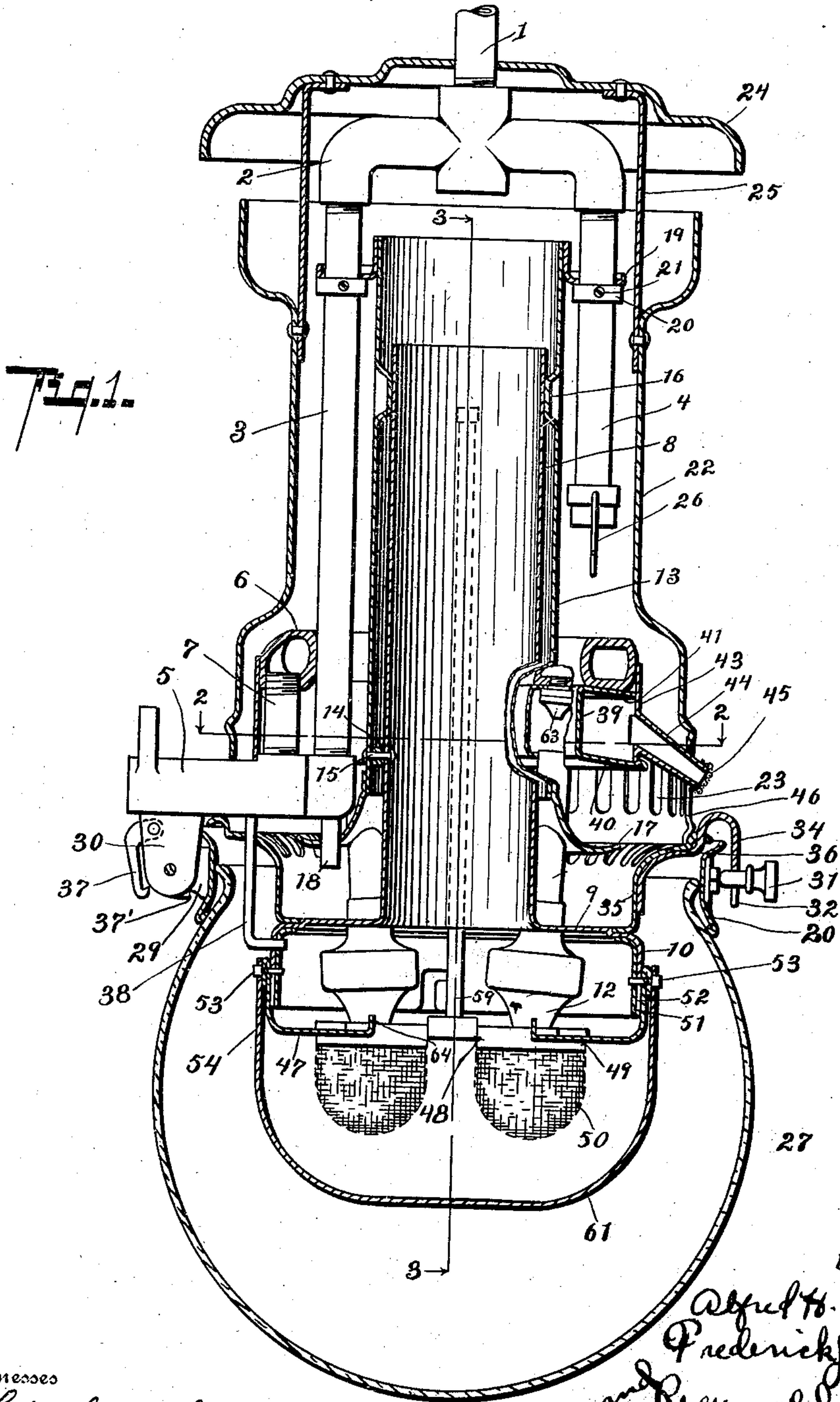


A. H. & F. J. HUMPHREY & R. WRIGHT.
GAS LAMP.

APPLICATION FILED JULY 13, 1908.

915,602.

Patented Mar. 16, 1909.
3 SHEETS—SHEET 1.



Witnesses

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3 SHEETS—SHEET 2.

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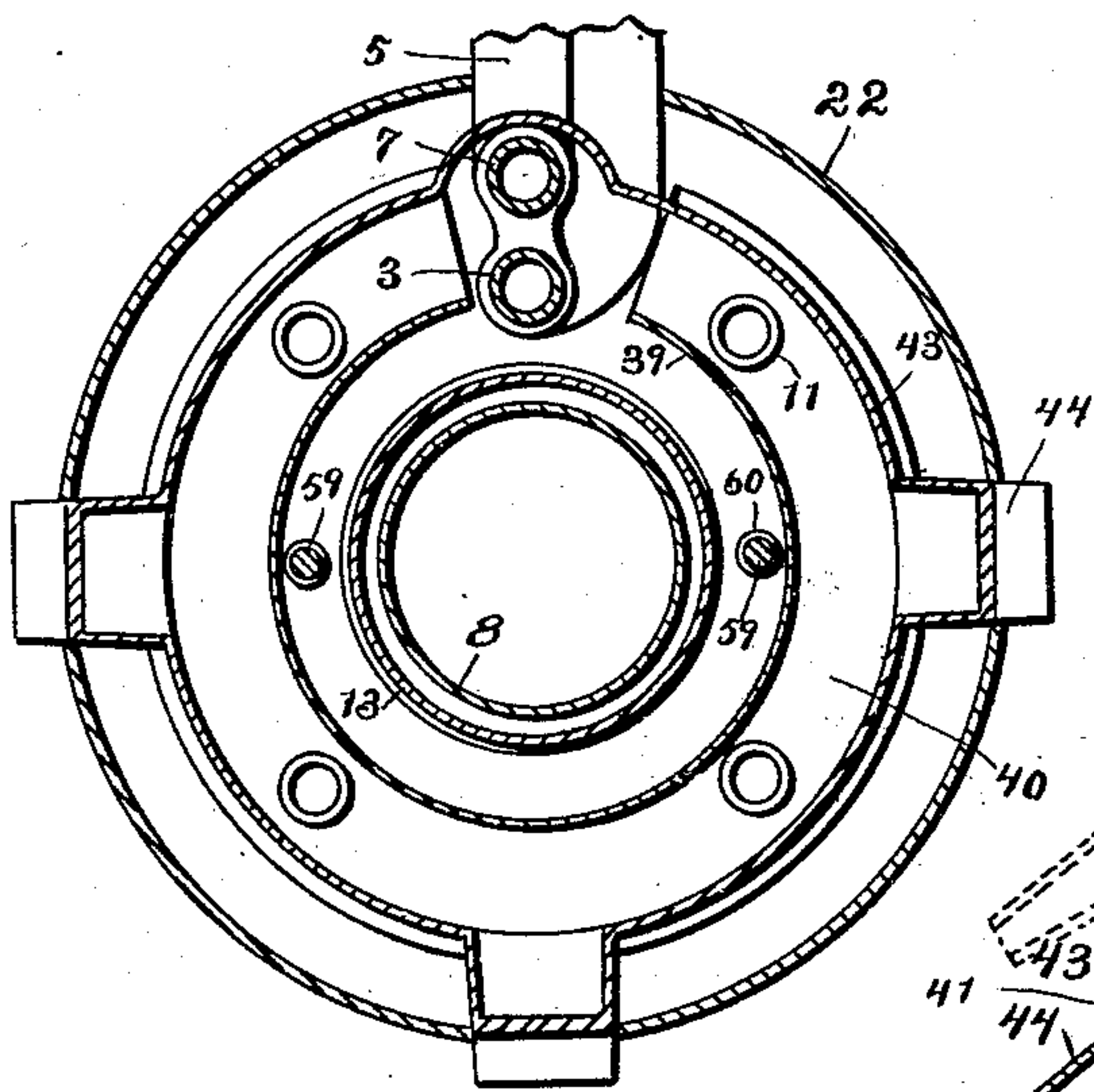


Fig. 2.

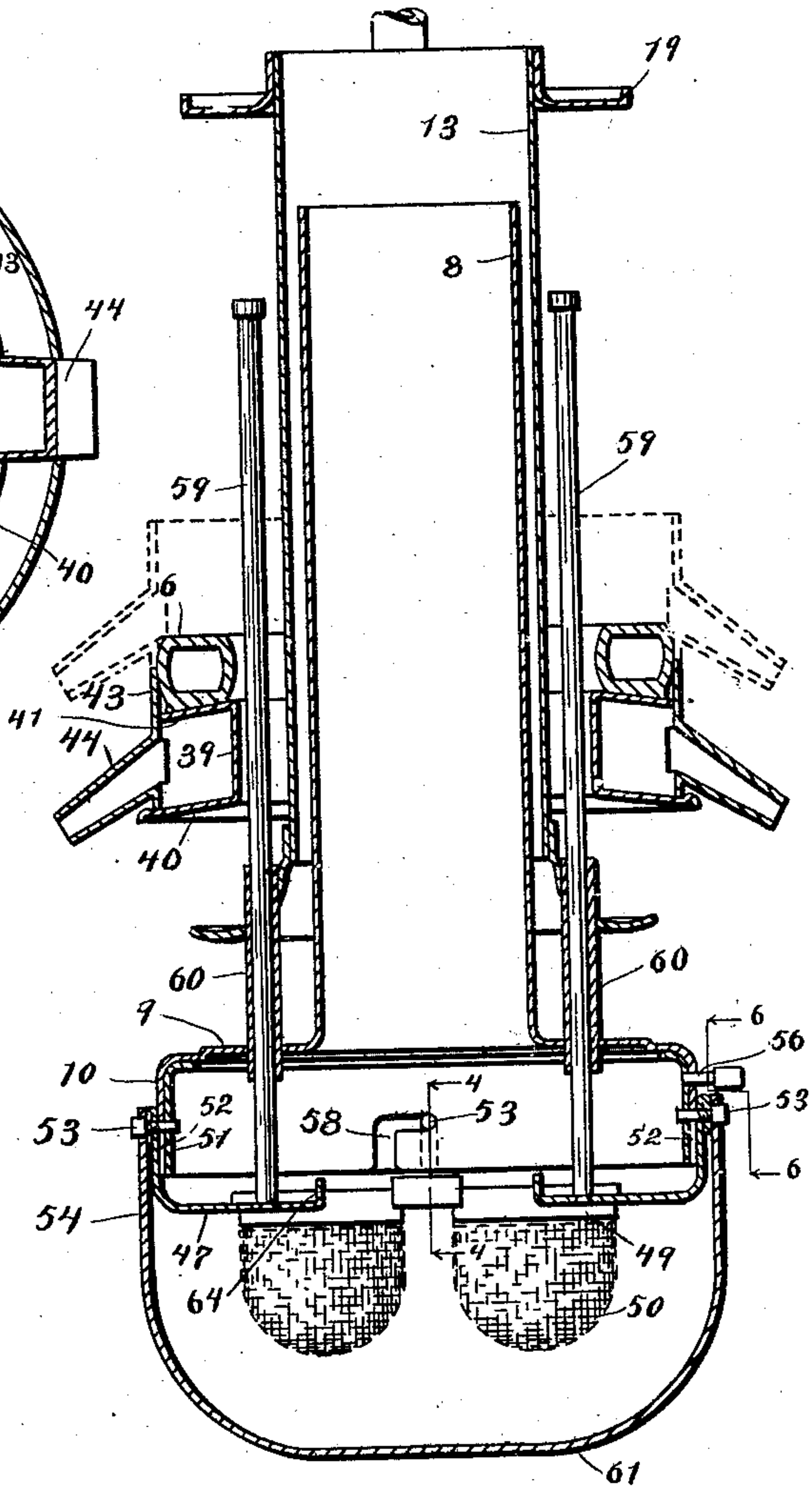


Fig. 3.

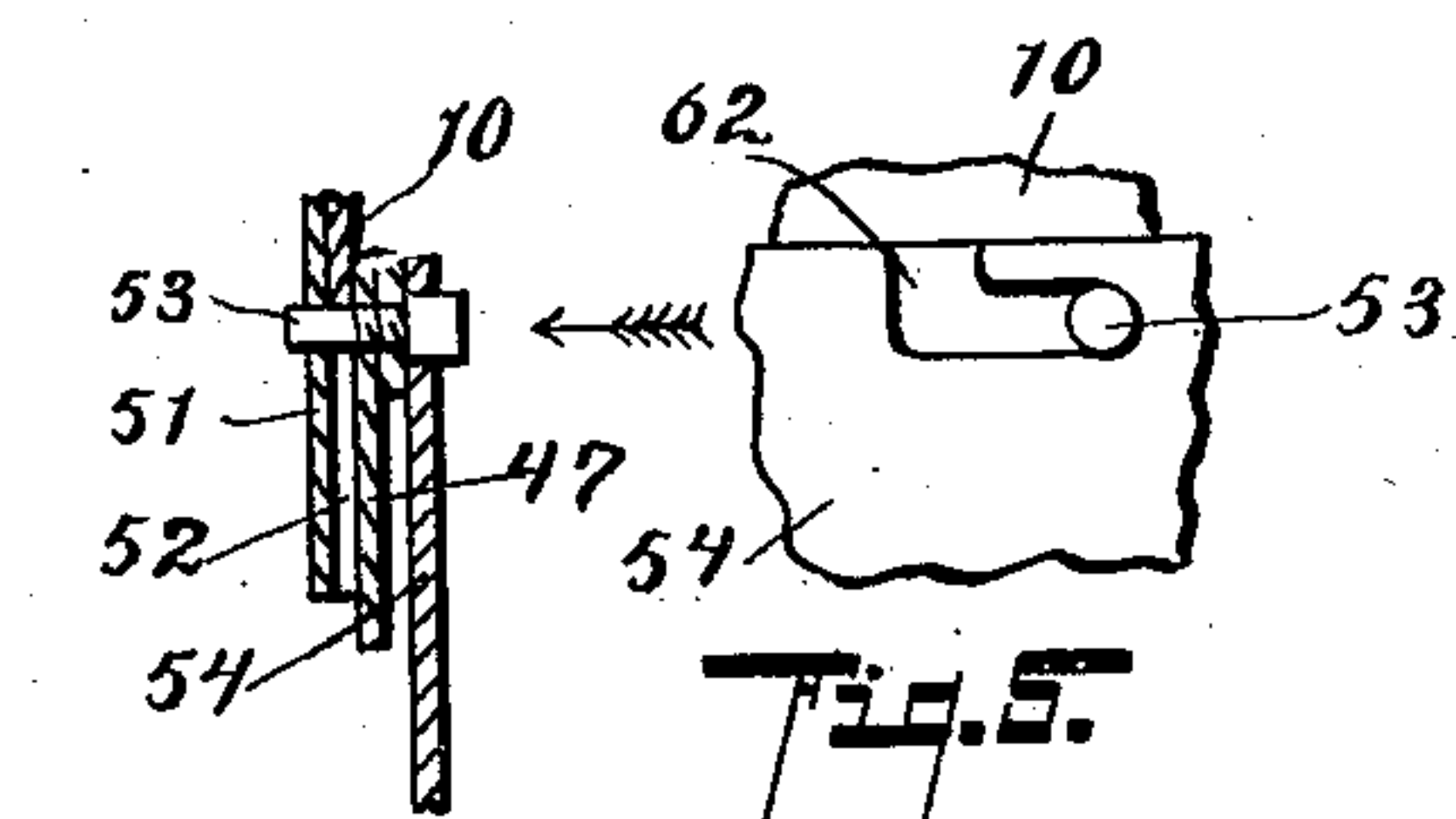


Fig. 4.

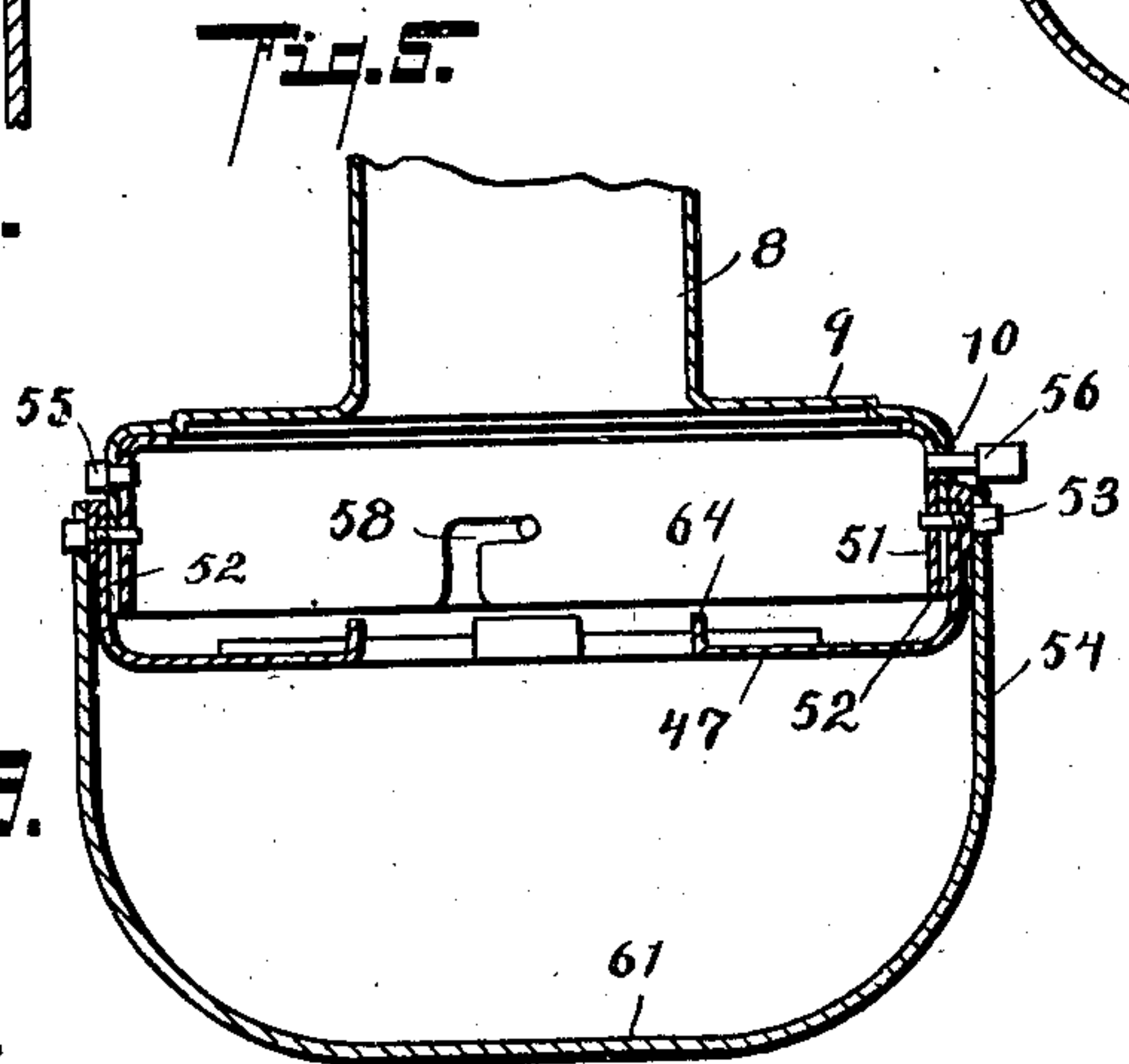


Fig. 5.

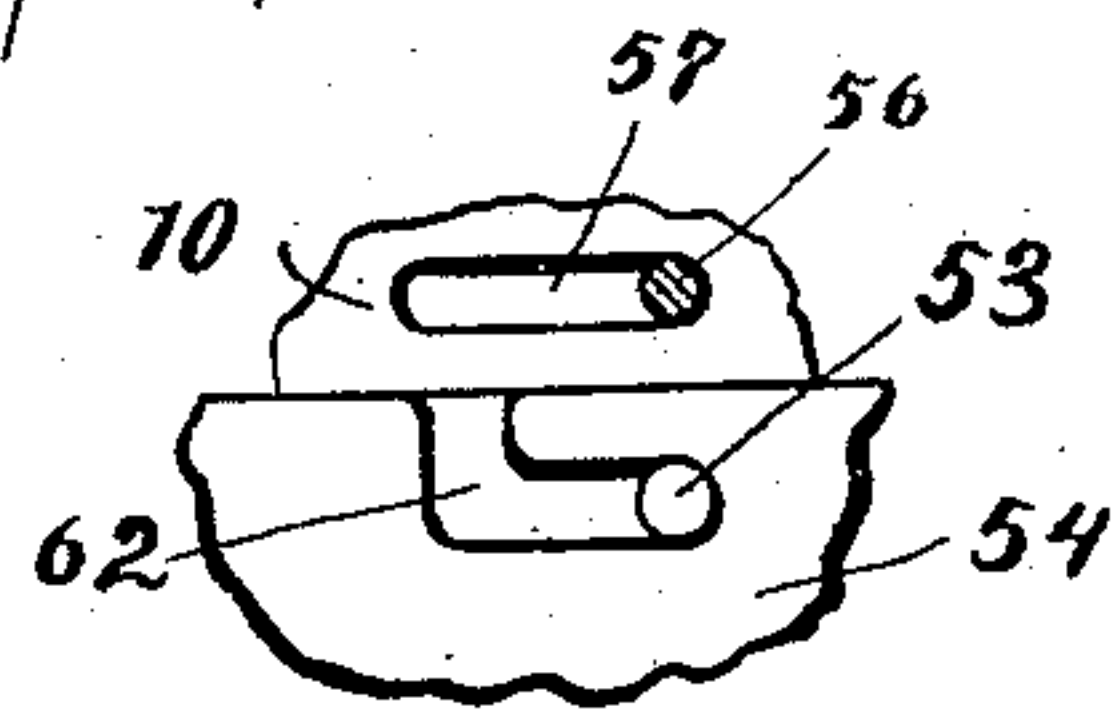


Fig. 6.

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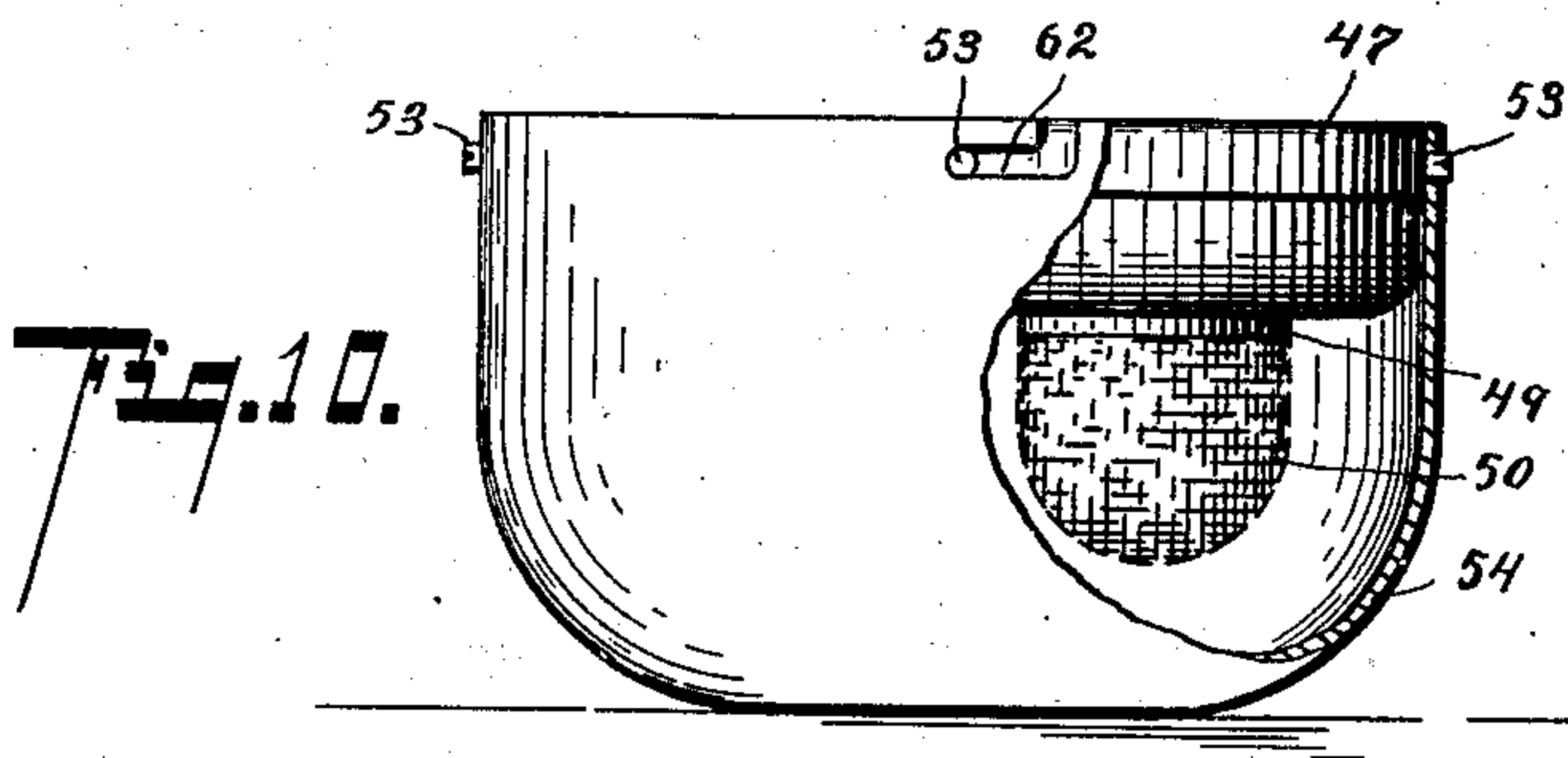
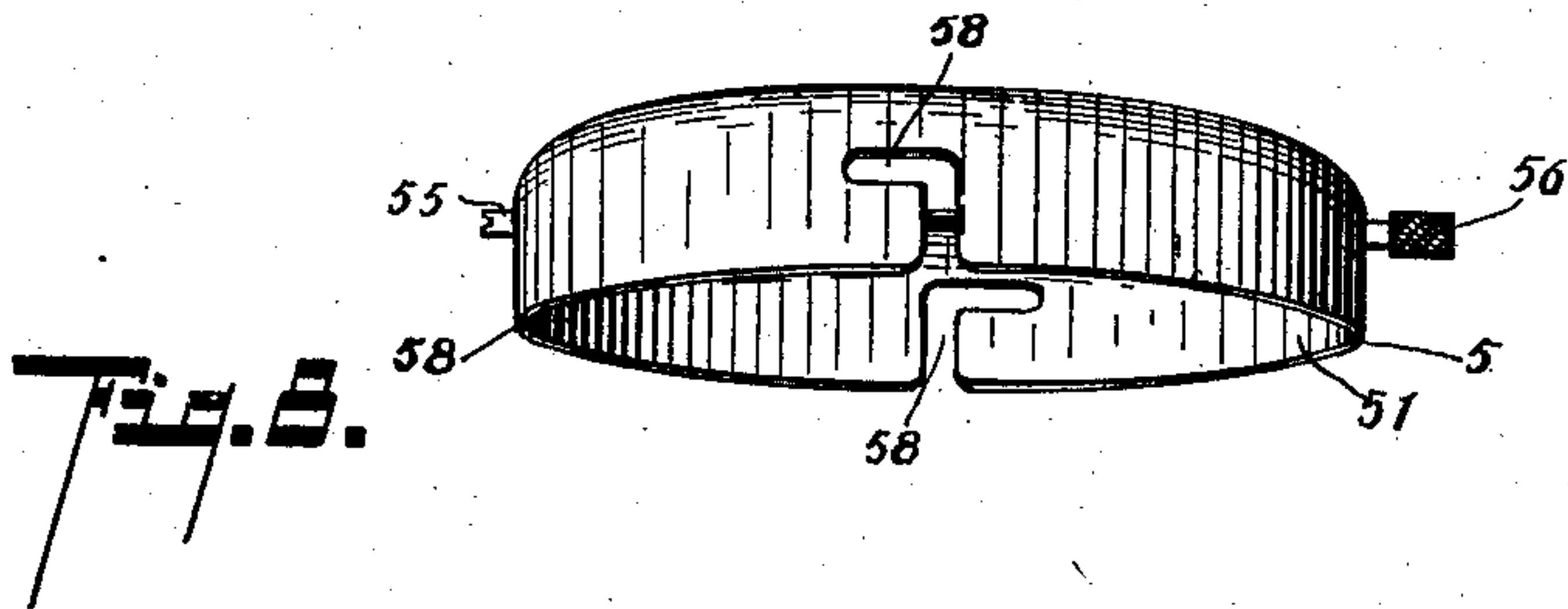
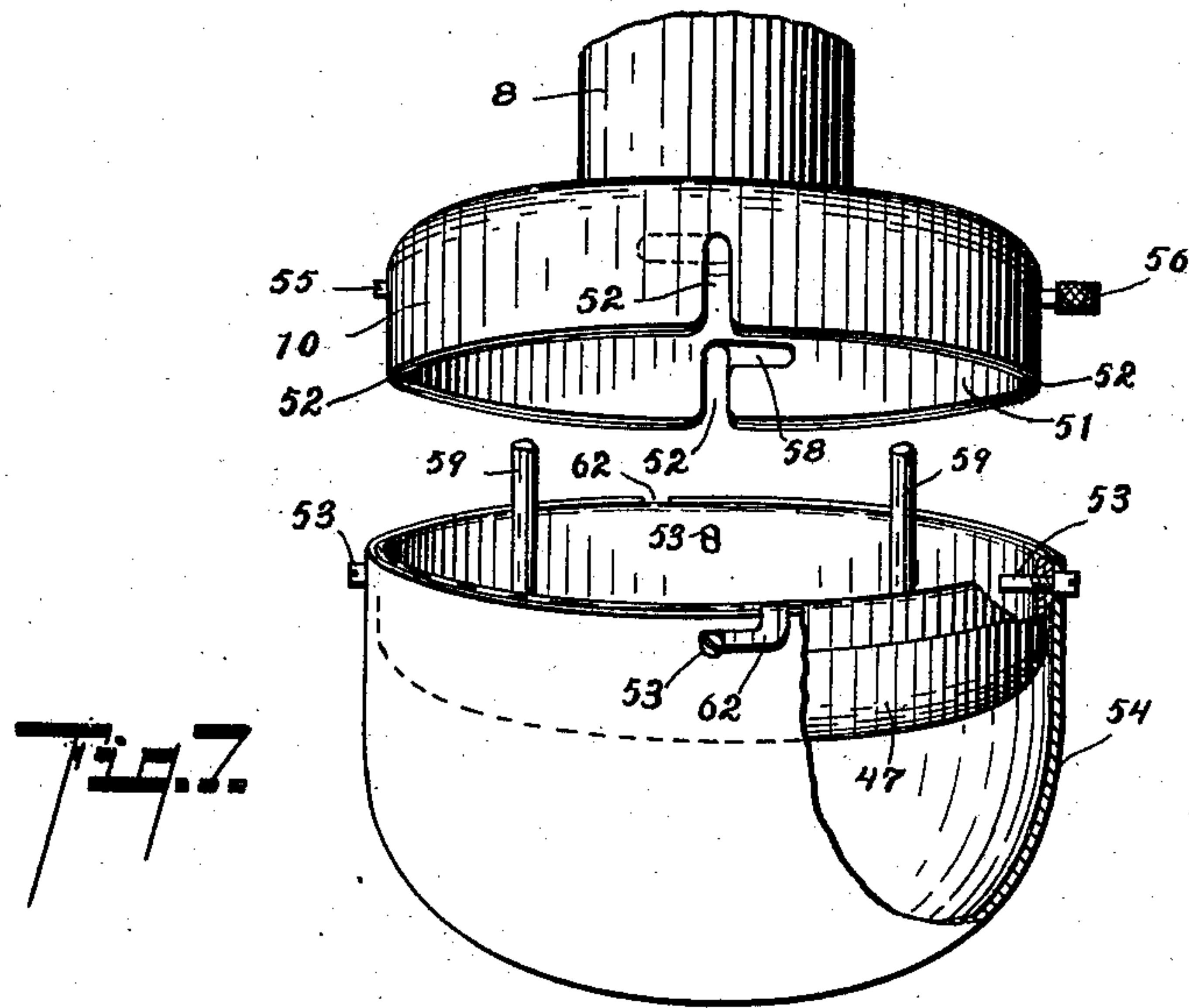
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ALFRED H. HUMPHREY, OF NEW YORK, N. Y., AND FREDERICK J. HUMPHREY AND REGINALD WRIGHT, OF KALAMAZOO, MICHIGAN, ASSIGNORS TO GENERAL GAS LIGHT COMPANY, OF KALAMAZOO, MICHIGAN.

GAS-LAMP.

No. 915,602.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed July 13, 1908. Serial No. 443,293.

To all whom it may concern:

Be it known that we, ALFRED H. HUMPHREY, a citizen of the United States, residing at the city of New York, county of New York, State of New York, and FREDERICK J. HUMPHREY and REGINALD WRIGHT, citizens of the United States, residing at the city of Kalamazoo, county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Gas-Lamps, of which the following is a specification.

This invention relates to improvements in gas lamps.

The present invention relates particularly to improvements in gas lamps such as illustrated in United States Letters Patent No. 841,323, granted January 15, 1907, to Alfred H. Humphrey, and is an adaptation of, and in some respects, an improvement upon the structure there illustrated.

The main objects of this invention are: first, to provide in a gas lamp having inverted burners, means for preventing the fouling of the air supplied to the burners by the products of combustion; second, to provide in a gas lamp having inverted burners means for protecting the burners from dust, lint, insects and the like; third, to provide in a gas lamp having inverted burners an improved arrangement of the burners whereby they are completely accessible for adjustment; fourth, to provide in a gas lamp having inverted burners an improved mantle support or holder; fifth, to provide in a gas lamp a guard for the mantles; sixth, to provide in a gas lamp an improved construction and arrangement of the parts whereby they may be readily assembled and are conveniently arranged for assembling.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

We accomplish the objects of our invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of our invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a vertical section of a structure embodying the features of our invention, the gas delivery pipe and the valve casing being

shown in full lines. Fig. 2 is a horizontal section taken on a line corresponding to line 2—2 of Fig. 1. Fig. 3 is a detail vertical section taken on a line corresponding to line 3—3 of Fig. 1. Fig. 4 is a detail vertical section taken on a line corresponding to line 4—4 of Fig. 3, showing details of the means for securing the mantle holder and air guide plate in position. Fig. 5 is a detail side elevation of the parts appearing in Fig. 4, looking in the direction of the arrow. Fig. 6 is a detail vertical section taken on a line corresponding to the broken line 6—6 of Fig. 3. Fig. 7 is a detail perspective view showing the lower end of the chimney, mantle holder and mantle holder support in their open position, the parts being broken away to better show their form and relation. Fig. 8 is a perspective view of the mantle plate locking ring 51. Fig. 9 is a detail vertical section corresponding to that of Fig. 3, of a modification in which the supporting rods for the mantle support are omitted. Fig. 10 is a side elevation of the support or guard for the mantle holder with the mantle holder therein disengaged from the lamp, a portion of the guard being broken away to show the arrangement of the parts.

Referring to the drawing, the gas supply pipe 1 is preferably provided with a T-coupling 2 from which the arms 3 and 4 depend, the arm 4 being a dummy. At the lower end of the arm 3 is a valve casing 5, which is connected to the gas delivery ring 6 by the coupling section 7. Through the ring we arrange the chimney 8 which is provided with a flange 9 at its lower end having a downwardly-projecting portion 10. The mixing tubes 11 of the burners are arranged through the flange 9 so that the burner tips 12 are below the flange and within the downwardly-projecting portion 10 thereof. These parts are substantially the same as those shown and described in my patent of January 15, 1907, hereinbefore referred to.

We preferably provide the chimney with a chimney casing which is secured in a spaced relation to the chimney by means of the studs 14 and rivets 15, and the spacing lugs 16 toward the upper end of the chimney casing, which are preferably formed by punching in parts of the chimney casing, as illustrated. The chimney casing is open at its upper and lower ends, this arrangement

of the chimney and casing being substantially the same as that shown, described and claimed in the application for Letters Patent of Alfred H. Humphrey, filed May 15, 1907, Serial No. 373,823. The chimney casing is provided with an outwardly-projecting flange 17 at its lower end through which the burner tubes are arranged. This chimney casing in operation serves to prevent the radiation of heat from the chimney, and also causes a circulation of air to set up through the chimney casing, thereby drawing the air across the burner tubes to assist in keeping the same cool.

The valve casing is provided with a downwardly-projecting pin 18, which is arranged through the flange of the chimney casing and assists in holding the parts in position. On the upper end of the chimney casing is a ring-like support 19 which is provided with openings through which the arms 3 and 4 of the gas supply pipe are arranged. On the arms 3 and 4 we arrange collars 20, which are adjustably secured upon the arms by means of the set screws 21. These collars, engaging the supporting ring very effectively support the chimney casing, and, through its connection to the chimney, the chimney and connected parts.

We preferably provide an outer casing 22 which embraces the upper ends of the burner tube, the gas delivery ring, and chimney casing. This outer casing is open at the top for the escape of the products of combustion, and is also open at the bottom for the inlet of air, it preferably having openings 23 formed therein. Above the outer casing is a deflector 24. This is mounted upon the delivery pipe and connected to the casing by means of the straps 25, so that the outer casing may be adjusted when access is desired to the burner tubes.

A support 26 is provided for holding the casing in its elevated position. This support is pivotally mounted upon the arm 4. The globe 27 is carried by the globe-supporting band 28 and provided with a hinge member 29 at one side. The hinge member 30 preferably depends from the valve casing 5. The globe-supporting band is secured in its closed position by means of a spring pin 31, which is adapted to engage a slot 32 in the bracket 34, which is provided for the purpose, the bracket being arranged oppositely of the hinge. This bracket is mounted on an upwardly and outwardly-projecting flange 35 carried on the chimney flange. This flange forms a partition between the chamber above the chimney flange and the parts below and within the globe, it being provided with openings 36 for the admission of air to the globe from the chamber within the lamp casing, the air passing through these openings to the burners below the chimney flange.

We preferably provide a hook 37 for secur-

ing the globe in its open position, the hook being adapted to engage in the notch 37' provided in the hinge member 29. The object of this is to prevent the swinging of the globe and to hold it out of the way, when it is desired to manipulate the burners or mantles.

The pilot burner 38 is arranged through the chimney flange to deliver across the burners. We have not illustrated the details of the valve mechanism herein, as it forms no part of this invention.

The burner tubes 11 are arranged to open into an air chamber, which is preferably mounted on the under side of the gas delivery ring, the rear wall 39 of the chamber being preferably spaced from the chamber casing, the burner tubes being arranged through the bottom wall 40. The inner wall 39 is preferably provided with a flange 41 on its upper edge through which the delivery nozzles 42 for the gas delivery ring 6 are threaded, thereby securing the chamber walls in place. As the details of these nozzles will be readily understood, they are not here illustrated.

The outer wall 43 of the air chamber is preferably ring-like in form and is adapted to be slipped up over the gas delivery ring 6 when it is desired to have access to the nozzles for adjustment, the lower wall 40 projecting to form a rest for this adjustable outer wall. The wall 43 is provided with air inlets preferably in the form of pipes 44 which project out through the outer casing 22 so that the air is supplied to the air chamber from without the casing. The object of this is to prevent the fouling of the air in the supply chamber to the burners such as would result from the passage of the products of combustion to the burner tube. The lamp which we illustrate in the accompanying drawing is particularly designed by me for an out of door lamp so that it is subjected to wind and draft which might possibly cause the products from the chimney to pass down through the outer casing and thus to the burners, but by taking the air from the outside of the casing, this is effectively prevented.

We preferably provide the air inlet 44 with screens 45 which protects the air supply chamber from dust and particles floating in the air, such as lint and the like where the lamp is used in stores and factories, and also prevents the entrance of insects to the burners, thereby preventing their becoming fouled and clogged from this source. Any collection on these screens can be readily brushed off. The outer casing 22 is preferably provided with slots 46 adapted to receive these supply tubes, so that the outer casing can be adjusted to afford access to the parts within the same, thus making them completely accessible.

We preferably provide our improved lamp with a mantle support, consisting of the plate 47 having openings 48 therein adapted to receive the mantle holders 49 for the mantles 50. The plate 47 not only serves as a mantle support, but also serves to direct the air to the mantles. The plate 47 is provided with an upwardly-projecting flange 51 at its outer edge, which is adapted to telescope 10 with the downwardly-projecting portion 10 of the chimney flange, it being preferably arranged to embrace the same, as illustrated. The portion 10 of the chimney flange is provided with vertical slots 52 adapted to receive the pins 53 on the plate flange 51 when the plate is telescoped with the chimney flange. We preferably secure the flange 51 by means of a locking ring 54 which is arranged within the flange and adjustably secured therein by means of the pins 55 and 20 56, which engage suitable slots 57 provided therefor in the chimney flange, so that the locking ring can be turned to bring the bayonet slots 58 thereof into register with the slots 52 of the chimney flange to receive the pins 53 on the plate flange, so that, by turning the ring, the pins are engaged by the slots 58 thereby securing it in place. The pin 56 preferably projects to form a finger 30 piece for the adjustment of the locking ring. By this means, we are enabled to support the plate 47 at a plurality of points which we find to be of very great advantage as it prevents the sagging or warping of the plate on account of the excessive heat of the burners to which it is subjected. The plate 47 is preferably supported, when disengaged from the chimney, by means of the rods 59 which are arranged in the sleeves 60 carried by the chimney flange. The upper ends of the sleeves are preferably arranged through the flange on the chimney casing, see Fig. 3, so that the sleeves are very rigidly supported.

The supporting rods are arranged to reciprocate within the gas delivery ring; that is, they pass through the ring when adjusted to their upper position so that rods of considerable length may be used, thus allowing the plate 47 to drop down so that it is entirely out of the way of the operator in adjusting or cleaning the burners, and free access is had for adequately adjusting the mantles. The rods effectively support the mantle plate so that it does not swing or turn 55 while the operator is at work in adjusting the mantles, and also serve to guide the plate into its proper operative position. We preferably provide for use in this connection a cup-like guard 61 which is adapted to embrace the flange of the mantle plate 47, being preferably provided with bayonet slots 62 adapted to engage the pins 53 on the mantle holder so that the mantle holder and guard are held in proper relation and the guard may 65 be attached before the mantle holder is

disengaged from its chimney. This guard is especially desirable for use when the supporting rods 59 are omitted, as it can be attached to the mantle support and the mantle with this support set down in any convenient place for the adjustment of the mantles, 70 or if it should be desired to have access to the burners. This guard is, however, desirable for use in connection with the supporting rods, and particularly in out of door lamps, 75 as the mantles are thereby protected from wind, which might destroy them. Also they are so guarded that it is unlikely that the workman in cleaning the lamp, or renewing the mantles or the like, will accidentally 80 break the same, as by hitting with a tool or the like. Also, the mantles may be "burned off" in this guard, the same being taken to any convenient place for the purpose, as, for instance, in a dwelling or factory, the smoke 85 and odor of the burned mantles is objectionable. A further advantage is that by use of the holder, the lamp may be cleaned and the mantles renewed much more rapidly than without it, as the workman does not need to 90 exercise the care to avoid breaking the mantles as is otherwise required.

By forming a guide on the mantle support and chimney, as by the slots and pins, or other equivalents, the mantles are effectively 95 guided into proper relation to the burner tips, not only bringing them into proper position to be heated to incandescence, but also prevent their being broken by being brought into contact with the ends of the 100 burners. In Fig. 3 we indicate by dotted lines the elevated position of the outer wall 43 of the air chamber for the burners. In this position free access may be had to the burner nozzles, as 63, see Fig. 1, where a portion of the inner wall is broken away to disclose the relation of the nozzles to the burner tubes. The outer casing is made adjustable, as stated, so that it can be adjusted to afford free access to the parts of the lamp 110 above the globe. By thus forming and arranging the parts, we secure an effective support for the mantles, and properly guide the air to the burners to secure a proper combination. We wish to remark, however, in 115 this connection, that separate mantle holders might be provided, if desired, the plate being desirable for use merely for the purpose of directing the air to the burners and chimney, as stated. 120

We have illustrated and described our improved lamp in detail in the form preferred by us on account of its structural simplicity and economy and the convenience with which the parts may be adjusted in use. We 125 are, however, aware that the structural details may be greatly varied without departing from our invention, and we desire to be understood as claiming the same broadly, as illustrated, as well as specifically. 130

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a gas lamp, the combination with a
5 gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end
arranged through said ring; a chimney casing
having an outwardly-projecting flange at its
10 lower end arranged about said chimney in a
spaced relation thereto, the chimney casing
being open at its upper and lower ends; an
air chamber arranged below said gas de-
livery ring, said air chamber having an ad-
15 justable outer wall with outwardly-project-
ing air inlet pipes thereon, its inner wall
being spaced from said chimney casing;
screens for said air inlet pipes; burners ar-
ranged in an inverted position through said
20 flanges of said chimney and chimney casing
and through the bottom wall of said air
chamber; gas delivery nozzles for said ring
in said air chamber to deliver to the burners;
and an adjustable outer casing surrounding
25 said chimney, ring and air chamber and
having openings therein to receive said air
inlet pipes.

2. In a gas lamp, the combination with a
gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end
30 arranged through said ring; a chimney casing
having an outwardly-projecting flange at its
lower end arranged about said chimney in a
spaced relation thereto, the chimney casing
being open at its upper and lower ends; an
35 air chamber arranged below said gas de-
livery ring, said air chamber having an ad-
justable outer wall with outwardly-project-
ing air inlet pipes thereon, its inner wall be-
ing spaced from said chimney casing; burners
40 arranged in an inverted position through
said flanges of said chimney and chimney
casing and through the bottom wall of said
air chamber; gas delivery nozzles for said
ring arranged in said air chamber to deliver
45 to the burners; and an adjustable outer cas-
ing surrounding said chimney, ring and air
chamber and having openings therein to re-
ceive said air inlet pipes.

3. In a gas lamp, the combination with a
50 gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end
arranged through said ring; a chimney casing
having an outwardly-projecting flange at its
lower end arranged about said chimney in a
55 spaced relation thereto, the chimney casing
being open at its upper and lower ends; an
air chamber arranged below said gas delivery
ring, said air chamber having an adjustable
outer wall with outwardly-projecting air in-
60 let pipes thereon; screens for said air inlet
pipes; burners arranged in an inverted po-
sition through said flanges of said chimney
and chimney casing and through the bottom
wall of said air chamber; gas delivery noz-
65 zles for said ring arranged in said air cham-

ber to deliver to the burners; and an ad-
justable outer casing surrounding said chim-
ney, ring and air chamber and having open-
ings therein to receive said air inlet pipes.

4. In a gas lamp, the combination with a 70
gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end
arranged through said ring; a chimney casing
having an outwardly-projecting flange at
its lower end arranged about said chimney 75
in a spaced relation thereto, the chimney
casing being open at its upper and lower
ends; an air chamber arranged below said
gas delivery ring, said air chamber having
an adjustable outer wall with outwardly- 80
projecting air inlet pipes thereon; burners
arranged in an inverted position through
said flanges of said chimney and chimney
casing and through the bottom wall of said
air chamber; gas delivery nozzles for said 85
ring arranged in said air chamber to deliver
to the burners; and an adjustable outer
casing surrounding said chimney, ring and
air chamber and having openings therein to
receive said air inlet pipes. 90

5. In a gas lamp, the combination with a
gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end
arranged through said ring; an air chamber
arranged below said gas delivery ring, said 95
air chamber having an adjustable outer wall
with outwardly-projecting air inlet pipes
thereon; screens for said air inlet pipes;
burners arranged in an inverted position
through said flange of said chimney and 100
through the bottom wall of said air chamber;
gas delivery nozzles for said ring arranged in
said air chamber to deliver to the burners;
and an adjustable outer casing surrounding
said chimney, ring and air chamber and 105
having openings therein to receive said air
inlet pipes.

6. In a gas lamp, the combination with a
gas delivery ring, of a chimney having an
outwardly-projecting flange at its lower end 110
arranged through said ring; an air chamber
arranged below said gas delivery ring, said
air chamber having an adjustable outer wall
with outwardly-projecting air inlet pipes
thereon; burners arranged in an inverted 115
position through said flange of said chimney
and through the bottom wall of said air
chamber; gas nozzles for said ring arranged
in said air chamber to deliver to the burners;
and an adjustable outer casing surrounding 120
said chimney, ring and air chamber and hav-
ing openings therein to receive said air inlet
pipes.

7. In a gas lamp, the combination with a
gas delivery ring, of a chimney having an 125
outwardly-projecting flange at its lower end
arranged through said ring; a chimney casing
having an outwardly-projecting flange at its
lower end arranged about said chimney in a
spaced relation thereto, the chimney casing 130

being open at its upper and lower ends; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; screens for said air inlet pipes; burners arranged in an inverted position through said flanges of said chimney and chimney casing with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to the burners.

8. In a gas lamp, the combination with a gas delivery ring, of a chimney having an outwardly-projecting flange at its lower end arranged through said ring; a chimney casing having an outwardly-projecting flange at its lower end arranged about said chimney in a spaced relation thereto, the chimney casing being open at its upper and lower ends; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; burners arranged in an inverted position through said flanges of said chimney and chimney casing with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to the burners.

9. In a gas lamp, the combination with a gas delivery ring, of a chimney having an outwardly-projecting flange at its lower end arranged through said ring; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; screens for said air inlet pipes; burners arranged in an inverted position through said flange of said chimney with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to the burners.

10. In a gas lamp, the combination with a gas delivery ring, of a chimney having an outwardly-projecting flange at its lower end arranged through said ring; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; burners arranged in an inverted position through said flange of said chimney with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to the burners.

11. In a gas lamp, the combination with a gas delivery ring, of a chimney arranged through said ring; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; screens for said air inlet pipes; burners arranged in an inverted position with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to said burners.

12. In a gas lamp, the combination with a

gas delivery ring, of a chimney arranged through said ring; an outer casing; an air chamber arranged within said outer casing; outwardly-projecting air inlet pipes for said chamber opening on the outside of said outer casing; burners arranged in an inverted position with their upper ends opening into said air chamber; and gas delivery nozzles for said ring arranged to deliver to said burners.

13. In a gas lamp, the combination with a gas delivery pipe of a chimney; an adjustable outer casing; an air chamber arranged within said casing; an air inlet pipe for said air chamber, said casing having an opening therein to receive said pipe; a screen for said air inlet pipe; a burner arranged in an inverted position with its upper end opening into said air chamber; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

14. In a gas lamp, the combination with a gas delivery pipe, of a chimney; an adjustable outer casing; an air chamber arranged within said casing; an air inlet pipe for said chamber, said casing having an opening therein to receive said pipe; a burner arranged in an inverted position with its upper end opening into said air chamber; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

15. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing; a plurality of burners arranged in an inverted position; an inclosed air delivery chamber into which the upper ends of the burners open, said chamber having air inlets opening on the outside of said outer casing; screens for said air inlets; and gas delivery nozzles for said gas delivery pipe arranged to deliver to the burners.

16. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing; a plurality of burners arranged in an inverted position; an inclosed air delivery chamber into which the upper ends of the burners open, said chamber having air inlets opening on the outside of said outer casing; and gas delivery nozzles for said gas delivery pipe arranged to deliver to the burners.

17. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing open at the top and bottom; a burner arranged in an inverted position; an inclosed air supply chamber into which the upper end of the burner opens, said air chamber having an air inlet opening on the outside of said outer casing; screens for said air inlets; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

18. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing open at the top and bottom; a burner arranged in an inverted position;

an inclosed air supply chamber into which the upper end of the burner opens, said air chamber having an air inlet opening on the outside of said outer casing; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

19. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing; a burner arranged in an inverted position; an inclosed air supply chamber into which the upper end of the burner opens, said air chamber having an air inlet opening on the outside of said outer casing; screens for said air inlets; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

20. In a gas lamp, the combination with a gas delivery pipe, of a draft chimney; an outer casing; a burner arranged in an inverted position; an inclosed air supply chamber into which the upper end of the burner opens, said air chamber having an air inlet opening on the outside of said outer casing; and a gas delivery nozzle for said gas delivery pipe arranged to deliver to the burner.

21. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end, said flange having vertical slots therein; a plurality of burners arranged in an inverted position through said flange, with their tips below the same; mantles for said burners; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; pins on said mantle support adapted to engage said slots in said chimney flange; a securing ring on said mantle support adjustably mounted on said chimney flange, having bayonet slots therein adapted to be brought into register with said slots in said chimney flange to receive the pins on said mantle support; a guard adapted to embrace said flange on said mantle support having bayonet-like slots in its upper edge adapted to receive said pins thereon; and a support for said mantle support when disengaged from said flange.

22. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end, said flange having vertical slots therein; a plurality of burners arranged in an inverted position through said flange with their tips below the same; mantles for said burners; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; pins on said mantle support adapted to engage said slots in said flange; a securing ring on said mantle support adjustably mounted on said chimney flange having bayonet slots therein adapted to be brought into register with said slots in said chimney flange to receive the pins on said mantle support; and a guard adapted to

embrace said flange on said mantle support having bayonet-like slots in its upper edge adapted to receive said pins thereon.

23. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a plurality of burners arranged in an inverted position through said flange; mantles for said burners; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; means for securing said flange on said mantle support to said flange on said chimney; a guard adapted to embrace said flange on said mantle support, said guard and flange being provided with interlocking means; and a support for said mantle support when disengaged from said flange.

24. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a plurality of burners arranged in an inverted position through said flange; mantles for said burners; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; means for securing said flange on said mantle support to said flange on said chimney; and a guard adapted to embrace said flange on said mantle support, said guard and flange being provided with interlocking means.

25. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a burner arranged in an inverted position through said flange; a mantle for said burner; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; means for securing said flange on said mantle support to said flange on said chimney; a guard adapted to embrace said flange on said mantle support, said guard and flange being provided with interlocking means; and a support for said mantle support when disengaged from said flange.

26. In a lamp, the combination with a chimney having an outwardly and downwardly-projecting flange at its lower end; a burner arranged in an inverted position through said flange; a mantle for said burner; a mantle support provided with an upwardly-projecting flange adapted to telescope with said flange on said chimney; means for securing said flange on said mantle support to said flange on said chimney; and a guard adapted to embrace said flange on said mantle support, said guard and flange being provided with interlocking means.

27. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a burner arranged in an inverted position through said flange; a mantle for said burner; a mantle support; means for detachably se-

curing said mantle support to said flange on said chimney; a guard adapted to receive said mantle support; means for securing said guard and mantle support together; and a support for said mantle support when disengaged from said flange.

28. In a lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a burner arranged in an inverted position through said flange; a mantle for said burner; a mantle support; means for detachably securing said mantle support to said flange on said chimney; a mantle guard adapted to serve as a hand piece for said support; and means for securing said guard and mantle support together.

29. In a gas lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end, of a plurality of burners arranged in an inverted position; mantles for said burners; a mantle support; means for detachably securing said mantle support in position; a mantle guard adapted to serve as a hand piece for said support; means for detachably securing said guard and mantle support together; and a support for said mantle support when disengaged.

30. In a gas lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end, of a plurality of burners arranged in an inverted position; mantles for said burners; a mantle support; means for detachably securing said mantle support in position; a mantle guard adapted to serve as a hand piece for said support; and means for detachably securing said guard and mantle support together.

31. In a gas lamp, the combination with a chimney, of a burner arranged in an inverted position; a mantle support; means for detachably securing said mantle support in position on said chimney adapted to support said mantle support at a plurality of points; a mantle guard adapted to serve as a hand piece for said support; means for detachably securing said guard and mantle support together; and a support for said mantle support when disengaged.

32. In a gas lamp, the combination with a chimney, of a burner arranged in an inverted position; a mantle support; means for detachably securing said mantle support in position; a mantle guard adapted to serve as a hand piece for said support; means for detachably securing said guard and mantle support; and a support for said mantle support when disengaged.

33. In a gas lamp, the combination with a chimney, of a burner arranged in an inverted position; a mantle support; means for detachably securing said mantle support on said chimney adapted to support said mantle

support at a plurality of points; a mantle guard adapted to serve as a hand piece for said support; and means for detachably securing said guard and mantle support.

34. In a gas lamp, the combination with a chimney, of a burner arranged in an inverted position; a mantle support; means for detachably securing said mantle support in position; a mantle guard adapted to serve as a hand piece for said support; and means for detachably securing said guard and mantle support.

35. In a gas lamp, the combination with a plurality of burners arranged in an inverted position; mantles for said burners; a mantle support common to all of the mantles; means for detachably securing said mantle support in operative position; a mantle guard adapted to serve as a hand piece for said support; means for detachably securing said guard and mantle support together; and a support for said mantle support when disengaged from its securing means.

36. In a gas lamp, the combination with a plurality of burners arranged in an inverted position; mantles for said burners; a mantle support common to all of the mantles; means for detachably securing said mantle support in operative position; a mantle guard adapted to serve as a hand piece for said support; and means for detachably securing said guard and mantle support.

37. In a gas lamp, the combination with a burner arranged in an inverted position; a mantle; a mantle support; means for detachably securing said mantle support in operative position; a mantle guard adapted to serve as a hand piece for said support; means for detachably securing said guard and mantle support together; and a support for said mantle support and guard when disengaged from its securing means.

38. In a gas lamp, the combination with a burner arranged in an inverted position; a mantle; a mantle support; means for detachably securing said mantle support in operative position; a mantle guard adapted to serve as a hand piece for said support; and means for detachably securing said guard and mantle support together.

39. In a gas lamp, the combination with a chimney, of a burner arranged in an inverted position through the wall of said chimney; a plate having an opening therein adapted to receive the burner tip; means for detachably securing said plate in operative position arranged to engage said plate at a plurality of points adapted to be simultaneously engaged or disengaged; and a plurality of vertically adjustable supporting rods for said plate when the same is disengaged adapted to guide said plate into its operative position.

40. In a gas lamp, the combination with the chimney having a downwardly-project-

ing portion at its lower end, said portion having vertical slots therein; a plurality of burners arranged with their tips within said portion; mantles; a mantle support; pins on said support adapted to engage said slots in said portion, whereby the mantles are guided into position relative to the burner tips; and a locking ring mounted on said portion having bayonet slots therein, adapted to be brought into register with the said slots in said chimney portion to receive said pins on said support.

41. In a gas lamp, the combination with the chimney having a downwardly projecting portion at its lower end, said portion having vertical slots therein; a plurality of burners arranged with their tips within said portion; mantles; a mantle support; pins on said support adapted to engage said slots in the said portion, whereby the mantles are guided into position relative to the burner tips; and means for securing said support in position.

42. In a gas lamp, the combination with the chimney having a downwardly projecting portion at its lower end, said portion having vertical slots therein; a plurality of burners arranged with their tips within said portion; mantles; a mantle support having members thereon adapted to engage said slots in said portion, whereby the mantles carried by said support are guided to the burners; and means for securing said support to said portion.

43. In a gas lamp, the combination with a plurality of inverted burners; mantles therefor; a mantle support adapted to receive said mantles; a plurality of guides for said mantle support whereby the mantles are guided to the burners; and means for securing said support in operative position, said means being adapted to engage said support at a plurality of points.

44. In a gas lamp, the combination with a plurality of inverted burners; mantles therefor; a mantle support having openings therein, said openings being adapted to receive the burner tips; a vertical guide for said support whereby it is guided during its adjustment to bring the several openings into position to receive the tips of the several burners; and means for securing the said support in its operative position, said means being adapted to engage said support at a plurality of points.

45. In a gas lamp, the combination with a lamp having a downwardly-projecting flange at its lower end, having vertical slots therein; a plurality of burners arranged in an inverted position through said flange; and a mantle support having members thereon adapted to engage said slots in said flange whereby the mantle support is guided to bring the mantles into proper position relative to the burner.

46. In a gas lamp, the combination with a chimney having a downwardly-projecting flange at its lower end; a plurality of burners arranged in an inverted position through said flange; and a mantle support, said chimney flange and mantle support being adapted to engage each other with a telescoping movement, one of them being provided with vertical slots and the other with members for engaging said slots whereby the mantle support is guided to bring the mantles carried thereby into proper position relative to the burners.

47. In a gas lamp, the combination with a chimney, of a plurality of burners arranged in an inverted position through said chimney; mantles for said burners; a mantle support, said mantle support and chimney having a pin and slot engagement whereby said mantle support is guided to position to bring the mantles carried thereby into proper position relative to the burners.

48. In a gas lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a plurality of burners arranged through said flange with their tips within the same; mantles for said burners; a plate-like mantle support for said burners adapted to close the lower end of said chimney, said support having a central opening therein with mantle openings communicating therewith, the ends of the portions of the plate between the mantle openings being turned upwardly; and ring-like mantle holders adapted to be arranged within said mantle openings of said plate, said holders having projecting arms adapted to engage said plate.

49. In a gas lamp, the combination with a chimney having an outwardly and downwardly projecting flange at its lower end; a plurality of burners arranged through said flange with their tips within the same; mantles for said burners; a plate-like mantle support for said burners adapted to close the lower end of said chimney, said support having a central opening therein with mantle openings communicating therewith, the ends of the portions of the plate between the mantle openings being turned upwardly; and mantle holders adapted to engage said plate.

50. In a gas lamp, the combination with a chimney; a plurality of burners arranged in an inverted position through the wall of said chimney; mantles for said burners; a plate-like mantle support for said burners adapted to close the lower end of said chimney, said support having a central opening therein with mantle openings communicating therewith, the ends of the portions of the plate between the mantle openings being turned upwardly; and ring-like mantle holders adapted to be arranged within said mantle openings of said plate, said holders having projecting arms adapted to engage said plate.

51. In a gas lamp, the combination with a chimney; a plurality of burners arranged in an inverted position through the wall of said chimney; mantles for said burners; a plate-
5 like mantle support for said burners adapted to close the lower end of said chimney, said support having a central opening therein with mantle openings communicating there-
10 tween the mantle openings being turned upwardly; and mantle holders adapted to engage said plate.

In witness whereof, we have hereunto set

our hands and seals in the presence of two witnesses.

ALFRED H. HUMPHREY. [L. S.]

FREDERICK J. HUMPHREY. [L. S.]

REGINALD WRIGHT. [L. S.]

Witness the signature of Alfred H. Humphrey:

L. A. WOODS,

J. M. COLES.

Witness the signatures of Frederick J. Humphrey and Reginald Wright:

J. J. WRIGHT,

WALTER M. BLINKS.