



No. 726,297.

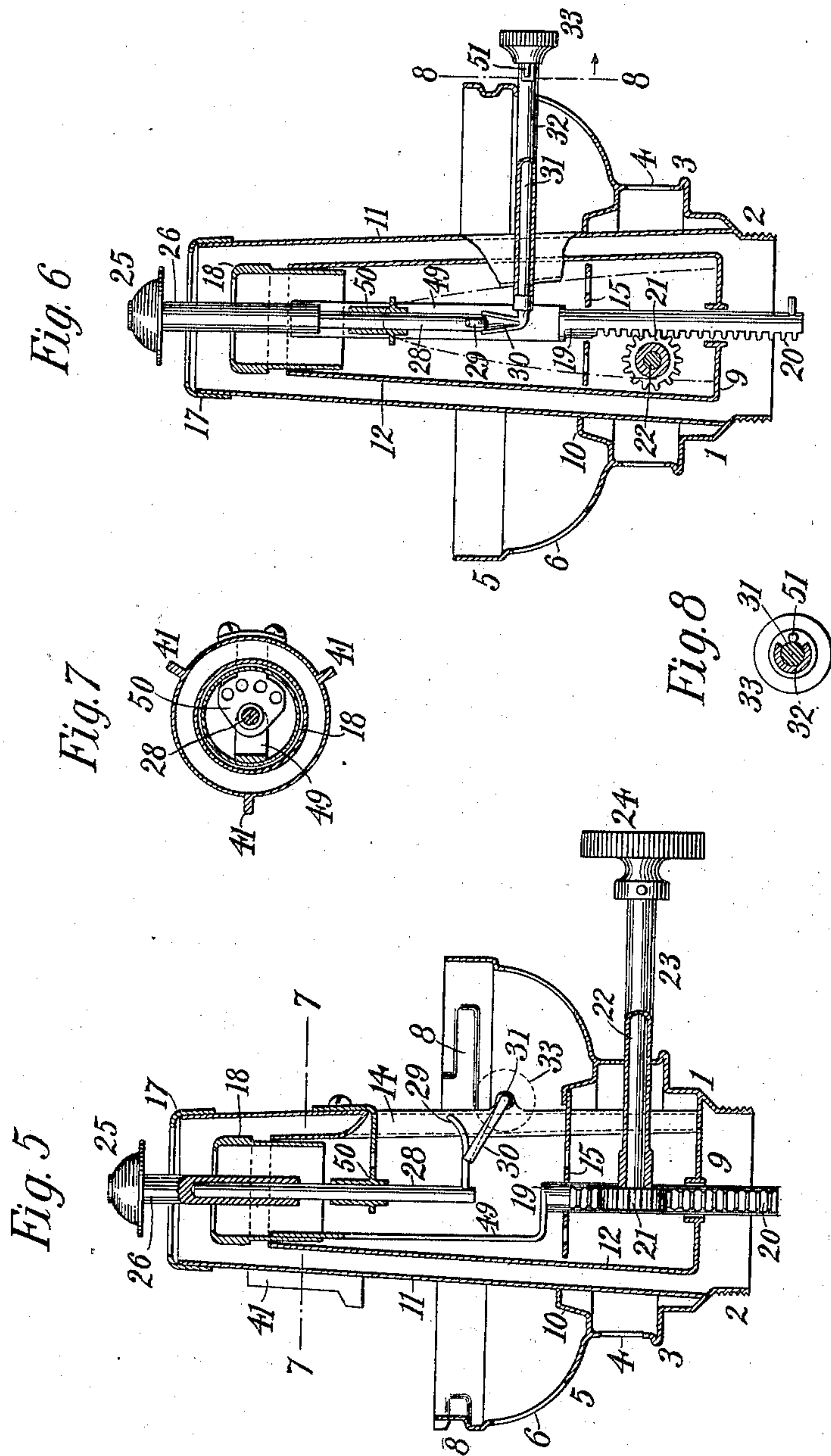
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C. HUBERT.  
INCANDESCENT LAMP BURNER.

APPLICATION FILED DEC. 6, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

Raphael Titter  
Henry Barnes

Inventor

Conrad Hubert,  
by Henry W. Williams Atty



# UNITED STATES PATENT OFFICE.

CONRAD HUBERT, OF NEW YORK, N. Y.

## INCANDESCENT LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 726,297, dated April 28, 1903.

Application filed December 6, 1902. Serial No. 134,138. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD HUBERT, a citizen of the United States, residing in the borough of Manhattan, city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Incandescent Lamp-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to incandescent burners for lamps, and has for its objects independence of adjustment of the flame-controlling parts and increased illuminating effect, accuracy of centering of parts, simplicity of construction, and ease and economy of maintenance.

According to my invention two flame-controlling parts are provided comprising an adjustable gas-regulator and a flame-spreader, and one of these parts is movable relatively to the other, and thus the adjustment of the gas-regulator and of the flame-spreader relatively to the wick is capable of independent control, whereby the wick exposure at the flaming part and the volume and direction of the flame may be effectively controlled and determined.

According to my invention means are provided for accurately centering the upper movable part of the burner relatively to the fixed part of the burner, whereby an evenness and uniformity of air-currents are assured about the circumference of an annular burner.

According to my invention means are provided for readily renewing the flaming part of a wick without cutting or trimming the wick and at slight expense.

My invention includes various improvements in the construction and combination of parts, as hereinafter fully set forth.

I will now describe the lamp-burners embodying my invention shown in the accompanying drawings and will thereafter point out my invention in claims.

Figure 1 is a central vertical section of a lamp-burner embodying all features of my invention. Fig. 2 is a detail horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section at right angles to Fig. 1. Fig. 4 is a perspective view of the renewable wick-tip. Fig. 5 is a central vertical section of a

portion of a lamp-burner of modified construction with the upper body portion, thimble, and mantle removed. Fig. 6 is a vertical section taken at right angles to Fig. 5. Fig. 7 is a horizontal sectional detail on the line 7 7, Fig. 5. Fig. 8 is a vertical sectional detail on the line 8 8, Fig. 6.

The same general construction of burner is shown in the several views of the drawings, the burner having a lower collar 1, provided with an external thread 2, adapted to screw into the oil-supply font of any ordinary oil-lamp. Above this collar 1 the burner-base has a cylindrical portion 3, provided with a series of air-inlet slots 4. Above this portion 3 the burner-body has an outwardly and upwardly curving portion 5, provided with air-inlet slots 6. This part 5 forms the lower half of a bulbous enlargement of the burner-body, and the upper rounding half 7 of this bulbous enlargement is joined detachably to the lower part 5 by a series of bayonet-joints 8. This allows the upper body portion 7, carrying the chimney-gallery and thimble and mantle, to be readily removed for lighting the lamp and for cleaning the parts of the burner. Within the lower collar 1 there is a transverse partial partition 9, above which and about at the junction of parts 3 and 5 there is a fixed collar 10, surrounding an outer wick-tube 11, which is separated from an inner wick-tube 12, so as to provide a space to receive the main, lower, or permanent feeder portion 13 of the wick, which normally extends down into the oil in the lamp-font. Both wick-tubes 11 and 12 are cut away at one side to provide a free air-inlet opening 14, at the margin of which the metal of the inner tube 12 is preferably projected outward flush with the outer tube. A transverse perforated partition 15 is fitted across the inner wick-tube 12 and soldered to the fixed collar 10 at one side of the burner. The feeder-wick 13 is slipped upward through the crescent-shaped opening between the lower partial partition 9 and the screw-collar 1 and curves around within the space between the two upwardly-tapering wick-tubes 11 and 12 until it forms at its upper end a practically continuous annular capillary feeder, and the abutting sides of the feeder-wick are united by a wire clip 27 or by sewing or otherwise at



the upper end of the feeder-wick to guard against downward movement of the feeder-wick. Above the feeder-wick a renewable short-flaming wick-tip 16 is provided, which rests upon the feeder-wick 13 and is held in position and in contact with the feeder-wick by a cap 17, fitted at the top of the outer wick-tube 11 and provided with an inturned flange overlying the upper end of the wick-tip. This cap 17 is readily removable for the renewal of the wick-tip 16 and when replaced forces the wick-tip down into contact with the feeder-wick 13, and as both the feeder-wick and the wick-tip are stationary this end-to-end contact is maintained and the wick-tip receives a full supply of oil from the feeder-wick. Whenever a new flaming-surface is required, a new wick-tip may be inserted. It is of special importance in incandescent mantle-burners that the wick exposure should be uniform at all points, and therefore the trimming or cutting away of burned portions to obtain a new flaming-surface is particularly objectionable in burners of this class, and the provision of a new flaming-surface whenever required by the substitution of a new wick-tip is particularly advantageous. The renewable wick-tips are inexpensive and may be readily removed and inserted. The flaming part of the wick is the upper portion of the inner face or wall of the wick-tip 16, and the inner wick-tube 12 is made shorter than the outer wick-tube 11, but projects sufficiently above the top of the feeder-wick to form an annular pocket receiving the lower portion of the renewable wick-tip 16. The gas-regulator is formed as a ring 18, located within the wick or wick-tip and guided by the upper end of the inner wick-tube 12 and has a stem 19, which is guided in the burner-partitions 9 and 15 and is provided with a toothed rack 20, which is engaged by a pinion 21 on a shaft 22, journaled, preferably, in a tubular bearing 23, held to the burner-body. The shaft 24, by the manipulation of which the gas-regulator 18 may be raised or lowered at the wick-tip 16 to vary the exposed area of the wick, and thereby to control the volume of flame or flaming gases issuing therefrom.

In the construction shown in Figs. 1, 2, and 3 the gas-regulator stem 19 terminates at its upper end near the top of the gas-regulator 18 and provides a guide for the spreader 25, hereinafter described, and has a spider-shaped connection with the gas-regulator, so as not to materially obstruct the inner air-passage. In the construction shown in Figs. 5 to 8, inclusive, the gas-regulator stem 19 terminates at its upper end just above the burner-partition 15 and is connected to the gas-regulator by an angle-bar 49. I employ a spreader 25, as heretofore in burners of this class; but I make the spreader adjustable independently of the gas-regulator, so that the gas-regulator may be adjusted to determine

the wick exposure and volume of flame, and the spreader may be adjusted to direct and control the flame without interdependence one upon the other, and I have found in practice that by the independent adjustment of these two flame-controlling devices the volume and direction of the flame may be easily and accurately regulated to prevent smoking or noisy combustion and to produce the maximum incandescence of the mantle.

In the construction shown in Figs. 1, 2, and 3 the spreader 25 is sustained upon the gas-regulator 18, so that when not controlled by its independent adjusting means it will be carried by and will move with the gas-regulator 18. The spreader has a stem 26, which fits over the upper end of the gas-regulator stem 19. The adjusting means comprise a pin 28, fitted in a central bore of the gas-regulator stem 19 and having a projecting arm 29 at its lower end, on which acts a tappet 30, fixed to a shaft 31, journaled, preferably, in a tubular bearing 32, fixed to the burner-body portion 5 and to the wick-tube. This shaft 31 has a finger-wheel 33, the turning of which will cause the tappet 30 to lift the flame-spreader 25 more or less or allow it to fall by gravity, thereby controlling the air-supply to the flaming wick-tip 16 and the direction of the flame, so as to properly direct a blue flame upon the incandescing mantle 34. The tappet 30 may be rotated freely and engages with the arm 29 only through a portion of its movement. Should, therefore, the user attempt to elevate the spreader too far, the tappet will move clear of the arm 29 and the spreader will fall to lower position relatively to the gas-regulator, and it will be necessary to continue the rotation of the tappet until it again engages with the arm 29. By this means the extent of adjustment is limited as is desirable. As shown in Figs. 1 and 3, the gas-regulator 18 is in lower position and the spreader 25 has been elevated by its independent adjusting means to an average working position for controlling and directing the flame. The exact working position in any case is determined by numerous conditions, one of which is the shape of the mantle, and it is probably true that no two mantles are exactly alike.

In the modified construction shown in Figs. 5 to 8, inclusive, the spreader is not at any time sustained upon the gas-regulator, being always under the control of its independent adjusting means. Here the spreader-stem 26 fits directly upon the adjusting-pin 28, and the adjusting-pin 28 is guided in a bracket 50, secured to the burner-frame as to the outer wick-tube 11. The projecting arm 29 is longer than in the construction heretofore described, and the tappet-shaft 31 has a limited movement, controlled by the play of the pin 51 on the finger-wheel 33 in the slot shown therefor in the tubular bearing 32, (see Fig. 8,) so that the tappet 30 cannot be moved out



of engagement with the projecting arm of the adjusting-pin. The mantle 34 is supported from the outer cone or thimble 35 of the burner by means of a collar 36, fitted removably upon the thimble. To this collar are suitably fastened the ends of a wire-support 37, from the top of which the mantle 34 is suspended, so that its lower skirt portion closely surrounds the collar or thimble and is centered thereby. The outer cone or thimble of the burner has a yielding and resilient connection with the upper body portion of the burner and is combined with centering-guides in order that the thimble and mantle may be centered relatively to the wick-tube and to the gas-regulator and flame-spreader independently of the connection at the bayonet-joints 8. As shown, the thimble 35 has a lower outwardly-projecting flange which is yieldingly held between an upper and a lower series of tongues 38 and 39, formed by radially slotting an inturned flange on the burner-body and then bending one series of tongues above or below the horizontal plane of the other series of tongues. Suitable centering-guides are provided between the wick-tube and thimble, shown as comprising radial metal strips 41, projecting outward from the outer wick-tube 11, these guides having lower outer shoulders. When the upper removable part of the burner, comprising the upper burner-body 7, the thimble 35, and mantle carried thereon and the chimney-gallery 36 and chimney (not shown) carried thereon, is placed upon the lower part of the burner and the bayonet-slots 8 are engaged, the thimble 35 will be brought down upon the guides 41 and centered thereby, the spring-fingers 38 and 39 yielding to permit this adjustment and the thimble being held by the spring-pressure of these fingers down upon the centering-guides and with its lower flange pressed tightly against the lower shoulders of the guides, and thus the thimble and mantle carried thereby will be accurately centered. With three bayonet-slots 8, as shown, the upper removable part of the burner may be placed upon the lower part in any one of three positions, and the attainment and maintenance of accurate centering for these three positions or in any position by the engagement of the light metal outer flanges 5 and 7 and bayonet-slots 8 will be practically impossible; but the yielding and resilient connection of the burner-thimble and the provision of the rigid centering-guides will reliably effect the accurate centering which is particularly required in burners of this class. As will be seen, the position of the upper inturned flange of the thimble 35 determines the opening leading to the flame from the outer air-supply, which flows up the passage 40 between the thimble and outer wick-tube. The uniformity of this opening around the wick-tube is essential to proper combustion and also to a uniform incandescence of the man-

tle, and the centering of the mantle is also important to a uniform incandescence of the entire surface of the mantle.

It is obvious that various modifications may be made in the constructions shown and above particularly described within the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. A lamp-burner having a wick, a movable gas-regulator adjustable at the flaming part of the wick by movement relatively to the wick, and a flame-spreader adjustable independently of the gas-regulator.

2. A lamp-burner having a stationary wick, a gas-regulator adjustable at the flaming part of the wick, and a flame-spreader adjustable independently of the gas-regulator.

3. A lamp-burner having a casing and an annular wick and air-passages in the casing at both sides of the wick, a movable gas-regulator adjustable at the flaming part of the wick by movement relatively to the wick, and a flame-spreader adjustable independently of the gas-regulator.

4. A lamp-burner having a casing and a stationary annular wick and air-passages in the casing at both sides of the wick, a gas-regulator adjustable at the flaming part of the wick, and a flame-spreader adjustable independently of the gas-regulator.

5. An incandescent lamp-burner having a wick, two flame-controlling parts movable relatively to the wick, such parts comprising a gas-regulator at the flaming part of the wick and a flame-spreader, means for moving one of such flame-controlling parts relatively to the other, and an enveloping incandescing mantle receiving the flame from the wick and spreader.

6. An incandescent lamp-burner having a stationary wick, two flame-controlling parts comprising a gas-regulator at the flaming part of the wick and a flame-spreader, means for moving one of such flame-controlling parts relatively to the other, and an enveloping incandescing mantle receiving the flame from the wick and spreader.

7. An incandescent lamp-burner having a casing, an annular and exteriorly-incased wick and air-passages in the casing at both sides of the wick, two flame-controlling parts movable relatively to the wick, such parts comprising a gas-regulator located within the wick at the flaming part of the wick and a flame-spreader, means for moving one of such flame-controlling parts relatively to the other, and an enveloping incandescing mantle receiving the flame from the wick and spreader.

8. An incandescent lamp-burner having a casing, a stationary and exteriorly-incased annular wick and air-passages in the casing at both sides of the wick, two flame-controlling parts comprising a gas-regulator located within the wick at the flaming part of the



- wick and a flame-spreader, means for moving one of such flame-controlling parts relatively to the other, and an enveloping incandescing mantle receiving the flame from the wick and spreader.
- 5 9. A lamp-burner having a wick, a gas-regulator adjustable at the flaming part of the wick, and a flame-spreader supported by the gas-regulator and adjustable independently
- 10 of it.
10. A lamp-burner having an annular wick, a gas-regulator adjustable at the flaming part of the wick, and a flame-spreader supported by the gas-regulator and adjustable inde-
- 15 pendently of it.
11. An incandescent lamp-burner having a wick, a gas-regulator adjustable at the flaming part of the wick, a flame-spreader supported by the gas-regulator and adjustable
- 20 independently of it, and an enveloping incandescing mantle receiving the flame from the wick and spreader.
12. An incandescent lamp-burner having a casing, an exteriorly-incased annular wick
- 25 and air-passages in the casing inside and outside of the wick, located within the wick and adjustable at the flaming part of the wick, a flame-spreader supported by the gas-regulator and adjustable independently of it, and
- 30 an enveloping incandescing mantle receiving the flame from the wick and spreader.
13. A lamp-burner having a wick comprising a main feeder portion and a renewable tip, a gas-regulator adjustable at the flaming
- 35 part of the tip, and a flame-spreader adjustable independently of the gas-regulator.
14. A lamp-burner having a stationary wick comprising a main feeder portion and a renewable tip, a gas-regulator adjustable
- 40 at the flaming part of the tip, and a flame-spreader adjustable independently of the gas-regulator.
15. A lamp-burner having a casing, an annular wick and air-passages in the casing ad-
- 45 jacent to the wick, said wick comprising a main feeder portion and a renewable tip, a gas-regulator adjustable at the flaming part of the tip, and a flame-spreader adjustable independently of the gas-regulator.
- 50 16. An incandescent lamp-burner having a wick comprising a main feeder portion and a renewable tip, a gas-regulator adjustable at the flaming part of the tip, a flame-spreader adjustable independently of the gas-regula-
- 55 tor, and an enveloping incandescing mantle receiving the flame from the wick and spreader and removable for access to the wick-tip.
17. A lamp-burner having a wick-tube and movable upper body, a thimble about said
- 60 tube having a yielding and resilient connection with the movable upper body, and centering-guides interposed between the wick-tube and thimble.
18. An incandescent lamp-burner having a
- 65 wick-tube, and movable upper body, a thimble about said tube having a yielding and resilient connection with the movable upper body, an incandescing mantle sustained by said thimble, and centering-guides interposed between the wick-tube and thimble.
- 70 19. An incandescent lamp-burner having a wick-tube and movable upper body, a thimble about said tube having a yielding and resilient connection with the movable upper body, an incandescing mantle sustained by
- 75 said thimble, and shouldered centering-guides projecting from the wick-tube and engaging the thimble.
20. A lamp-burner having a wick-tube and movable upper body, such upper body having
- 80 a slotted flange providing two series of tongues lying respectively in upper and lower planes, a thimble having a flange lying between said upper and lower series of tongues, and centering-guides interposed between the
- 85 wick-tube and thimble.
21. An incandescent lamp-burner having a wick-tube and movable upper body, such upper body having a slotted flange providing two series of tongues lying respectively in upper
- 90 and lower planes, a laterally-movable thimble having a flange lying between said upper and lower series of tongues, an incandescing mantle sustained by said thimble, and centering-guides interposed between the wick-tube and
- 95 thimble.
22. The combination, with an annular wick-tube and wick, of a gas-regulator movable within the wick, and having a stem 19, means for adjusting the gas-regulator, a flame-
- 100 spreader having a stem 26 movable on the gas-regulator stem 19, an actuating-pin 28 movable in the gas-regulator stem 19, and means for engaging the flame-spreader-actuating pin 28 to adjust the flame-spreader independ-
- 105 ently of the adjustment of the gas-regulator, substantially as set forth.
23. The combination, with an annular wick-tube and wick, of a gas-regulator movable within the wick and having a stem 19, means
- 110 for adjusting the gas-regulator, a flame-spreader having a stem 26 movable on the gas-regulator stem 19, an actuating-pin 28 movable in the gas-regulator stem 19, the actuating-pin having an arm 29, and a shaft 31 hav-
- 115 ing a tappet 30 located so as to engage the arm 29 of the actuating-pin, substantially as set forth.
24. The combination, with a burner having a lower body and a removable upper body and
- 120 a bayonet-slot connection between the upper and lower body, of a flange on the upper body having upper and lower tongues 38 and 39, and a wick-tube on the lower body, a thimble
- 125 35 about the wick-tube and having a flange entered between the tongues 38 and 39 of the upper body, and shouldered guides 41 fixed to the wick-tube and centrally sustaining the thimble, substantially as set forth.
25. An incandescent lamp-burner compris-
- 130

ing an interiorly-flaming wick and two flame-  
controllers, one for regulating the extent of  
the flaming-surface of the wick and the other  
for spreading the flame and directing it  
5 against the incandescing mantle, such flame-  
controllers being movable relatively to each  
other.

In testimony whereof I have affixed my sig-  
nature in presence of two witnesses.

CONRAD HUBERT.

Witnesses:

HERBERT H. GIBBS,  
HENRY BARNES.