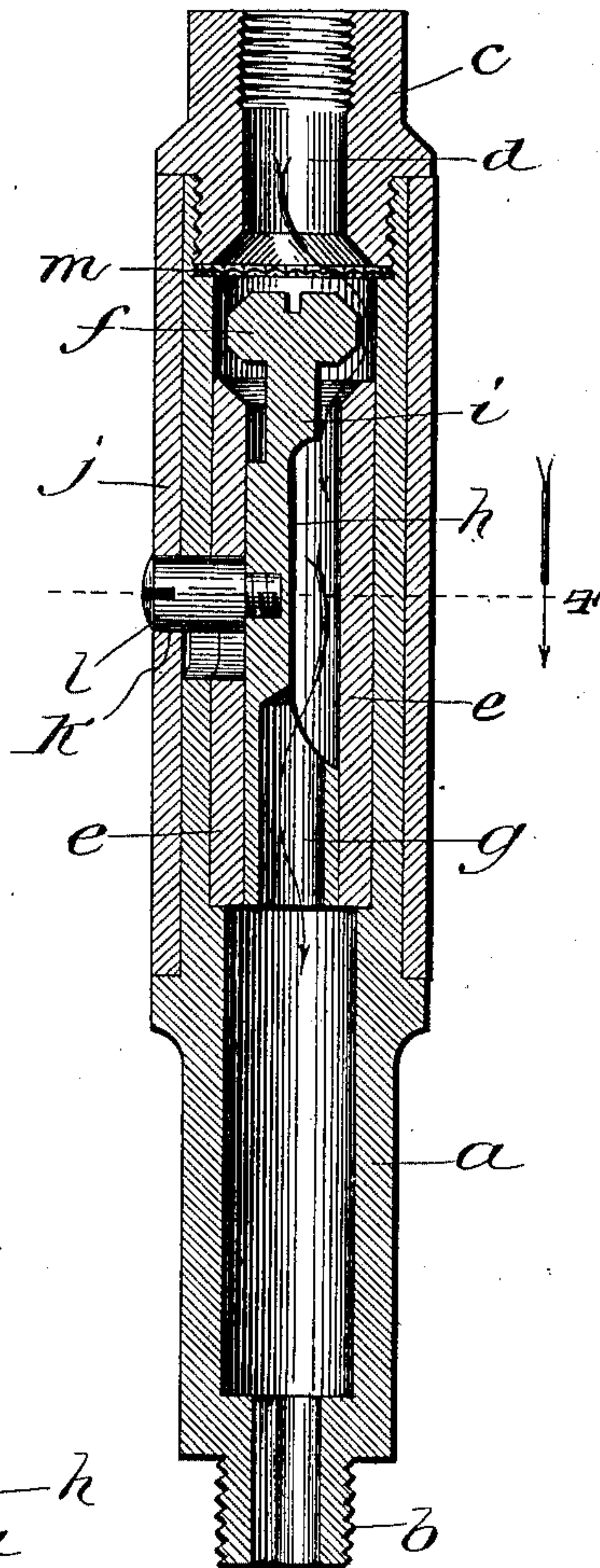
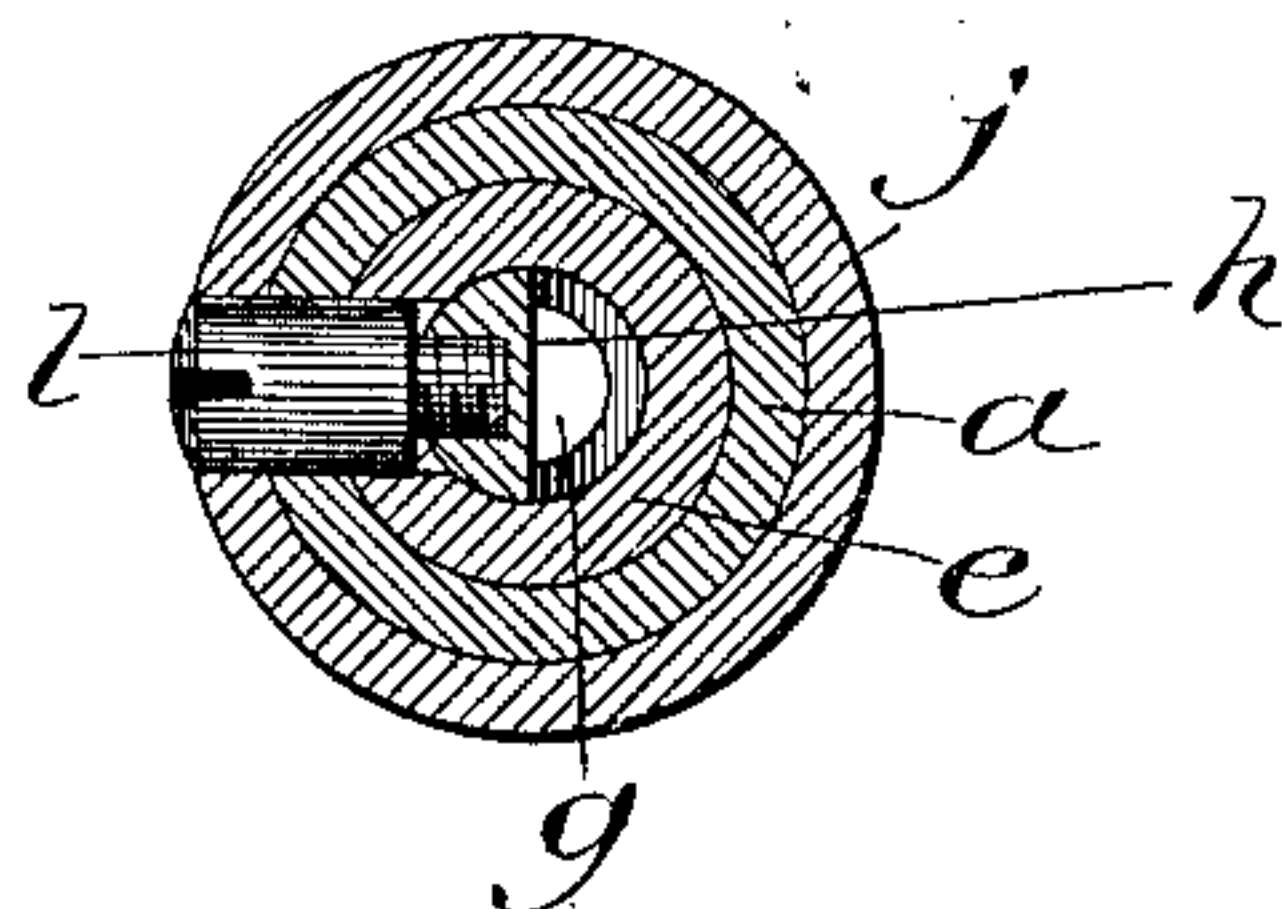


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## COMBINED HANDLE AND THROTTLE-VALVE FOR PNEUMATIC TOOLS.

SPECIFICATION forming part of Letters Patent No. 674,971, dated May 28, 1901.

Application filed October 8, 1900. Serial No. 32,395. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY JAMES KIMMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Handle and Throttle-Valve for Pneumatic Tools, of which the following is a specification.

The invention relates to that class of tools which are actuated—that is, operated—by compressed air, and particularly to the valve mechanism by which the air is primarily shut off or permitted to enter into the tool.

The principal object of the invention is to provide a simple, economical, and efficient throttle-valve for pneumatic tools.

A further object of the invention is to provide a handle for pneumatic tools with a throttle-valve easy of access and operation.

Other objects will appear from an inspection of the drawings and the following description and claims.

The invention consists principally in the combination of a main tubular portion adapted to be secured to a pneumatically-operated tool, a valve seated within such tubular portion or stem by the action of the compressed air, and a sleeve rotatably movably surrounding such stem and connected with the valve to operate the same. The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a combined handle and throttle-valve constructed in accordance with my improvements; Fig. 2, a vertical sectional view taken on line 2 of Fig. 1 looking in the direction of the arrow; Fig. 3, a view in elevation of the valve, taken at right angles to the position shown in Fig. 2; and Fig. 4, a plan sectional view taken on line 4 of Fig. 2.

My invention, it will be understood, is applicable to many styles or types of pneumatic tools, such as rotary drills, hammers, and the like, and for that reason I have not deemed it necessary or advisable to show it in connection with or as attached to any of such tools, knowing that they are well known and understood by those skilled in the art. I

have therefore limited my illustration and description to the novel features and yet with sufficient distinctness to properly disclose the invention and enable those conversant with the art to practice the same.

In constructing a combined handle and throttle-valve in accordance with these improvements a hollow stem or tube *a* is provided, having an externally-threaded end *b*, by which it may be secured to a pneumatic drill, hammer, or the like. The opposite end of the hollow tube is provided with an internal threaded portion into which is screw-threaded a cap *c*, having an air-passage *d* extending axially through it.

An examination of Fig. 2 of the drawings will show that air under pressure enters the passage in the cap, following the course indicated by the arrow, and emerges from the tube at the lower end to enter the proper tool. It is desirable, therefore, that some means be provided by which the passage of air there-through at desired times may be throttled, and to accomplish this result a valve-bushing *e* is provided, which is practically a tube, and firmly secured within the axial bore or passage of the main tube. The upper part of this valve-bushing is tapered inwardly, so as to be contacted by a valve *f*. The valve has an integral stem portion extending down into the bushing, one portion of which is bored, as at *g*, another portion fluted, as at *h*, and between which and the valve proper it is turned down so as to provide a neck *i* of reduced diameter.

To operate the valve, a sleeve *j* is provided and surrounds a portion of the main tube or stem, so as to have a rotary motion thereon. This sleeve is provided with a spiral groove *k* and the main tube and valve-bushing with coinciding elongated grooves, through which a pin *l*, secured to the valve-stem, is passed. The construction and arrangement of the parts are such that a rotary movement of the shell moves the valve up or down, as the case may be, and throttles or opens the passage to control the compressed air. It will also be observed that the valve-stem on one side—that of the pin—is smooth and seated on the bushing, so that when the parts are in the position shown in Fig. 2 (the open position)



the grooves in the parts are sealed to prevent leakage of air under pressure and that by the pressure of air, and, further, that when the valve is seated to "throttle" the air the air under pressure assists in keeping such valve seated.

A screen *m* is provided and inserted between the cap and the valve to prevent the entrance of dirt or foreign particles of matter into the mechanism to injure the same.

The principal advantage incident to a mechanism constructed in accordance with my improvements is that it provides a tubular portion or handle by which the desired tool may be held in position and directed in its operation and at the same time presents the valve mechanisms where they can be easily operated, all of which will be thoroughly appreciated by those conversant with the art. Other advantages have been already set forth and need not be repeated, as they are apparent.

I claim—

1. In mechanisms of the class described, the combination of a main tubular portion, a valve seated within the same by the action of compressed air, and a rotatable sleeve surrounding the main tube and connected with the valve to operate the same, substantially as described.

2. In mechanisms of the class described, the combination of a main tubular portion, a reciprocating valve seated within the same, a pin connecting with such valve and extending out through the tubular portion, and a rotatable sleeve provided with a cam-slot engaging such pin so as to operate the valve, substantially as described.

3. In mechanisms of the class described, the combination of a main tubular portion, a valve-bushing within the same, a reciprocable valve seated on such bushing and pro-

vided with a stem entering the bushing, a pin in such valve-stem extending out through the bushing and tubular portion, and a rotatable sleeve provided with a cam-groove engaging with the pin in the valve-stem to operate the same, substantially as described.

4. In mechanisms of the class described, the combination of a main tubular portion, a valve-bushing secured within the same, a reciprocable valve seated in such bushing and provided with a stem portion extending within such valve-bushing and an air-passage through such stem, a pin on such valve-stem extending out through the bushing and main tube, and a rotatable sleeve mounted on the main tube and provided with a spiral or cam groove engaging with the valve-stem pin to operate the valve, substantially as described.

5. In mechanisms of the class described, the combination of a main tubular portion, a valve-bushing secured within the same, both of such parts having coinciding perforations, a reciprocable valve seated in the bushing and by the action of compressed air and provided with a stem extending within the same perforated in one portion and fluted in another so as to permit when the valve is open the passage of air under pressure and at the same time seal the coinciding perforations of bushing and main tube, and by the action of the air under pressure, a pin on the valve-stem extending out through the perforations in the valve-bushing and main tube, and a holding-sleeve rotatably mounted on the main tube provided with a cam-groove engaging the valve-pin to operate the valve, substantially as described.

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