

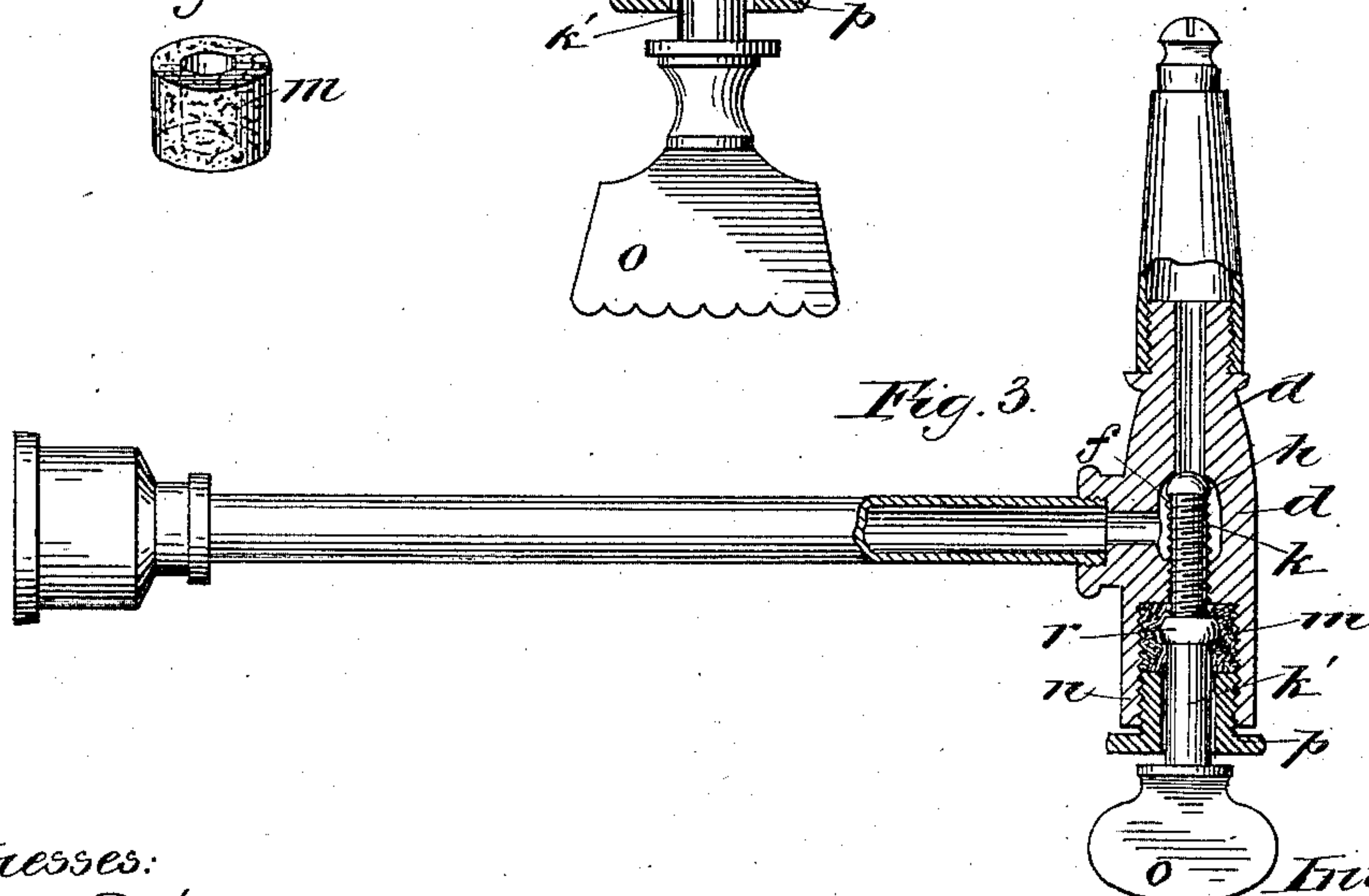
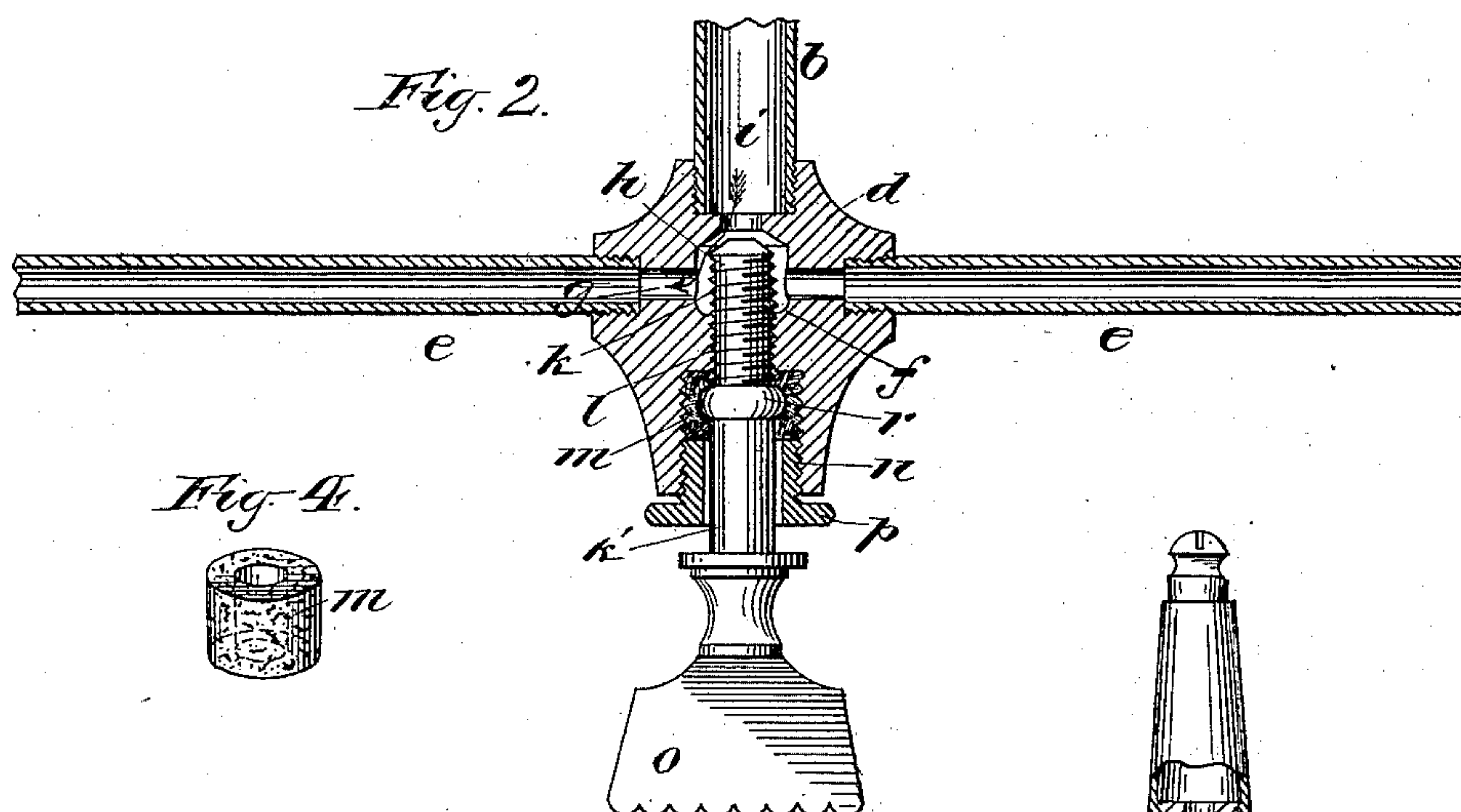
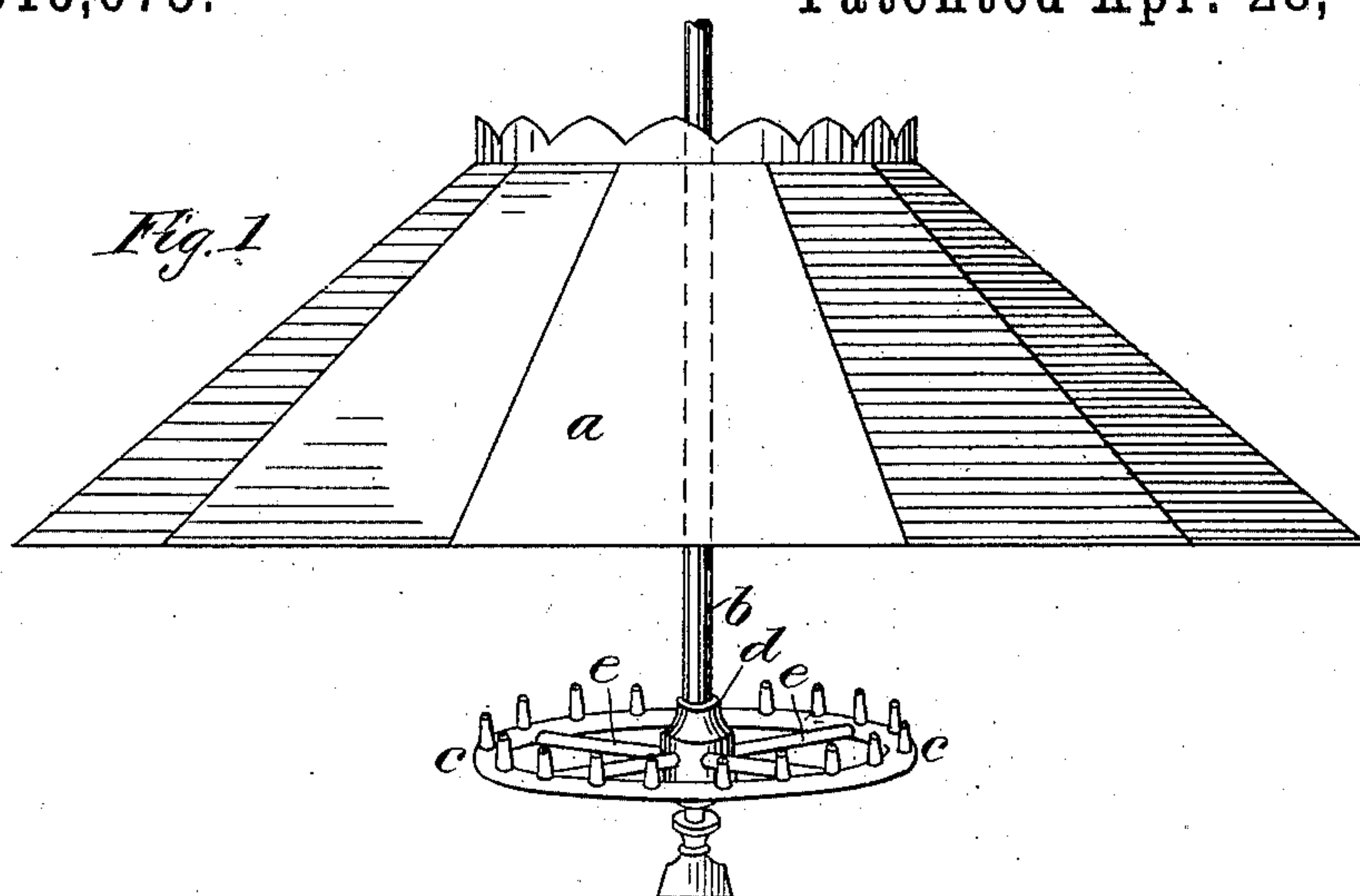
(No Model.)

S. B. H. VANCE.

# STOP VALVE FOR GAS BURNERS.

No. 316,675.

Patented Apr. 28, 1885.



Witnesses:  
 Henry F. Parker.  
 Geo. E. Gavin

Inventor.  
Samuel. B. H. Vance  
by Chas. M. Higgins  
attorney.



# UNITED STATES PATENT OFFICE.

SAMUEL B. H. VANCE, OF NEW YORK, N. Y.

## STOP-VALVE FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 316,675, dated April 28, 1885.

Application filed February 4, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL B. H. VANCE, of the city, county, and State of New York, have invented certain new and useful Improvements in Stop-Cocks, of which the following is a specification.

My invention applies, especially, to stop-cocks for gas-fixtures, more particularly for those situations where the stop-cock is exposed to considerable heat—such as in the center of the gas-ring under reflectors, and also in brackets where the cock is placed directly below the burner. In such situations when the ordinary cock with rotary perforated plug is used it is found that the great heat soon dissipates the tallow or other lubricating material with which the plug is greased, causing the plug to work exceedingly hard, so that it is operated with great difficulty, which is particularly objectionable in the case of distant overhead reflectors, and the dry hot condition of the metal surfaces soon cause close adhesion and a grinding or cutting action which speedily wears the plug irregularly and causes leakage of gas, which, while it may not always be sufficient to be dangerous, is very objectionable on account of its odor and waste. Now, according to my improvement, I dispense entirely with the common rotary perforated plug, and employ a screw-plug the tip of which forms the valve-disk or stopper, which screws directly down upon a seat, and thus shuts off the gas, and the shank or neck of the screw-plug projects from the casing of the valve and is fitted with the usual manipulating handle or knob; but the shank is packed in the mouth of the casing by an encircling sleeve or bushing of cork socketed therein, which I find is entirely proof to the heat in gas-fixtures, resists wear indefinitely, and forms a perfectly tight and easy-working valve not liable to any leakage or derangement under the ordinary conditions of continued use, thus obviating all the aforesaid objections and presenting an important improvement over the common stop-cock.

My invention therefore consists, mainly, in the features above outlined, and also in certain minor features in combination therewith, consisting of a screw sleeve or thimble which holds the cork or other bushing in position around the shank, and through which the shank projects, the bore of the thimble being, however, larger than the shank, so that the

latter is out of contact therewith, and therefore does not tend to unscrew the thimble out of place; and also in a bulbous enlargement on the packed part of the shank, which is embedded in and travels through the cork, and also forms a limiting stop against the end of the thimble, as hereinafter fully set forth.

In the drawings annexed, Figure 1 represents a perspective view of an ordinary reflector for which my improved stop-cock is particularly adapted, and which is presumed to be provided therewith at the center of the gas-ring. Fig. 2 is an enlarged fragmentary section at the center of the gas-ring embodying my improved stop-cock, which is fully shown therein. Fig. 3 represents an ordinary wall-bracket fitted with my improved stop-cock at the burner end, which is shown in section. Fig. 4 is a perspective view of the cork bushing removed.

In Fig. 1, *a* indicates the reflector proper, which is presumed to be of the ordinary character, and *b* is the central pendent gas-pipe thereof, and *c* the gas-ring provided with the usual jet-tips and sustained, as usual, on the end of the gas-pipe, as shown. The gas-ring is formed, as usual, with the central hub, *d*, as shown best in Fig. 2, into which the gas-pipe *b* screws, and from the sides of which the spoke-like pipes *e e* radiate to the rim-tube of the gas-ring. This hub *d* forms the casing of the gas-valve or stop-cock, as usual, and is cast with a central valve chamber or cavity, *f*, from which a series of radial holes, *g*, proceed to convey the gas to the spoke-tubes *e e*, and in the top of this cavity is formed the valve-seat *h*, having a central gas-port, *i*, through which, when the valve is opened, as shown, the gas passes into the central cavity, *f*, and thence flows through the pipes *e* to the burners or tips of the ring *c*.

*k* indicates the valve or plug, which is a simple screw, the tip of which is formed to fit upon the seat *h* when screwed up against the same, and thus shut off the flow of gas. This screw-plug *k* screws in a threaded bore or passage, *l*, in the middle of the hub or casing *d*, between the gas-cavity *f* and a larger threaded bore or socket, *n*, in the mouth of the casing, through which the lower part or neck, *k'*, of the screw-plug protrudes. On the end of the said neck *k'* is formed the usual handle, key-plate, or knob, *o*, by which the screw-plug may be manipulated or rotated to open or close the valve, as will be understood, so that



when screwed up the tip of the screw will bear upon the seat *h*, and thus shut off the gas, and when turned in the opposite direction the plug will be screwed down and the tip removed from the seat to allow the flow of gas, as indicated in Fig. 2.

In the inner end of the large bore or socket *n* is socketed a sleeve, *m*, of cork, (shown removed in Fig. 4,) which cork snugly encircles the stem of the screw-plug, and thus forms a packing which prevents leakage of gas around the same. This material is quite soft, tough, and elastic, and may be compressed considerably around the stem, so as to embrace the same in a perfectly gas-tight manner, and yet offer very little friction, and a prominent advantage of the material in this case is that I find it entirely unaffected by the heat of the gas-fixture, usually very great in reflectors, and has no chemical or corrosive adhesion for metals, and is not liable to stick, grind, or wear appreciably even after long-continued usage, which thus renders the described improvement of great advantage in gas-fixtures, particularly of the special kind illustrated.

The cork sleeve *m* may be held in any suitable manner around the stem of the valve-plug; but I prefer to employ the screw-thimble *p*, which screws into the threaded bore or socket *n* up against the cork, and by which it may be compressed more or less between the tip of the thimble and the shoulder at the extremity of the socket *n*, so as to compact or compress the cork more or less around the stem of the screw or valve plug. This thimble, as will be noted in the drawings, has an enlarged bore to freely admit the stem there-through, so as not to contact therewith; hence, after the thimble is screwed up tightly to hold the cork as desired, the rotation of the valve-plug in opening or closing the same will not tend to loosen or unscrew the thimble, as will be readily apparent, and which is an important detail of construction. I also prefer to form a bulbous enlargement or rounded bead, *r*, around the valve-plug just at the base of the screw-threads, which bead is embedded in the cork, and as the plug is screwed up or down to open or close the valve this bead travels up and down in and swells out the cork in new or constantly-changing places, and thus insures a more perfect joint and prevents the texture of the cork from becoming inert or used too much in one place. This bead *r* also forms a stop to prevent the plug from being screwed out farther than necessary by striking against the tip of the thimble *p* and thus limits the opening motion of the valve, as will be understood. The thimble *p* with its large or non-contacting bore and the bead *r* on the valve-stem might of course be used with a packing-sleeve of some other material than cork, if found suitable, without departing from the special structural features of my invention; but the cork sleeve is always preferred.

Fig. 3 shows my invention applied to an ordinary wall-bracket at the end thereof beneath the burner, where it possesses a similar advantage to that existing in reflectors, as already described. As the construction in this case is substantially the same as already described, and as the parts corresponding to those in Fig. 2, already set forth, are lettered similarly, no further description will therefore be necessary. I would note, however, that I show the valve-seat and valve-tip as ground to a rounding form instead of the conical form, as in Fig. 2; but the form of the surfaces is not essential, as it is obvious they may be flat, angular, or round.

I am aware that a cork packing has been used in faucets for liquids, and therefore do not wish to be understood as claiming a cork packing, broadly. I am not aware, however, that gas-fixtures have ever been provided with valves having cork packings as shown by me, in situations where the valve is exposed to much heat, where the advantage of the cork is particularly important, as set forth.

In my improved valve it will be further noted that the screw-plug is threaded on its inner end and screws directly in the valve-casing, whereas the outer end which passes through the cork is smooth, which is a decided advantage in rendering the valve tighter and tending less to wear the cork.

In a faucet heretofore made with a cork packing the screw-plug or stem of the valve was threaded on its outer end, which passes through the cork, which is distinct from my construction.

What I claim as my invention is—

1. An improved stop-cock formed by the combination of a casing having a valve-seat, *h*, and port *i*, cavity *f*, and socket *n*, with the screw-plug *k*, screwing into the casing with its tip approaching said seat and its stem projecting externally for operation, and a packing in the socket around the stem, and the retaining screw-thimble *p*, fitting against the same with a bore larger than and out of contact with the stem, substantially as and for the purpose set forth.

2. In a stop-cock, the combination, with a casing having an internal seat and ports leading to and from the same, with the screw-plug *k*, having the bead or enlargement *r* on its stem, with a packing around the stem at the location of said bead, and the thimble *p*, retaining said packing below said bead, substantially as and for the purpose set forth.

3. A stop-cock, substantially such as set forth, formed with the screw-plug *k*, having the enlargement or bead *r*, in combination with the cork sleeve *m* and thimble *p* with the surrounding-casing *d*, substantially as and for the purpose set forth.

SAMUEL B. H. VANCE.

Witnesses:

JAMES WYATT, Jr.,  
J. T. DENNIS.