

(No Model.)

2 Sheets—Sheet 1.

J. WALL.
SIGNAL LANTERN.

No. 409,532.

Patented Aug. 20, 1889.

Fig. 1.

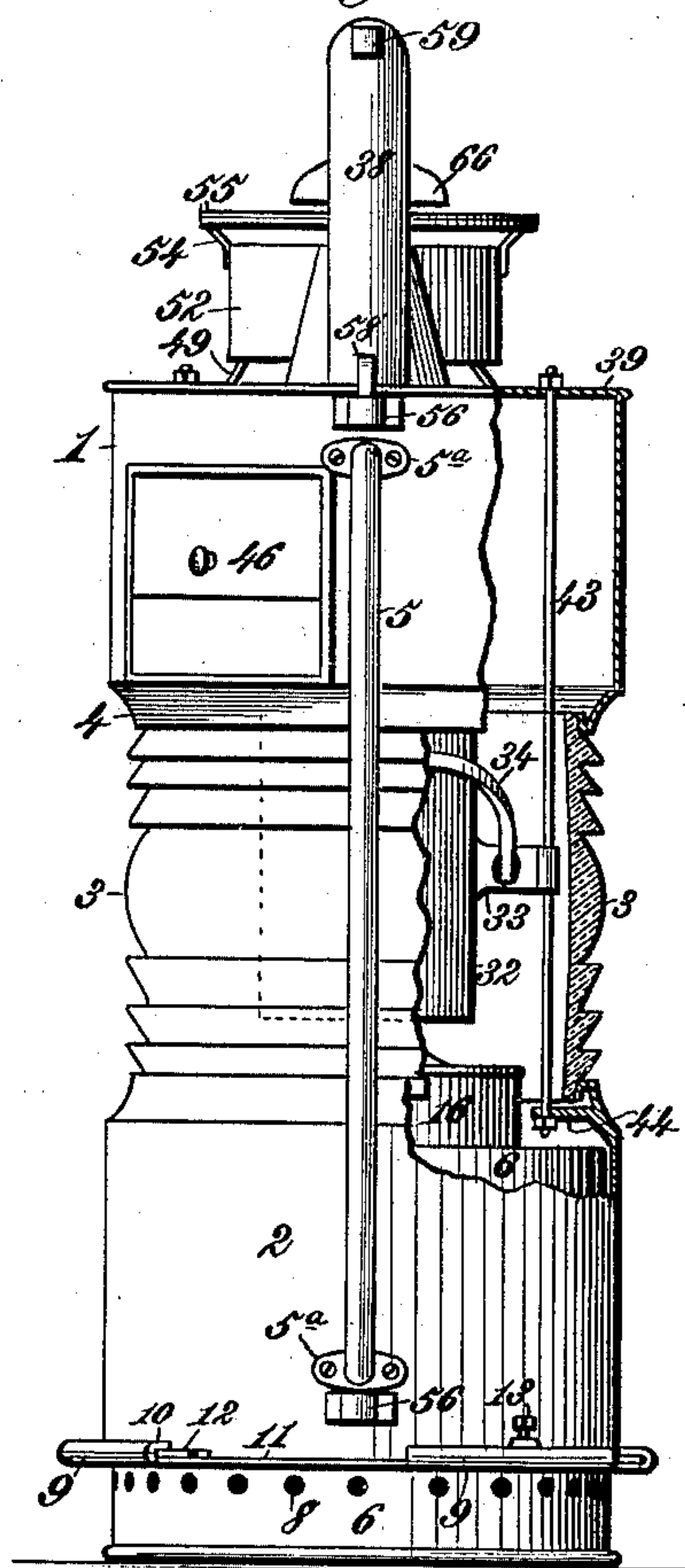
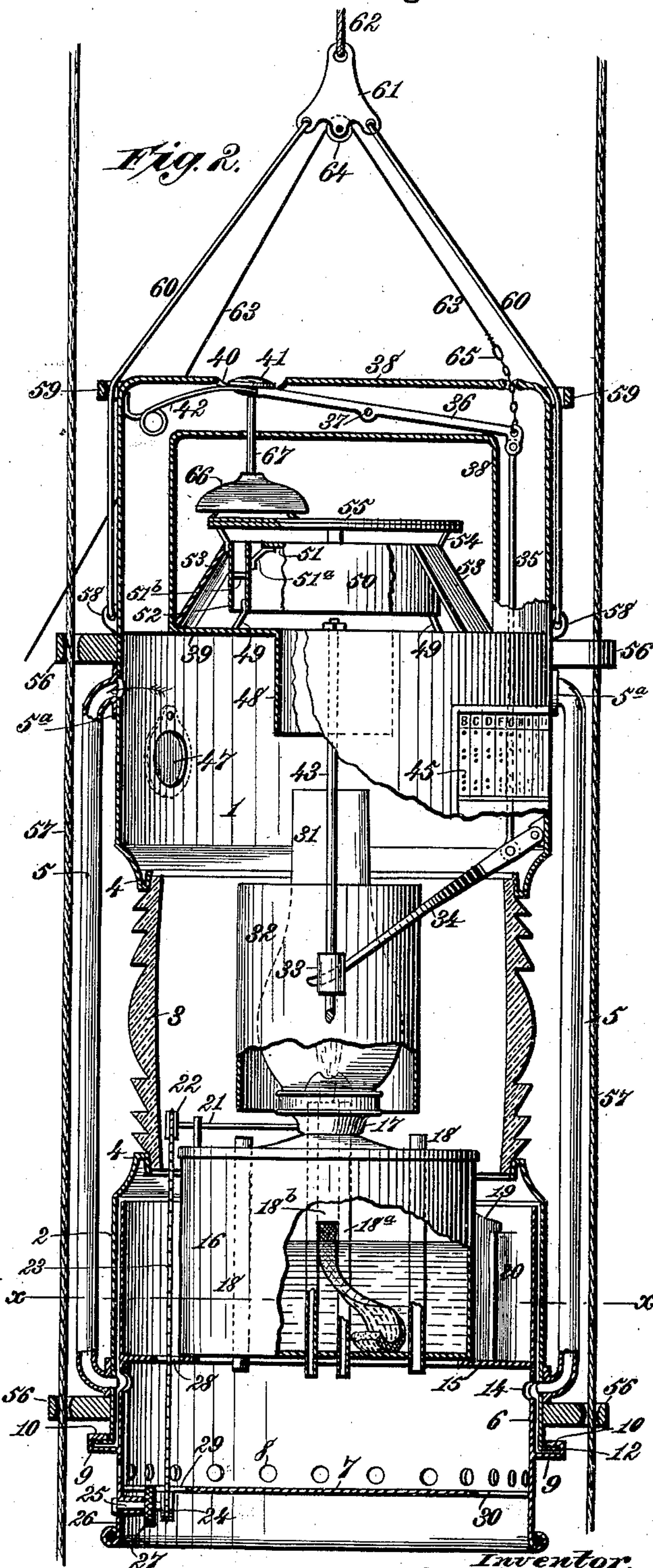


Fig. 2.



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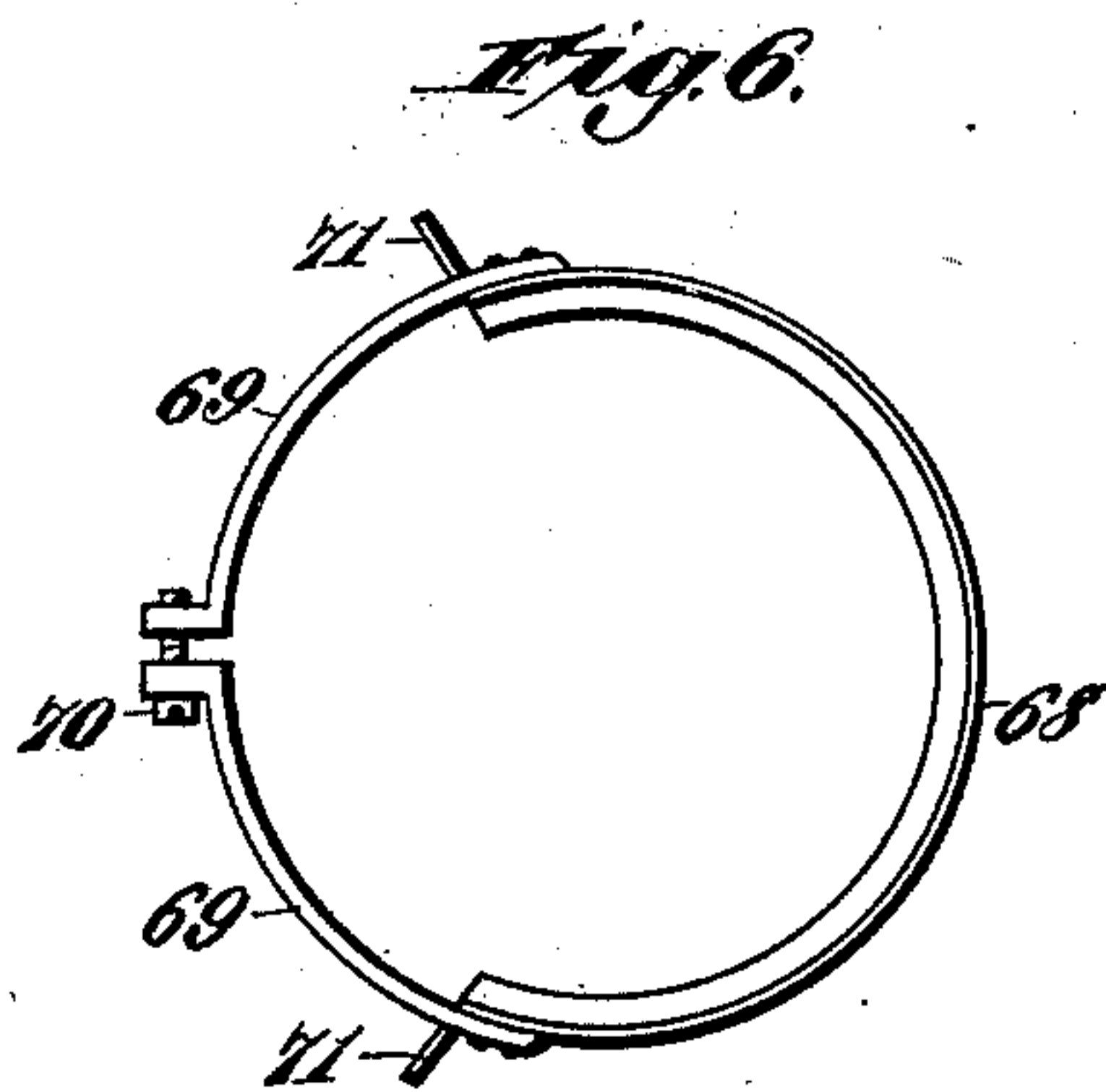
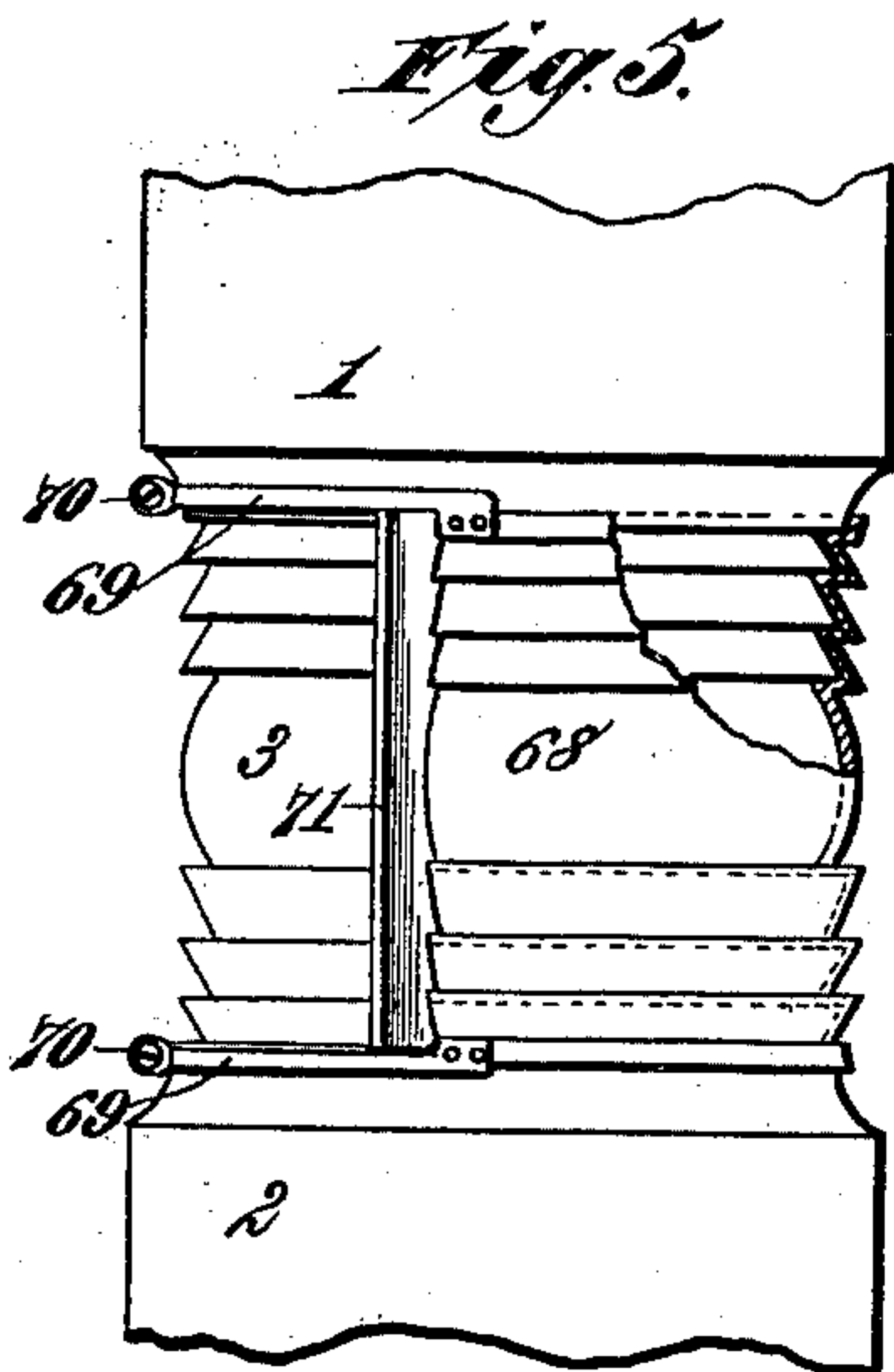
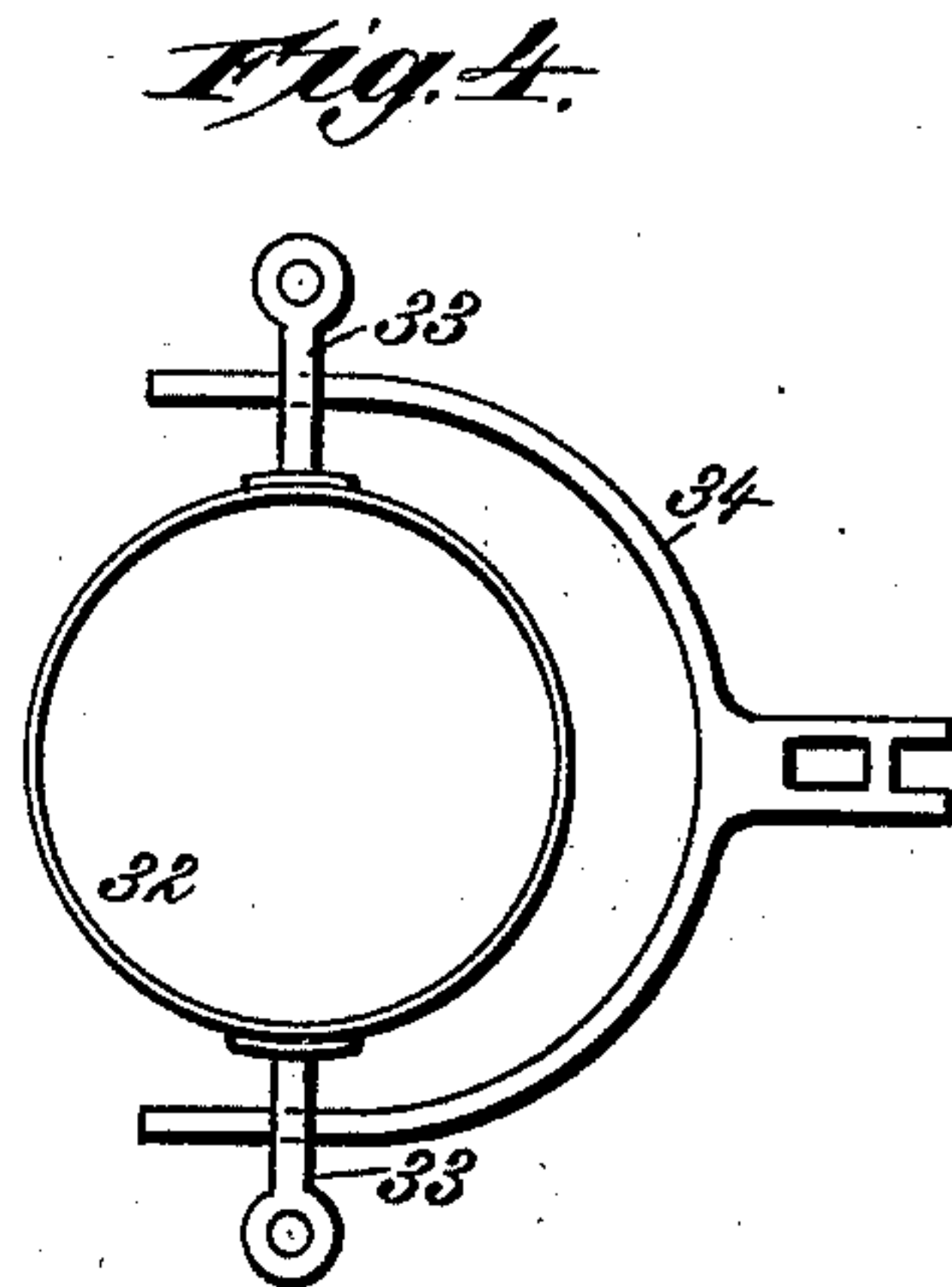
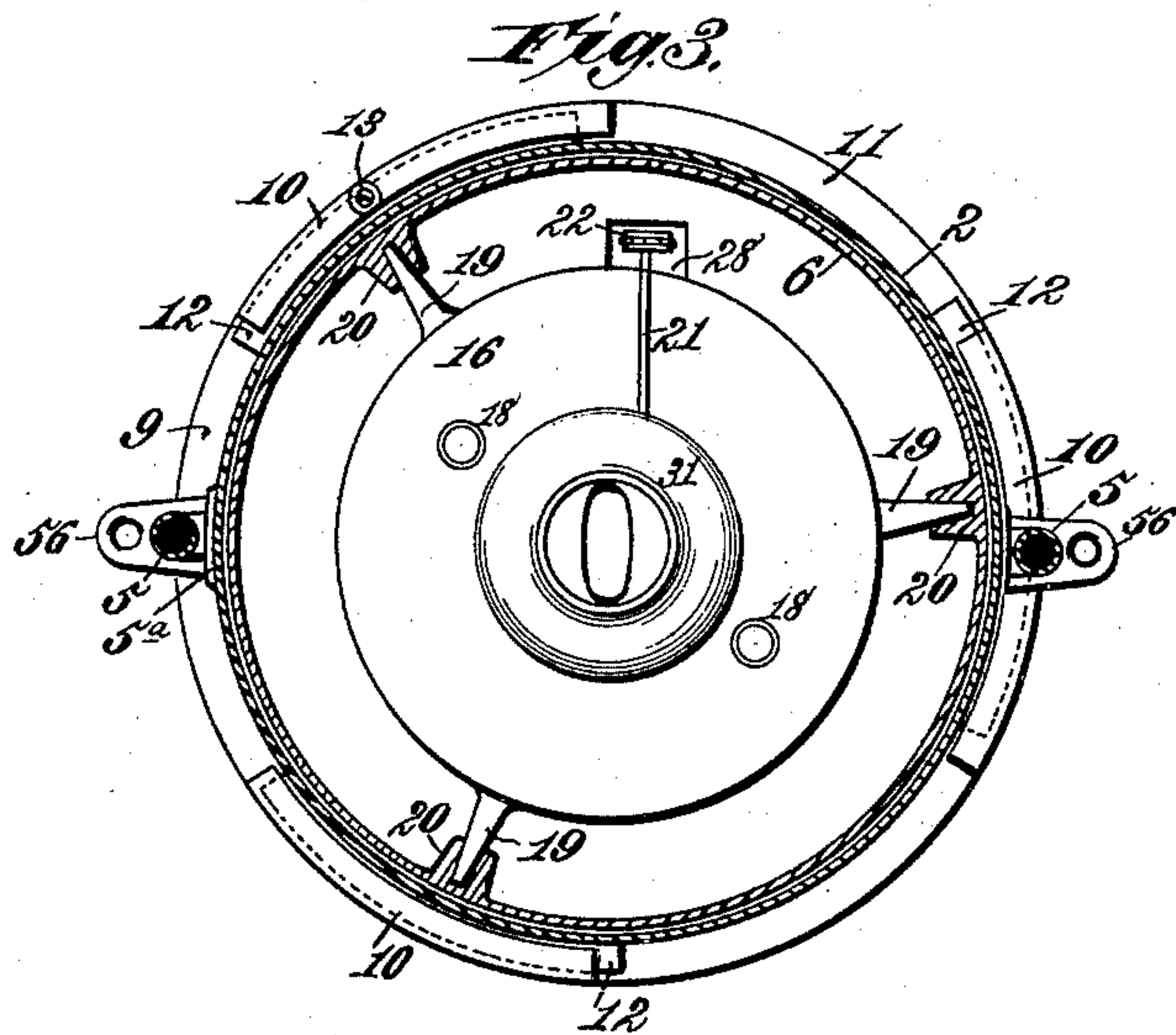
(No Model.)

2 Sheets—Sheet 2.

J. WALL.
SIGNAL LANTERN.

No. 409,532.

Patented Aug. 20, 1889.



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UNITED STATES PATENT OFFICE.

JOSEPH WALL, OF SEAFORTH, LIVERPOOL, COUNTY OF LANCASTER,
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SIGNAL-LANTERN.

SPECIFICATION forming part of Letters Patent No. 409,532, dated August 20, 1889.

Application filed February 27, 1889. Serial No. 301,389. (No model.) Patented in England May 6, 1887, No. 6,644, and November 27, 1888, No. 17,217.

To all whom it may concern:

Be it known that I, JOSEPH WALL, a citizen of the United States, residing at Seaforth, Liverpool, in the county of Lancaster, England, have invented new and useful Improvements in Signal-Lanterns, (for which I have obtained patents in Great Britain, No. 6,644, dated May 6, 1887, and No. 17,217, dated November 27, 1888,) of which the following is a specification.

This invention relates to a signal-lantern adapted for hand-signaling, and also for convenient and successful operation when hoisted beyond reach of the hand, the signals in either case to be made by a succession of flashes at intervals of varying duration, according to any suitable system.

The invention consists in certain hereinafter-specified features of construction, whereby the light can be focused in any desired direction or flashed simultaneously to all points of the horizon; in the means for giving access to the interior of the lantern, and for adjusting the wick without requiring the use of a door, which often becomes defective and difficult to secure; in the arrangement of the operating mechanism of the lantern to protect it from injury and the effects of stormy weather, and, generally, in the means for improving and simplifying the construction and operation of the lantern, as hereinafter set forth.

In the annexed drawings, illustrating the invention, Figure 1 is a partly-sectional elevation of my improved signal-lantern. Fig. 2 is an enlarged vertical section of the lantern, taken at a right angle to Fig. 1 and shows the lantern provided with means for hoisting it to an elevated position along steadying lines or guides, and with mechanism for operating it from beneath the flash-signals at proper intervals in accordance with the principles of some recognized code. Fig. 3 is a horizontal section on the line *xx* of Fig. 2, showing the manner of centering the lamp within the lantern-casing. Fig. 4 is a top view of a cylindrical screen surrounding the lamp-chimney and burner, showing guide-lugs on opposite sides of the screen and a bifurcated lever through which the screen is operated. Fig. 5 is an elevation of a portion of the lantern-

casing with globular dioptric lens and a removable and adjustable shield partly surrounding said lens and broken away at one point to show the manner in which it conforms to the lens and overlaps the adjacent edges of the casing. Fig. 6 is an end view of the shield and its attaching-arms.

Referring to the drawings, the numeral 1 indicates a cylindrical shell forming the upper portion of the lantern-casing, and 2 a cylindrical shell that forms the outer part of the lower portion of said casing. These shells 1 and 2 are reversely arranged at a suitable distance apart to receive between them globular lens 3, made in one or more pieces and preferably of dioptric construction. The shells 1 and 2 are provided with inwardly-turned flanges 4 to engage the lens and hold it in place. The upper and lower shells 1 and 2 are rigidly connected by tubular stays 5, that also serve as hot-air conductors for conveying heated air from the upper portion of the lantern to its lower part, as shown by the arrows in Fig. 2. These tubular stays are provided at their ends with plates 5^a for the passage of screws, by which the tubes are detachably connected to the lantern-casing, so as to enable the casing to be taken apart for the purpose of removing and replacing the lens, or for other purposes.

Within the lower outer shell 2 is a detachable inner shell 6, having a horizontal partition 7 near its lower end and an annular series of lateral air-inlets 8 above said partition or lantern-bottom. On the exterior of this inner detachable shell 6, above the air-inlets 8, is an annular flange 9, having on its upper side a series of segmental inwardly-turned lips 10, separated by intervening segmental spaces or openings 11, that correspond with the lips 10 in length, as shown in Fig. 3. These spaces or openings 11 receive segmental flanges 12 on the lower end of the shell 2 when the shell 6 is inserted into the lower part of the lantern, and then by partly rotating the inner shell 6 its segmental lips 10 will be carried above and into engagement with the segmental flanges 12 of the shell 2, and so lock said shells together. A set-screw 13, Figs. 1 and 3, carried by one of the lips

10 and adapted to engage one of the interlocked flanges 12, will serve to firmly secure the engaged shells 2 and 6 until it is desired to detach the inner shell for the purpose of
5 gaining access to the interior of the lantern. The inner detachable shell 6, with its partition or bottom 7, thus forms a removable lantern-bottom and obviates any necessity of a door in the side of the lantern.

10 The detachable shell 6 is provided at suitable points with slots or horizontally-elongated openings 14 to register with the lower ends of the tubes 5, through which heated air is conducted to the lower interior part of the
15 lantern. By elongating these openings 14 horizontally they can be made to register with the tubes 5 without requiring an accurate adjustment of the detachable shell.

20 Within the detachable shell 6, above the openings 14, is an annular flange or shelf 15, that supports an oil-reservoir 16, having a lamp 17 at its top. A number of vertical air-tubes 18 and 18^a extend through the oil-reservoir to supply the lamp with air from the
25 lower part of the lantern, as shown in Fig. 2. Two or more of these air-tubes 18 are preferably cylindrical and extend to the outside of the lamp-burner, while the other air-tubes 18^a, two in number, are flattened and extend
30 to the interior of the burner. These flattened air-tubes 18^a are connected at the top by side plates 18^b, which serve, with the flattened air-tubes 18^a, as guides for a flattened wick. I do not confine myself, however, to any pre-
35 cise form of wick, nor to any particular arrangement of the air-tubes. The oil-reservoir and lamp are centered by means of wings 19 on the sides of the oil-reservoir engaging bifurcated lugs 20 in the detachable shell 6, as
40 shown in Figs. 2 and 3.

In order to provide for raising and lowering the wick without detaching the lamp, the usual wick-adjusting spindle 21 is provided with a small pulley or sprocket-wheel 22, con-
45 nected by a cord or chain 23 to a pulley or sprocket-wheel 24 on a short shaft 25, journaled in a sleeve 26 in the lower part of the shell 6 beneath the bottom of the lantern, the shaft 25 being provided with a milled
50 button or thumb-piece 27, through which the wick-adjusting mechanism can be readily actuated from the exterior of the lantern. To provide for passage of the cord or chain 23, an opening 28 is made in the flange or
55 shelf 15 and an opening 29 in the lantern-bottom. The opening 29 and other openings 30, that may be formed in the lantern-bottom, will serve as air-inlets in addition to the air-inlets 8, that are formed in the side of the de-
60 tachable shell.

Surrounding the lamp-chimney 31 is an opaque cylindrical screen or shutter 32, having lugs 33 on opposite sides. These lugs engage the ends of a bifurcated lever 34,
65 that is pivoted in the upper shell 1 of the lantern-casing. To the lever 34 is attached one end of a rod 35, the other end of which

is attached to the end of a lever 36, that is fulcrumed at 37 in a hollow handle 38, at-
tached to the top 39 of the upper part or shell 70 1 of the lantern-casing. In the top of the hollow handle 38, near one end, is an opening 40 to give access to a thumb-button 41 on the lever 36, a spring 42 being arranged to
75 bear upward beneath the free end of said lever 36 to normally hold it in close proximity to the opening 40 with the button 41 exposed. It will thus be seen that the signal-
man with the thumb of the same hand that holds the lantern can press the button 41 80 and actuate the lever 36, rod 35, and bifurcated lever 34 so as to raise the cylindrical screen 32 and expose the light, while his other hand is free to secure himself in an
85 elevated position, or for other purposes. In the ends of the lugs 33 on the cylindrical screen 32 are openings that engage vertical guide-rods 43, which are supported in the
90 top 39 of the upper shell 1 and in lugs 44 at the upper end of the lower shell 2, as shown in Fig. 1, thus insuring a true vertical movement of the screen. When the button 41 is
relieved of pressure, the spring 42 restores the lever 36 to the position shown in Fig. 2,
95 and the cylindrical screen 32 descends to its former position surrounding the lamp and concealing the light. By thus operating the screen 32 at certain intervals of varying du-
100 ration a succession of flashes can be produced to accord with any recognized code of signals.

At a suitable point in the lantern-casing above the lamp is inserted a translucent di-
rection-plate 45, Fig. 2, on which may be de-
105 lineated the characters of a code of signals representing either letters or numerals, according to the principles of the code used, the flashes being represented by dots arranged in
groups of varying number to represent cer-
tain recognized symbols—such, for instance, 110 as those known as “ball,” “pennant,” and “flag” in some systems of signaling. Such translucent direction-plate, illuminated
from the lamp within the lantern, is useful to
115 refresh the memory of the signal-man, especially in time of excitement and imminent peril. When not in use, the translucent plate can be covered by a slide 46, as shown in Fig.
1. A sight-hole, having a swinging cover 47,
120 may also be arranged in the lantern-casing to afford means for inspecting the condition of the light without raising the screen.

The top 39 of the upper part of the shell 1 is provided with a central opening surrounded by a depending tube 48 for exit of the pro-
125 ducts of combustion.

Supported above the top 39 on brackets 49 is a short chimney-tube 50, having a disk 51 in
its upper end, so arranged by means of sup-
130 porting-arms 51^a at intervals that an annular passage will be left between said disk and tube. The tube 50 is surrounded at a short distance by a larger tube 52, supported by
arms 51^b, projecting from the inner tube. In

order to protect the handle 38 from becoming heated, semi-cylindrical inclined strips of metal, forming heat-guards 53, are arranged opposite and in line with the upright portions 5 of the lantern-handle. The tube 52 is provided at the top with arms 54, that support a non-conducting asbestos-lined plate 55, and, if desired, the tube 52 and heat-guards 53 may be lined with the same or similar non-conducting material, the object being to prevent the lantern-handle from becoming heated.

The lantern so far as now described may be most conveniently used for hand-signaling. In order to adapt it for being hoisted to an elevated position on land or ship-board, and provide for operating it from a height while the signal-man remains below, some auxiliary devices are needed, which will now be described.

On the sides of the lantern-shells 1 and 2 are lugs 56, having eyes to engage steadying lines or guides 57, that may be suspended from a yard-arm or other suitable support on ship or shore. Instead of the lines 57 guide-rods may be used. On the lantern-handle 38 are lugs or eyes 58 and guides 59 for lines or chains 60, that connect with a casting or coupling 61, attached to a halyard 62, by which the lantern can be hoisted along the steadying-lines 57 to an elevated position. Now, in order to operate the hoisted lantern, the signal-man makes use of an operating-line 63, that passes over a pulley 64 on the casting 61, and is attached to a chain 65, which passes through an opening in the top of the lantern-handle and connects with the lever 36, through which the vertically-movable cylindrical screen 32 is actuated.

If desired, a gong or bell 66 may be supported above the plate 55 and provided with a hammer-stem 67, extended into the hollow handle 38 beneath the thumb-button 41 of the lever 36, so that when said lever is actuated to raise the screen 32 and expose the light the signal-man will have audible notice that the light has been fully exposed. This is especially useful when the lantern is operated in an elevated position while the signal-man is below, and thereby prevented from seeing whether a complete flash has been made. The sounding of the gong will indicate that the light has been flashed full, and will also assist the mind to compute the duration of time between the flashes, and thus give assurance that the signals have been properly made.

The globular lens 3 permits the light to be flashed horizontally in every direction at once. If, however, it should be desired to focus the flash in any particular direction, the globular lens can be partly covered by means of an adjustable and removable opaque shield 68, Figs. 5 and 6. This shield 68 is semi-cylindrical and formed to correspond to the contour of the lens 3, which it fits closely. The width of the shield 68 is sufficient to enable it to partly overlap the edges of the lantern sec-

tions or shells 1 and 2, as shown in Fig. 5, and at top and bottom the shield is provided with spring-arms 69, that clasp the edges of said shells, and are secured by set-screws 70 in such a manner that by loosening said screws the shield 68 can be moved around on the lens to any desired position so as to enable the light to be flashed in the desired direction. Diverging flanges 71 on the shield 68 serve to form a rim for the exposed portion of the lens. The interior surface of the shield 68 may be polished to serve as a reflector. This adjustable reflecting-shield for focusing the light in any required direction is especially useful for signaling between vessels at sea or stations on land. For urgent signaling, the shield 68 should be removed and the light flashed to all points of the horizon simultaneously.

The operation of the lantern will be readily understood, and it is obvious that it can be used with any code of signaling in which a lantern is employed.

Instead of an oil-lamp, the lantern can be provided with any suitable illuminating appliance. As the operating mechanism of the cylindrical screen 32 is inclosed in the lantern-casing and its hollow handle, it is entirely protected from the weather and prevented from becoming entangled in the rigging of a vessel, the clothing of the signal-man, or other obstruction.

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

1. In a signal-lantern, the combination of a casing having a hollow handle, a lens, a lamp, an opaque cylindrical screen surrounding the lamp-chimney, and screen-operating levers located in the lantern-casing and in its hollow handle for raising and lowering said screen to expose and conceal the light, substantially as described.

2. In a signal-lantern, the combination of a casing having a hollow handle, a globular lens, a lamp, an opaque vertically-movable screen surrounding the lamp-chimney, levers inclosed in the lantern-casing and in its hollow handle for operating said screen, and a gong or bell located in position to be actuated by one of said levers in raising the screen to expose the light, substantially as described.

3. In a signal-lantern, the combination of a globular lens, an opaque shield detachably and adjustably secured around a portion of the lens, a lamp, and an opaque vertically-movable screen surrounding the lamp-chimney, substantially as described.

4. In a signal-lantern, the combination of a casing comprising upper and lower outer shells connected by detachable tubular stays, the upper shell being provided with a hollow handle, a globular lens supported between said shells, an inner lower shell detachably supported in the outer lower shell and carrying an oil-reservoir and lamp, an opaque

vertically-movably screen surrounding the lamp-chimney, and screen operating levers inclosed in the lantern-casing and its hollow handle, substantially as described.

5 5. In a signal-lantern, the combination of a casing having a hollow handle and a transparent direction-plate, a globular lens, a lamp, an opaque screen surrounding the lamp-chimney, and levers for operating said screen
10 located partly in the lantern-casing and partly in its hollow handle, substantially as described.

6. In a signal-lantern, the combination of a casing having a hollow handle and a glob-
15 ular lens, a lamp, an opaque vertically-movable screen surrounding the lamp-chimney, screen-operating levers located partly in the hollow handle, a gong or bell actuated by one of said levers, means for hoisting the lantern
20 to an elevated position, and an operating-line connected with the levers for actuating the screen and bell, substantially as described.

7. In a signal-lantern, the combination, with
25 a lantern-casing comprising upper and lower shells connected by tubular stays adapted to conduct heated air from the upper part of

the lantern to the lower part, of a lamp, an oil-reservoir, and air-tubes extended through said reservoir, two of said tubes being flattened to serve as guides for the lamp-wick, 30 substantially as described.

8. In a signal-lantern, the combination of the shell 1, having a top 39 and a hollow handle 38, the chimney 50, the non-conducting plate 55, supported above the chimney, 35 the non-conducting tube 52, surrounding the chimney, and the heat-guards 53, located near the upright portions of the handle, substantially as described.

9. In a signal-lantern, the combination of 40 the shell 2, having exterior segmental flanges 12, the detachable shell 6, having an exterior annular flange 9, provided with segmental lips 10, and the set-screw 13, substantially as described. 45

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

JOSEPH WALL.

Witnesses:

JAMES L. NORRIS,

JAMES R. RUTHERFORD.