

No. 672,404.

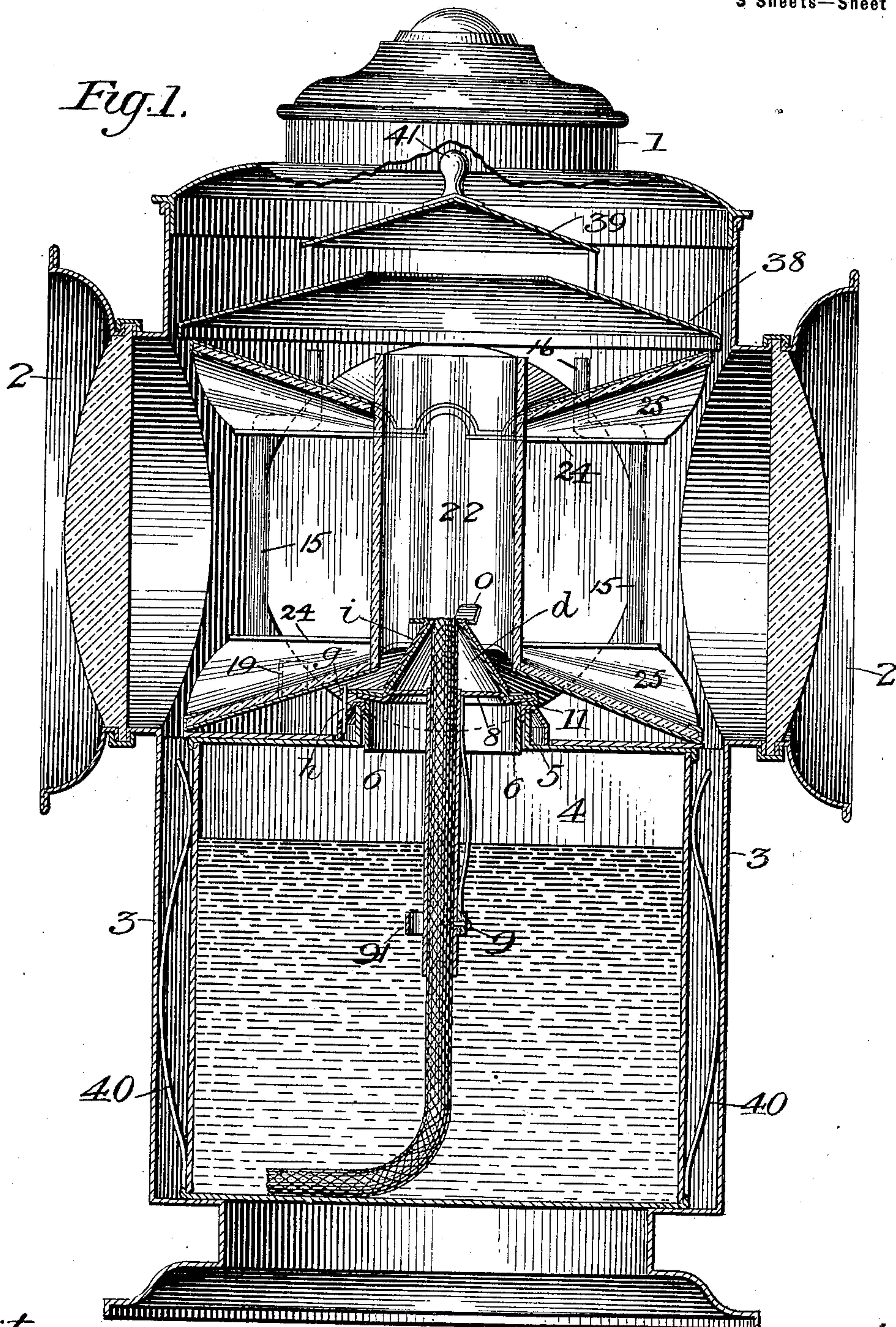
W. R. DODSON.  
LANTERN.

Patented Apr. 16, 1901.

(No Model.)

(Application filed Apr. 21, 1900.)

3 Sheets—Sheet 1.



Witnesses:

D. W. Edlin.  
J. M. Copeland.

Inventor:

W. R. Dodson  
By his attys  
Perrine & Goldborough

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Fig. 2.

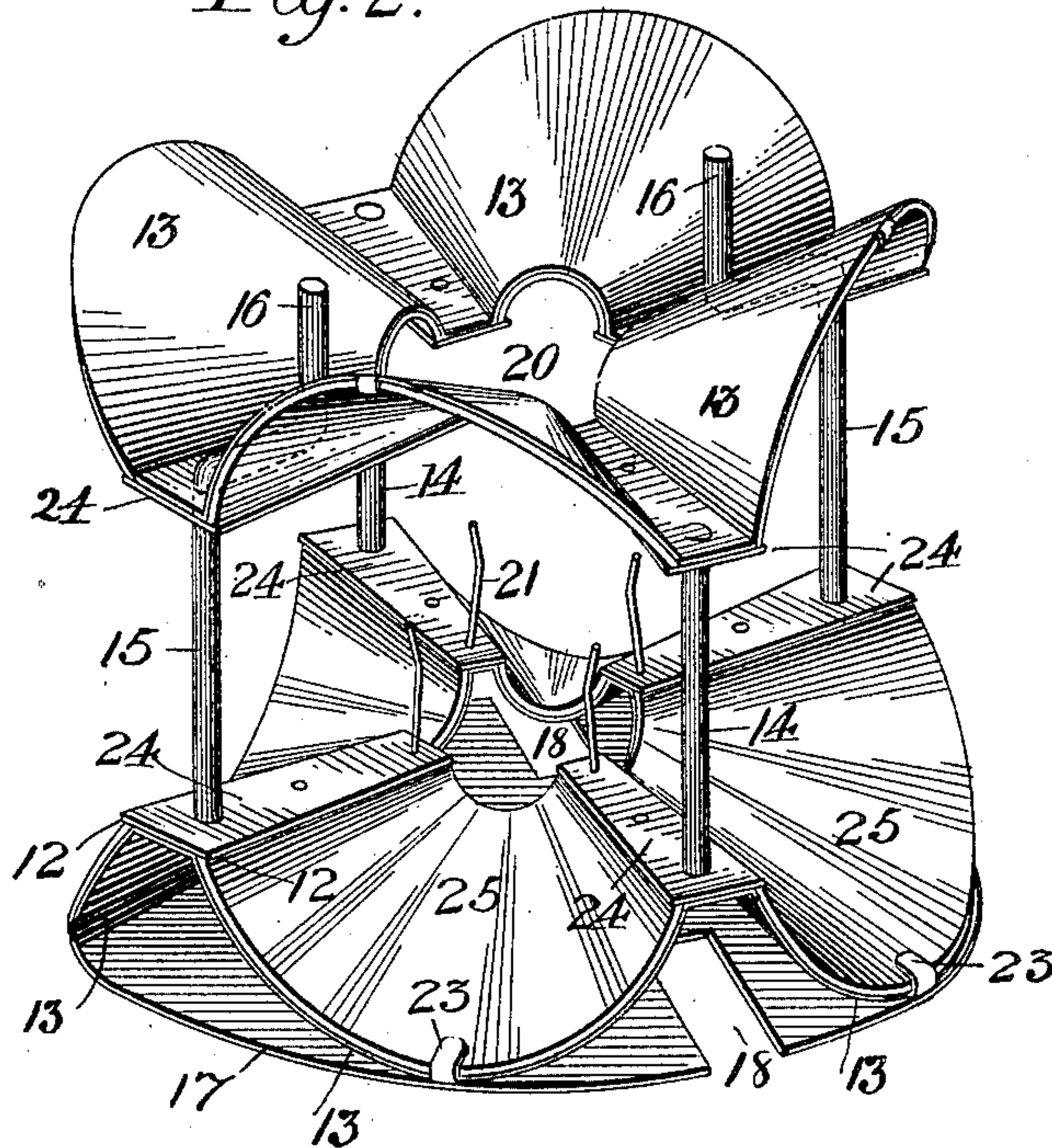
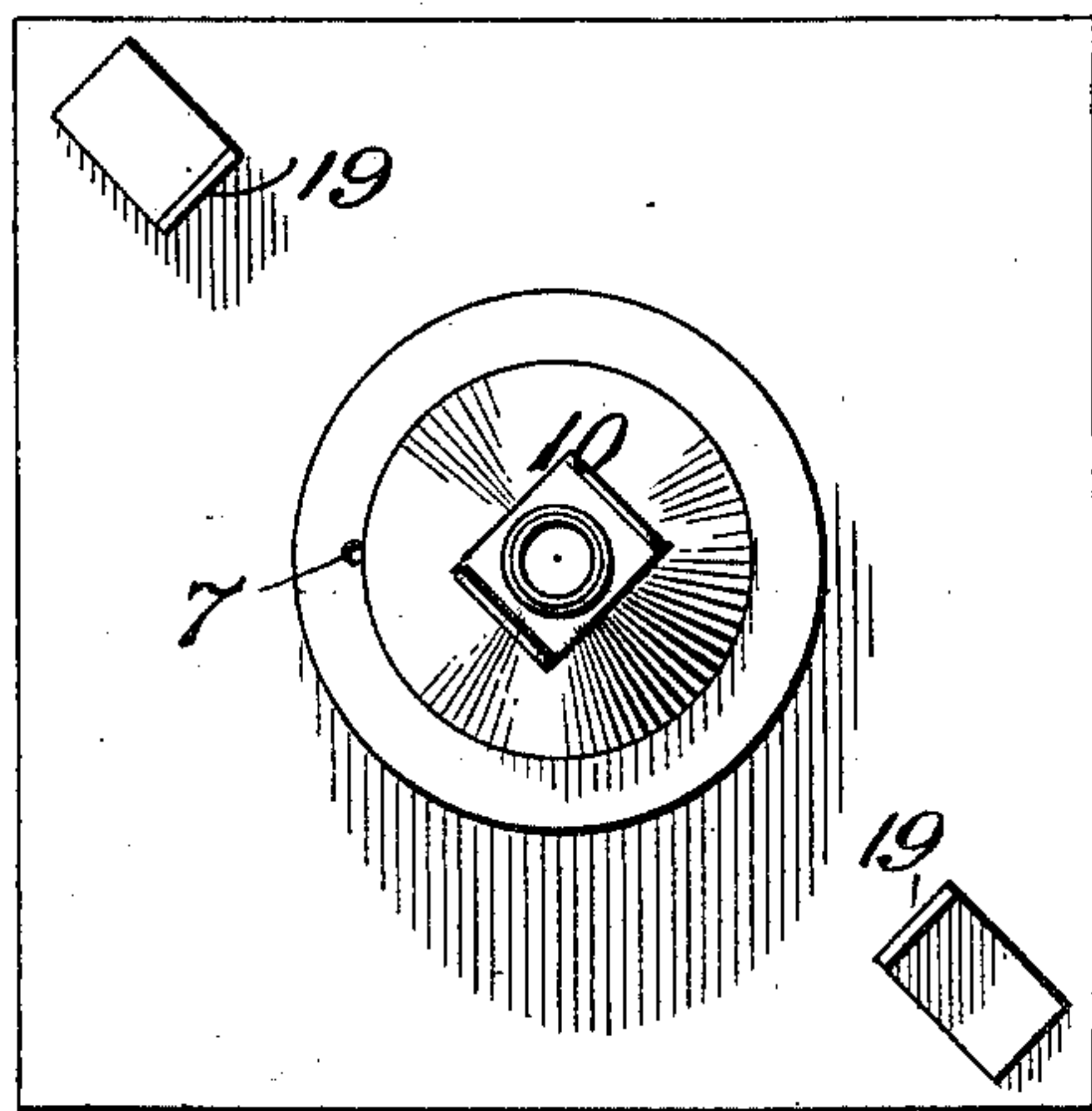


Fig. 3.



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Witnesses:  
W. W. Edelin.  
J. B. Hutchinson Jr.

Inventor:  
W. R. Dodson  
By his attys  
Rennie Goldborough



No. 672,404.

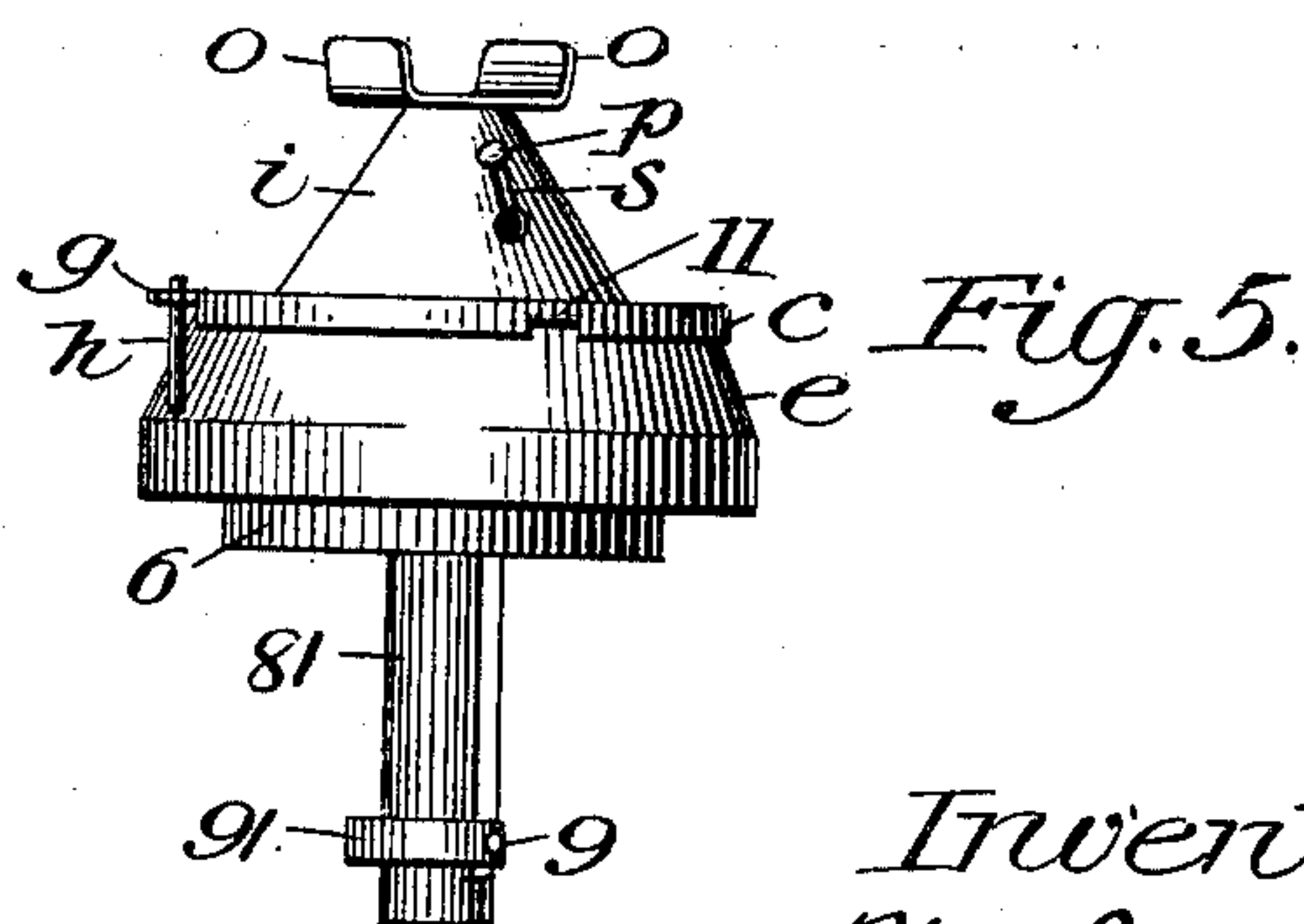
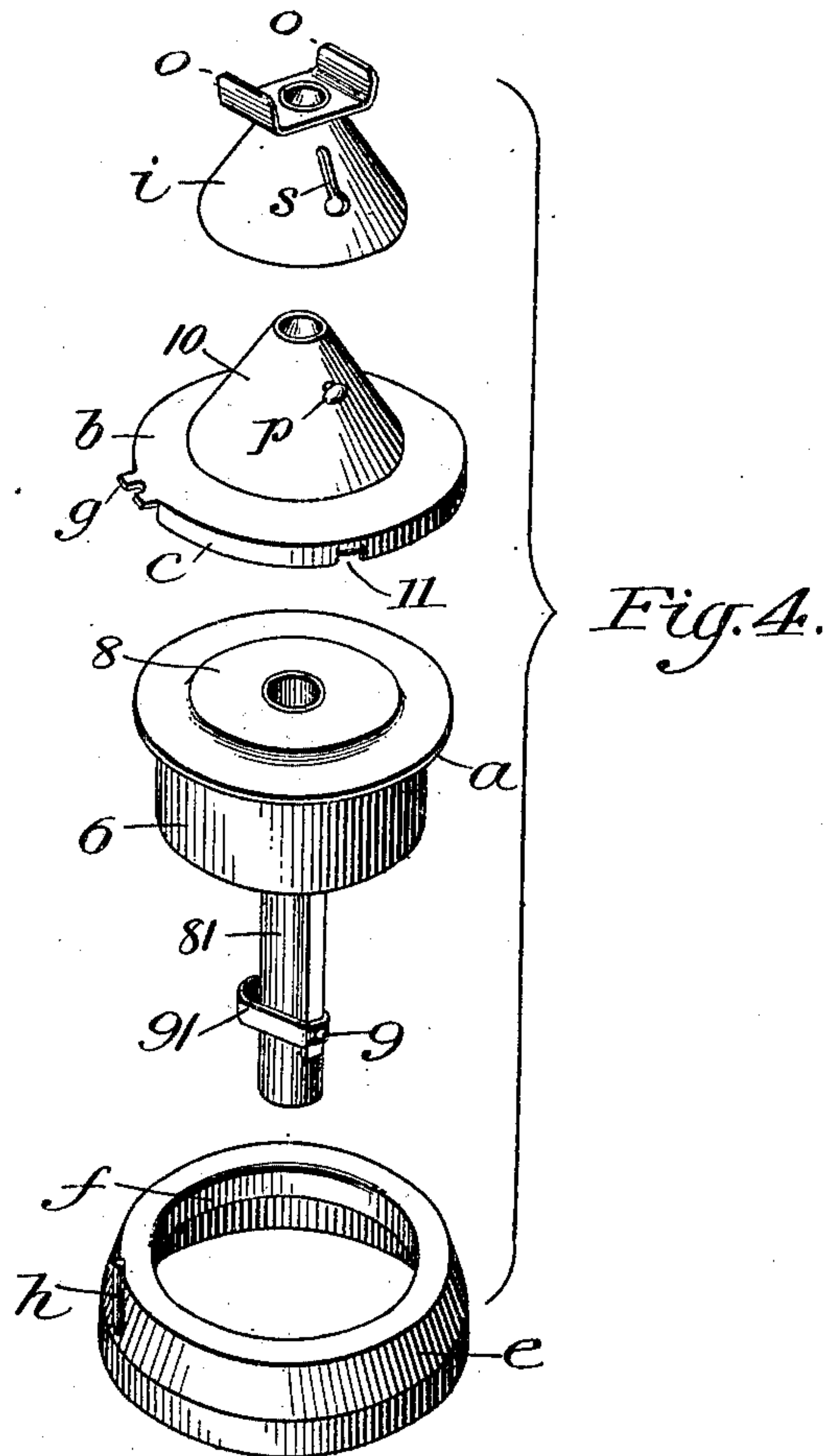
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3 Sheets—Sheet 3.



Witnesses:  
D. W. Edlin,  
J. M. Copenhaver,

Inventor:  
W. R. Dodson  
By his attys  
Pinner & Goodborough

# UNITED STATES PATENT OFFICE.

WILLARD RICHARDSON DODSON, OF JERMYN, PENNSYLVANIA.

## LANTERN.

SPECIFICATION forming part of Letters Patent No. 672,404, dated April 16, 1901.

Application filed April 21, 1900. Serial No. 13,757. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD RICHARDSON DODSON, a citizen of the United States, residing at Jermyrn, in the county of Lackawanna, State of Pennsylvania, have invented certain new and useful Improvements in Lanterns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In a patent granted to me March 10, 1896, No. 556,259, I have illustrated, described, and claimed a form of signal-lantern designed particularly for railroad-signaling that has proven satisfactory and efficient in operation and convenient, safe, and durable in construction.

The present invention relates to this style of lantern and has been devised with a view to still further enhance the efficiency of the construction of my former patent, more particularly in respect to the burner and the reflectors, but in some minor features also.

The present improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section. Fig. 2 is a perspective of the reflectors. Fig. 3 is a plan view of the top of the oil-receptacle. Fig. 4 shows in perspective the burner, the several parts being separated to more clearly illustrate them. Fig. 5 is a side elevation of the burner with its parts assembled.

The construction and exterior form of the casing of the present lantern does not differ materially from that of my former lantern, and it will not therefore be necessary to describe it here, except to say that I preferably make the lower part 3 square or angular in cross-section and have the oil-receptacle 4 of similar form for the purpose of dispensing with devices for holding the receptacle against turning in the casing, and thereby preserving the alinement of the reflectors with the lenses in the upper portion of the casing.

I retain in this improvement the removable top or dome 1 and the four radiating lens-holding extensions 2 of my former lantern, as well as the shield 38 and dome-plate 39, with its lifting-knob 41, and the general construction of the wick-holding device and the ar-

rangement of the reflectors and the chimney is practically the same.

The oil-receptacle 4 is preferably smaller than the lower part of the casing and is provided with springs 40, bearing between its outer side and the inner wall of the casing to keep it from moving about. It is provided on its top with a central burner-opening and an upstanding neck 5, forming a seat for the burner. Around the neck there is a curved collar *e*, secured to the oil-pot 4 and having its upper edge *f* turned inwardly and downwardly over the upper edge of the neck 5. The burner has a depending rim 6, which is shaped to fit within the neck 5, and has a bottom plate 8 and an ordinary wick-tube 81 depending therefrom into the oil-receptacle. The wick may be held in this tube at any desired adjustment by a spring-pin 9, passing through perforations in the tube and into the wick, and a loop or ring 91 is connected with the pin and encircles the tube to hold the pin always in operative relation to the tube. The bottom plate 8 of the burner is extended laterally beyond the sides of the neck 5, as best illustrated in Figs. 1 and 4, so as to form a ledge or flange *a*. This flange forms a means of detachably securing the conical burner-cone 10 to the bottom plate, the lower outer edge of the cone being extended horizontally, as at *b*, and being provided with a downwardly-bent flange *c*, having tongues or clips 11, which are bent under and around the outer edge of the flange *a*, this arrangement permitting the easy detachment of a worn-out cone and the placing of a new one on the burner. The edge *b* of the cone 10 is provided with a notch *g*, and a pin *h*, projecting from the collar *e*, fits into this notch when the burner is in place, so as to insure the cone being put on always in the same position, and also prevents the burner being displaced by the sudden turning of the lantern when the switch is thrown, which, as the burner is held in by friction only, it might do. This burner-cone is preferably of the frusto-conical form shown in Figs. 1 and 4, and it is provided at the top with an opening which corresponds in shape and size with the form and size of the wick, so that the wick completely fills the opening and is preferably slightly compressed



thereby. The apex of the burner-cone is some distance above the bottom plate 8, and the wick from the point where it issues from the wick-tube opening in said plate to the opening in the top of the cone is bare and uncovered. The object of extending the cone upward in the manner described is to provide a dead-air space *d*, surrounding this naked portion of the wick, said space being closed on all sides against the entrance of air and acting as an insulator and non-conductor of heat and keeping the upper part of the wick cool, and the object of having the opening in the burner-cone fit the wick closely is to prevent the flame from charring the wick below the top opening of the cone. A small opening 7 is provided at the base of the cone to permit any unconsumed oil that may find its way down the outside of the cone to pass into the receptacle 4 and for the purpose of permitting any gas that may form in the receptacle to pass upwardly to the flame.

On top of the burner-cone 10 a small cap *i* is detachably secured, the connection between the cap and cone being made by a pin *p* on the cone fitting into a keyhole-slot *s* in the cap. This connection not only permits the cap to be easily and quickly removed and restored, but also prevents sudden movements of the lantern from disarranging the cap, on top of which are secured upstanding guards *o o* to serve as protectors for the flame and which of course must be held in such position as not to obstruct the light passing through any of the lenses. The guards act to deflect the air passing to the point of combustion, so that its mixture with the gas from the oil in the wick occurs at a point somewhat above the apex of the cone, thereby raising the point of combustion and greatest heat, and consequently protecting the cone and keeping it cooler with less tendency to char the wick downward. The pin and slot are so located as to fix the guards in line with the corners of the lantern and between the lens-openings. The purpose of this detachable cap is to permit the wick to be trimmed slightly above the top of the cone 10 with the cap off, which is desirable on account of the difficulty of getting the attendants to carefully trim the wicks. With this arrangement the cap *i* may be removed for trimming, and the wick need not then be cut flush with the top of the cone 10, as when the cap is returned to place it will then come flush with the cap-opening.

The general form and arrangement of the reflector of my present improvement are the same as in my former lantern. It is formed of upper and lower sections suitably spaced apart and secured rigidly together. Each section consists of a metallic plate stamped or struck up into four semiconical reflectors 13, those of the two sections being oppositely disposed, so that together they form substantially conical reflectors radiating from a cen-

tral opening 20, up through which the chimney 22 of the lantern extends. In order to economize in the cost of production and at the same time obtain a better reflecting-surface, instead of nickel-plating the inner surfaces of these reflectors, as in the former case, I employ silvered-glass plates 25, suitably shaped to fit the individual reflectors, and in order to secure these plates firmly but detachably in place I provide between each of the conical reflectors a plate 24 and rivet them to the sections, so that they overlap the edges of the glass plates, as shown at 12, Fig. 2, and each of the reflectors has a flexible tongue or clip 23 at its outer edge which when the glass plate 25 has been slipped into place from the outer end of the reflector is bent up over its edge, as indicated in the second figure.

The reflector-sections are properly spaced apart and secured together by posts or standards 14 15, and for the purpose of providing a handle by which to remove and replace the same the posts 15 are continued above the upper section and are first bent inwardly and then upwardly, as at 16, so as to form a convenient hold for the thumb and fingers.

The chimney 22 has its lower edge scalloped, as in my former construction, so as to conform to the corresponding surfaces of the inner ends of the reflectors on which the chimney rests, as best shown in Fig. 1. The upper end of the chimney, however, is here made plain and is extended up through the opening 20 and above the upper reflector-section, so as to carry and deliver the products of combustion above the reflector and avoid soiling and blurring the reflecting-surfaces. Spring-pins 21 are located at the inner ends of the plates 24 and surround the chimney and form a holder for the same.

The means for preventing the oil-receptacle from turning in the lower casing has already been described, and I have further simplified and improved the original construction by discarding the spring-bolts of the patent and connecting the reflector to the oil-receptacle, so as to be held firmly against rotation without interlocking with the casing and yet so as to permit its quick and easy removal and replacement. This is effected by providing upstanding guides 19 on the top of the receptacle 4 and securing to the lower reflector-section a flat plate 17, having notches 18, adapted to fit over the guides when the reflector is in place. The plate 17 has a central opening permitting it to be set down over the burner and is secured to the reflector-section by soldering or any other appropriate means.

Having thus described my invention, what I claim, and desire to secure, is—

1. In a lantern, the combination with the oil-receptacle, of a burner having a cone provided with a wick-opening fitting the wick closely and forming substantially an air-tight



joint therewith, and a closed dead-air space or chamber through which the naked wick passes.

2. In a lantern, the combination with the oil-receptacle, of a burner having a bottom plate surrounded by a burner-cone having a wick-opening fitting the wick closely and forming substantially an air-tight joint therewith, said cone forming with the bottom plate a closed dead-air space or chamber through which the exposed wick passes.

3. In a lantern, the combination with the oil-receptacle having the upwardly-extending neck 5 forming a burner-seat, the burner comprising a bottom plate 8 and depending flange 6 fitting within the upwardly-extending neck 5, the cone 10 supported upon the bottom plate of the burner and having a wick-opening in its upper portion, said cone and bottom plate forming a dead-air space.

4. In a lantern, the combination of the oil-receptacle, a burner-cone having a wick-opening in its top, a supplemental cone or cap independent of the lantern attachments and resting upon the burner-cone, and means detachably connecting the burner-cone and cap.

5. In a lantern, the combination with the oil-receptacle, of a burner-cone having a wick-opening at its top and a supplemental cone or cap independent of the lantern attachments, detachably secured thereto and provided with guards *o, o*, for the flame.

6. In a lantern, the combination with the oil-receptacle, of the neck 5 forming the burner-seat, the collar *e* surrounding the neck and having an upstanding pin *h*, a burner having the bottom plate 8 and depending flange 6, the latter fitting the neck 5, and the cone 10 secured to the bottom plate and provided with the notch *g* to receive the pin on the collar.

7. In a lantern, the combination of the casing having radiating lens-openings, an oil-

receptacle held within the casing against turning, a reflector having radiating light-reflecting surfaces corresponding to the lens-openings, and slots or perforations and upstanding guides on the oil-receptacle engaging the slots or perforations in the reflector and serving to hold the same in proper position relative to the lens-openings.

8. In a lantern, the combination of the casing having radiating lens-openings, an oil-receptacle held within the casing against turning, a reflector having radiating light-reflecting surfaces corresponding to the lens-openings, upstanding guides on the top of the oil-receptacle, and a plate secured to the reflector and notched to fit over the guides so as to hold the reflector in proper position relative to the lens-openings.

9. In a lantern, the combination with a reflector-section having radiating curved reflectors 13, of the edge flanges 24, the curved glass reflecting-surface pieces 25 held beneath said edge flanges, and means for holding the glasses in position on the sections.

10. In a lantern, the combination with a reflector-section having radiating curved reflectors 13, of the edge flanges 24, the curved glass reflecting-surface pieces, and the tangs 23 connected to the reflectors 13 for securing the glasses in place on the sections.

11. In a lantern, the combination of two horizontal reflector-sections having oppositely-disposed reflectors surrounding and radiating from a central burner, rods 15, securing said sections together and spacing them apart, and the thumb-pieces formed by bending the upper ends of two of the rods.

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

WILLARD RICHARDSON DODSON.

Witnesses:

MYRON KASSON,  
W. E. BARTLETT.