

(No Model.)

A. F. PRAHM.
SIGNAL LANTERN.

No. 412,895.

Patented Oct. 15, 1889.

Fig. 1.

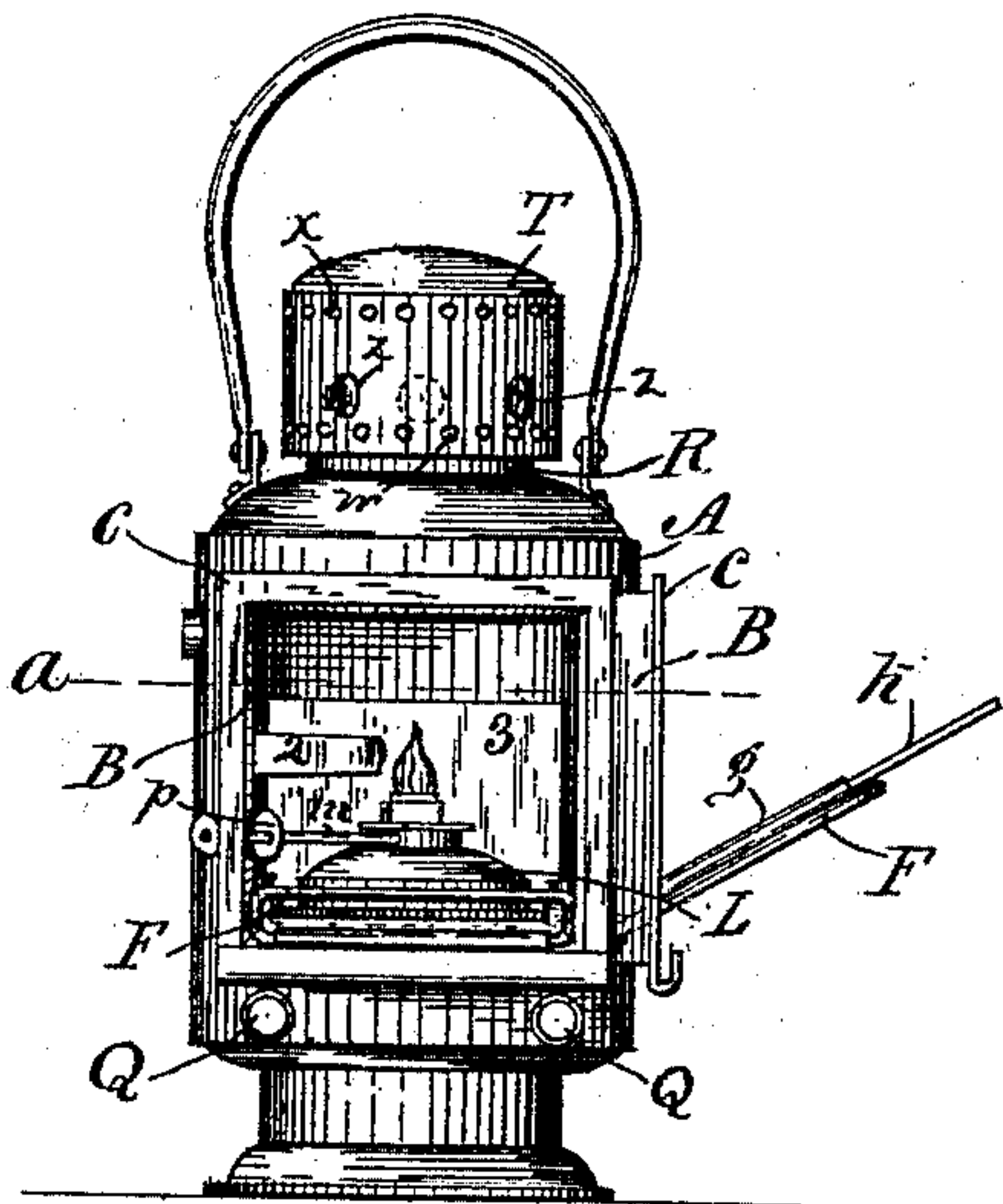


Fig. 3.

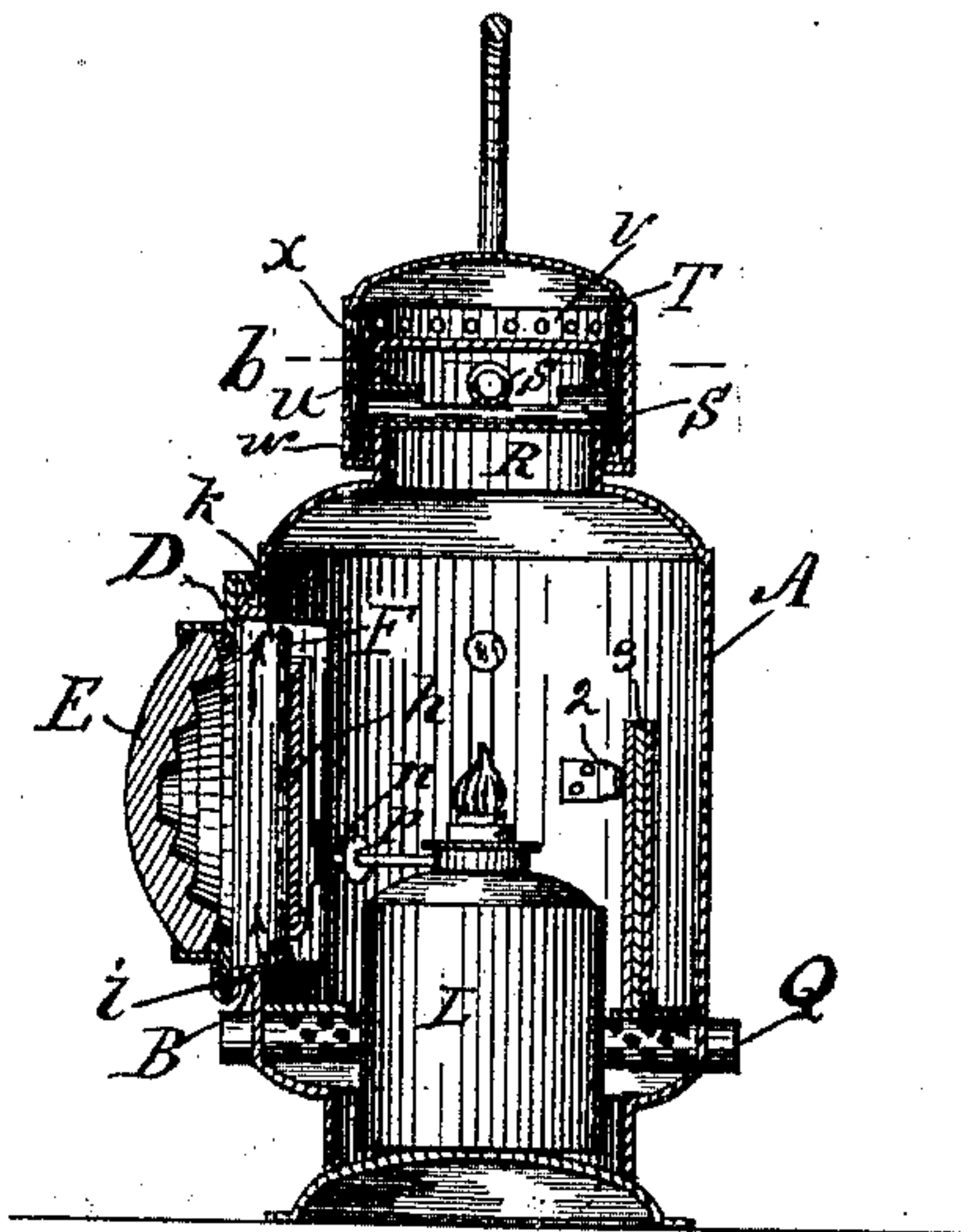


Fig. 2.

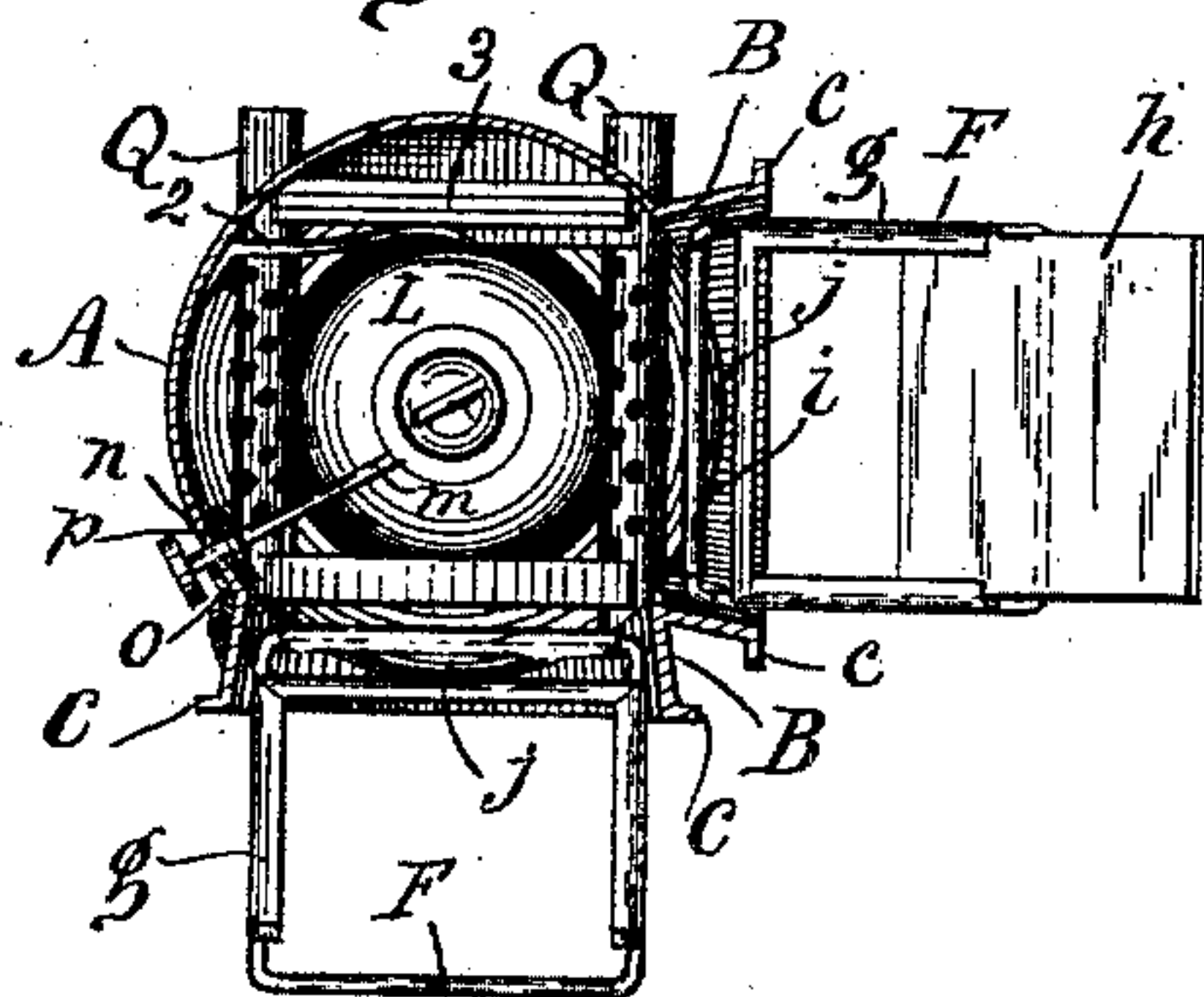
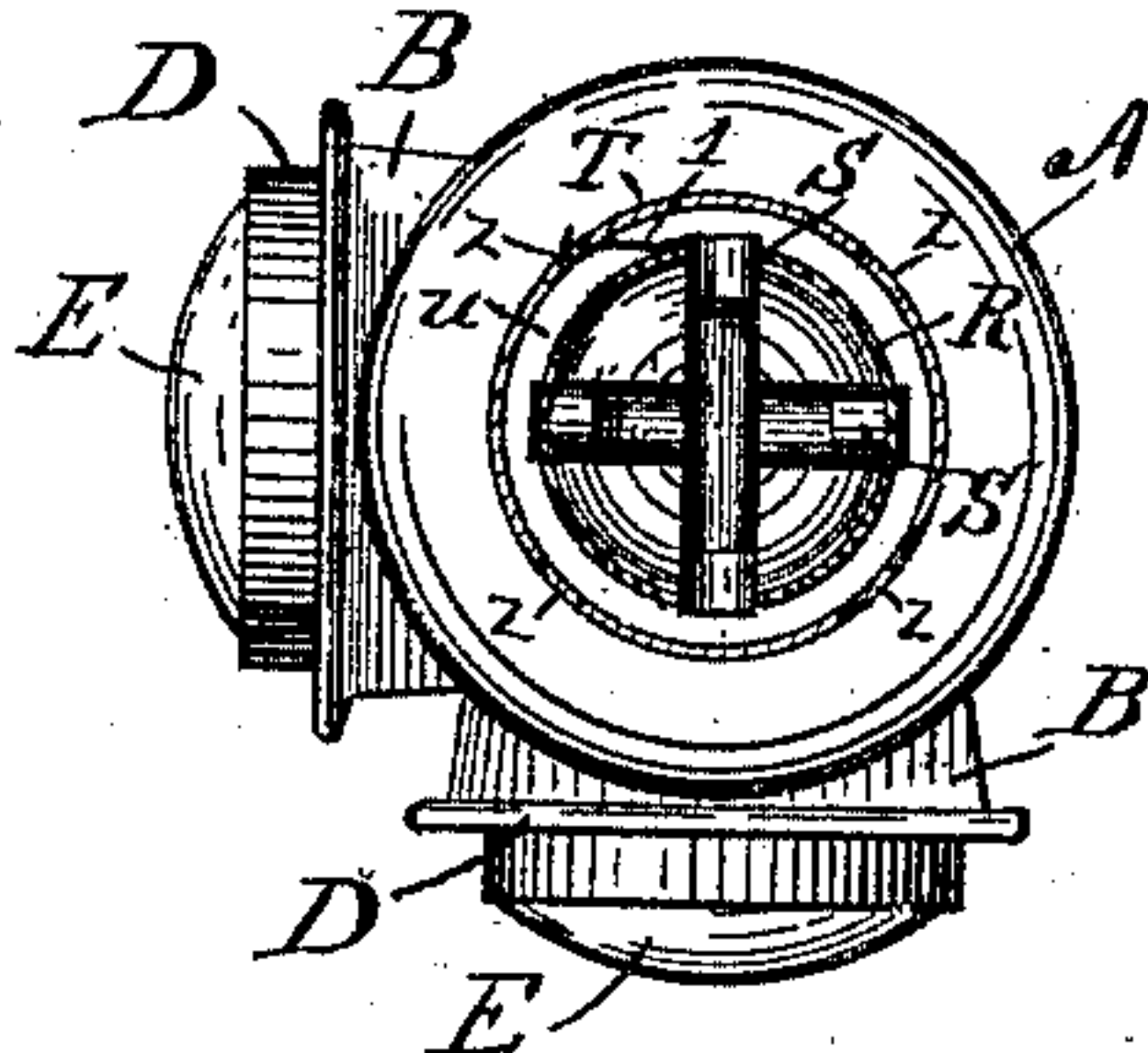


Fig. 4.



Witnesses

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SIGNAL-LANTERN.

SPECIFICATION forming part of Letters Patent No. 412,895, dated October 15, 1889.

Application filed March 5, 1889. Serial No. 301,849. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH F. PRAHM, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Signal-Lanterns, of which the following is a specification.

My invention relates to an improvement in signal-lanterns.

The objects of my improvement are, first, to provide in a signal-lantern having a white or colorless diffusing-lens a convenient means for producing different-colored lights and for protecting the diffusing-lens from the heat of the lamps, and, second, to prevent the disturbance of the flame of the lamp by strong exterior currents of air, all as hereinafter fully described.

The accompanying drawings illustrate my invention.

Figure 1 represents a side elevation of a train signal-lantern, showing a front and a side light and embodying my invention, the diffusing-lenses having been removed, frames for the colored screens thrown open, one of the colored screens removed and the other partly drawn out. Fig. 2 is a plan and transverse section of the same at *a*, Fig. 1. Fig. 3 represents a vertical section of the lantern having the colored screens and the diffusing-lens in working position. Fig. 4 represents a plan and transverse section at *b*, Fig. 3.

In the drawings, *A* is the casing, which is of the usual cylindrical form, and provided on two sides with rectangular projecting frames *B B*, surrounding correspondingly-shaped openings and having outwardly-projecting flanges *c c*, which receive and retain the sliding doors *D D*, in which the colorless diffusing-lenses *E E* are mounted.

F F are open frames formed, preferably, of wire, and having a grooved flange *g* extending around three sides of the frame, and adapted to receive and temporarily retain a colored-glass screen *h*, the arrangement being such that the glass *h* may be readily drawn out and another one of different color substituted.

Frames *F F* are of such size as to fit nicely within the inner edges of the frames *B B*, and they are hinged at one edge—preferably the lower edge—to the frame *B*, as at *i*, so as to swing outward, the arrangement being such

that there is a space between the colored screen and the door through which the cool air coming from the bottom of the lantern at *j* may circulate, passing out at *k* into the upper part of the lantern, thus preventing the lens from becoming heated by the lamp.

L is the lamp, having a wick-adjusting shaft *m*, which passes out through a slot *n* in the casing *A*. Slot *n* is closed by means of a slide *o*; but as there must still be a sufficient space about the shaft to permit it to turn easily, I secure to the shaft inside the lantern a wide collar *p*, for the purpose of protecting the flame of the lamp from any current of air which might enter around the shaft.

Q Q are ventilating-tubes, such as are described in my Letters Patent No. 386,495. These tubes extend across the lower part of the lantern, are open at each end, and are perforated in that portion of their length which crosses the interior of the lantern, thus supplying the lamp with air for combustion.

For the purpose of permitting the products of combustion to escape, but at the same time preventing the strong currents of air formed by a rapidly-moving train from rushing downward upon the flame of the lamp, I construct the top of the lantern as follows: The reduced portion *R* of the casing which forms the top or chimney is closed on all sides and at the top, and provided with a pair of horizontal ventilating-tubes *S S*, similar to tubes *Q Q*, except that instead of being perforated with many holes tubes *S* are cut away on their upper sides about half their diameter, thus permitting a more compact arrangement of the tubes and preventing any water which might enter the tubes during a storm from dripping through the tubes upon the flame below. Outside of the casing *R*, I mount a second casing *T*, closed at the top and of larger diameter and higher than casing *R*, thus forming an annular space *u* and a top space *v* between the two casings, which spaces communicate with each other and with the interior of the lantern through the tubes *S S*. The sides of casing *R* are provided near the lower edge with perforations *w*, which communicate with the annular space *u*, and near the upper edge with perforations *x*, which communicate with the space *v*.

For the purpose of conveniently cleaning

out any soot which may collect in tubes S S, casing T is provided with perforations $z z z z$ of the same diameter as and arranged to register with the interior of the tubes, and casing T is arranged to rotate on casing R, so that when it is necessary to clean the tubes casing T is rotated to expose the ends of the tubes, but at other times is returned to a position which cuts off direct communication of the tubes with the exterior, in which position it is held by a spring-catch 1.

For the purpose of storing with the lantern other colored-glass screens than those in frames F a spring-arm 2 is secured to the back of the casing A on the inside and extending partly across the adjacent side at a short distance therefrom, the arrangement being such that several screens may be held between the arm and the side of the casing, as at 3.

In operation the doors D having been removed and the frames F swung outward, as in Fig. 1, glass plates or screens, of the color of light desired for the signal, having been selected they are slipped into the grooved flanges g of the respective frames. The lamp being lighted, frames F are swung into a vertical position in their respective frames B. The doors D D are now slipped downward over flanges $c c$, thus tightly closing the openings in the frame B, so that no drafts of air can enter the lower part of the lantern except through the tubes Q Q. The light from the lamp, colored by its passage through the

screens $h h$, is diffused and projected forward by the lenses E E, which are kept cool by the circulation of air between the screens and the lenses, as before explained. The products of combustion pass out through tubes S S into the spaces u and v between the casings R and T, and thence through perforations w and x . By this arrangement the color of the signal-light may be readily changed, the lenses are protected from the breakage due to the heat of the lamp, and the lamp burns steadily and surely in strong air-currents.

I claim as my invention—

1. In a signal-lantern, the combination of a casing having a side opening, a lamp arranged within said casing, a door having a lens mounted therein and arranged to close said opening, an open frame hinged to one side of the opening and arranged between the door and the lamp, and a transparent colored screen detachably secured in said open frame, all substantially as specified.

2. In a signal-lantern, the combination, with the reduced top R, of the main casing having ventilating-tubes S S, of the exterior perforated casing T, arranged to rotate on said top and having openings z , adapted to register with the tubes, substantially as and for the purpose specified.

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Witnesses:

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