(No Model.)

F. P. BOLAND.

LAMP BURNER.

No. 563,549. Patented July 7, 1896.

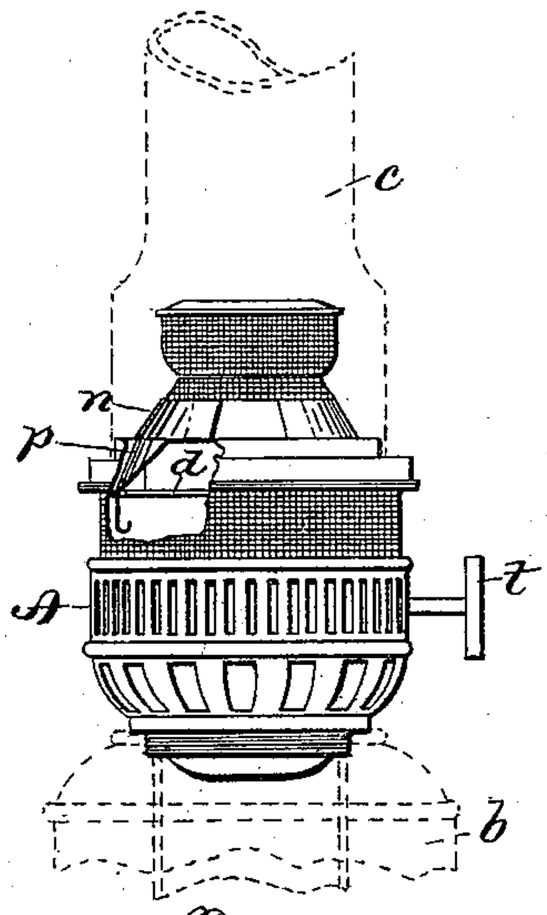

Fig. 2.

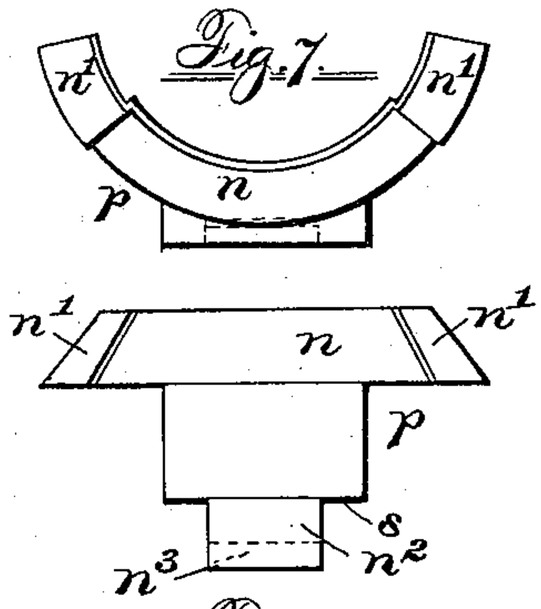

Fig. 6.

Fig. 7.

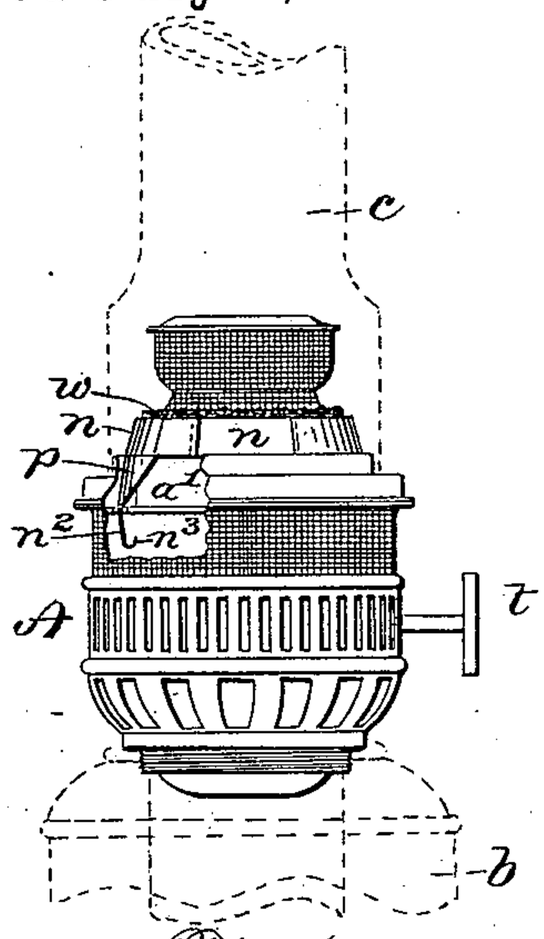

Fig. 1.

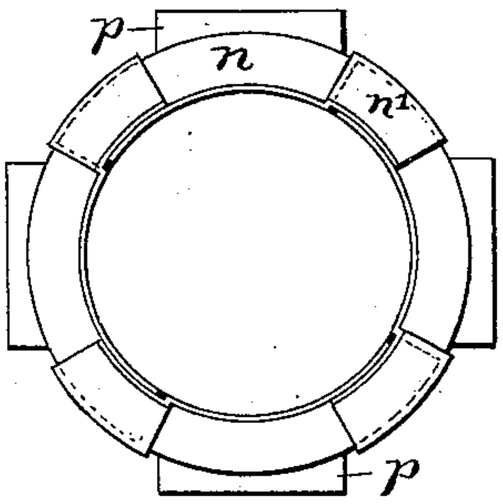

Fig. 8.

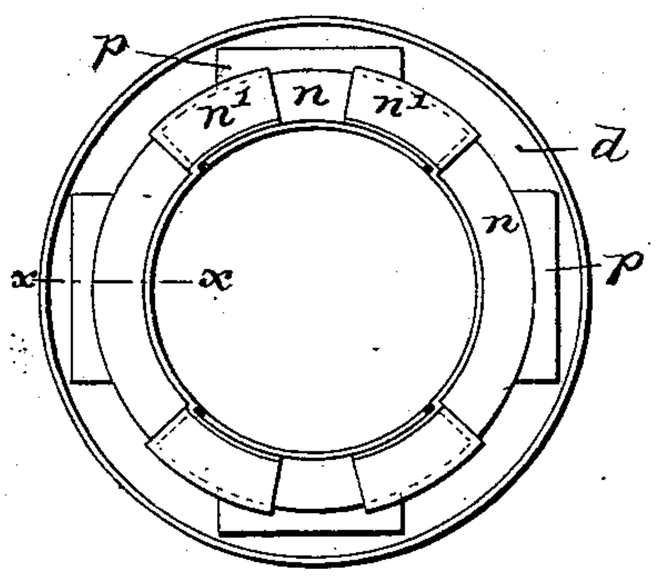

Fig. 3.

Fig. 5.

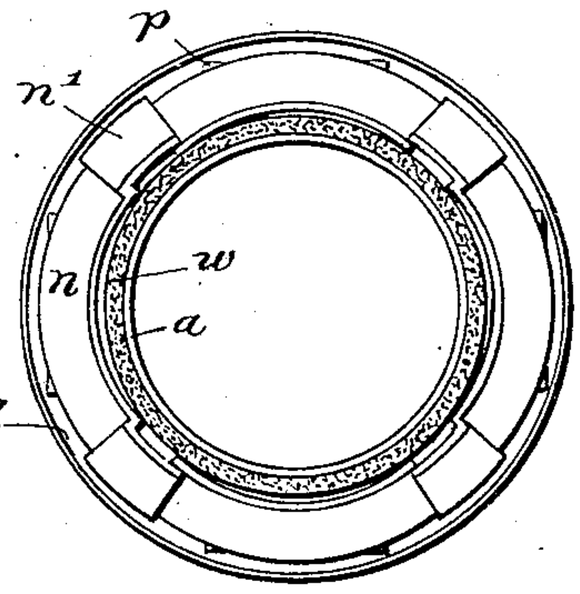

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

FRANK P. BOLAND, OF PROVIDENCE, RHODE ISLAND.

LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 563,549, dated July 7, 1896.

Application filed December 21, 1894. Serial No. 532,563. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. BOLAND, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Lamp-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in lamp-burners, and more particularly to Argand lamp-burners, that is, the class of lamp-burners having a circular or annular wick-tube, in which the wick is adapted to be moved up and down.

The invention consists, essentially, in providing lamp-burners of the type just referred to with a series of suitably-mounted movable plates of metal having their upper ends curved or bent and arranged to engage the wick and wick-tube, constructed whereby the act of depressing or lowering the burning end of the wick into the tube or past the upper portion of the plates, causes the latter to move across the wick automatically, (by gravity,) thereby extinguishing the flame and at the same time practically closing or covering the upper end of the wick-tube and concealing the wick. The usual operation of turning up the wick, preparatory to lighting it, forces the plates aside, thus exposing the end of the wick.

My present invention is an improvement upon the automatic extinguisher for lamps set forth and claimed in my pending application for Letters Patent, Serial No. 512,767.

In the accompanying sheet of drawings, Figure 1 is a side elevation of a well-known lamp-burner of the type employing a circular wick, showing my improved automatic extinguisher applied thereto, a portion of the burner being broken away to more clearly show the extinguisher, the latter being in its normal position and resting against the side of the raised wick. Fig. 2 is a similar view showing the relation of the parts when the extinguisher is in use, that is, the wick being lowered and flame extinguished. Fig. 3 is a plan view, enlarged, corresponding with Fig. 2, parts of the burner being omitted. Fig. 4 is a similar plan view corresponding with Fig. 1. Fig. 5 is a vertical sectional view of the burner, taken substantially on line *x x* of Fig. 3. Fig. 6 is a side elevation of one of the extinguisher-plates. Fig. 7 is a plan view of the same, and Fig. 8 is a plan view showing a modified construction of the plates.

I would state here that the extinguisher-plates *p*, forming the subject of this invention, are usually made of comparatively thin sheet-brass, the plates being fitted to the burner and to each other, so as to permit of very free movement and action. In the drawings, however, the thickness of the plates is somewhat exaggerated, in order to make the representation clearer. The plates are also represented as being somewhat more accurately fitted at the several contact-points than is required in work of this character.

A, again referring to the drawings, designates an Argand lamp-burner, or other kind of lamp-burner employing a tubular wick *w*, as a whole, and embodying my improvement. Since the construction and manner of operation of this class of lamp-burners are well known, I do not deem it essential to make more than a brief description thereof. It is provided with inner and outer central tubes *a a'*, separated so as to form an annular space between them, in which the wick *w* is movably mounted, motion being imparted to the wick through the medium of the feed-wheel handle *t* and the usual connections.

The burner is adapted to be screwed into the lamp-body *b*, forming an oil fount or reservoir and adapted to carry a glass chimney *c*, all as common.

The upper portion of the burner is provided with a horizontal wall or partition *d*. (See Fig. 5.) In this partition are formed elongated holes adapted each to receive the shank portion n^2 of the corresponding extinguisher-plate *p*. These plates *p* are arranged around the burner or wick-tube, the upper portions *n* of the plates being inwardly bent or inclined and having the top edges concave and arranged to rest against the outside of

the wick when the latter is in its normal or raised position, as when burning. (See dotted lines, Fig. 5.) The extinguisher, as drawn, consists of a series of four of the said pieces or plates *p*, each comprising an arc of about ninety degrees. (See Fig. 3.) Two of the oppositely-facing plates are provided at each end with a slightly-raised extension or wing *n'*. These extensions are substantially concentric with and overlap the adjacent portions of the intermediate fellow plates, the length of said extensions being such that when the several plates are laterally or radially separated, as in the normal position when the wick is burning, they will still rest upon or be in contact with the fellow plates, as clearly shown in Fig. 4. The upper part of the said shank portion n^2 of the extinguisher-plate above the partition *d* is made wider to form shoulders *s*, (see Fig. 6,) thereby holding the plates in position vertically. In order to prevent the plates from dropping out, in case the lamp be inclined or even inverted, the lower ends may be bent, as at n^3, thereby holding the plates in place.

It will be seen that the plates are so constructed and arranged that the center of gravity is always between the point of support, where they pass through the partition *d*, and the wick. Therefore they operate automatically to slide or swing over the end of the wick when the latter is lowered past them, as shown in the full-line position, Fig. 5. At the same time the wings *n'* further insure that all the plates operate in a substantially simultaneous manner.

It is to be noted that practically the entire upper end of the wick is covered or concealed by the plates. (See Figs. 2, 3, and 5.) Consequently air is then to a great extent excluded from the wick, thereby preventing combustion of the oil and also preventing smoke.

In Fig. 8 all the pieces or units *p* forming the extinguisher are alike, each having at one end a plain extension and at the other a wing *n'*, similar to that before described, adapted to overlap the plain portion of the adjacent plate.

From the foregoing it will be seen that the action of the device constituting the extinguisher is in a degree controllable by and dependent upon the movement of the lamp-wick. At the same time the construction and arrangements of the parts are such that the device operates to extinguish the circular wick-flame and to cover or conceal the upper end of the wick *w* automatically whenever the latter is turned downwardly past the adjacent overhanging or inclined portions *n* of the curved plates *p*. As drawn, these plates are prevented from moving outwardly past the center of gravity. Consequently the said overhanging portions are always, to a slight extent, in frictional contact with the sides of the burning wick, except when the latter is turned down past the end of the wick-tube, at which instant the upper portions of the several extinguisher-plates simultaneously move or swing over across the end of the wick and its tube, thus extinguishing the flame, preventing the burner from smoking, keeping the end of the wick comparatively soft and, in a degree, preventing it from being charred or crusted over, and also preventing the oil or fluid from evaporating when the burner is not in use.

I would add that the term "self-acting" or "automatically-operating" extinguishing device or plates used in this specification applies to plates, as *p*, adapted to be in normal contact with the side of the circularly-arranged wick, and so constructed and mounted that upon lowering the wick past the plates the upper portion of the latter will move automatically across the end of the wick and extinguish the flame. Such action of the plates is due to the fact that the resistance or influence of the wick in keeping the plates in said normal position is then removed.

While I have shown and described a series of four curved plates mounted circumferentially around the wick and wick-tube of a lamp-burner as constituting my improved extinguisher, it is obvious that a different number of plates or parts may be advantageously employed for the purpose without departing from the spirit of the invention.

I claim as my invention and desire to secure by United States Letters Patent—

1. In a lamp-burner of the tubular or central-draft type, the combination of the wick-tube and the perforated plate through which it extends, of a series of arc-shaped swinging extinguisher-plates *p* arranged around said tube, each of said extinguisher-plates being pivotally mounted on said perforated plate, a tongue or shank portion extending downwardly through the last-named plate, and having the ends of the upper portion terminating in one or more wings or extensions overlapping those of the adjacent plates, substantially as hereinbefore described and for the purpose set forth.

2. In a lamp of the class described, the combination of an oil-fount and chimney; a removable burner screwed into the lamp-body and supporting the chimney; a central circular wick-tube; a wick mounted in said tube; means for raising and lowering the wick, and a series of laterally-movable or swinging extinguisher-plates interengaging with each other having inwardly-extending upper portions arranged around and in normal contact with the wick, and having said plates bent, as at n^3, at their lower ends to prevent them from falling out when the lamp is tipped, the plates being constructed and adapted whereby upon lowering the burning wick past the said upper portions of the plates, the latter will swing inwardly by gravity across the wick and extinguish the flame and at the same time

practically close the corresponding end of the wick-tube.

3. The extinguisher-plate p, hereinbefore described, having its lower portion provided with lateral supporting-shoulders s and the downwardly-extending shank part n^2 terminating in the bent end n^3, and having the upper portion n of said plate inclined and bent to form a circular arc, the ends of the latter terminating in one or more concentric wings or extensions n', for the purpose specified.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANK P. BOLAND.

Witnesses:
GEO. H. REMINGTON,
FRED ARNOLD.