

(No Model.)

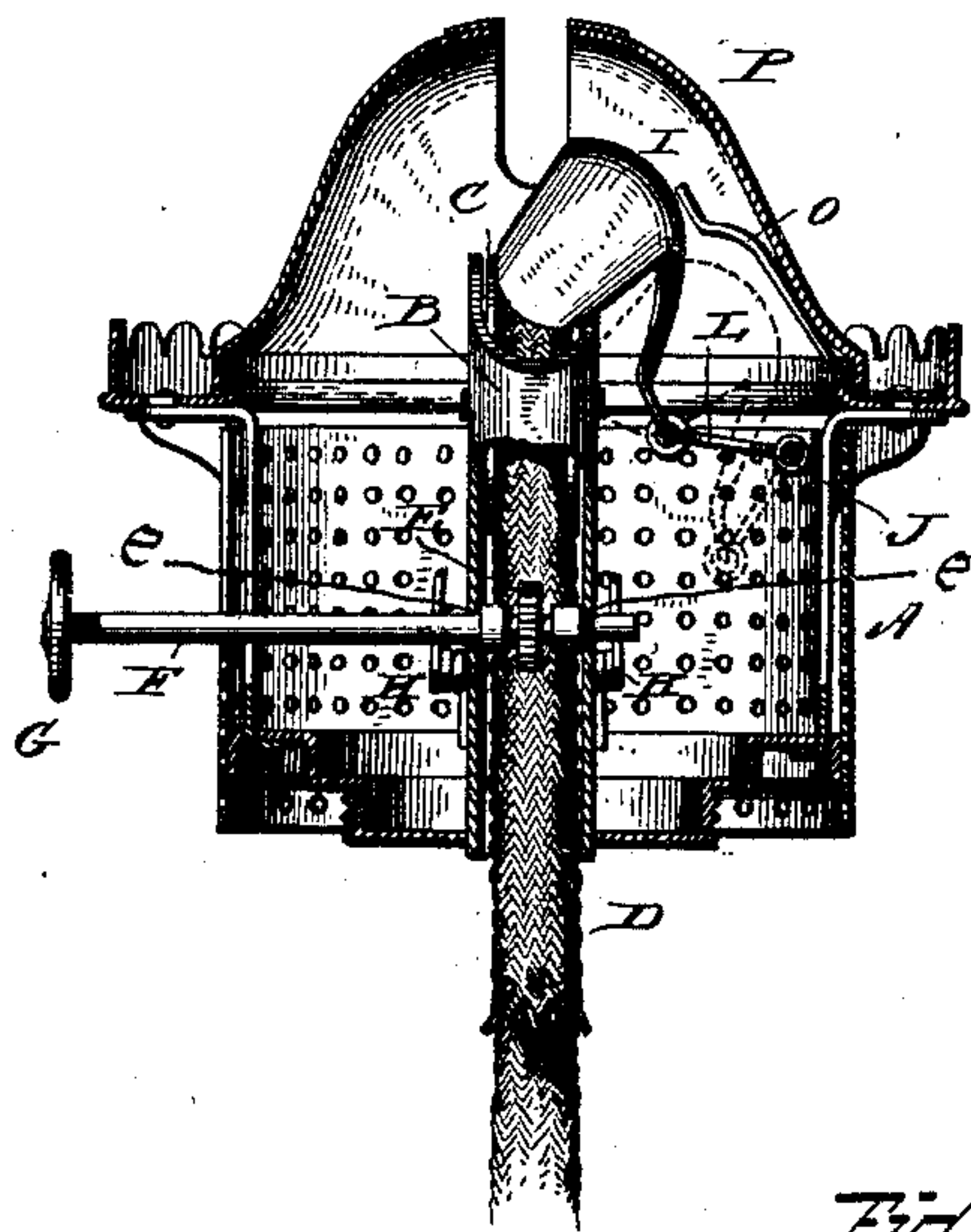
C. W. STIFF & J. WATROUS.

LAMP BURNER.

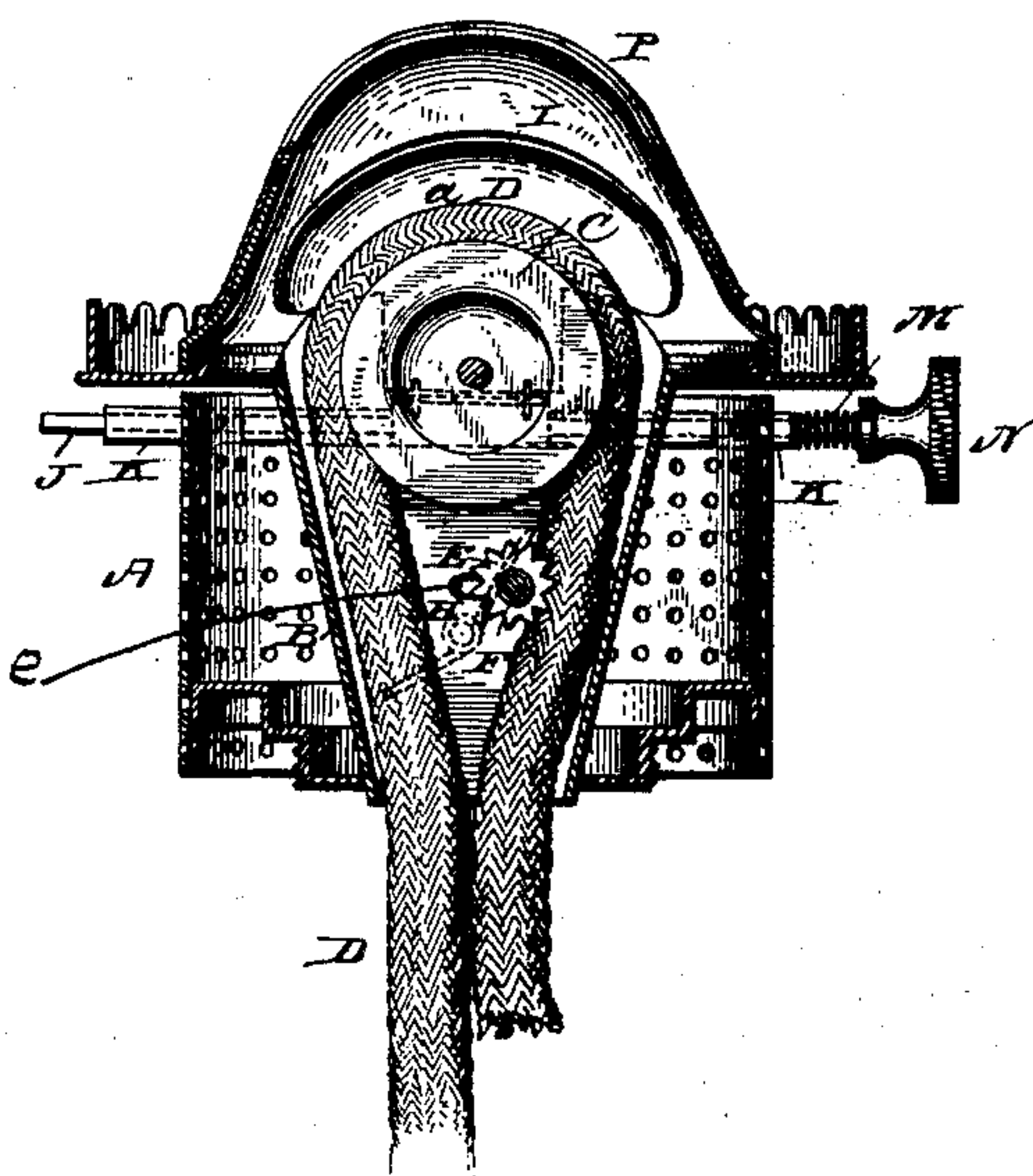
No. 354,267.

Patented Dec. 14, 1886.

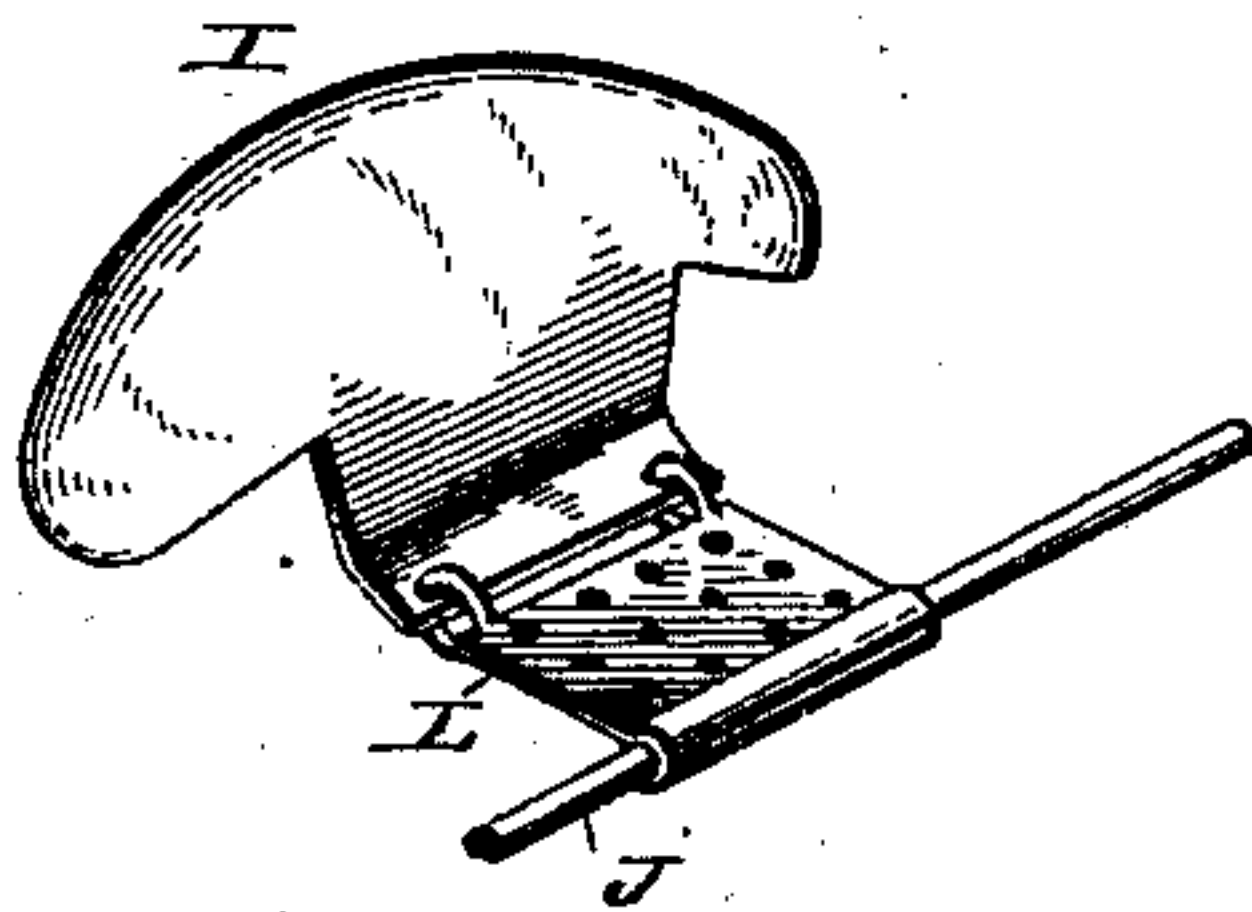
*Fig. 1.*



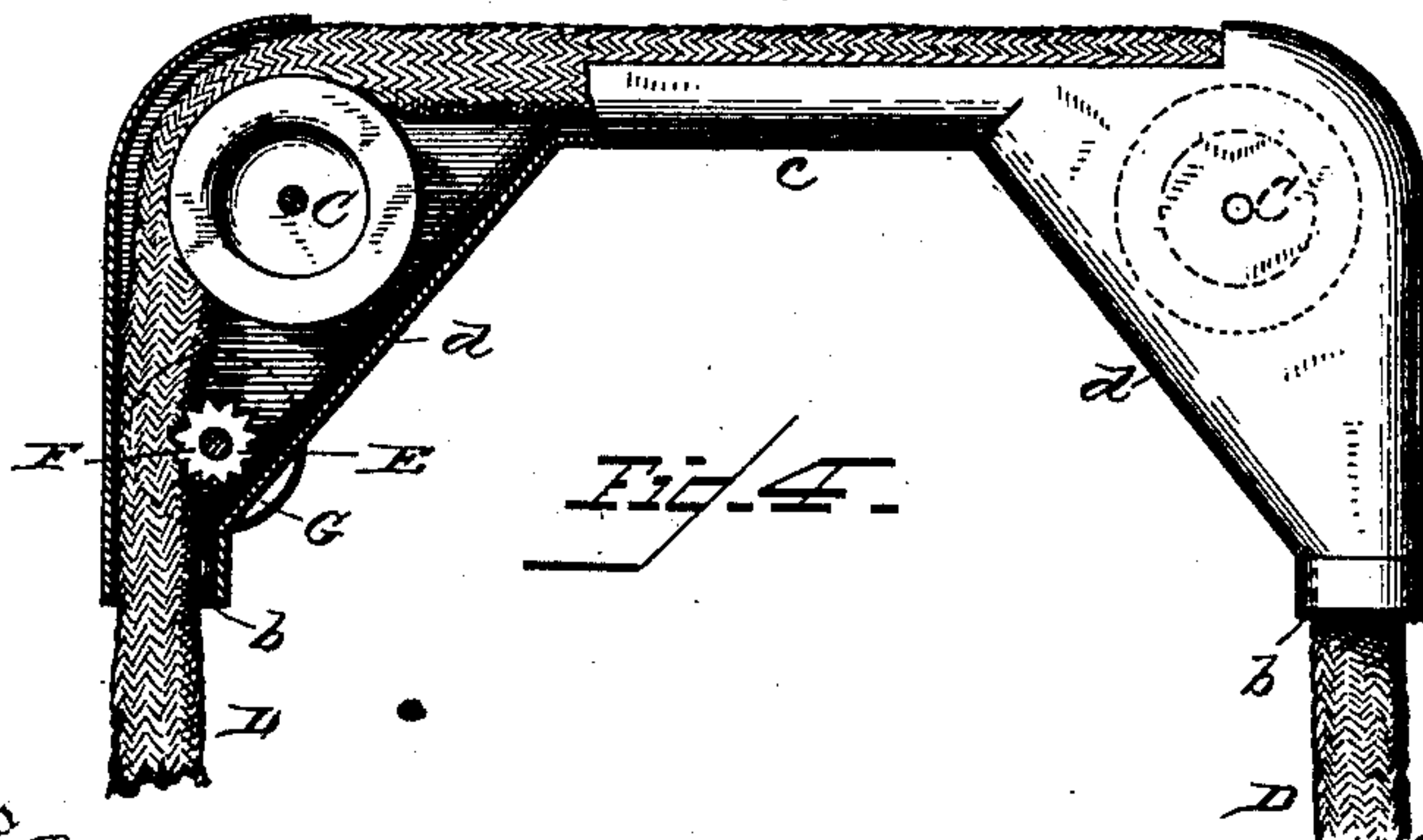
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
*Wm. L. Spudis*  
*Alfred T. Gage*

Inventor  
*Chas. W. Stiff*  
*Joseph W. Watrous*  
By *Wm. L. Spudis* Attorney



# UNITED STATES PATENT OFFICE.

CHARLES W. STIFF AND JOSEPH WATROUS, OF FOXBOROUGH, ASSIGNORS  
OF ONE-THIRD TO JOSEPH B. McCUNE, OF CHICOPEE, MASS.

## LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 354,267, dated December 14, 1886.

Application filed January 9, 1886. Serial No. 188,049. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES W. STIFF and JOSEPH WATROUS, citizens of the United States, residing at Foxborough, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Burners for Lamps and the Like and Flame Regulators and Extinguishers for Use in Connection therewith; and we 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.

Our invention relates to burners for lamps and the like and flame regulators or extinguishers for use in connection therewith, and has for its object, first, to provide a burner in which the wick will be folded or looped, so that the fold or bight will be the portion to burn in forming the flame, and the fold will be in the direction of the width of the burner-tube, whereby a steadier and more regular or even flame will be produced and the frequency of trimming the wick reduced to a minimum.

It has also for its object to provide a shield or cap adjustable more or less over the wick at right angles to the width of the wick-tube, so as to regulate the flame by the amount of wick exposed and extinguish the flame by covering the wick with the shield.

The foregoing are some of the objects in view, and others will appear from the following description, which, in connection with the accompanying drawings, forming a part thereof, will enable other persons to make and use the invention.

In the drawings, Figure 1 is an elevation, partly in cross-section, through a burner; Fig. 2, a cross-section at right angles to Fig. 1; Fig. 3, a perspective of the regulator and extinguisher; Fig. 4, a side elevation, partly in section, of a modification.

In the drawings, the letter A designates the cap surrounding the wick-tube B, and made of reticulated metal, so as to admit air to the wick for purposes of combustion. The upper end of the tube is divided by any suitable par-

tion, so as to form two chambers or channels—one for the ascending wick and the other for the descending wick. The partition is preferably formed of one or more rollers to reduce friction, and made, preferably, with a grooved periphery to guide the wick.

In Fig. 1 a single roller, C, is illustrated as journaled in the sides of the wick-tube, so as to form a channel on opposite sides of the roller between it and the end walls of the wick-tube. The wick D passes up through one of these channels, thence across the top of the roller in the direction of the width of the tube, and thence down the other channel on the other side. This loops the wick and brings the fold or bight *a* of the wick over the roller at the upper portion of the tube, with the fold parallel with and in the direction of the width of the tube, so that no sharp or abrupt edge is formed at the ends of the tube, and leaves no end to be burned in forming the flame. The wick is drawn up and down by a toothed wheel, E, connected to the shaft F, journaled in the sides of the tube and extended to the outside of the reticulated cap, where it is provided with a thumb disk, G, by which it may be turned. The holes or slots *e* in the wick-tube, through which the wick-raiser shaft passes, are elongated crosswise of the tube, so as to allow the shaft F to play therein, and springs H, secured to opposite sides of the wick-tube, bear against the shaft, so as to press it against its bearing in the tube. The shaft is thus afforded a yielding bearing in the tube, so that it will give to inequalities in the wick and prevent the same from wedging.

It will be noticed that no abrupt edge exists to cause the flame to shoot up from the edge, so as to smoke the chimney, but that the ends or edges of the wick at the ends of the opening in the wick-tube are curved or rounding, so that the tendency of the flame at the ends is to move inwardly toward the middle portion of the wick. It will be observed, too, that the form of the wick-tube shown in Figs. 1 and 2 is converging or tapering from the upper portion downwardly. The effect of this is to expose enough of the wick at the top to form a broad flame, and at the same time to bring the



sections of the wick together at the lower portion, so that the oil will feed through both extensions of the wick. It will be observed, too, that at the lower end of the tube the two portions of the wick meet or come in contact, so that the oil will be fed to the flame from both sides of the burner-tube. This is necessary to effect an even and regular flame where both ends of the wick do not pass down into the oil in the reservoir in the manner described of applying the wick. As the wick is gradually burned, the burned portion that passes down below the tube is trimmed off below the point of contact.

As the burner-tube is set so as to give the largest flame the particular burner is capable of, the flame is regulated by a shield or cap, I, which is actuated by a lever adapted to adjust the shield over the wick at right angles to the width of the flame or opening in the wick-tube, and hold it over the wick, so as to expose more or less of the wick and proportionately increase or decrease the flame. This manner of operating the shield permits of controlling the size of the flame without shortening its width with reference to the width of the opening in the burner-cap, and consequently a better combustion is obtained than would be if the flame were cut off in its width.

As a means of adjusting the cap a shaft, J, is journaled in suitable sleeves or bearings, K, connected to the chimney-holder, and is formed with a finger, L, projecting from it between the two bearings, which prevents the shaft from sliding, to which finger is hinged the rear of the cap I. By this construction the cap is moved gradually over the wick, so as to reduce the flame in proportion to its adjustment over the wick. A spring, M, is coiled around the shaft, so as to bear at one end against the thumb-nut N of the shaft, and at the other end against the end of one of the bearings K. By this means the shaft is held firmly in its bearings, so that the cap will be held to its adjustment over the wick.

The foregoing is descriptive of suitable means for adjusting the cap; but we do not mean to restrict ourselves to such particular means. The cap is preferably curved, as shown, to conform to the curvature of the wick-tube, and when projected wholly over the wick entirely extinguishes the flame.

An arm, O, is made to project from the cap toward the burner, so as to serve as a guard to prevent the cap from accidentally turning backward so far as to get out of operative position. A cone, P, fits over the wick-tube.

Instead of the form of wick-tube described, the tube may be elongated in its width, as illustrated in Fig. 4, and provided with suitable guides where the wick turns from a vertical to a horizontal position at opposite ends of the tube. In this form the wick-tube has the two tubular passages *b* connected by the horizontal neck *c*, open at the top for the exposure of

the wick, and at the corners where the neck joins to the vertical passages throats or enlargements *d* are formed to receive the rollers C, which are journaled therein to serve as guides and supports for the wick. These rollers are grooved so that the wick will lie therein, and they are used as the preferable means for forming a guide for the easy travel of the wick at the points where it turns. A toothed wheel, E, and shaft F, with a thumb-disk, G, at its end, are journaled in one of the passages of the tube, so as to feed the wick D. This form of wick-tube is particularly well adapted for use in connection with oil-stoves, where a wide flame is wanted. It will be noticed that the same principle is involved in this form as in the form first described. The wick passes up and is folded, and then passes down, so that no end is exposed to be burned, the flame being from the fold or bight. The wick is fed by the wick-raiser in the same manner as in the form first described, and the advantages of a uniform and regular flame and manner of feeding the wick exist in this form as well as in the other. This form of tube may be connected with the oil-reservoir in any suitable way known to the mechanic skilled in applying this tube to oil-reservoirs, and as there is nothing new in the manner of connecting the tubes, the same is not illustrated.

Having thus described our invention and set forth its merits, what we claim is—

1. A burner having a wick-tube provided with a wick-support near its mouth, and formed with wick-passages between the end walls of the tube and said support, to permit the wick to be folded, substantially as set forth, in the direction of the width of the mouth of the tube, substantially as described.

2. In an oil-burner, the wick-tube provided with a flanged roller journaled therein near its mouth, to support and guide a folded wick in a position to burn, substantially as described.

3. In an oil-burner, a wick-tube formed with downwardly-converging end walls, in combination with a roller journaled in the upper portion of the tube, the axis of said roller being at right angles to the width of the tube, and the periphery of the roller at a distance from the end walls, substantially as described, to form passages between said roller and the end walls of the tube to receive a wick folded over said roller, substantially as described.

4. In an oil-burner, the combination, with a wick-tube formed with elongated slots *e*, of a wick-raiser and its shaft, the shaft being journaled in said slots, and a spring bearing against the shaft to hold it in its bearings, substantially as described.

5. In an oil-burner, the combination, with the burner and wick-tube, of a shaft journaled in the burner below the top of the wick-tube, a flame regulating and extinguishing cap, a finger having said cap hinged thereto, and connected to said shaft at one side of the tube,



to enable the cap to be moved over the tube  
at right angles to the width of the latter by  
said lever, and a spring connected with the  
burner and bearing against said lever to ex-  
5 ert a pressure thereon to hold the lever and  
cap to various adjustments over the wick-tube,  
substantially as described.

In testimony whereof we affix our signatures  
in presence of two witnesses.

CHARLES W. STIFF.  
JOSEPH WATROUS.

Witnesses:

E. M. CARPENTER,  
S. A. TARBELL.