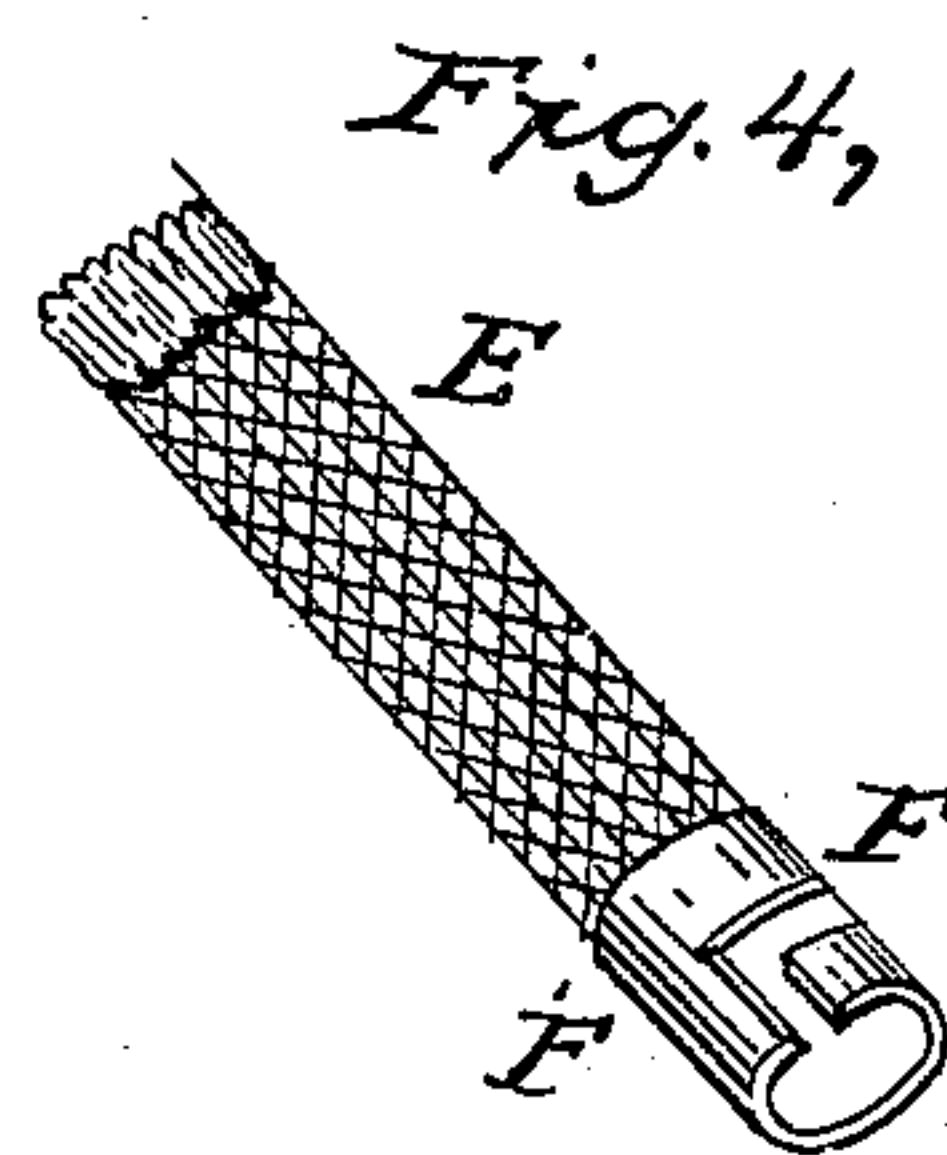
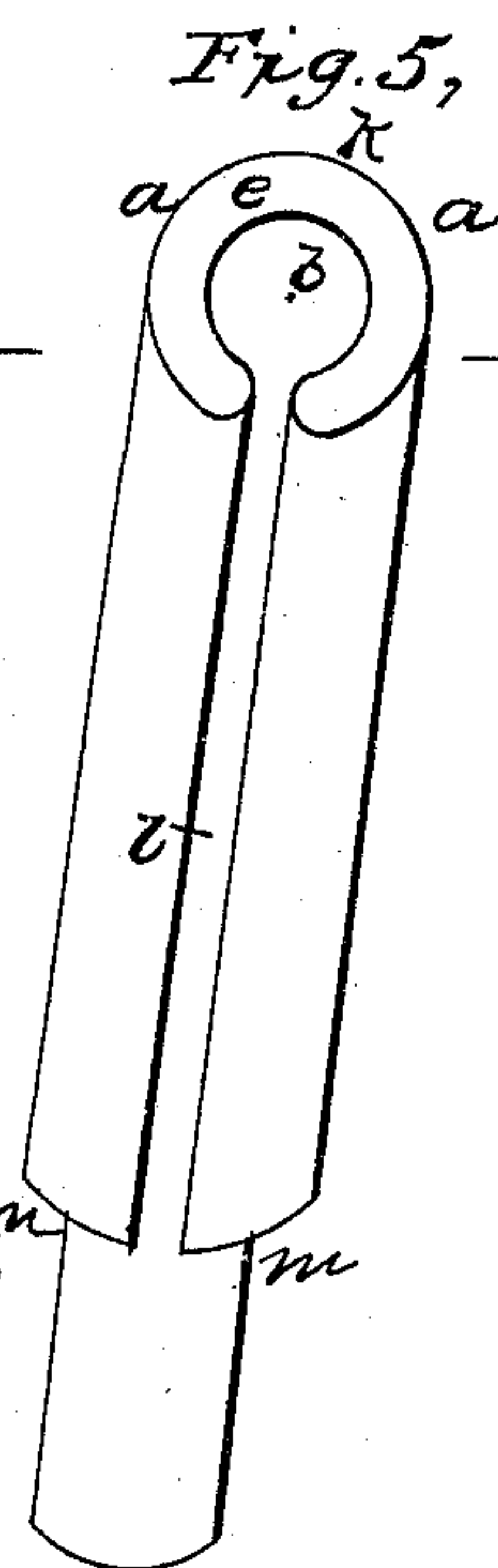
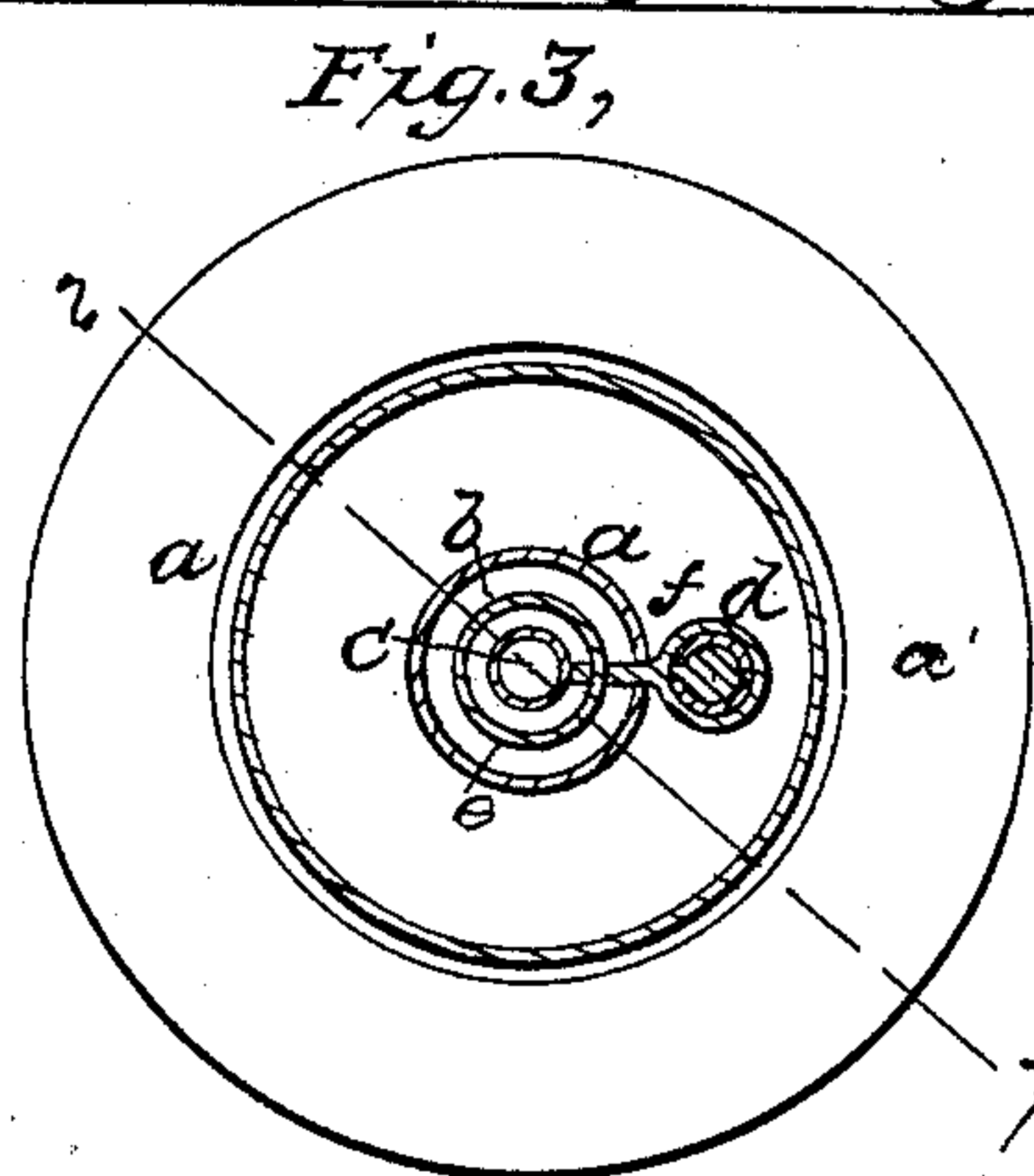
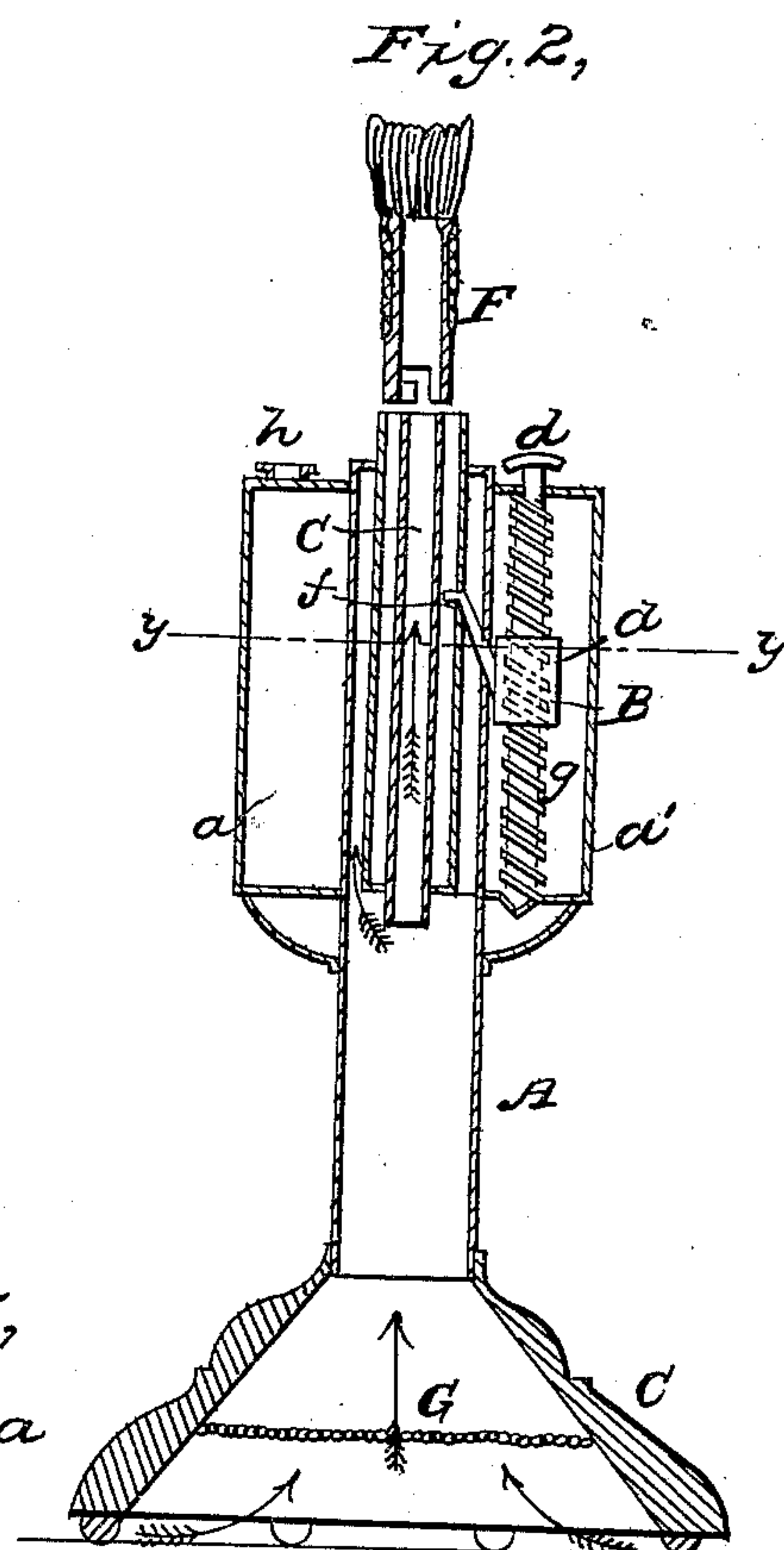
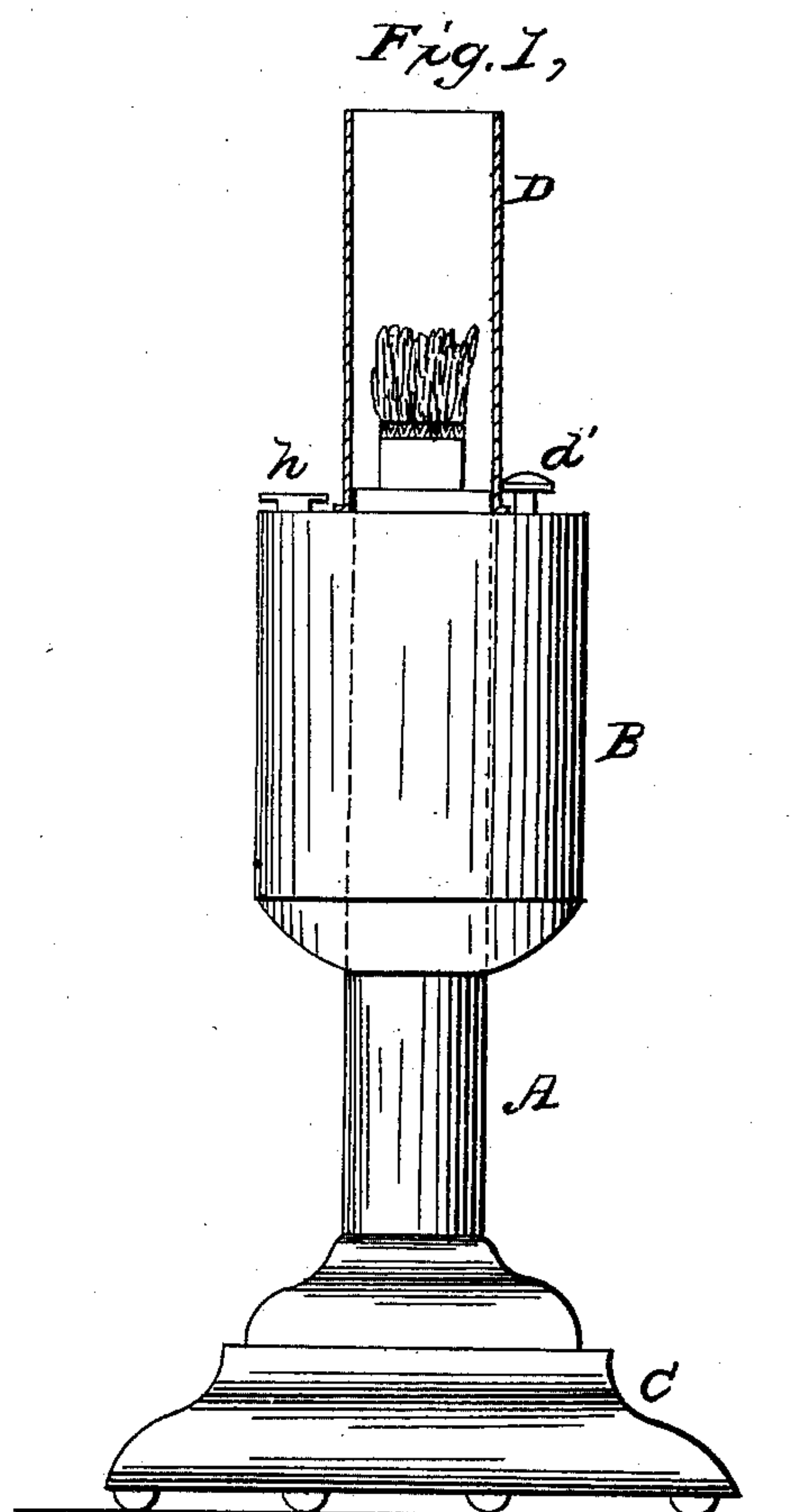


R. B. PULLAN.
Lamp Wick Raiser.

No. 34,029.

Patented Dec. 24, 1861



WITNESSES:
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 34,029, dated December 24, 1861.

To all whom it may concern:

Be it known that I, R. B. PULLAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented or discovered certain new and Improved Devices Specially Applicable to Hand-Lamps to be Used with Chimneys; and I do hereby declare that the following is a full and sufficient description thereof, reference being had to the accompanying drawings, and to the figures and letters marked thereon, making part of the specification.

The nature of the invention consists in certain details of arrangement of devices for controlling and operating the combustion apparatus; also, in the mode of making a double concentric wick-tube struck up from a single plate of sheet metal, in manner hereinafter explained.

The apparatus herein described is particularly adapted to hand-lamps, although it may be used equally well in stationary lamps. It is a lamp designed to burn coal-oil and other highly-charged carbon oils or highly carboniferous oils, which require artificial draft by means of chimneys or their equivalent. In the present case a short chimney, in connection with the use of the hollow shaft through which the feed-air is supplied to the chamber of combustion, forms a prominent feature.

In the drawings, let Figure 1 represent an elevation of the lamp; Fig. 2, a vertical section through line *xx* of Fig. 3; Fig. 3, a horizontal section through line *yy* of Fig. 1 and a top view of the pedestal outside of *a' a'*, and Fig. 4 a side view of the wick E and wick-tube F', having the bayonet-catch F. Fig. 5 represents the double concentric tube arranged outside the wick, detached from the lamp and somewhat enlarged.

Similar letters and figures refer to similar parts in the several sections of the drawings.

Let A represent the shaft of a hand-lamp open throughout; B, the reservoir for oil; C, the pedestal; D, the lamp-glass; E, the circular wick; F, the bayonet-catch, and F' the port-wick for receiving the wick; G, a metal gauze septum that may be used in case the draft is too great, but is not claimed in this application, and H the knobs on which the pedestal rests.

a represents the outer portion of the double concentric tube, and *b* the inner portion; *a' a'*,

the reservoir for oil; *c*, the inner tube for the central draft of air; *d*, the traveling nut that raises and depresses the port-wick; *e*, eccentric air-passage surrounding the wick; *f*, the arm of the traveling nut *d*, the hook of which is received into the bayonet-catch F, and *g* the endless screw, the rotation of which elevates or depresses the traveling nut and the port-wick.

h represents the cap for the oil-reservoir; *d'*, the head of the endless screw or the cap of the endless screw; *i*, the opening between the contiguous edges of the double concentric tube, through which travels the arm *f* of nut *d*, and *k* the soldered joint; *m m*, the portion of tube *a* removed.

The lamp herein described does not differ in appearance from the ordinary hand and table lamp with a chimney, except that the chimney is exceedingly short, not exceeding three inches. The pedestal is raised up from the floor by three or more knobs or balls acting as feet, and also elevating the pedestal a little above the floor for the free passage of the feed-air for combustion. The dome form of the pedestal *c* serves as an inverted funnel for conducting the feed-air into the shaft A, which acts as a chimney-pipe, carrying up a current of air, a part of which passes through the central pipe *c* and part through the eccentric passage *e*, simultaneously supplying both the inner and outer face of the wick with abundance of air to sustain the combustion.

A septum of wire-gauze may be used at G, or may be left out when the draft is not too strong.

It will be seen by inspecting Figs. 3 and 5 that the double concentric tube *a b* is formed by bending a strip of sheet metal around a cylinder until the edges would almost meet, so as to leave but the space *i*, then turning the remaining flaps of the metal backward and outward each upon itself until the edges meet at *k*. Then solder the edges at *k* and clip off the outer portion or the *a* part at *m m*, and we have the form of the double concentric tube seen in Fig. 5 made or struck up from a single sheet of metal. The top of this tube is shown in Fig. 3 with the arm *f* of the traveling nut *d* in place; but the wick E and port-wick F' are not shown in this figure. The place for them is the space between the

central tube *c* and the wall of tube *b*, where the hook part of arm *f* is received into the bayonet-catch *F*. In Fig. 2 the wick, port-wick, and bayonet-catch are represented above the top of the lamp, but ready to be dropped into place.

There is frequently great difficulty in repairing the internal works of an Argand lamp from the number of soldered joints, coupled with the fact that where two parts of metal are united by soldering the joint is the first place to rust away and come to repairs. To avoid these evils, the double concentric tube was made in the manner already described.

From the construction of the bayonet-catch *F*, traveling nut *d*, arm, and hook *f*, as shown in Fig. 2, the mode of fastening and unfastening the catch is obvious and needs not any further explanations. The combination of these several pieces for operating and fastening the wick-tube of a lamp, as here shown, is believed to be valuable as an arrangement.

I have already shown some of the advantages arising from the use of the hollow shaft *A* in combination with the short chimney *D*. It would not define nor explain particularly the construction to give any exact measurement of the length of this chimney or that of the shaft *A*, or of the shaft and dome pedestal together, although I might say that in the present case the chimney is about three inches long, the lamp-reservoir and shaft six inches, and the pedestal three inches. The use of the hollow shaft and low or short chimney constitutes a prominent feature in this lamp and renders it very suitable for carrying about the house. The chimney being light and short, it is not top-heavy, and, receiving its feed-air through the bottom, is not made to smoke by means of side drafts of air.

There is much difficulty experienced in arranging the internal works of a complex lamp so as to operate the raising and lowering of

the wick while the machinery that performs the work is concealed from view, and especially when that machinery is liable to derangement. In the present case it was necessary to inclose the port-wick apparatus within the oil-reservoir and operate the same by rotating the cap *d* to the right or left, as required. As the works are all concealed in the oil-chamber, it is indispensable that the gearing shall not be subject to derangement. To accomplish this with considerable certainty I cause the upper and lower end of the endless screw *g* to turn in stationary bearings, while the nut *d* and arm *f* are made to rise and fall by rotating cap *d'*. The bayonet-catch *F* is readily attached and detached in the most obvious manner.

Operation: Supposing the lamp needs a new wick, place the right thumb and finger on the cap *d'* and unscrew till the wick and port-wick project from the top of the lamp, slip on a new wick, and turn the screw in the reverse direction till the wick is set at the proper elevation, when it is ready for use.

Having now fully described the nature of the invention and the manner of constructing and using the same, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The making of the double concentric tube *a b*, constituting the inner and outer walls of air-passage *e*, by striking it up from a single plate of sheet metal in the manner herein described.

2. The combination of the bayonet-catch *F* with the arm *f* of the traveling nut *d*, both as a fastening for the wick-tube and as a means of raising and lowering the wick, substantially as described.

R. B. PULLAN.

Witnesses:

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T. D. WILLIAMS.