

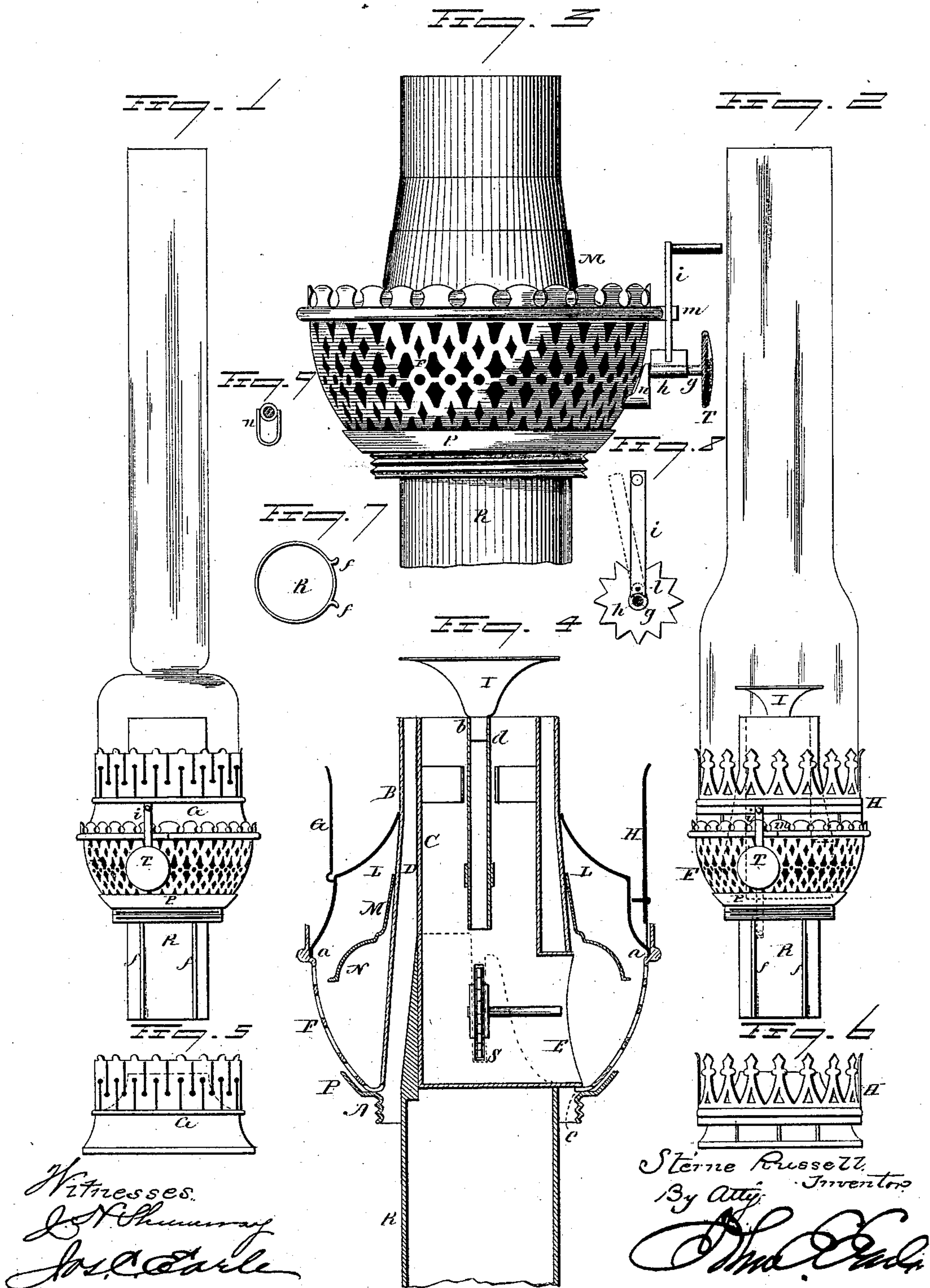
(No Model.)

2 Sheets—Sheet 1.

S. RUSSELL,
LAMP BURNER.

No. 297,015.

Patented Apr. 15, 1884.



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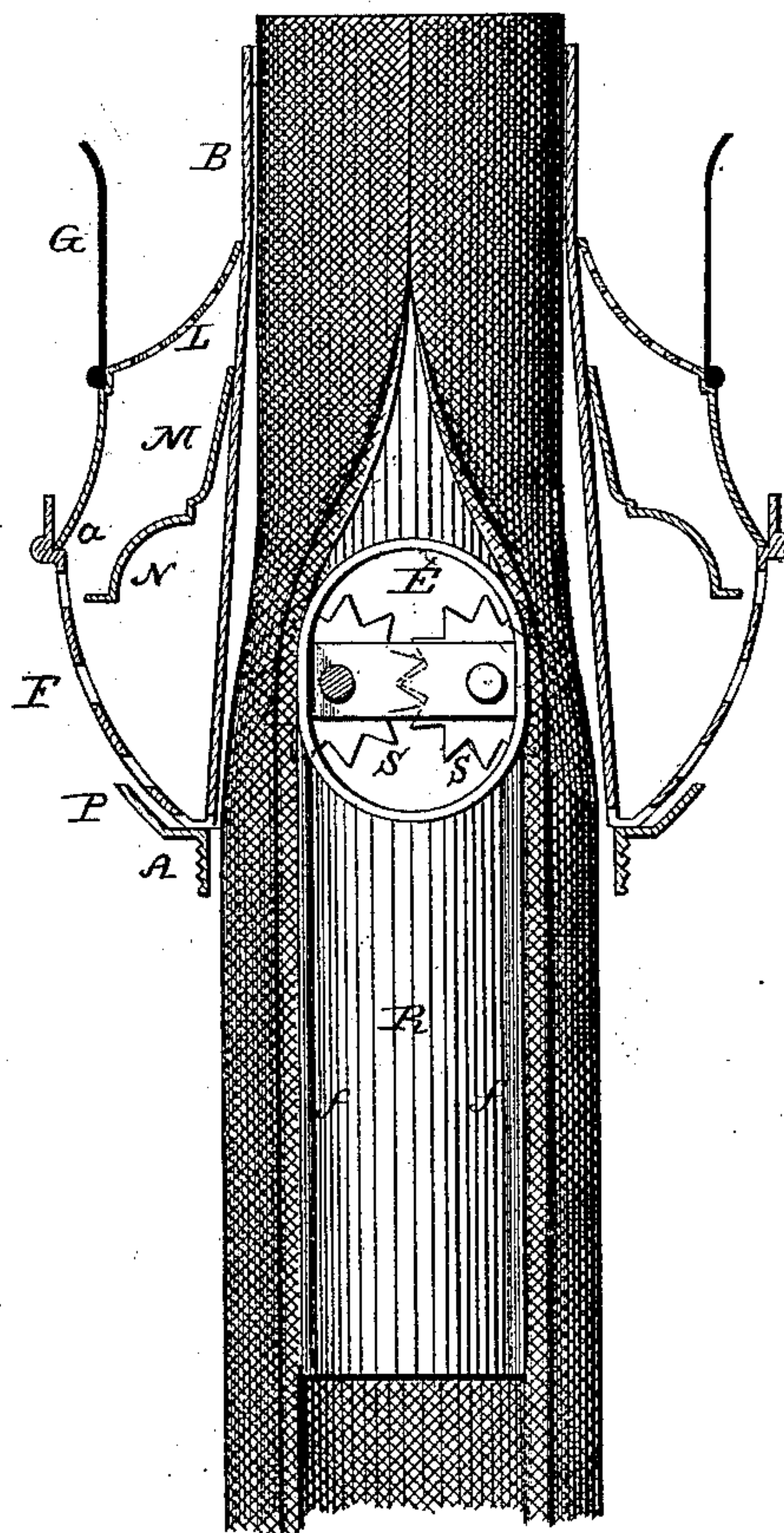
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Fig 10



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UNITED STATES PATENT OFFICE.

STERNE RUSSELL, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE
SCOVILL MANUFACTURING COMPANY, OF SAME PLACE.

LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 297,015, dated April 15, 1884.

Application filed September 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, STERNE RUSSELL, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lamp-Burners; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the burner arranged as a "student-burner;" Fig. 2, a side view arranged as a "button-burner;" Fig. 3, a side view of the burner with the chimney-holder removed; Fig. 4, a vertical section, showing the student chimney-holder at the left, and the button chimney-holder at the right; Fig. 5, the student-burner chimney-holder in side view; Fig. 6, the button-burner chimney-holder in side view; Fig. 7, a transverse section through the tubular extension R; Fig. 8, a sectional face view of the adjusting-lever *i*, showing its connection with the wick-adjuster shaft; Fig. 9, a detached view, illustrating the application of the friction-spring upon the sleeve on the wick-adjuster shaft; Fig. 10, a sectional view through the body of the burner, but showing a side view of the tubular extension R, looking toward the flanges *f f* and into the air-inlet.

This invention relates to an improvement in that class of lamp-burners which employ a tubular wick, so as to produce an Argand flame. These burners are of two classes—one in which a disk is arranged directly over the top of the wick in a horizontal plane, and so as to spread the flame—that is, increase the diameter of the flame over the diameter of the wick—and which are commonly called "button-burners." The other class is that in which the chimney is contracted directly over the base of the flame, and into which contracted portion of the chimney the flame will enter and be correspondingly contracted, commonly called "student-lamp." Both these burners are desirable, and each class is made as a separate and independent article. They are the most expensive kind of burners, and accompany the better class of lamps. This better class of lamps are sent to market with a burner of one

class or the other, therefore a dealer in purchasing the lamps purchases them with the burners fitted, and if a customer desires a lamp which is fitted with a button-burner, but prefers the student-burner, then the dealer must refit the lamp with a student-burner; hence it is necessary for him to keep on hand a stock of both kinds of burners, or, not having the particular burner required, he loses the sale of his lamp. Again, the person having a lamp with a button-burner may at times prefer a student-burner.

The object of my invention is principally to construct a burner which shall be convertible, so as to form either the button or student burner, as occasion may require. Parts of my invention, however, are applicable to other burners; and my invention consists in the construction of a lamp-burner as hereinafter described, and more particularly recited in the claims.

A represents the base, which is fitted with a male screw-thread corresponding to the female screw of the lamp-collar, in the usual manner, and through which the cylindrical wick-tube passes. This wick-tube consists of an outer tube, B, and an inner tube, C, leaving a space, D, between the two. The inner tube, C, is turned outward and opens to the side, as at E, in the usual manner for this class of burners, the opening E permitting the air to pass in and up through the tube C into the center of the flame in the usual manner for Argand burners.

F is the air-distributor, of the usual basket shape, having openings through which the air will pass to enter the burner and chimney to support combustion. The upper edge of this air-distributor is constructed with a shoulder, *a*, and which is substantially above the opening E into the inner tube. Onto this shoulder the chimney-holder is set.

G is the chimney-holder for the student-lamp, and H the chimney-holder for the button-burner.

In Fig. 4 the button-burner is represented in section at the right, and the student-burner at the left. The diameter of these chimney-holders at the base is alike, and so that either may be set onto the base or shoulder *a*.

I represents the button, which is constructed

with a stem, *b*, upon its under side, to fit a corresponding socket, *d*, in the center of the inner tube, *C*, and from which it may be removed, or into which it may be set, as may be required. Each of the chimney-holders is contracted at its upper end, forming a top to the chamber below, the contracted portion *L* of each closely embracing the outer tube, *B*, as seen in Fig. 4. This top or contracted portion, *L*, is perforated, as seen in Fig. 10, or provided with openings to admit air into the chimney outside the burner, as may be required. The air entering through the distributor *F* passes, a portion of it, through the opening *E* into the central tube, and the remainder up outside into the chimney. By thus making the chimney-holders alike, as to diameter, and corresponding to the same base, they are interchangeable the one with the other; hence if a lamp be fitted with, say, a button-burner, and a student-burner is required, it is only necessary to remove the chimney-holder and the button and replace them with the student chimney-holder, the removed chimney-holder and button being applied to the burner from which the student chimney-holder was removed.

The manufacturer, in making burners thus convertible, having a stock of bases on hand with interchangeable chimney-holders, may fill an order for either one or the other, and hence requires only but one-half the stock of bases which he must otherwise carry. So with a dealer, in purchasing burners for his trade, he purchases a number of bases or bodies and an additional number of chimney-holders, and is able to supply a demand which would only be filled by keeping bases corresponding to the number of chimney-holders—that is, complete burners—which he must do under the usual construction. The base or body of the burner, it will be understood, is the principal cost of the article, the chimney-holder being but a small part of the expense or cost, so that the invention is a considerable saving both to the manufacturer and to the dealer. Again, the person desiring a burner for use may purchase the two chimney-holders, then has on hand a convertible burner at a cost very little more than a single burner of either class.

In the construction of burners a great expense is incurred in adjusting the extent of opening in the air-distributor, so as to admit only the amount of air necessary to the support of combustion, and as the result cannot be foreseen, numerous trials are unavoidable. The dies for punching the openings in this part of the burner are expensive, and their alteration to increase or decrease the openings is a very considerable expense. The principal difficulty in the adjustment of the air is to admit the requisite quantity to the inner tube, and it is therefore the openings at the lower part of the distributor which require the nicest adjustment. To obviate this difficulty and enable me to make the air-distributor of any desirable ornamentation regardless

of the extent of opening, only that it shall be at least sufficiently open to admit the least possible amount of air required, I arrange a collar, *M*, to be set on over the outer tube, its lower edge turned outward, and preferably to form an annular flange, *N*, of dome shape, but of less diameter than the internal diameter of the air-distributor, and so as to leave a free passage between it and the air-distributor for the air to pass up into the chimney above. The air distributor having been perforated to suit the taste of the manufacturer or the requirements of the trade, the collar is set in place and the chimney applied, the wick lighted in the usual manner. If the distribution of air is not as it should be—that is, if too much air is passing into the inner tube—the edge of the flange *N* is cut off and the trimming continued until the requisite amount of air enters the tube to properly support combustion. If, on the contrary, there be not sufficient air passing into the inner tube, then expand the collar *N* to contract the space between it and the air-distributor, so that more air will pass into the tube than before. This flanged collar is a very cheap construction, and being removable from the burner is easily trimmed or expanded, as occasion may require; hence the “cutting and trying” is all performed on this simple and inexpensive flange, instead of on expensive dies to contract or expand the openings in the distributor, as heretofore practiced.

Around the base and as a permanent part of the burner, and outside the air-distributor, is a cup-shaped flange, *P*, which forms a trough into which any oil or overflow from the burner will enter and pass through openings *e* into the inside of the lamp. This drip-flange *P* has the appearance of a plain band around the base at the bottom of the air-distributor, and is an ornament to the burner, as well as of great utility.

The wicks usually employed for tubular burners are flat, the two edges brought together and introduced into the lower end of the burner. In introducing the wick and feeding it upward it is difficult to feed both edges alike—that is, to retain the two edges parallel, so as to bring the end of the wick out at the top in a horizontal plane corresponding to the upper end of the wick-tube. To obviate this difficulty, I construct the burner with a tubular extension, *R*, below the screw, of larger diameter than the internal tube, *C*, but contracting at its upper end to the diameter of the tube *C*, as seen in Fig. 4, the outer tube, *D*, correspondingly expanding at its lower end, as seen in Fig. 4. On this tubular extension *R*, I construct two vertical ribs, *f*, parallel with each other, both ribs curved outward, as seen in Figs. 7 and 10, the distance from the concave side of one rib around the tube to the concave side of the other rib corresponding to the width of the wick to be introduced. These ribs stand in line with the outer sides of the opening *E*, as seen in Fig. 10. The

wick is placed around the tubular part R, the two edges embraced by the flanges *f*. In this condition the wick is moved upward. The ribs guide the wick each side the air-inlet E, and in their proper relation to each other, until the feeding-wheels S will engage the tube at opposite points, thus insuring the proper presentation of the wick to the feed-wheels, and also retaining the wick with its edges parallel.

The feed-wheels S, (see Figs. 4 and 10,) are of usual construction, arranged to be turned by the hand-wheel T upon the outside in the usual manner. This construction is too well known to require detailed description in this application.

In most lamp-burners which employ a mechanical adjustment for the wick, a difficulty is experienced arising from the liability of turning the wick in the wrong direction—that is to say, when a lamp is to be extinguished the wick is run down into the tube. Now, to relight the lamp the wick must be raised; but as the wick does not appear above the burner, so as to indicate which way the feed-wheels are being turned, the person adjusting the wick is liable to turn the wheels in the wrong direction, and run the wick down below and out of reach of the wheels. To re-engage this wick with the wheels, it is necessary to remove the burner from the lamp. To avoid this difficulty, I apply to the wick-adjuster shaft *g* a sleeve, *h*, which fits it loosely, and so as to permit the shaft to be turned without effect thereon. In this sleeve I hang a radial lever, *i*, upon a pivot, *l*, and by which lever the sleeve may be turned upon the shaft *g* as its axis. The pivot *l* of the lever *i* is eccentric to the shaft. The end of the lever next the shaft does not quite reach the shaft, and is made at right angles, or may be concave, as shown, and so that by turning the lever—say to the left, as indicated in broken lines, Fig. 8—the end of the lever will be brought into forcible contact with the shaft, and there will so grip the shaft that the further turning of the lever will cause the shaft to be turned with it. At some point on the burner—say as at *m*—a shoulder is made, against which the lever *i* will strike and be arrested, to prevent a continuous revolution of the levers. Standing in that position, as seen in Figs. 1 and 2, the adjusting-shaft is free to be turned by the wheel T in the usual manner. Suppose in this condition the wick to be lighted. Now, in extinguishing the flame, instead of turning the wick down by the shaft *g*, turn the lever *i* down, say, to the position seen in broken lines, Fig. 2, which will impart sufficient rotation to the feed-wheels to draw the wick into the tube and extinguish

the flame. This down position of the lever indicates that the wick is below the top of the tube. To relight the wick, it is only necessary to turn the lever *i* to its position against the stop *m*, and in so turning, the end of the lever clamps the shaft in the opposite direction, causing such turning of the lever to correspondingly turn the shaft in the direction to raise the wick. This device therefore not only affords a convenient means for extinguishing the flame, but indicates the position of the wick with relation to the upper end of the tube, and prevents the accidental displacement of the wick.

To insure the proper engagement of the lever with the shaft, friction is applied to the outside of the sleeve *h*, which may be done by a spring, *n*, arranged to bear upon the surface of the sleeve, as seen in Fig. 9. The friction of this spring need only be a little greater than the friction of the lever upon its pivot, so as to insure a little resistance against the turning of the sleeve until the lever is brought into its clamping position.

The drip-flange P, as well as the extinguishing-lever *i*, may be applied to burners of various constructions. These parts of my invention, therefore, are not to be understood as limited to tubular burners.

I am aware that lamp-collars have been constructed to conduct the drip which falls from the burner onto the collar through the collar into the lamp-fount, and therefore do not broadly claim a conductor for such purpose.

I claim—

1. In a tubular lamp-burner, the tubular extension R, extending downward from the inner tube, and constructed with the vertical parallel ribs *ff*, substantially as and for the purpose described.

2. In a lamp-burner, the annular drip-flange P, made as a fixed part of the burner and extending around its base above the screw, substantially as described.

3. In a lamp-burner, the combination of the wick-adjusting shaft *g*, the sleeve *h*, loose thereon, the lever *i*, hung in said sleeve, its end constructed to engage the shaft, substantially as described.

4. In a lamp-burner, the combination of the wick-adjusting shaft *g*, the sleeve *h*, loose thereon, the lever *i*, hung in said sleeve, its end constructed to engage the shaft, and the frictional spring *n*, substantially as described.

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