(No Model.)

3 Sheets—Sheet 1.

E. S. MANNING.

SIGNAL LANTERN.

No. 587,153.

Patented July 27, 1897.

Fig. 1.

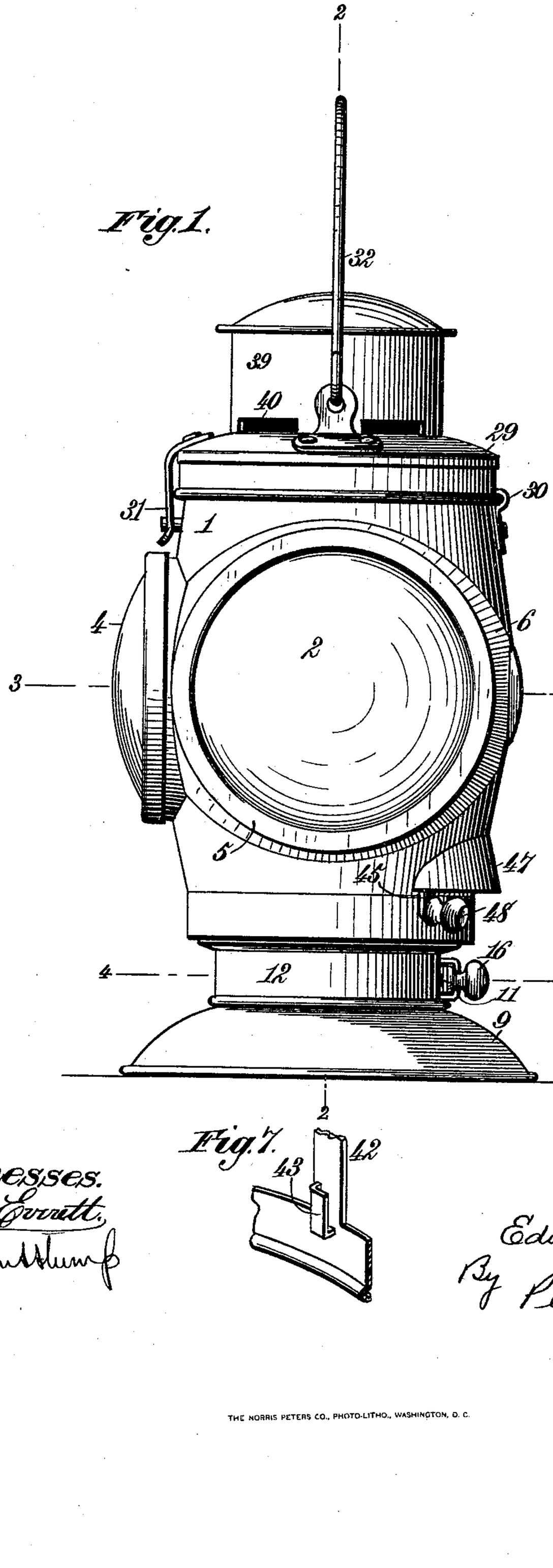

Fig. 8.

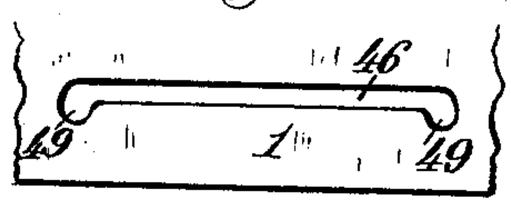

Fig. 6.

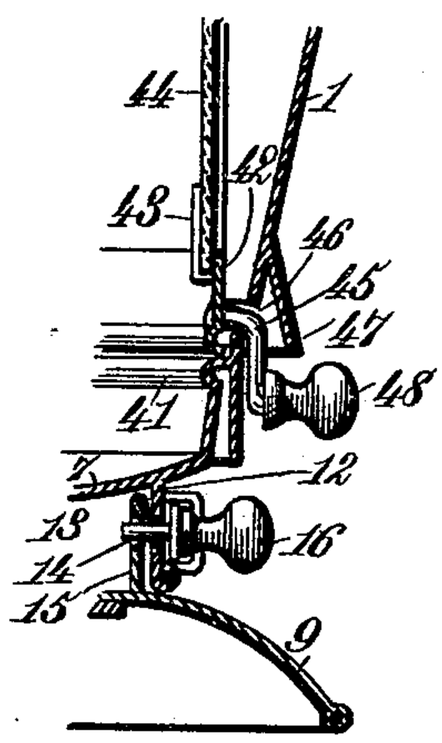

Fig. 7.

Witnesses.
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(No Model.) 3 Sheets—Sheet 2.

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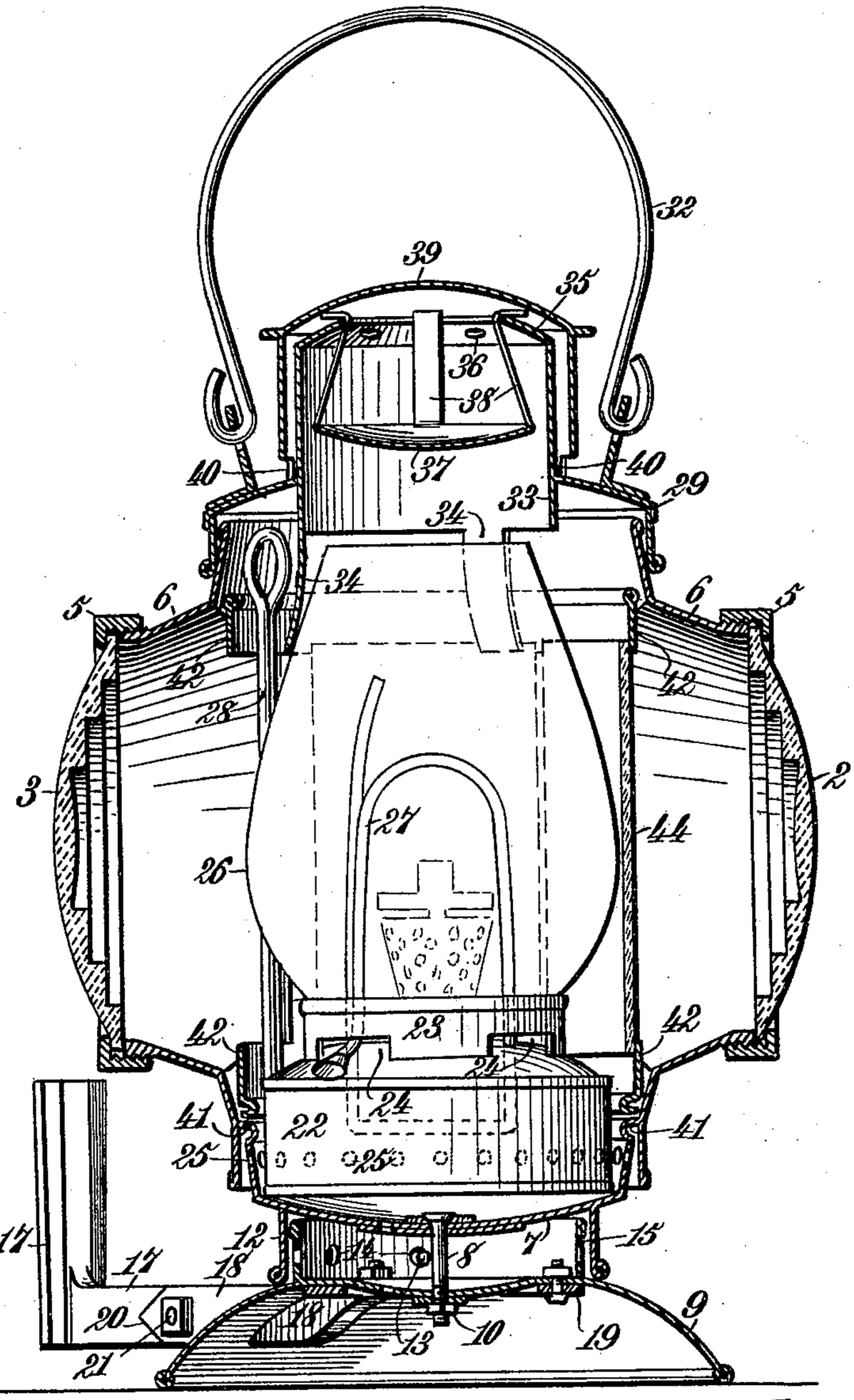
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

E. S. MANNING.

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Fig. 3.

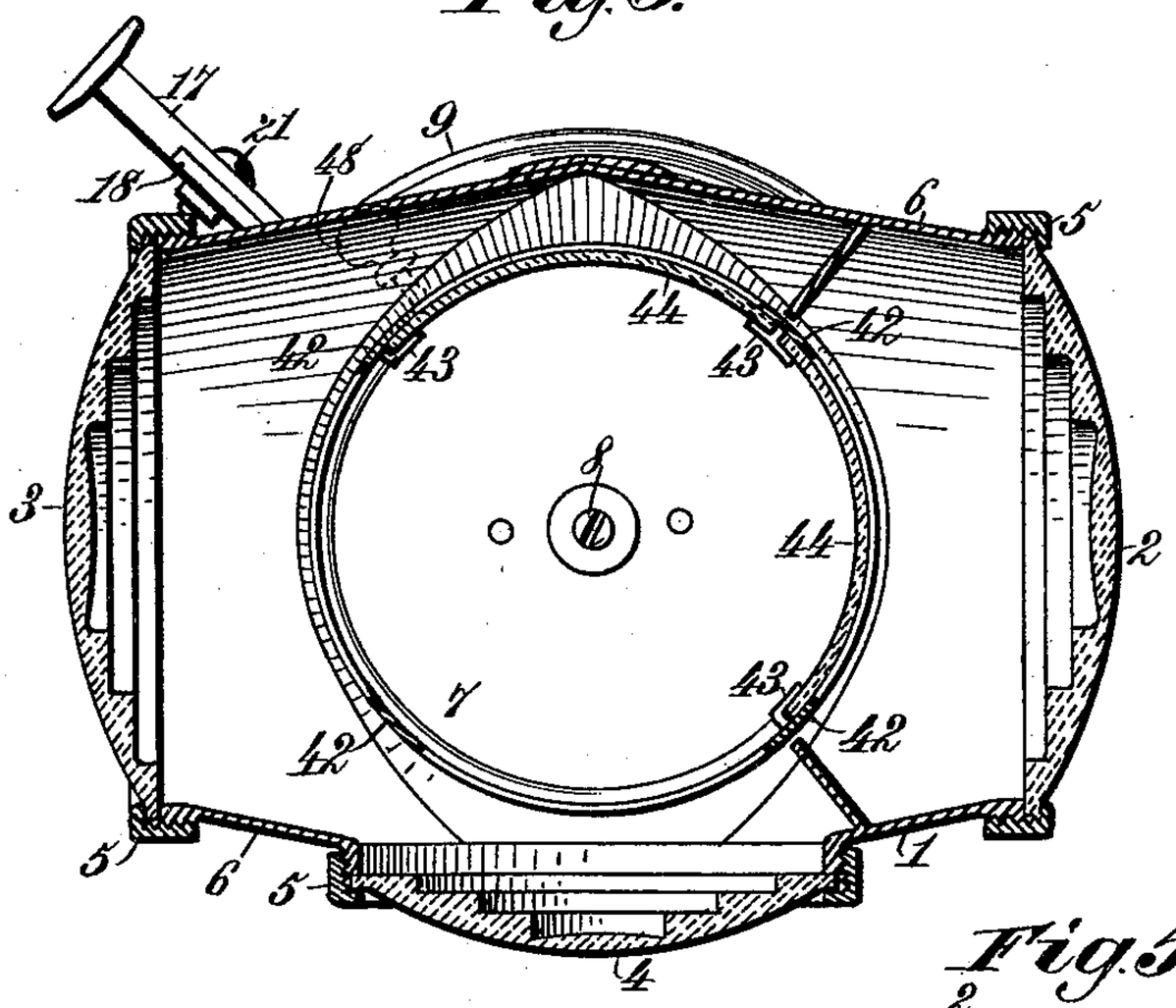


Fig. 4.

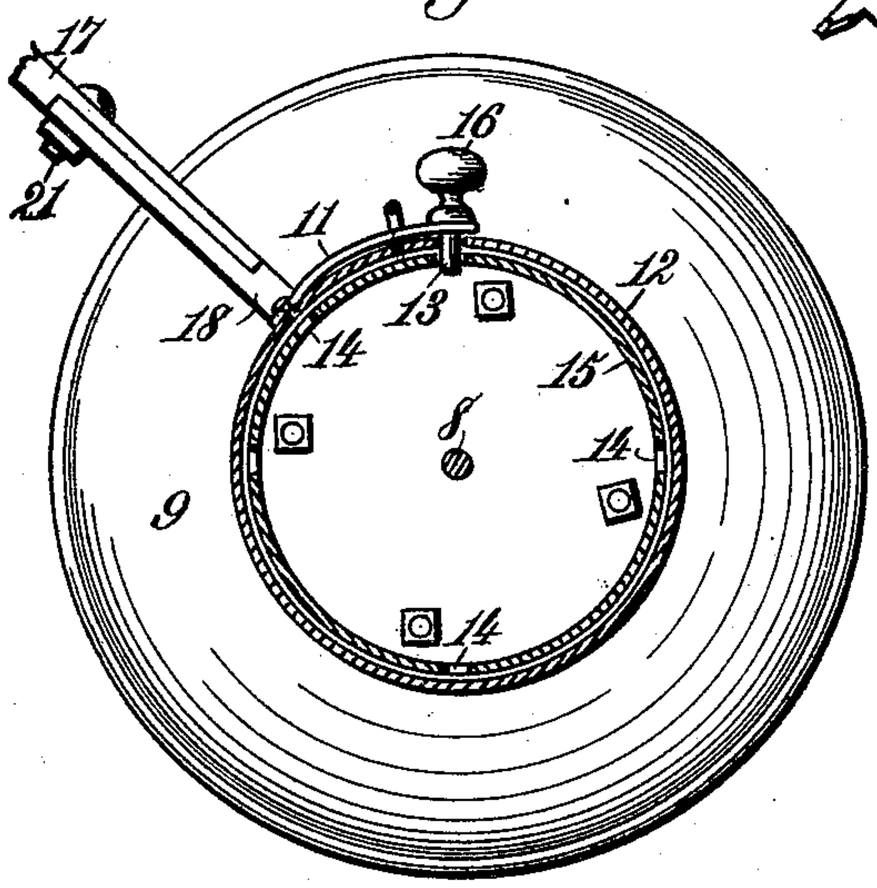
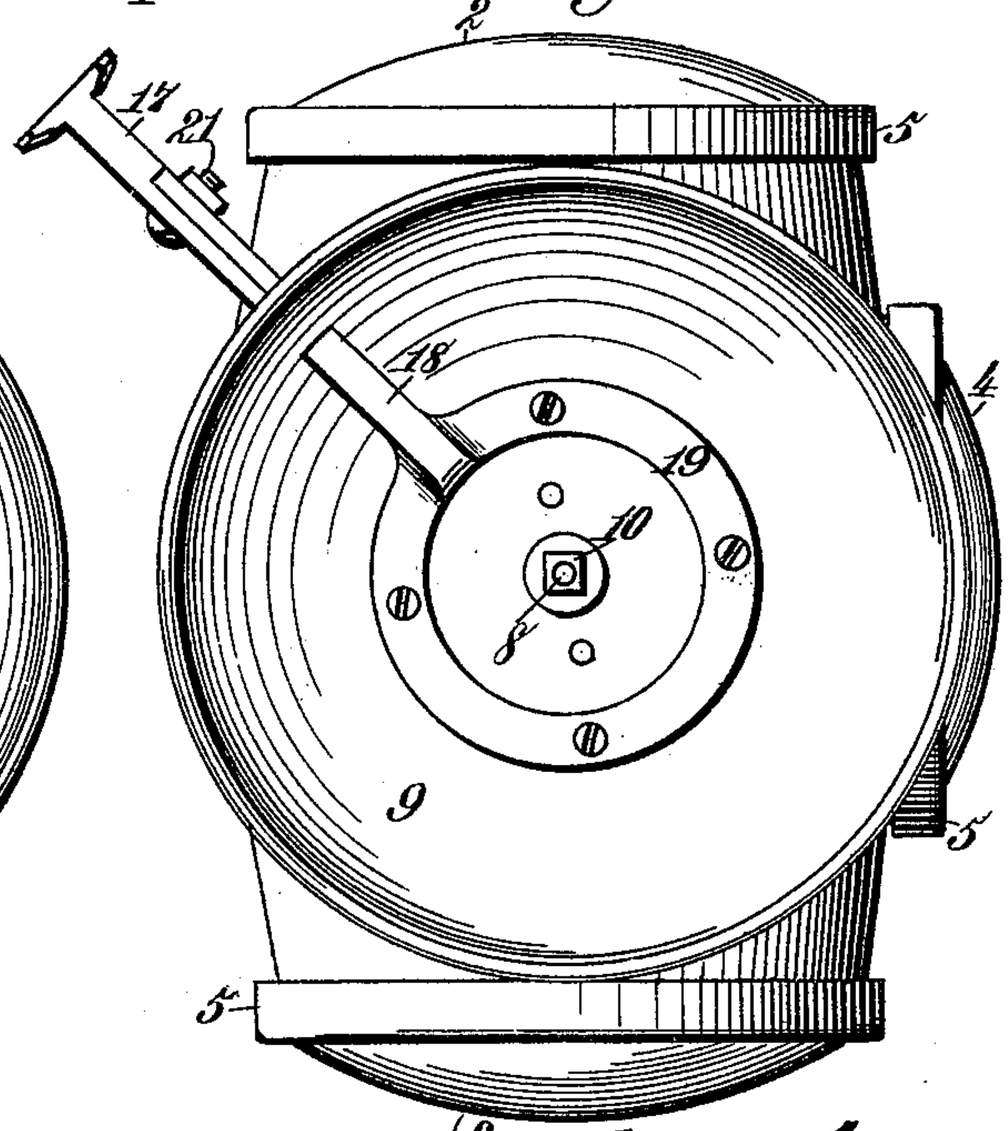


Fig. 5.



Witnesses.
Robert Everett.
John A. Thumb

Inventor:
Edward S. Manning
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Atty

UNITED STATES PATENT OFFICE.

EDWARD S. MANNING, OF DES MOINES, IOWA.

SIGNAL-LANTERN.

SPECIFICATION forming part of Letters Patent No. 587,153, dated July 27, 1897.

Application filed March 10, 1897. Serial No. 626,735. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. MANNING, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Signal-Lanterns, of which the following is a specification.

My invention relates to lanterns more particularly intended for use in railway-signaling, and has for its object, primarily, to provide a construction that will be especially adapted for use as a train-marker on the rear coach, and in which the color of the lights exposed may be changed to suit the requirements of the particular occasion without the necessity for removing the lantern from its supporting-bracket on the coach.

A further object of my invention is to provide an improved construction of supporting mechanism for the lantern, whereby the body of the same may be rotated on its base to any desired position.

A still further object of my invention is to provide a top for said lantern that will permit the proper ventilation, but which will effectually prevent the admission to the lantern-casing of rain, cinders, &c., to which such lanterns are greatly exposed while in use.

Certain other minor improvements will be specifically described hereinafter and definitely embraced in the claims, and need no further present mention.

In the drawings forming a part of this specification, Figure 1 is an elevation of my improved lantern. Fig. 2 is a central vertical section of the same, taken on the line 2 2 of Fig. 1. Fig. 3 is a horizontal section taken on the line 3 3 of Fig. 1. Fig. 4 is a horizontal section taken on the line 4 4 of Fig. 1. Fig. 5 is a bottom plan view. Figs. 6, 7, and 8 are detail views illustrating various portions of the device.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings, the reference-numeral 1 denotes the casing of the lantern, the same being provided with lens-openings at its ends and at one side for the reception of the lenses 2, 3, and 4, as shown in Fig. 3. These lenses are preferably secured removably in position by means of screw-threaded collars 5, adapted to engage with the casing 1, as shown, though, if desired, said lenses may be permanently fixed in position. It will be noticed by reference to Figs. 2 and 3 that the sides 6 of the casing converge from the center line of the lantern toward the points where the lenses 2 and 3 are attached thereto, thus providing for a full exposure of the whole of the said lenses to the lamp-flame and materially aiding in increasing the brilliancy of the light projected through said lenses.

The lantern-frame 1 has projecting centrally through its bottom 7 a pivot-bolt 8, which engages with the base 9 of the lantern, as shown in Fig. 1, a nut 10 on said bolt serving to retain the two together. This connection between the two permits the frame to be rotated freely on said base, and this movement is controlled by a spring-arm 11, Figs. 1, 4, and 6, fixed to a depending collar 12 on the frame 1 and carrying at its free end a pin 13, adapted to engage in any one of a series of apertures 14 in an upwardly-projecting collar 15 on the base 9, a suitable knob 16 being provided on said spring-arm 11 to manipulate the same, as will be readily understood.

In order to provide for the attachment of the lantern to the end of a coach in the usual manner, I provide the usual bracket projecting from the base 11 and preferably formed of an outer section 17 and an inner section 18, the latter being formed at its inner end into a ring 19, secured to the under side of the base 11 by suitable bolts, as shown in Fig. 5, the outer end of said section 18 extending through an aperture in the base 11. My preferred form of connection between these two sections consists in recessing and overlapping their meeting ends and forming them V-shaped, so as to fit into corresponding V-shaped sockets 20 in the shoulders formed by said recessing, as shown in Fig. 2, a single transverse bolt 21 serving to hold the two firmly together, and thus constitute a substantially single rigid member.

The lower portion of the casing 1 is adapted to removably receive therein the lamp-reservoir 22, carrying the usual burner and having fixed thereto a chimney-receiving collar 23, the same being provided with a series of apertures or slots 24 for the admission of air to

said burner, a supply of air to the bottom of the casing being provided by an annular series of apertures 25 in the casing.

In order to supply an additional quantity of air in the body of the chimney 26, I provide a pipe 27, the same having one end made flaring and projecting through one of the apertures 25 in the collar 23 and extending therefrom upwardly into the body of the chimney, then curved downwardly and passing into and across the reservoir 22 and upward through said reservoir and terminating in the body of the chimney 26, as clearly shown in Fig. 2.

Fixed to the side of the reservoir 22 is a handle 28, the same extending upwardly therefrom substantially to the top of the casing 1 and providing a ready means for the removal and replacement of the reservoir 22 and its chimney 26.

The cover 29 of the lantern is preferably hinged to the casing at 30 and is provided on its side opposite to said hinge with a suitable fastening device 31, and has also a bail 32, permitting the lantern to be carried readily from place to place or to be used as a hand signal-lantern. This cover is provided with a central annular sleeve 33, open at both ends, formed integral with the cover and extended at its lower end into a series of slightly-resilient arms 34, adapted to engage with the lamp-chimney 26 when said cover is closed to firmly retain the latter in position. It will be noticed by referring to Fig. 2 that said chimney does not extend to the lower edge of the sleeve 33 proper, thus providing for the admission of a supply of air to the chimney-top to promote combustion. Said sleeve 33 has its upper open end contracted into the integral ring 35, and the latter may, if desired, be perforated, as shown at 36. Mounted in said sleeve 33 is a concaved dome 37, the same being detachably retained in position by the spring-arms 38 engaging over the ring 35, as shown. Fixed to the cover 29 over the sleeve 33 and formed integral with said cover is a hood 39, closed at its top, but provided with a series of slots or apertures 40 at its point of juncture with said cover.

Closely fitting the inner wall of the casing 1 and resting on a flange 41, formed in said casing, is a circular rotatable slide 42, the same being provided with a series of sockets 43 to receive two or more removable glass screens 44, one of said sockets being shown in detail in Fig. 7. Fixed to the lower edge of said slide 42 is an arm 45, projecting through a horizontal slot 46, extending one-quarter the way around the casing 1, said arm being bent downward and outward to clear a hood 47, fixed to the exterior of the casing and adapted to protect said slot from the ingress of rain, cinders, &c. Said arm 45 is provided with a suitable handle 48 to manipulate the same. The slot 46 is provided at its ends with depressions 49, (shown in Fig. 8,) in which the arm 45 rests at either extreme of its movement to prevent any accidental movement of the same. If desired, instead of locating colored glasses in the sockets of the slide 42 I may provide removable opaque screens in either one or more of the receiving-sections, whereby one or more of the lenses may be darkened.

From the above description the operation of my improved lantern will be understood to be as follows: When the parts are in the position shown in Fig. 2, the chimney 26 is firmly held in position against displacement between the collars 23 and 33 and a full supply of air is admitted through the apertures 25, up through the slots 24 in the collar 23, to the burner. A portion of this air-supply is taken into the flaring mouth of the pipe 27, where it is heated in the upper curve of said pipe and then imparts some of this heat to the oil in the reservoir 22 in the lower turn of said pipe, and is finally discharged at the open upper end of said pipe into the chimney 26 to aid in the combustion at that point. The construction of the lower end of the sleeve 33 permits an additional supply of air to the top of the chimney 26, while the dome 37 serves as a protection against undue heating of the top of the hood 39, the products of combustion passing around said dome out through the top of sleeve 33, and then down between said sleeve and the hood 39 and out through the slot 40 in the latter, this construction effectually preventing any liability of rain, cinders, &c., from gaining admission to the interior of the casing 1, even when exposed to a high wind.

In an application for Letters Patent filed by me June 13, 1896, Serial No. 595,484, I have shown and described a substantially similar construction for retaining the lamp-chimney 26 in position against displacement, except that the means of engagement with said chimney at top and bottom are collars formed of wire mesh or perforated metal; but I have found in practice that my present construction of the collar 23 and sleeve 33 possesses distinct advantages over my former construction, in that the supply of air to the burner and chimney is much better preserved, owing to the fact that the passages for the same are not at all liable to become clogged with soot, oil, and other dirt, and in that the parts are more readily cleaned.

It will be further understood that the pipe 27 forms no essential function in the operation of my improved lamp and may be dispensed with, if desired.

Referring now more particularly to Fig. 3, the side lens 4 is to be colored red for "danger" and is intended, when the lantern is attached to the rear end of a coach as a train-marker, to show to the side of the train, and is intended as a permanent danger-signal to protect the train when standing on and crossing the tracks of intersecting railroads. In this position the lens 2 will show to the rear and is a white lens, but may be converted into either a red or a green light by the use

of colored screens in the slide 42. This is best accomplished by using a red screen 44 back of said lens 2 and a green screen 44 in the slide 42 to the left of said red screen. In the position shown in Fig. 3, therefore, the lantern will show a red or "danger" light both to the side and rear and a green light to the front, thus denoting a following train, while by shifting the slide 42 a quarter-turn to the left, through the arm 45 and handle 48, said red light may be at once changed to green, the red screen 44 moving to a position back of red lens 4. When a white lens is desired at 2, it is only necessary to remove the screen 44 back of said lens from the slide 42. Further, the lantern may be changed to the other side of the coach and show a red light to the side and green lights to front and rear by turning the casing a quarter-turn to the right on the pivot-bolt 8, as described, and then shifting the red screen back of red lens 4, which will bring green screen 44 back of lens 2. While I have shown but two sets of screen-holders at 43, it will be understood that they may be placed around all four sides of the slide 42 and that one or more of the screens 44 may be removed and replaced by opaque screens, thus providing for darkening any or all of the lenses.

My preferred form of constructing the supporting-bracket for the lantern and connecting it to the base 9 affords a most perfect support for said lantern and in no way interferes with the various operations above described, as it is attached to the under side of the fixed base 9 and is entirely out of the way of the operative mechanism.

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

1. In a signal-lantern, the combination with the casing having lens-openings therein, and a rotatable slide within said casing adapted to carry a series of removable screens, of an arm attached to said slide and passing horizontally through a slot in the casing and then bent downwardly and outwardly, and a fixed depending hood covering said slot from beneath which said arm projects, said slot being provided with depressions at its ends to receive and retain said arm at either extreme of its movement, substantially as set forth.

2. In a signal-lantern, a casing having lens-openings therein on opposite sides, the sides of said casing converging from the center line of the lantern toward said lens-openings, substantially as set forth.

3. In a signal-lantern, the combination with a casing having lens-openings therein, and a lamp-receiving socket in its base, said casing being provided with vent-openings at or near the bottom thereof, of a movable cover having vent-openings therein, a lamp adapted to rest in said socket, a chimney for said lamp, a collar on said lamp having a series of slots in its lower portion for the admission of air, a central annular sleeve depending from the cover and extended into resilient arms adapted to engage with and retain the chimney in position and to admit air to the top thereof, substantially as set forth.

4. In a lantern, the combination with the reservoir, burner and chimney thereof, of a pipe leading from outside the chimney up into the same, then curved downward and passing into the reservoir, then upward again out of said reservoir and terminating within said chimney, substantially as set forth.

5. In a signal-lantern, the combination with the base thereof, of a supporting-bracket formed at its inner end into a ring bolted to the under side of said base, extending through said base and formed at its outer end so as to engage with and be retained by a suitable support, substantially as set forth.

6. In a signal-lantern, the combination with the base thereof, of a supporting-bracket formed in two sections, the inner section of which is engaged with the base, the two sections being formed with ends adapted to overlap and fit into angular recesses in each other, and means for retaining these ends together, substantially as set forth.

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

EDWARD S. MANNING.

Witnesses:
A. P. FLEMING,
CROM. BOWEN.