

F. D. BLISS.  
GAS-BURNER.

No. 189,916.

Patented April 24, 1877.

Fig. 1.

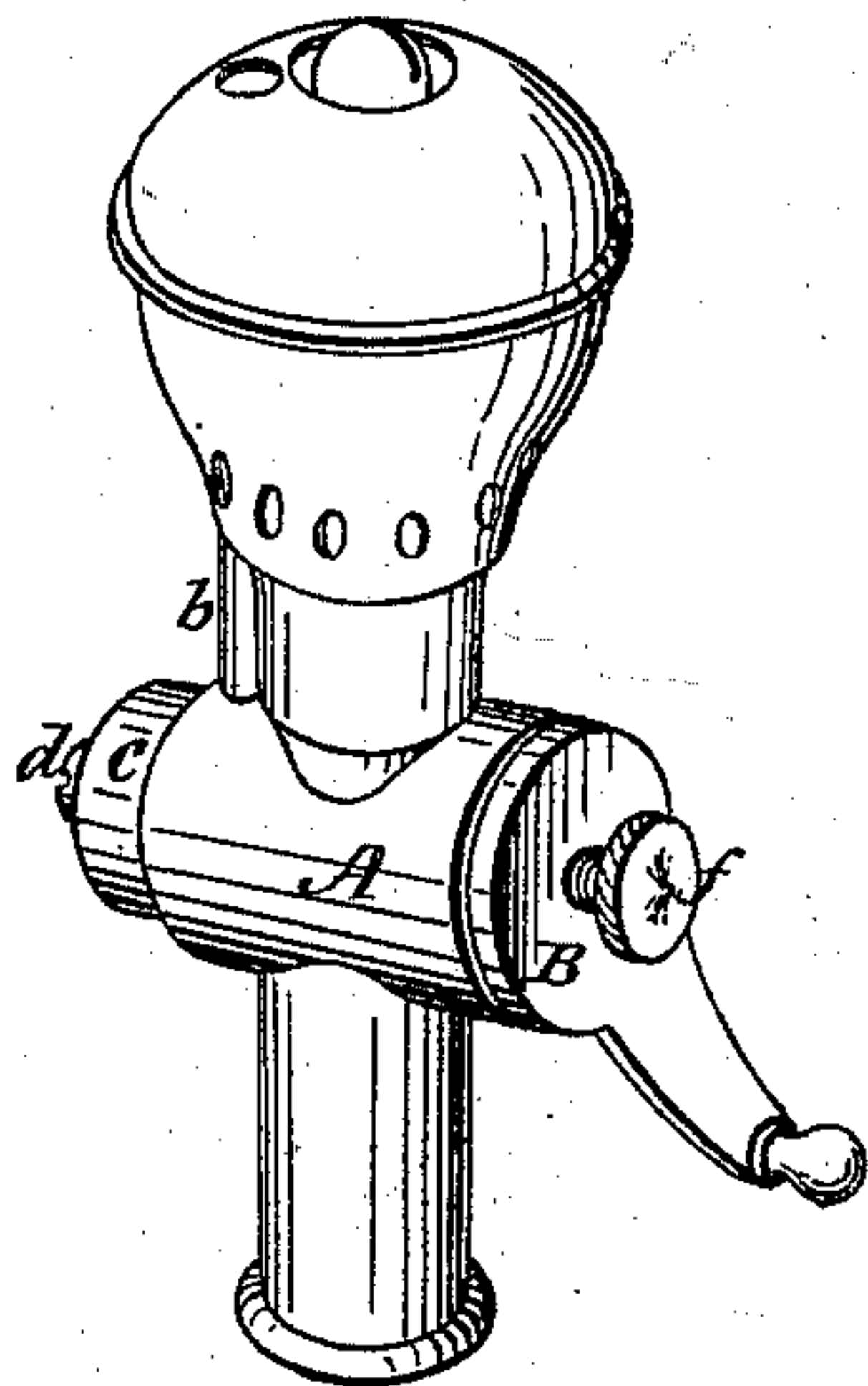


Fig. 2.

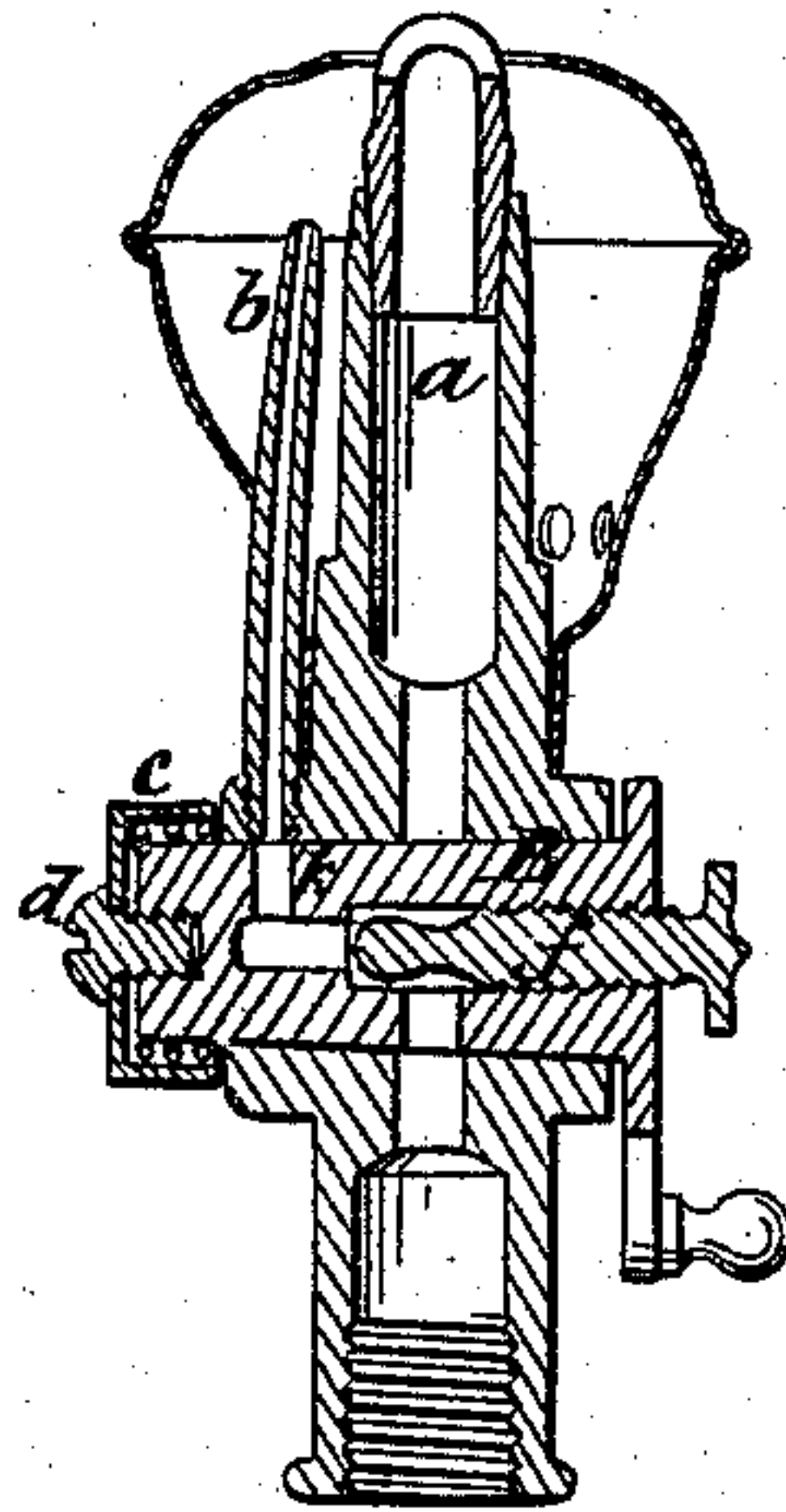


Fig. 3.

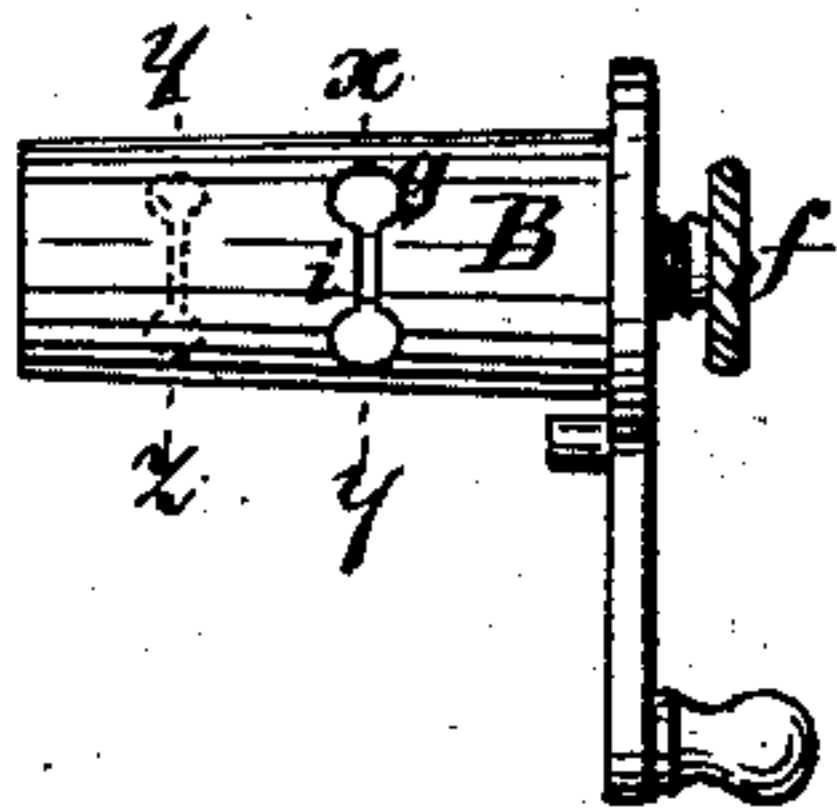


Fig. 4.

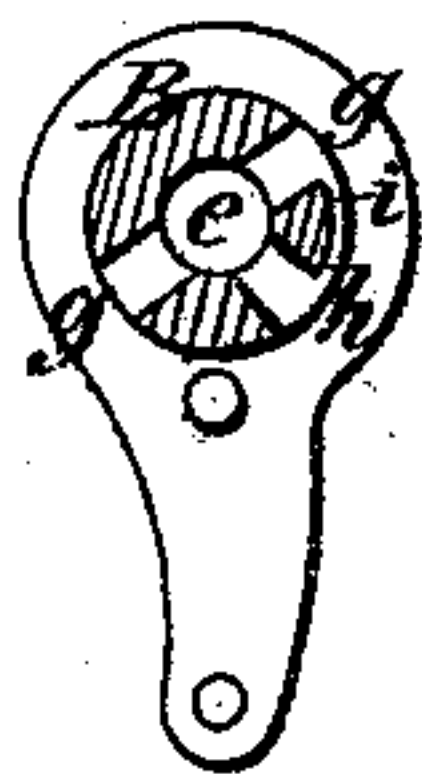


Fig. 5.

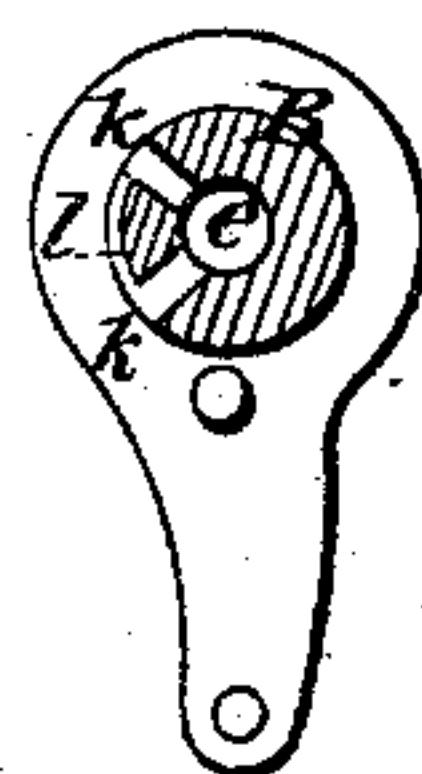


Fig. 6.



Attest:  
Philip F. Larner  
A. B. Cauldwell

Inventor:  
Francis D. Bliss  
By *Wm. C. Wood*  
Attorney



# UNITED STATES PATENT OFFICE

FRANCIS D. BLISS, OF NEW HAVEN, CONN., ASSIGNOR OF TWO-THIRDS HIS RIGHT TO JOEL W. S. PECK AND CHARLES A. CHASE, OF SAME PLACE.

## IMPROVEMENT IN GAS-BURNERS.

Specification forming part of Letters Patent No. **189,916**, dated April 24, 1877; application filed February 22, 1877.

*To all whom it may concern:*

Be it known that I, FRANCIS D. BLISS, of the city and county of New Haven, in the State of Connecticut, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a full, clear, and complete description thereof.

My said improvements relate to a general class of burners known as "self-lighters," and to that particular class which embody with the main burner an auxiliary jet or burner, which affords a flame by means of which the main burner is lighted.

One feature of my invention consists in the combination, with the main cock of the burner, of a screw-cock in the center thereof, which admits of the regulation of the flow of gas to the auxiliary jet, and by which the gas may be wholly cut off therefrom. As heretofore constructed the auxiliary burner has been provided with a screw-cock, by which the flow of gas thereto may be regulated, and this feature of my invention is limited to the screw-cock within the main cock, which admits of a simpler and less expensive construction.

Another feature of my invention consists in the combination, with a tapered plug-cock and a spring for advancing it in its seat, of a cap which incloses the spring and protects the cock and spring from dust and dirt, and affords a neat finish. As heretofore constructed, the plug-cock and spring have been employed without the cap.

To more particularly describe my invention, I will refer to the accompanying drawings, in which Figure 1 represents one of my improved burners in perspective. Fig. 2 represents the same in vertical central section. Fig. 3 represents the plug-cock detached from the burner. Fig. 4 represents the plug in section on line *xy*. Fig. 5 represents the plug in section on line *yz*. Fig. 6 represents in perspective the cup which incloses the small end of the plug and its spring.

A denotes the main body of the burner, provided with the usual screw-neck for attachment to the gas-fixture, and a shield for pro-

tecting the auxiliary jet from currents of air, as heretofore. The main jet of the burner is shown at *a*, and the auxiliary jet at *b*. B denotes the plug of the cock. It is tapering, as usual, and is provided with a lever, which has a stop-pin for engaging with the ends of a recess in the side of the body of the burner, as heretofore, for limiting the rotative movement of the plug. At its small end, which projects beyond the body of the burner, it is provided with an expansive spiral spring, which abuts against the interior of the head of the cap *c*, which is connected with the plug by means of a central end screw, as at *d*. The edge of the cup engages with the adjacent surface of the body of the burner, and affords a tight joint and a neat finish.

The plug has a central chamber, as at *e*, which extends from its largest end for about two-thirds or more of its length, and there terminates. The outer end of this chamber is somewhat larger than the inner end, and is threaded at its outer end for the reception of the screw-plug *f*, which is provided with a milled head. At a point opposite the interior of the base of the burner, the main plug is provided with a main diametrical passage, as at *g*, through which the gas flows directly to the main burner. A radial passage, as at *h*, in the same plane with the main passage, communicates centrally therewith and with the central chamber. It also communicates with the lower end of the main passage by means of a peripheral channel, as at *i*, so that in whatever position the plug may be the gas will flow into the central chamber, whether it be permitted to pass to the main burner, or is wholly cut off therefrom. At the rear end of the central chamber there are two other radial passages, as at *k*, which communicate with the central chamber and with each other by means of a peripheral channel, as at *l*. These passages lie quartering to each other, so that, as the plug can only be moved in either direction a quarter of a revolution, one or the other of the passages will communicate with the auxiliary jet or burner, and during this movement the channel *l* permits a free supply of gas thereto. It will be seen that, when the upper end of the main passage *g* is passed be-



yond the entrance to the main jet, the gas will nevertheless be free to enter the central chamber in the plug by the way of the channel *i* and radial passage *h*, and thence, under all circumstances, through the passages *k* to the auxiliary burner.

As has before been stated, the inner end of the central chamber *e* is smaller in diameter than the outer end. At the point at which the diameter is reduced a concave seat is afforded for the convex inner end of the screw-plug *f*, so that this latter is enabled to cut off the gas entirely from the rear end of the central chamber, and, therefore, from the auxiliary burner, or it may be set so as to admit much or little gas thereto. It will be seen that the simplicity of the parts admits of economical construction, and that the channels which connect the passages are not so liable to become clogged as would be the case if they extended longitudinally on the surface of the plug instead of circumferentially. By having the auxiliary screw-plug within

the main plug I am enabled to supply both the main and auxiliary jets from a chamber beneath the plug, which is common to both jets, instead of having a separate chamber below the main plug controlled by a screw-plug, as heretofore.

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

1. The combination, in a gas-burner, having a main and an auxiliary jet, of a plug-cock which controls only the main jet, and a screw-plug within the main plug, substantially as described.

2. The combination in a gas-burner, with the tapered plug-cock and its spring, of a cap which is connected to the plug, and incloses its projecting end and its spring, substantially as described.

FRANCIS D. BLISS.

Witnesses:

JAMES A. WOOD,  
GEO. R. COOLEY.