W. C. H. WEFEL.

LANTERN.

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1,068,718.

Patented July 29, 1913.

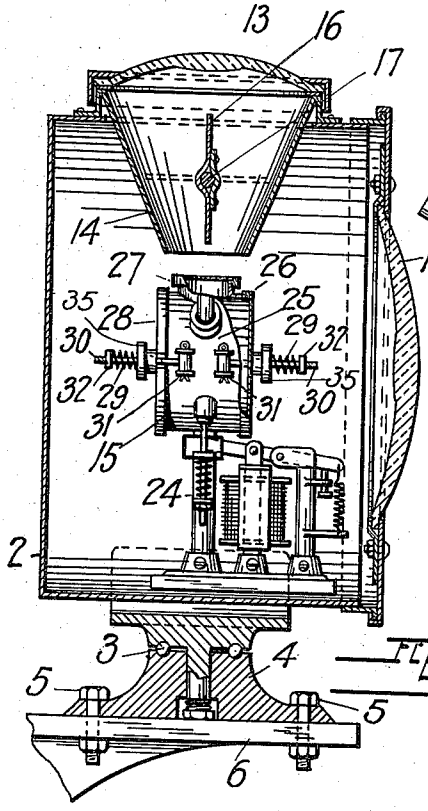


FIG. 2

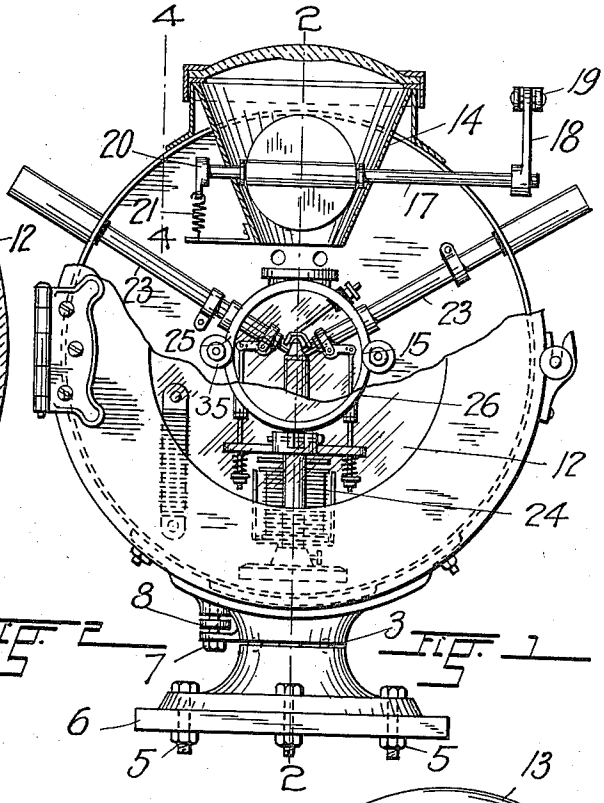


FIG. 1

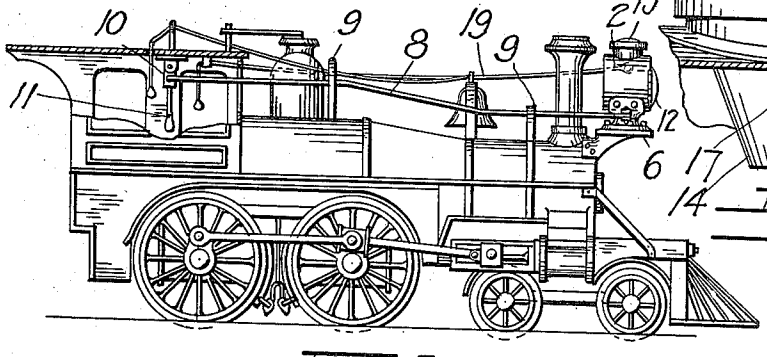


FIG. 3

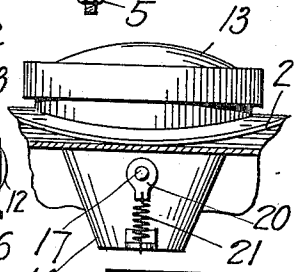


FIG. 4

WITNESSES:

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WILLIAM C. H. WEFEL, OF DENVER, COLORADO, ASSIGNOR OF FORTY-NINE ONE-HUNDREDTHS TO SAMUEL R. WHITAKER, HERBERT D. BARTLETT, AND ALBERT S. WHITAKER, ALL OF DENVER, COLORADO.

LANTERN.

1,068,718. Specification of Letters Patent. Patented July 29, 1913.

Application filed May 13, 1912. Serial No. 697,057.

To all whom it may concern:

Be it known that I, WILLIAM C. H. WEFEL, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Lanterns, of which the following is a specification.

My invention relates to improvements in lanterns and more particularly in head lights used on locomotives and other power driven vehicles.

The principal object of the invention resides in providing a lantern which is mounted to move in a horizontal plane and which can be adjusted to any desired angle in the said plane from the cab or other remote part of the vehicle.

Another object of my invention resides in the provision of a lantern which has a lens-covered opening through which the rays of light are vertically projected and which is provided with a shutter which can be operated from a remote point to obstruct the passage of light therethrough.

By the use of a head light thus constructed, the engineers of approaching trains may deflect the light thrown by the lanterns at the front of their engines to one side of the track or the other, thus enabling each other to see the approaching train, which under ordinary circumstances, is practically impossible by reason of the blinding effect of the strong light emitted from the lamps at present in common use. When rounding curves, the light on the engine may be turned so as to continuously illuminate the portion of the track ahead of the same, and by turning the lantern one way or the other at crossings, the engineer may readily observe the approach of vehicles animals or pedestrians. The light vertically projected through the lens at the upper portion of the lantern will indicate the position of a train at points at which the ordinary head lights are not discernible, as for example, at the tangents of the track at opposite sides of a curve, and by operating the shutter which controls the passage of the vertical light beam through the lens, the engineer of a train may send messages to remote points by means of a code of heliographic signals.

The objects of my invention are attained by the mechanism illustrated in the accompanying drawings in the various views of which like parts are similarly designated, and in which,

Figure 1 represents a front elevation of my improved lantern, shown partially in section, Fig. 2, a vertical section taken along the line 2—2, Fig. 1, Fig. 3, a side elevation of a locomotive to which my invention has been applied, and Fig. 4, a fragmentary section taken along the line 4—4, Fig. 1.

Referring to the drawings by numerical reference characters, the numeral 2 designates the cylindrical shell of the lantern which by means of a ball-bearing 3 is pivotally mounted upon a base 4, which by the use of bolts 5 is, in practice, rigidly secured upon a suitable support such as a bracket 6 at the front of the engine, as shown in Fig. 3.

The shell 2 is provided at one side of its pivotal axis, with a fastening appliance, such as the vertically disposed pin 7 shown in Fig. 1, by means of which an operating rod 8 may be pivotally attached thereto. This rod extends through suitable bearings 9 on the engine to a point in the cab of the same where it is connected with an operating lever which preferably consists of a socketed member 10 to which the rod is pivotally attached and a handle 11 which is detachably inserted in the socket to be removed out of the way of the occupants of the cab when a movement of the lantern is not required.

The shell 2 has at one of its sides an opening covered by a lens 12 through which the light is horizontally emitted and a similar opening is provided at its upper portion and covered by means of a horizontally disposed lens 13 for the emission of a vertically directed light beam. A funnel 14 extending downwardly from the lens 13 into the interior of the shell serves as a means for the concentration of the rays of light emitted from the lamp 15, and a shutter 16 is pivotally mounted in this funnel to obstruct the passage of light to the lens, if so desired.

The shutter 16 consists of a disk fastened upon a shaft 17 which is rotatably mounted in diametrically opposite openings in the funnel. One of the end portions of the shaft 17 is extended through an opening in the circumferential wall of the shell and is provided exteriorly of the same with a crank arm 18 to which is connected a rope 19

which leads through bearings on the engine to the cab of the same for the purpose of operating the shutter from this point. The opposite end of the shaft 17 is likewise provided with a crank arm 20 and a spring 21, which is fastened at its ends to the last-mentioned arm and to a bracket 22 extending laterally from the lower end of the funnel, is provided to normally maintain the shutter in its vertical or open position, as shown in the drawings.

The lamp 15 which generates the light within the shell is preferably of the electric arc type, its convergent electrodes being movably disposed in sleeves 23 extended through openings in the circumferential wall of the shell. A regulating mechanism 24 is mounted in the bottom portion of the shell for readjusting the electrodes to their proper distance when the interval between them has become lengthened to a determined extent and the adjacent points of the electrodes at which the voltaic arc is produced, are inclosed in a cylindrical casing 25 which is held in place by connection with the beforementioned sleeves 23. The casing 25 is provided with openings which are respectively, in axial alinement with the lenses 12 and 13 and which are closed by means of caps 26 and 27 which are composed of a sheet of glass or mica secured in a surrounding rim. The casing 25, may, if so desired, be provided with a third opening in axial alinement with the lens 12, to be covered by a transparent cap when the shell is provided with a vertical lens opposite to the lens 12, as in lanterns for use on vessels or by a cap 28 made of an opaque substance when the lantern has but one vertical lens, as in the construction shown in the drawings. The caps 26 and 28 are held in place on the casing 25 by means of nuts 35 on threaded rods 30 which are pivotally connected with the casing as at 31 and which extends through open-ended slots at diametrically opposite points of the rims of the respective caps, the said nuts being held in place by springs coiled around the rods in engagement with nuts 32 applied upon their outer extremities. The lamp and regulating mechanism thus briefly described have been made the subject of a separate application for patent.

Thus having described the mechanical construction of my invention its operation will be readily understood.

The lantern mounted at the front end of the engine as shown in Fig. 3 of the drawings, with its lamp in the proper electrical connection with a suitable source of electricity, is by means of the rope 19 and the rod 8, placed under perfect control of the occupants of the cab, who by turning the lantern about its vertical axis by manipulation of the lever 11, can deflect the light in any desired direction in a horizontal plane and who by means of the rope 19, can either entirely obstruct the passage of light through the upper lens or alternately open and close the shutter to transmit a signal to the crew of another train or to interested persons at stations or other points along the line.

It will be understood that while the use of an arc lamp, as shown and described, is preferred by reason of its simplicity of construction and great illuminating power, a lamp of a different character may be used, and that the means by which the lantern is moved about its axis and whereby the shutter is operated, as well as other details of construction, may be varied within the scope and spirit of my invention.

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

1. A lantern of the class described comprising a shell having an opening for the emission of light in an upward direction, a lamp casing within said shell having an opening covered with a transparent substance, in alinement with the opening in the shell, an arc lamp the electrodes of which have their points arranged within the casing to permit an unobstructed passage of light generated between them to and through the said openings, a funnel tapering inwardly from the opening in the shell and terminating in adjacency to that in the casing for the concentration of light generated in the latter, toward the opening in the shell, and a shutter adjustably mounted in the funnel and adapted to obstruct the passage of light therethrough.

2. A lantern of the class described comprising a shell having openings for the emission of light in horizontal and upward directions, a lamp casing within said shell having openings covered with a transparent substance, in alinement with the first-mentioned openings, respectively, a funnel tapering inwardly from the upper opening in the shell and terminating in adjacency to the corresponding opening in the casing, a shutter adjustably mounted in the funnel and adapted to obstruct the passage of light therethrough, and an arc lamp the electrodes of which have their points arranged within the casing to permit an unobstructed passage of light generated between them, to and through the various openings.

3. A lantern of the class described comprising a shell having an opening for the emission of light, a lamp casing spaced from the interior surface of the shell and having an opening in alinement with the first-mentioned opening, a funnel tapering inwardly from the opening in the shell and terminating in adjacency to the opening in the casing, and an arc lamp comprising a

pair of convergent electrodes adjustably supported on the shell and extending through openings in the said casing.

4. A lantern of the class described comprising a shell having openings for the emission of light in horizontal and upward directions, a lamp casing spaced from the interior casing of the shell and having openings in alinement with the first-mentioned openings, respectively, a funnel tapering inwardly from one of the openings in the shell and terminating in adjacency to the corresponding opening in the casing, a shutter adjustably mounted in the funnel and adapted to obstruct the passage of light therethrough, and an arc lamp comprising a pair of convergent electrodes adjustably supported on the shell and extending through openings in the said casing.

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

WILLIAM C. H. WEFEL.

Witnesses:
G. J. ROLLANDET,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."