

(No Model.)

3 Sheets—Sheet 1.

J. T. CASEY.  
LANTERN.

No. 561,487.

Patented June 2, 1896.

Fig. 1.

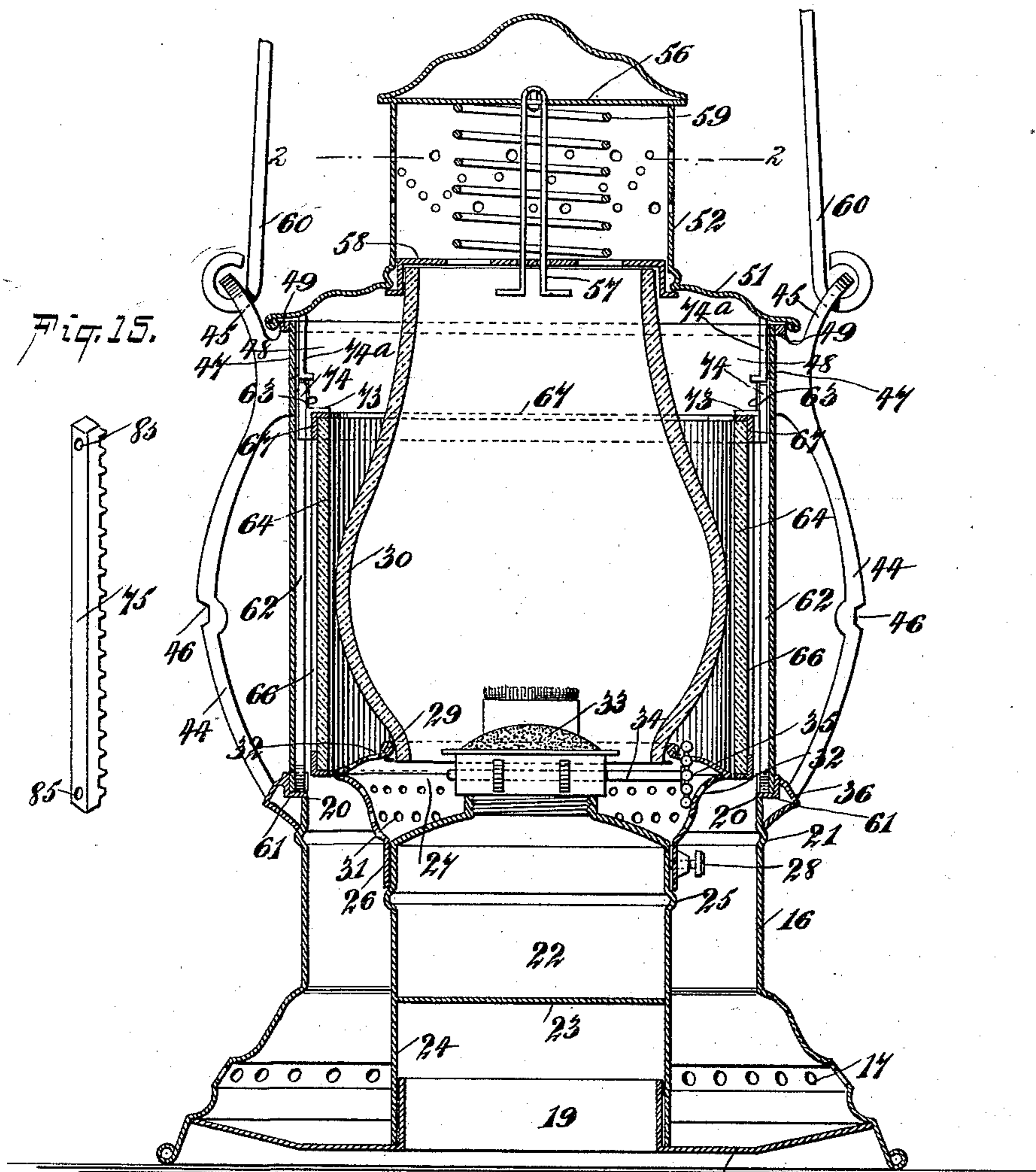
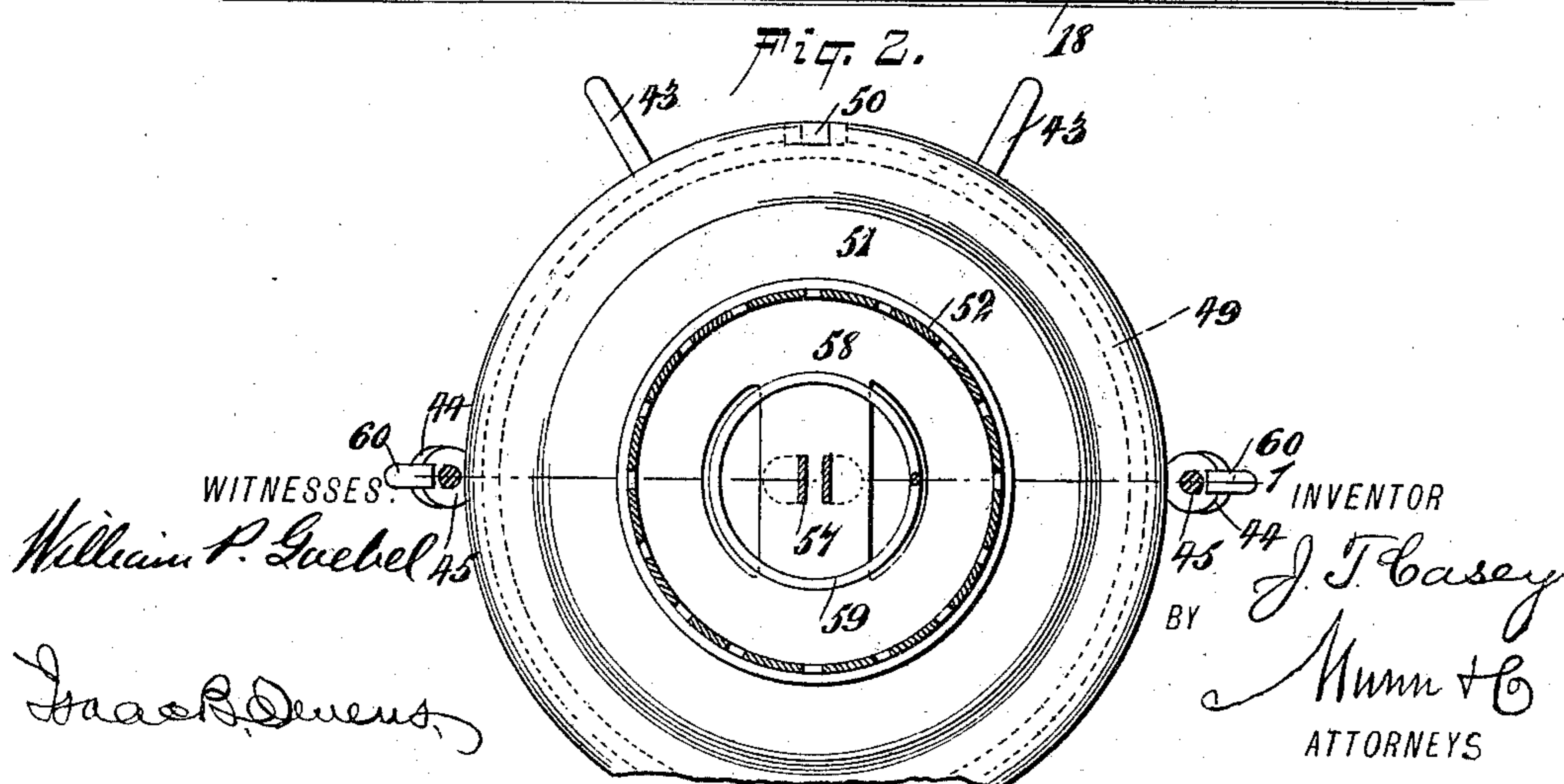


Fig. 2.



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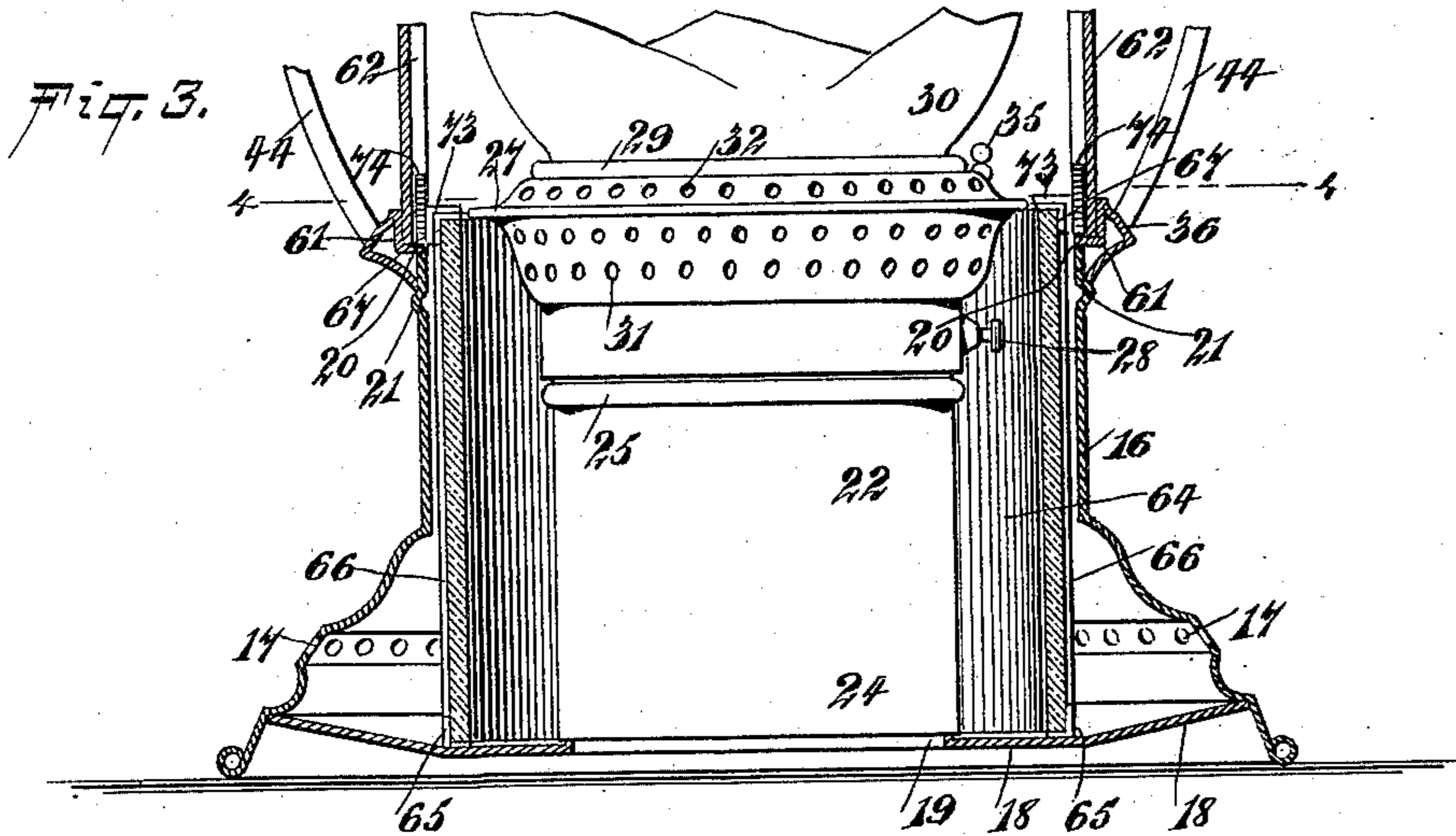


Fig. 4.

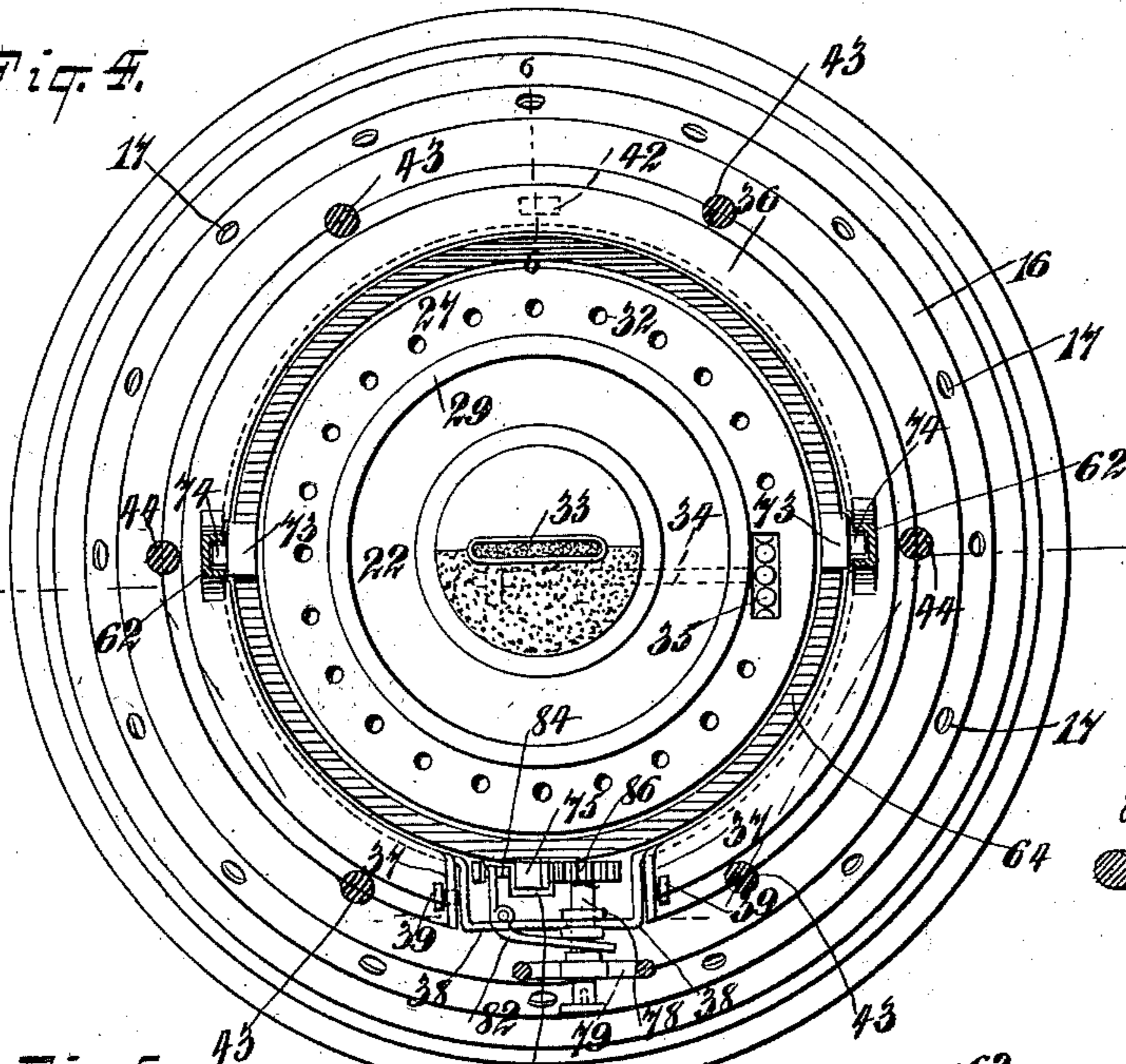
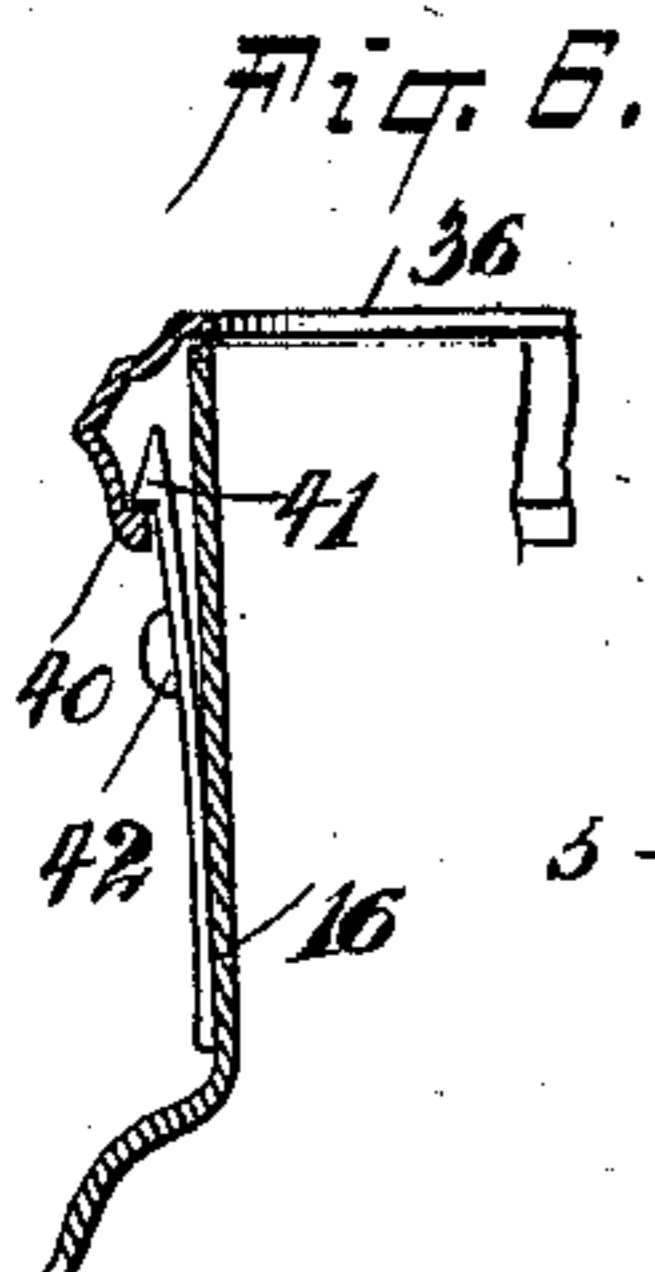


Fig. 7.

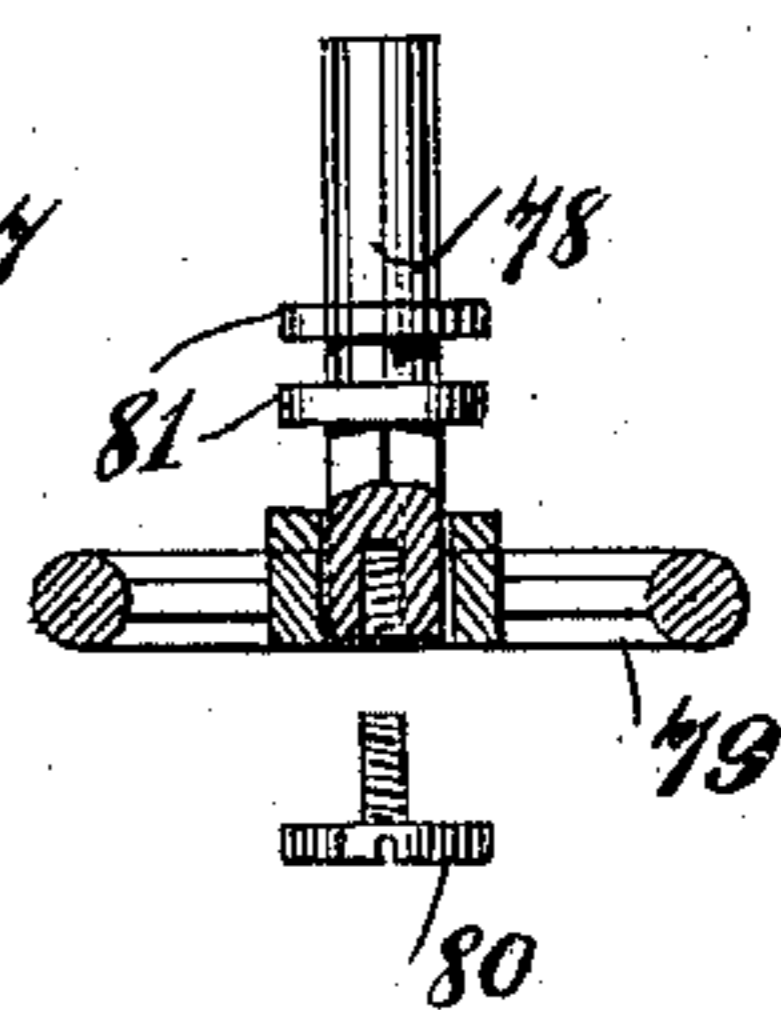
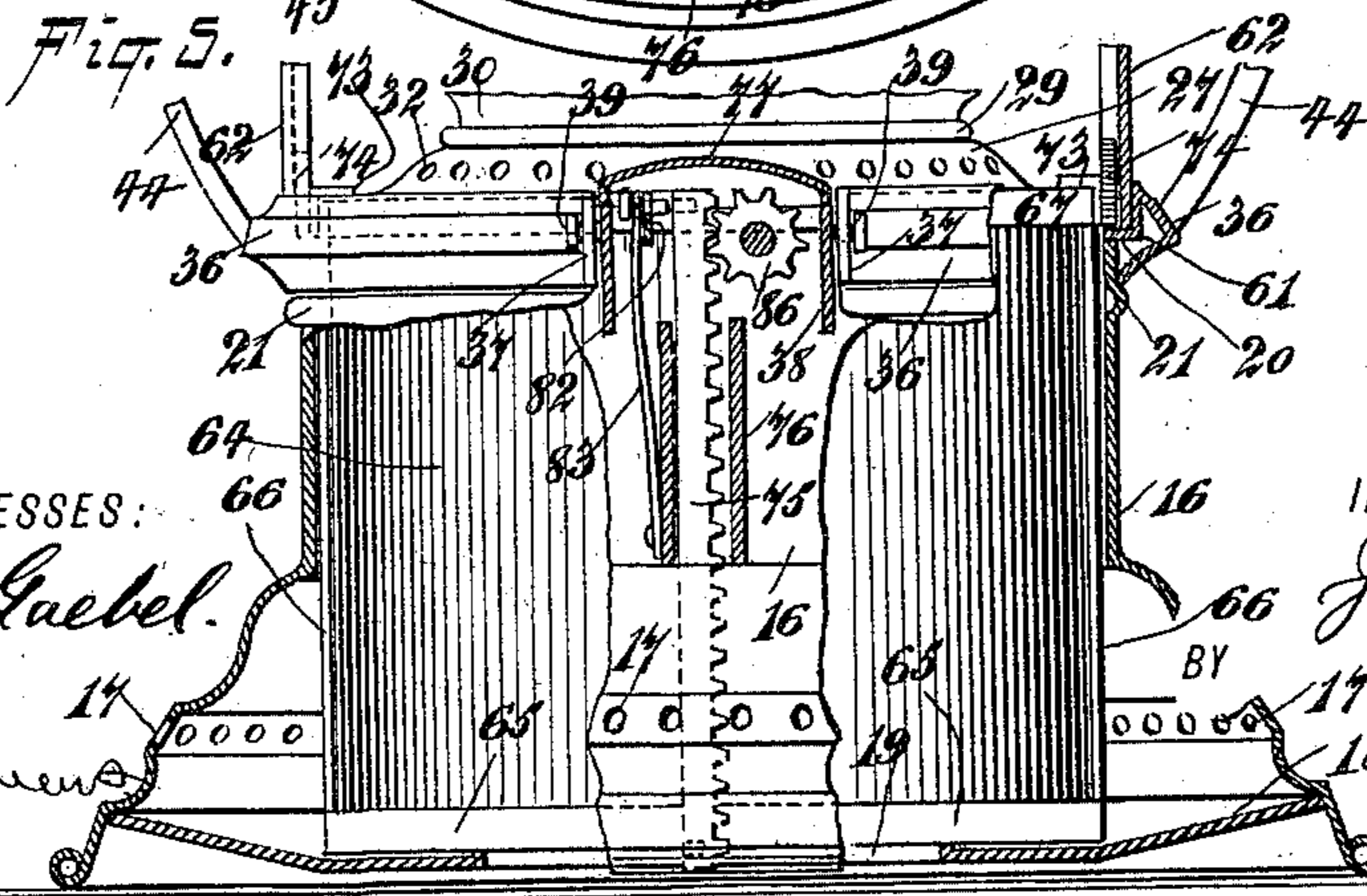


Fig. 5.



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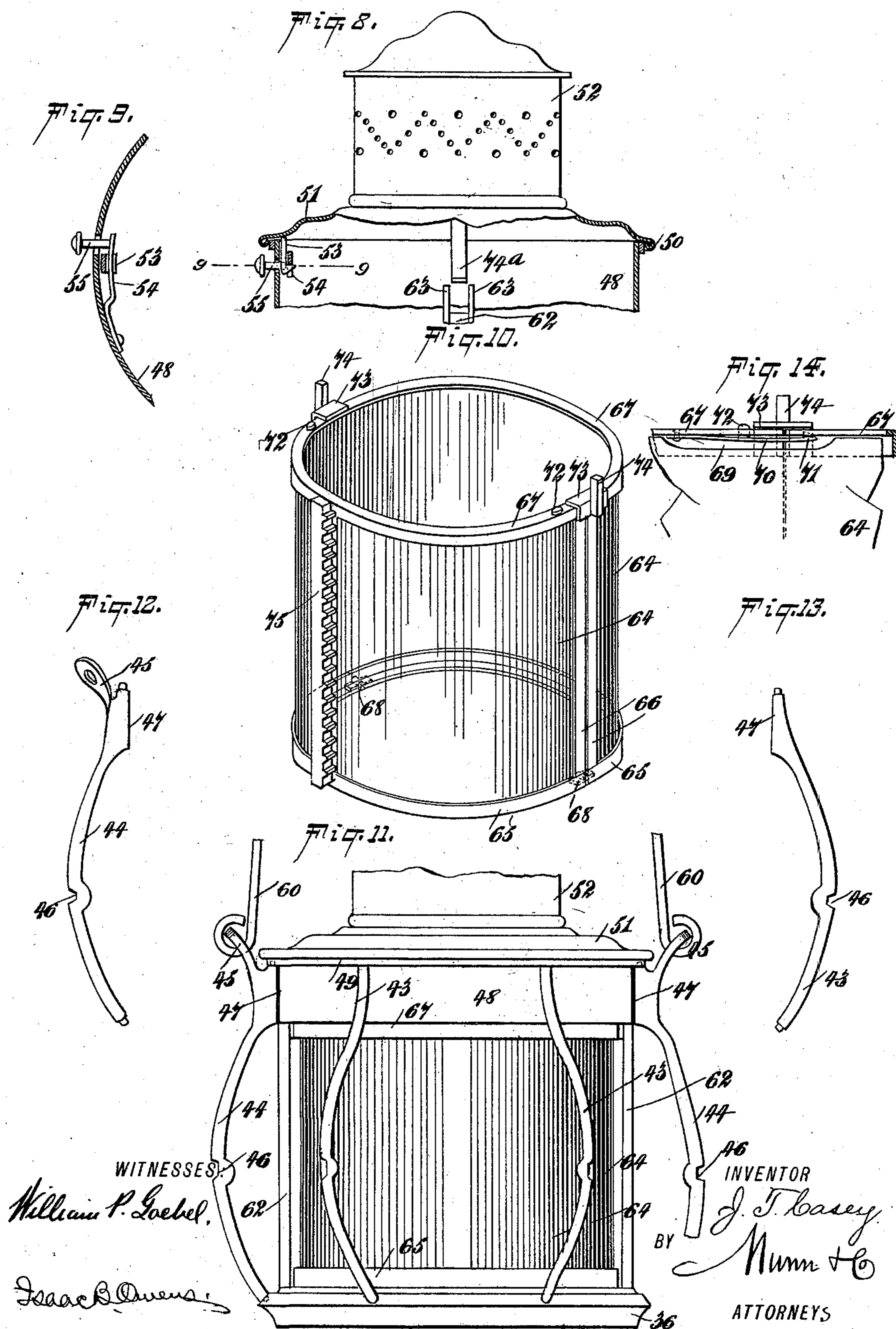
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3 Sheets—Sheet 3.

J. T. CASEY.  
LANTERN.

No. 561,487.

Patented June 2, 1896.



# UNITED STATES PATENT OFFICE.

JOHN THOMAS CASEY, OF PHILADELPHIA, PENNSYLVANIA.

## LANTERN.

SPECIFICATION forming part of Letters Patent No. 561,487, dated June 2, 1896.

Application filed December 23, 1895. Serial No. 573,011. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN THOMAS CASEY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Lantern, of which the following is a full, clear, and exact description.

The principal object of this invention is to provide a lantern particularly adapted for use in railway work and which will contain both a red and a white shade, the construction and organism of the lamp being such that these shades may be operated to produce a red or white light with greater ease than heretofore.

The invention consists in various features of construction and combinations which will be fully described hereinafter, and finally embodied in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section of the invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a horizontal section taken on the line 2 2 of Fig. 1. Fig. 3 is a vertical section taken through the body of the lantern and showing the red shade in a lowered position, such position being the opposite of that shown in Fig. 1. Fig. 4 is a horizontal section taken on the line 4 4 of Fig. 3, the top of the gear-containing casing having been removed to disclose the interior parts. Fig. 5 is an irregular section taken on the line 5 5 of Fig. 4 and illustrating the red shade in a lowered position and showing the body portion of the lamp broken on each side of the center. Fig. 6 is a detail section taken on the line 6 6 of Fig. 4. Fig. 7 is a detail view showing the construction of the arbor for carrying the red-shade-operating gear. Fig. 8 is a sectional elevation illustrating the manner of mounting and fastening the dome of the lantern. Fig. 9 is a detail sectional view on the line 9 9 of Fig. 8. Fig. 10 is a perspective view of the red shade and the frame for holding the same, said parts being dissociated from the remainder of the lantern. Fig. 11 is a fragmentary exterior elevation showing the red shade in an elevated position. Fig. 12 is an elevation of one of the ribs. Fig. 13 is a similar view of a different rib. Fig. 14 is a detail view

illustrating the catch for holding the two sections of the red shade in closed connection, and Fig. 15 is a detail perspective view of the rack-bar for elevating the red shade.

In carrying out my invention the body 16 of the lantern comprises a true cylindrical upper portion and a downwardly-flaring or enlarged base, the latter portion having a line of perforations 17 therein for the admission of the air necessary to promote combustion, and also carries a bottom plate 18, which has a central opening surrounded by an upwardly-extended flange or boss 19. The upper edge of the body 16 is formed straight or level with the exception of two oppositely-arranged notches 20, (best shown in Fig. 1,) the purpose of which will be hereinafter described, and the upper portion of the body 16 has formed therein just below its upper edge a concentric exterior rib 21.

The oil cup or receptacle 22 has extended below its bottom 23 a vertically-elongated exaggerated flange 24, which is adapted to snugly embrace the boss 19 and to have its edges rest upon the upper side of the bottom plate 18 of the body 16.

The oil-cup 22 has formed therein and near its upper portion an exterior rib 25, upon which is supported the annular flange 26 of the casing 27. This casing may be axially adjusted on the oil-cup 22 and held by means of a set-screw 28, carried in the flange 26, and the casing extends outwardly and upwardly from the flange 26 and thence inwardly and upwardly to form a contracted upper edge 29, whereon is supported the lower end of the white shade 30.

The casing 27 has in its lower portion a series of perforations 31 and in its upper portion a second series of perforations 32, the same being adapted to be alternately employed for the admission of air to the burner and in a manner that will receive description hereinafter. The peripheral extremity of the casing 27 is concentric with the upper edge of the body portion 16, and a space is left between these parts for the reception and passage of the red shade.

The oil-cup 22 is provided with the usual burner 33, which comprises a wick-raising arbor 34, carrying the usual stellated disks for engagement with the wick and having at its

outer end an operating-wheel 35, the same having its periphery formed with a series of projections which make it possible to engage a nail or like instrument with the wheel, so as to turn the arbor 34. The upper periphery of the wheel 35 projects through an opening in the upper portion of the casing 27, so that the person using the lamp may reach the wheel 35 in the operation of raising or lowering the wick without removing the white shade 30 or changing the position of the casing 27. The burner 33 is provided with a milled surface on which a match may be conveniently struck.

It will be seen that the casing 27, being axially adjustable on the oil-cup 22 and being held at such adjustment by means of the set-screw 28, may have its position changed, so that the opening in its upper side will always coincide with the position of the wheel 35. This adjustment is necessary, since the threads on the burner 32 and on the neck of the oil-cup may wear or become disarranged, so that the axial relation of the burner 33 with the oil-cup 22 may change as the lantern is used.

Embracing the upper edge of the upper portion of the body 16 is an annular rim 36, which has its lower portion rested upon and to some extent supported by the flange 21 of the body portion 16, while the upper edge of the ring 36 is extended inwardly beyond the peripheral position of the lower edge of the ring, so that said upper edge may rest upon and the ring be mainly supported by the upper edge of the body portion 16, such arrangement being best shown in Fig. 6.

The ring 36 is formed, approximately, triangular in cross-section and hollow, and has its continuity broken at one point in its extent, so as to form the flattened lips 37. (Best shown in Figs. 4 and 5.) These lips respectively lie one on each side of the gear-casing 38, and this gear-casing is rigidly carried on the upper portion of the body 16, near the upper edge thereof, and has the said lips 37 pivotally connected thereto by means of the pins 39, all of which is most clearly illustrated in Figs. 4 and 5. By these means the ring 36 is rigidly mounted on the body portion 16, and to permit said ring to swing on such mounting the lower edge of the ring is given sufficient clearance relative to that portion of the body opposite the casing 38 that the ring may move upwardly without binding against the upper edge of the upper portion of the body 16.

At a point on the ring 36 directly opposite the casing 38 the ring is provided with an interior shoulder 40, with which a hook 41, carried on a spring 42, engages, whereby the ring 36 is held in a lowered position. This securing device is shown in detail in Fig. 6. Formed in the ring 36, at equidistant points in the periphery thereof, are six recesses, which respectively receive the reduced studs on the ribs or braces 43 and 44. The ribs 43 and

44 are six in number, two being designated by the numeral 44 and four by the numeral 43. Figs. 1, 2, 12, and 13 best illustrate these ribs and their relative positions. Figs. 1 and 12 show the ribs 44, and it will be seen that these ribs are duplicates of the ribs 43, (illustrated in Fig. 13,) except that the ribs 44 are respectively provided with upwardly-extended ears 45, the same being transversely and outwardly in each rib 44, so that the ears will extend parallel with each other. The purpose of these ears is to carry the lantern-bail in a manner that will be hereinafter fully described. The ribs 43 and 44 are bowed outward and provided at approximately their centers with notches 46, in which a circular belting-brace is adapted to be secured. This brace is not illustrated, but being common in the art will be understood.

The upper extremities of each of the ribs 43 and 44 are provided with plane vertical faces 47, terminating at their upper portion in reduced studs. The faces 47 are adapted to lie snugly against and be soldered or otherwise rigidly secured to the annular band 48, said band being located at the upper portion of the lantern and directly below the dome, as will be further described hereinafter.

Rigidly secured to the outer upper edge of the band 48 is an annular ring 49, having six perforations in its lower side disposed at equidistant points relative to the periphery of the ring and adapted to receive the studs at the upper extremities of the ribs 43 and 44. By these means the band 48 and its attached ring are rigidly connected to the ribs 43 and 44, and said band and ring are supported on the ring 36, which in turn, as will be understood, is carried by the body portion 16 of the lantern.

Pivotally mounted on a hinge 50, carried by the ring 49, is the base portion 51 of the dome 52, and this base portion 51 is provided at a point directly opposite the hinge 50 with a rigid and downwardly-extending catch 53, the same being adapted to extend inside of the band 48 and to cooperate with a spring-keeper 54, fixed to the interior of the band and provided with an operating-stud 55, the same projecting through an opening in the band 48. It will thus be seen that by pushing the stud 55 inward the keeper 54 will be disengaged from the catch 53 and the dome 52 and its base 51 will be thus free and allowed to swing on the hinge 50.

The dome 52 is of the usual construction and comprises an interior plate 56, which supports and from which downwardly projects a U-shaped plate 57, the lower extremities of which are passed through a plate 58 and projected below the same, said extremities being bent outwardly, so as to prevent the excessive downward movement of the plate 58. Confined between the plates 56 and 58 is an expansive spiral spring 59, which presses the said plate 58 into firm engagement with the upper end of the white shade 30, and by these means

the said white shade is firmly held between the upper edge 29 of the casing 27 and the plate 58, said plate 58 having a downwardly-extending flange for effecting a more secure connection with the shade. It will thus be seen that when the shade 30 is disengaged from the plate 58 the retaining-plate 57 will prevent the plate 58 from being disarranged within the dome 52.

10 Figs. 1 and 11 illustrate the connection of the spring-bail 60 with the ears 45 of the ribs 44, and the said bail 60 is so constructed that its lower extremities, as shown in Figs. 1 and 11, have a strong outward tendency, whereby 15 they are caused to bind against the ears 45, and owing to the friction consequent upon such engagement the bail will be held in a raised position or in any other position in which it may be placed. It will thus be seen 20 that the bail being left in a raised position will always be ready for the user to grasp it unless he purposely lowers the same.

Formed in the ring 36, at diametrically opposite points therein, are two sockets 61, said 25 sockets being respectively received in the recess 20 in the upper edge of the upper portion of the body 16, said recesses having been hereinbefore described. These sockets 61 and the recesses 20 are arranged on opposite sides of 30 the casing 38 and at equidistant points therefrom, so that the said sockets in moving in and out of the recesses 20 will offer no resistance to the swinging of the ring 36 on its hinge, as has been hereinbefore described.

35 Rigidly secured within each of the sockets 61 are the respective lower and enlarged ends of the guides 62, said guides being U-shaped in cross-section, as best shown in Figs. 1 and 3, and being extended upwardly to the band 40 48, with which they are rigidly connected by soldering or otherwise, and at their upper extremities the outer or back portions of the guides are cut away, leaving only the extremities 63 of the sides, as best shown in 45 Figs. 1 and 8, and these extremities extend upwardly along the inner side of the band 48, forming continuations of the guides to which they belong.

Fig. 4 illustrates the relative positions of 50 the guides 62 and the other parts of the lantern, and there it will be seen that the guides have but a small horizontal extent and that they do not prevent the radiation of the light from the burner. These guides are provided 55 to steady the upward movement of the red shade, which will now be described.

The red shade is shown in detail in Fig. 10 and comprises a cylindrical glass section 64, carried in a sectional frame, which comprises 60 two hinged sections, and these sections are duplicates of each other except in the particulars hereinafter explained, and each section comprises a semicircular angle-plate 65, to each extremity of which an upwardly-extending plate 66 is rigidly connected. These 65 plates 66 have their upper ends rigidly connected with semicircular angle-plates 67, the

same being duplicates in construction of the angle-plates 65, and it will be seen that this arrangement forms a semicircular frame in 70 which the red shade may be secured.

The angle-plates 65 of each section are connected with each other by means of hinges 68, so that the sections may swing toward and from each other, as is necessary in the 75 operation of embracing the red shade 64. The upper edge of the shade 64 is provided with two indentations or recesses 69, said recesses being oppositely arranged and adapted to respectively coincide with the positions of 80 contiguous ends of the plates 67 when the sections of the frame are closed. These recesses are each adapted to receive a fastening device for securing the sections of the frame in a closed position. The fastening 85 devices are duplicates, and each consists of a spring-plate 70, having a hook 71 at its extremity and having a knob 72 at approximately its middle, which knob projects through an opening in the adjacent portion 90 of the frame. The plates 70 are each fixed to the same frame and the hooks 71 are each adapted to engage recesses formed in the opposite frame, which construction is shown in Fig. 14. It will be seen that upon pressing 95 the knob 72 the plate 70 may be moved downwardly and its hook 71 disengaged from the shoulder formed on the opposite frame of the shade for that purpose.

Fixed to each extremity of one of the plates 100 67 is a short angle-plate 73, and these plates are adapted, when the sections of the shade-frame are in close engagement, to project over the respective extremities of the remaining angle-plates 67, so as to form a snug con- 105 nection with the extremities of each of said plates. Each of the angle-plates 73 carries a vertically-extending bar 74, which bars perform the function of ribs and are respectively adapted to have slidable movement 110 within the guides 62.

Figs. 1, 3, and 5 illustrate the position which the red shade occupies with relation to the other parts of the lantern, and there it will be seen that the shade is vertically movable from within the body portion 16 to the 115 position shown in Fig. 1, whereupon the upper edge of the shade will be just above the lower edge of the band 48 and the lower edge of the red shade level with the upper edge of 120 the body portion 16, so that all the light radiated from the burner 33 will be red in color. When the shade is in this raised position, the supply of air permitting the combustion at the burner passes through the open- 125 ing 17 in the lower portion of the body 16 and upwardly through the perforations 31 in the casing 27. To prevent excessive upward movement of the red shade when the dome 52 is in place, I attach to said dome two stops 130 74<sup>a</sup>, which are respectively located just over the extremities 63 of the guides 62, so that the bars 74 will be engaged with the stops 74<sup>a</sup> when the red shade reaches the predeter-

mined limit of its upward movement. It will be understood that these stops, moving with the dome, will not prevent the removal of the red shade when the dome is lifted from the band 48.

When the red shade is lowered, it assumes the position shown in Figs. 3 and 5—that is, with its lower edge resting upon and supported by the bottom plate 18 of the body portion 16 and with its upper edge just below the corresponding edge of the body portion 16. When in this position, the light reflected will be white in color, having only to pass through the shade 30. It will also be seen that the ribs or bars 74 in this lower position of the red shade are at the limit of their downward movement. On the other hand, when the shade is elevated the bars or ribs 74 will be raised to the extremities 63 of the guides 52. To permit the ring 36 to swing on its pivots without twisting the bars 74 out of place by binding them in the guides 62, I enlarge the lower ends of said guides so that they may swing with the ring 36 and not bind against the bars 74. The enlargements at the ends of the guides 62 are best illustrated in Fig. 4.

I will now describe the mechanism for raising, lowering, and securing the red shade.

Fixed to the plates 65 and 67 of one of the frames of the red shade and at points on said plates approximately their middle is a rack 75, which extends vertically and which is, when the red shade is in a lowered position, received in a vertically-extending channel 76, the same being struck out from the upper portion of the body 16, so that the red shade will lie snugly against the interior of this upper portion of the body 16, and so that the rack-bar will have free movement with the shade. Below the cylindrical upper portion of the body 16 the channel 76 ends, since the enlargement of the base of the body portion will make the channel unnecessary. The upper extremity of the channel 76 is open and level with the open lower portion or bottom of the before-described casing 38, so that the rack-bar 75, in moving upwardly with the red shade, will pass through this casing 38 and through an opening formed in the arched top 77 of said casing.

Revolubly mounted in the casing 38 is an arbor 78, which is provided with two collars 81, by which it is held from sliding and which has its outer end projected beyond the casing and squared to receive an operating wheel or disk 79, held thereon by means of a screw 80, and the outermost collar 81, the screw being secured to the outer end of the arbor. The wheel 79 is free to move on the arbor between said outermost collar 81 and the screw 80, but turns only with the arbor. The arbor 78 is shown in detail in Fig. 7. A bell-crank lever 82 is pivotally mounted, as shown in Fig. 4, in the casing 38 and has one arm forked to embrace the arbor 78, so that as the wheel is moved inward the lever will be also. The

other arm of the bell-crank lever 82 is connected with the upper end of a spring-plate 83, which carries a pin 84 and which plate is secured at its lower end to the outer side of the channel 76 and projects upwardly through the open bottom of the casing 38. By means of this spring the bell-crank lever 82 is kept in engagement with the wheel 79 and said wheel forced into normal contact with the screw 80, whereby the wheel is held on the arbor 78. The wheel 79 is provided with an inwardly-extending hub, against which the bell-crank bears, as shown in Figs. 4 and 7.

The rack 75 is provided at its upper and lower portions with two recesses 85, (shown in Fig. 15,) with which the pin 84 is adapted to alternately engage, said pin being carried and consequently actuated by the spring-plate 83, the plate having a normal tendency to engage the pin with the rack. Fixed on the inner extremity of the arbor 78 is a spur-gear 86, which is adapted to mesh with the teeth of the rack 75. The plate 83 being permitted to operate unrestrained, (its tendency being toward rack 75,) the bell-crank lever 82 will be rocked to move the wheel 79 outward, and the pin 84 will be forced to enter either of the openings 85 in the rack-bar 75, according to the position of said rack-bar. By this means the rack-bar 75, and consequently the red shade, may be held in a raised or lowered position.

To disengage the pin 84 and the rack-bar, so that the shade 64 may be raised or lowered, the wheel 79 should be moved inwardly to the position shown in Fig. 4, whereupon it will be possible upon the operation of the arbor 78 to raise or lower the red shade, and when this operation is complete a relaxation of the inward pressure on the wheel 79 will permit the plate 83 to throw said wheel outward and to throw the pin 84 into the proper recess 85.

Having thus described the construction and assemblage of parts in the invention, it will be apparent how they are employed and manipulated. It will therefore suffice to say that to light the lantern under ordinary circumstances the red shade should be lowered and the catch 54 operated to permit the dome 52 to swing on its hinge 50, whereupon the shade 30 should be lifted out or raised, and easy access may thus be had to the burner. Should it be desirable to light the lantern in a high wind, the flame of the match may be protected by raising the red shade and igniting the burner while the shade is in such raised position, and for this purpose the burner 33 is milled, as before described. By releasing the catch 42 the ring 36 may be moved on its hinge, so that the casing 27 may be removed and the burner displaced to fill the oil-cup 22, it being understood that the dome 52 and the white shade 30 should have first been removed.

The red shade may be disconnected from the other parts by moving the spring-plate 83 outward and lifting the dome 52, whereupon

the red shade may be lifted out through the upper end of the band 46.

It will be understood that in constructing the apparatus the parts will be made much lighter and in better proportion than those shown in the drawings.

If so desired, the arbor 78 may be provided with only one collar 81 and the gear-wheel 86 formed with a collar which engages the inner side of the casing and prevents outward movement of the arbor.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a lantern, a body portion, an oil-cup sustained within the body portion, a casing comprising two parts, each of which is perforated, the said casing embracing the upper portion of the oil-cup, a burner, a stationary shade held with its lower end in engagement with the upper part of the casing, and a movable shade capable of being received within the body portion and of being raised out of the body portion to embrace the burner, the movable shade being capable of alternately inclosing the two parts of the casing which have the perforations, substantially as described.

2. In a lantern, a body portion, a ring hinged on the body portion, guides rising from the ring, a dome held above the guides, a burner, a stationary shade engaging the dome and having its lower portion embracing the burner, a movable shade having parts cooperating with the guides, and means for operating the movable shade, substantially as described.

3. In a lantern, a body portion, a burner, a ring hinged on the body portion, guides rising from the ring, a dome sustained above the guides, a stationary shade engaging the dome and having its lower portion embracing the burner, and a movable shade adapted to be received within the body portion, said movable shade having portions cooperating with the guides and being also adapted to be moved out of the body portion to embrace the burner, substantially as described.

4. In a lantern, a body portion, a ring hinged on the body portion and having sockets, a guide fitted within each socket and secured thereby, the guides rising from the ring, a dome sustained above the guides, a burner, a stationary shade engaging the dome and having its lower portion embracing the burner, and a movable shade having parts cooperating with the guides, the movable shade being adapted to be received within the body portion and to be moved out of the same to embrace the burner, substantially as described.

5. In a lantern, a body portion, a rigidly-carried casing, a ring hinged to the casing, a dome sustained on the ring, a stationary shade engaging the bottom of the dome, a burner, a movable shade, and mechanism

contained within the casing for operating the movable shade, substantially as described.

6. In a lantern, a body portion, a burner, guides rising from the body portion, a dome held at the upper ends of the guides, a stationary shade engaging at the lower portion of the dome and embracing the burner, a movable shade, a frame for the movable shade and consisting of hingedly-connected sections, angle-plates connected to one section of the frame, and a bar carried on each angle-plate, the bars being movable in the guides, substantially as described.

7. A lantern having ears held thereon, and a spring-bail pivotally connected to the ears and having a frictional engagement with the same sufficient to hold the bail in the desired position, substantially as described.

8. In a lantern, a body portion, a burner, a stationary shade, a movable shade, a rack on the movable shade, an arbor, a gear carried thereon, a bell-crank lever, a wheel sliding on the arbor, and a spring-plate engaged with the lever and the plate, and adapted to lock with the rack, substantially as described.

9. In a lantern, a body portion, a burner, a stationary shade, a movable shade, a rack on the movable shade, a spring-plate, a pin carried by the plate and adapted to lock with the rack, a bell-crank lever engaging the plate, an arbor, a wheel sliding on the arbor and engaged by the bell-crank lever, substantially as described.

10. In a lantern, a body portion having an outwardly-projecting and interiorly-opening channel, a burner, a stationary shade, a movable shade, a rack carried on the movable shade and moving through the channel, a spring-plate fixed to the exterior of the channel and adapted to lock with the rack, an arbor, a wheel sliding on the arbor, a gear-wheel carried on the arbor and engaging the rack, and a bell-crank lever connecting the spring-plate and engaging the wheel, substantially as described.

11. In a lantern, a body portion having a casing and an outwardly-projecting and interiorly-opening channel, a burner, a stationary shade, a ring embracing the upper part of the body portion and pivotally mounted on the casing, a dome, ribs sustaining the dome on the ring, a movable shade, a rack carried by the shade and movable through the channel of the body portion, an arbor in the casing, a gear carried by the arbor and engaging the rack, a wheel sliding on the arbor, a bell-crank lever, and a spring-pressed plate adapted to lock with the rack, substantially as described.

12. In a lantern, a casing adapted to embrace the burner and having two parts, each of which is perforated to permit the passage of air to the burner, and a movable shade juxtaposed to the casing and capable of movement in relation thereto whereby it alternately closes and opens the two sets of per-

forations in the casing, substantially as described.

13. In a lantern, the combination with a body portion, of a movable tubular shade, a frame for said shade, the frame having two sections hingedly connected by which the shade is removably held, and guides on the body portion along which the shade and its frame may move, substantially as described.
14. In a lantern, the combination of a body portion, a ring hingedly mounted on the body portion, ribs carried by the ring and project-

ing upwardly therefrom, a band to which the upper ends of the ribs are connected, a guide extending from the ring to the band, and a movable shade capable of being received by the body portion and of moving upwardly between the ring and band, substantially as described.

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