

(No Model.)

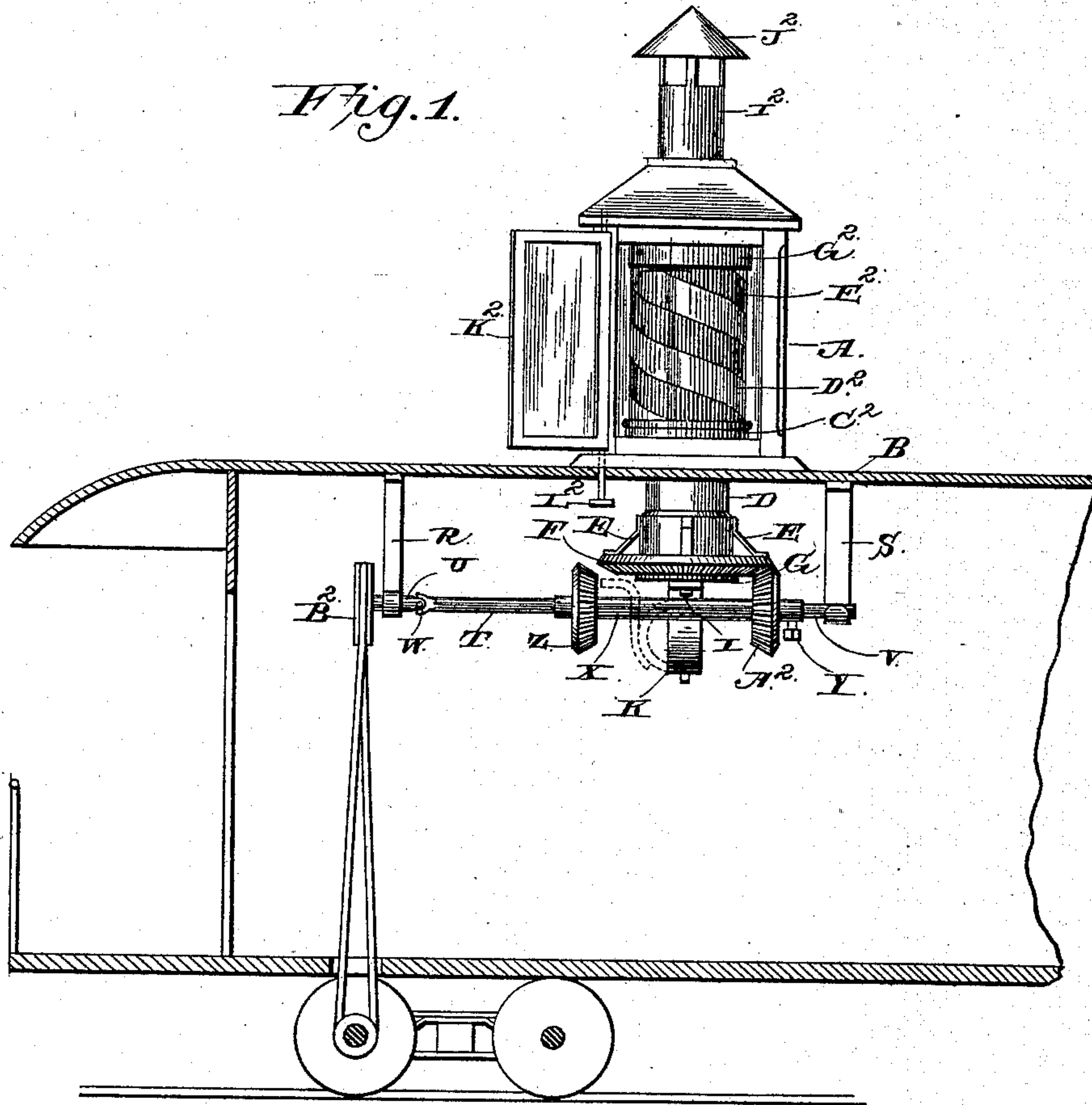
2 Sheets—Sheet 1.

G. W. SMITH.  
SIGNAL LANTERN.

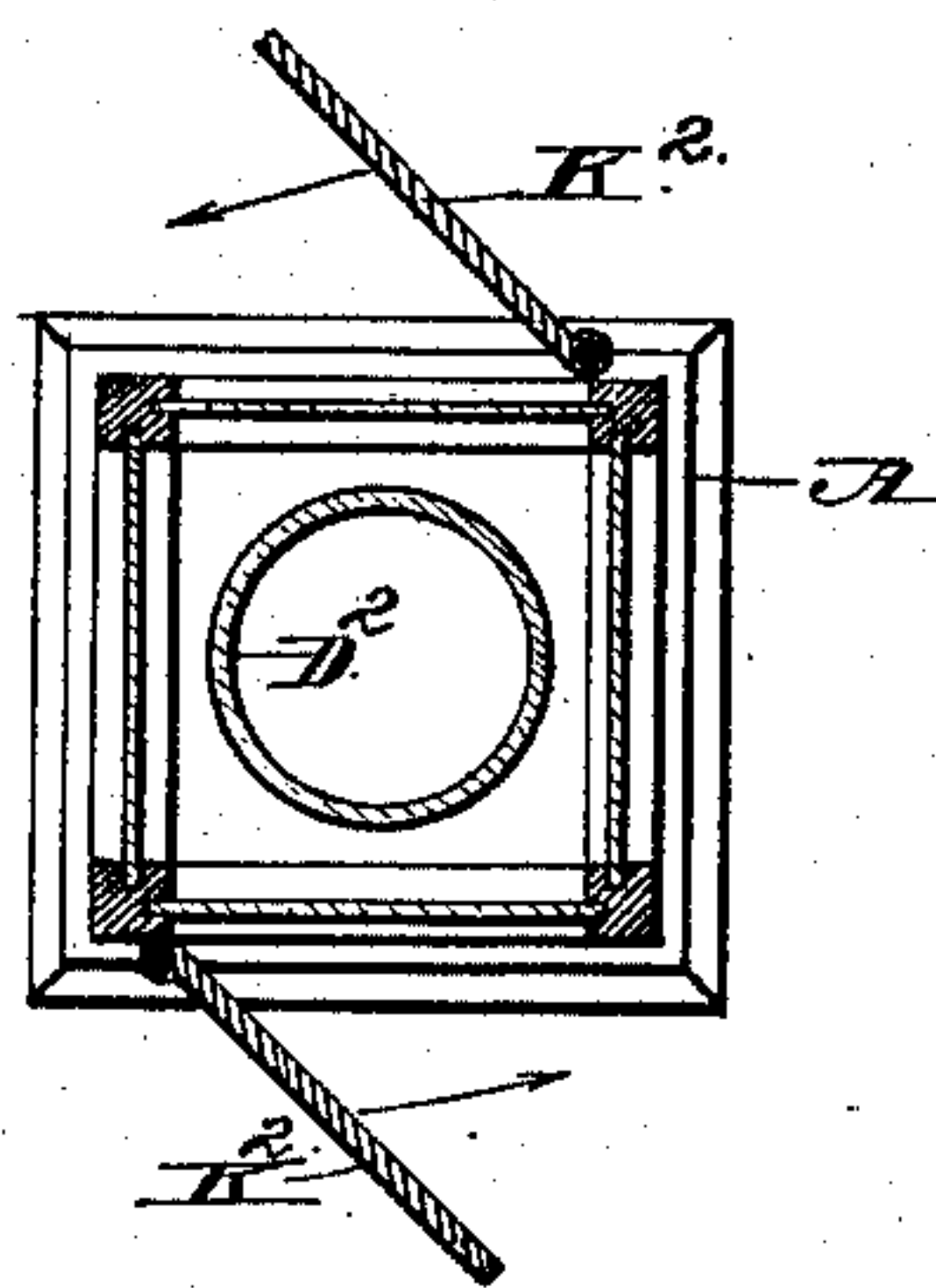
No. 413,577.

Patented Oct. 22, 1889.

*Fig. 1.*



*Fig. 3.*



Witnesses

*M. Fowler*

*Wm. Bagger*

Inventor

*George W. Smith*

By his Attorneys

*C. Snow & Co*

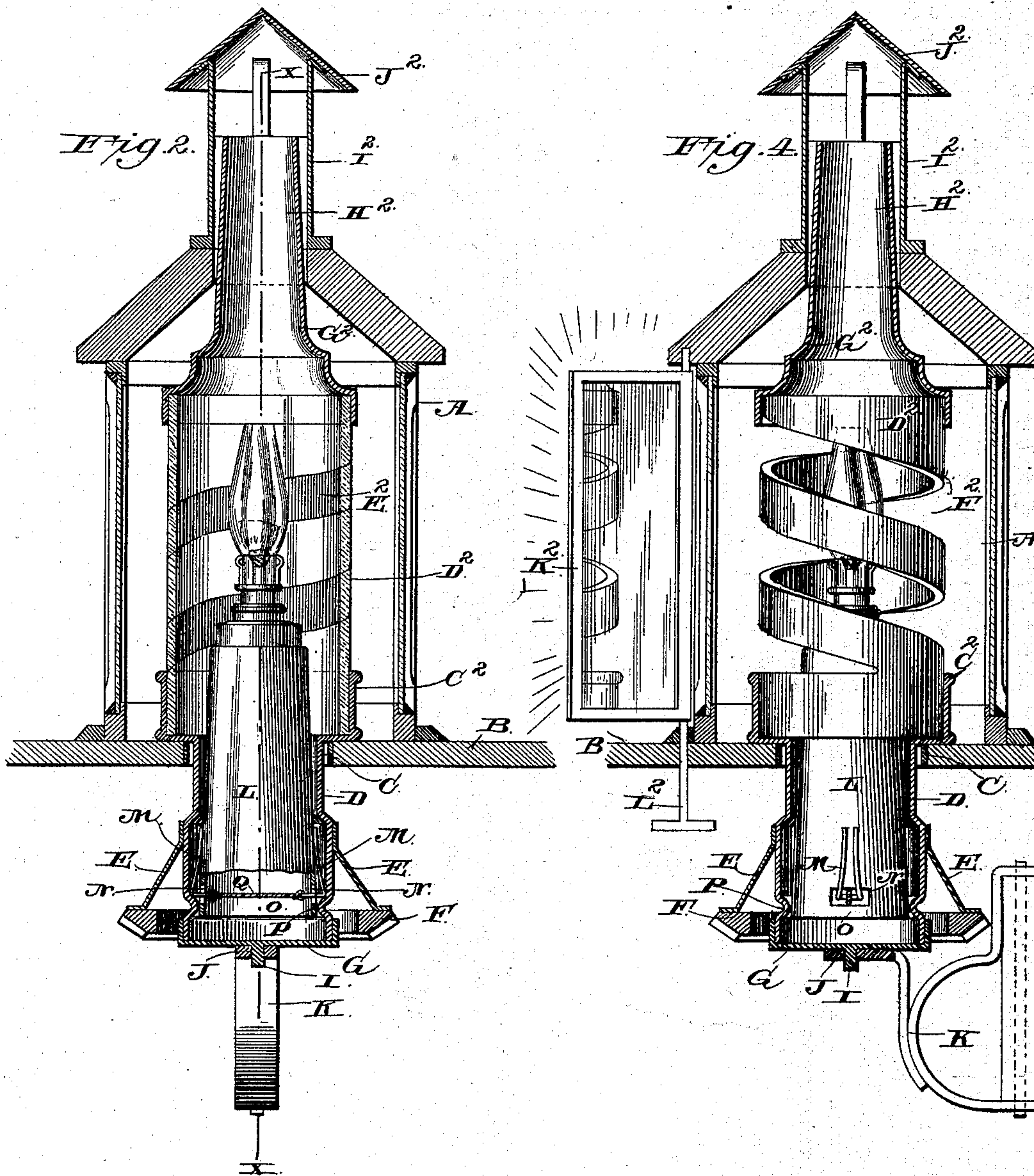
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*M. Fowler*

*Wm. Baggett*

Inventor  
*George W. Smith*

By his Attorneys

*Chas. Snowball*



# UNITED STATES PATENT OFFICE.

GEORGE W. SMITH, OF UNION CITY, INDIANA, ASSIGNOR OF ONE-HALF TO  
JAMES B. HENDRICKS, OF SAME PLACE.

## SIGNAL-LANTERN.

SPECIFICATION forming part of Letters Patent No. 413,577, dated October 22, 1889.

Application filed March 25, 1889. Serial No. 304,636. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. SMITH, a citizen of the United States, residing at Union City, in the county of Randolph and State of Indiana, have invented a new and useful Improvement in Signal-Lanterns for Railway-Cars, &c., of which the following is a specification.

This invention relates to signal-lanterns adapted to be used for railroad-cars, street-cars, steamboats, and other conveyances, as well as at railway-crossings, depots, and at all points where a signal-light is required; and it has for its object, when applied to moving conveyances, to indicate the direction in which such conveyances are moving, and also to some extent the speed at which they are moving.

The invention consists in the improved construction, combination, and arrangement of parts, which will be more fully hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my improved signal-lantern, showing the same arranged in position for operation upon a caboose or railroad-car. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a horizontal sectional view. Fig. 4 is a vertical sectional view taken on the line *xx* of Fig. 2.

The same letters refer to the same parts in all the figures.

A designates a lantern-frame, which is preferably rectangular in shape, and which is mounted upon a base B, which, when the device, as shown in the drawings hereto annexed, is applied to a caboose or railroad-car, may consist of the roof of said car; otherwise the said base may consist of a suitably-arranged shelf or bracket.

In the following description my invention will be described in its application to a caboose or railroad-car, and it will be understood that when it is to be used for other purposes various modifications in the construction and arrangement of details will require to be made.

The base B is provided with an opening C, in which is mounted a cylindrical casing D, which is provided near its lower end with di-

verging arms E E, to which is secured a beveled cog-wheel F. Upon the lower end of the cylinder is fitted a cap G, having a centrally-arranged spindle I, which may be journaled in an opening J in a bracket K, which is hinged to the wall of the car, or to a bracket extending downwardly from the roof, if preferred. It will be seen that by raising or lifting the cylindrical case slightly the spindle will be lifted out of its bearing, thus enabling the hinged bracket to be swung aside, and thereby enabling the cap G to be removed for the purpose of gaining access to the cylindrical casing D. The latter contains the lamp L, which is provided near its lower end with spring-holders M M, the lower ends of which are bent inwardly through slots N N in the sides of a flange O, extending downwardly from the bottom of the lamp. The springs M M serve to engage an annular flange P, formed interiorly in the casing D, and the inner ends of said springs are connected by a cord Q. It will be seen that when the lamp is in position in the casing it is retained by the spring-catches resting upon the interior annular flange in the said casing. In order to remove it for the purpose of cleaning or refilling, the cap G is first removed after swinging the bracket K aside. By pulling the cord Q the spring-catches M M will then be drawn inwardly, so as to disengage them from the flange O, thus enabling the lamp to be withdrawn from the casing.

R and S designate brackets secured to the under side of the base B, and forming bearings for a shaft T, composed of two sections U V, which are connected by a universal joint W. The bearing in the bracket S is opened on top, so as to permit the shaft-section V to be raised or lifted out of it when occasion shall require. The shaft T is provided with a sleeve X, which may be adjusted thereon by means of a set-screw Y. Said shaft carries at opposite ends the bevel wheels or pinions Z and A<sup>2</sup>, either of which may be placed in engagement with the beveled gear-wheel F at the lower end of the casing D, which latter is thus adapted to be revolved by means of the shaft T. One end of said shaft has a band wheel or pulley B<sup>2</sup>, to which



motion may be transmitted from one of the  
 axles of the car to which the device is ap-  
 plied. It will be seen that the motion of the  
 casing D with its attachment may be reversed  
 5 by shifting the position of the sleeve X upon  
 the shaft T so as to bring either of the bevel-  
 wheels Z A<sup>2</sup> into engagement with the gear-  
 wheel F. The upper end of the cylindrical  
 casing D is provided with an annular flange  
 10 C<sup>2</sup>, affording a seat for a cylinder or shell D<sup>2</sup>,  
 which may be constructed of glass or other  
 transparent material, or, if preferred, of sheet  
 metal, or, in fact, of any material which may  
 be desired. I would also particularly state  
 15 that it is not essential that the shell D<sup>2</sup> should  
 be cylindrical in shape, inasmuch as the func-  
 tion to be performed thereby may be per-  
 formed equally satisfactorily if the casing  
 were made square, triangular, hexagonal, or  
 20 of other desired configuration. It will be ob-  
 served that the cylinder or shell D<sup>2</sup>, being at-  
 tached to the revolving casing D, will revolve  
 with the latter when in operation. When the  
 said cylinder or shell D<sup>2</sup> is made of glass,  
 25 mica, or other transparent material, it is pro-  
 vided with painted or colored spiral stripes  
 E<sup>2</sup>, of red, white, or other suitable conspicu-  
 ous colors. When the cylinder or shell, how-  
 ever, is constructed of non-transparent ma-  
 30 terial, I provide it with a spiral slot or slots,  
 as shown at F<sup>2</sup> in the drawings. It will be ob-  
 served by reference to the drawings that the  
 burner of the lamp is so disposed as to be lo-  
 cated about centrally in the shell D<sup>2</sup>, so that  
 35 the light emitted by said burner will be dis-  
 tinctly visible through the spirally striped or  
 slotted casing, as the case may be. Fitted  
 upon the upper end of the revolving shell D<sup>2</sup>  
 is a cap G<sup>2</sup>, having an upwardly-extending  
 40 tube or pipe H<sup>2</sup> for the escape of the pro-  
 ducts of combustion. Said pipe or escape-  
 tube may have a bearing in a tube I<sup>2</sup> at the  
 upper end of the lamp-casing, which forms a  
 continuation of the said escape-tube, and  
 45 which is provided at its upper end with a cap  
 or cowl J<sup>2</sup>. It will be seen that the tube I<sup>2</sup>  
 serves the double purpose of an escape-tube  
 for the products of combustion and of form-  
 ing a bearing for the upper end of the tube  
 50 H<sup>2</sup>, whereby the motion of the revolving cas-  
 ing is steadied.

At the front and rear corners of the lamp-  
 frame, diagonally opposite to each other, are  
 hinged a pair of shutters K<sup>2</sup> K<sup>2</sup>, the inner  
 55 sides of which are provided with polished re-  
 flectors, which when partially open will re-  
 flect the light emitted from the lamp in such  
 a manner that it may be seen for a consid-  
 erable distance. It will be observed that these  
 60 shutters do not cover the front and rear sides  
 of the lamp-frame, but may be folded against  
 the outer sides of the frame, which may thus  
 be darkened when desired. It is when par-  
 tially opened that said shutters serve to re-  
 65 flect the light in a forward and rearward di-  
 rection, while when closed they only serve  
 to intensify the light emitted through the

front and rear sides of the lamp-frame. The  
 hinge-rods of the shutters K<sup>2</sup> K<sup>2</sup> are extended  
 downwardly through the car roof or case B, 70  
 and are provided with handles L<sup>2</sup>, by means  
 of which the said shutters may be regulated  
 and adjusted at any desired position.

The operation of my invention as herein  
 described will be readily understood by ref- 75  
 erence to the drawings hereto annexed. When  
 the train to one of the cars to which the de-  
 vice is attached is in motion, the motion will  
 be transmitted to the revolving casing and  
 shell which surrounds the lamp, the spiral 80  
 stripes or slots in the said shell serving by  
 the light emitted through said spirals to in-  
 dicate the direction of rotation, and thereby  
 the direction in which the train is moving.  
 When it shall be desired to back the train, 85  
 the position of the sleeve X, carrying the  
 pinions Z and A<sup>2</sup>, may be shifted upon the  
 shaft T, thus changing the direction of rota-  
 tion. By little practice engineers and other  
 interested parties will soon learn to tell not 90  
 only the direction in which the train is mov-  
 ing, but also the approximate speed at which  
 the train is moving, this being indicated by  
 the speed of the spiral movement.

When my invention is attached to other 95  
 conveyances than railroad-cars, motion may  
 be transmitted to the revolving casing in any  
 suitable manner, either direct from the oper-  
 ating machinery or from any of the parts op-  
 erated thereby. When the device is attached 100  
 to a stationary bracket or other object—such  
 as, for instance, when it is used at a railroad  
 crossing or depot—the revolving casing may  
 be operated by means of a spring or weight,  
 motion from which may be transmitted there- 105  
 to in any suitable well-known manner.

I would have it understood that in the  
 manufacture of this device I do not limit my-  
 self to the precise construction herein shown  
 and described, but reserve the right to any 110  
 changes and modifications which may be re-  
 sorted to without departing from the spirit  
 of my invention.

Having thus described my invention, I  
 claim and desire to secure by Letters Patent— 115

1. In a signal-lantern, the combination of  
 the lantern-frame, a revolving cylindrical  
 casing extending through the base of the  
 same, a lamp arranged in the said cylindrical  
 casing, and a shell attached to the upper end 120  
 of the latter and having one or more spirals  
 therein for the emission of light, substantially  
 as set forth.

2. In a signal-lantern, the combination of  
 the lantern-frame, the cylindrical casing ex- 125  
 tending through the base of the same and  
 having a beveled gear-wheel attached to its  
 lower end, a shaft arranged transversely be-  
 low said casing, a sleeve mounted adjustably  
 upon said shaft and having pinions adapted 130  
 to alternately engage the beveled wheel upon  
 the lower end of the revolving casing, mech-  
 anism for transmitting motion to the said  
 shaft, the lamp mounted in the cylindrical



casing, and the shell supported upon the latter and having spirals therein for the emission of light, substantially as set forth.

3. In a signal-lantern, the combination of a vertical revolving casing carrying a lamp, and a shell having spirals therein for the emission of light, hangers or brackets arranged adjacent to said revolving casing, a shaft mounted in the said hangers and composed of two parts or sections connected by a universal joint, a sleeve mounted adjustably upon the said shaft and provided with pinions facing in opposite directions and adapted to alternately engage the bevel gear-wheel upon the lower end of the vertically-revolving casing, and mechanism for operating the said shaft, substantially as set forth.

4. In a signal-lantern, the combination of a vertical revolving casing carrying a lamp, and a shell having spirals therein for the emission of light, a cap at the lower end of said casing having a central downwardly-extending spindle, and a hinged bracket having a step or bearing for the said spindle, substantially as and for the purpose set forth.

5. In a signal-lantern, the combination of a vertical revolving casing having a lamp, and a shell surrounding the latter and having spirals therein for the emission of light, a cap at the lower end of said casing having a downwardly-extending spindle, a hinged bracket having a step or bearing for said spindle, a transversely-arranged shaft composed of two parts or sections jointed universally and having an adjustable sleeve provided with pinions adapted to alternately engage a beveled gear-wheel upon the lower end of the revolving casing, and mechanism for operating or transmitting motion to the said shaft, substantially as and for the purpose set forth.

6. In a signal-lantern, the combination, with a revolving casing carrying a shell having spirals therein for the emission of light, and having at its lower end an interior annular flange, of a lamp the sides of which are provided with spring-catches having their lower ends extended inwardly through slots formed in a flange which extends downwardly from the bottom of said lamp and connected by means of a cord or chain, whereby the said spring-catches may be simultaneously operated to release the lamp from the casing, substantially as set forth.

7. The combination of the lantern-frame, the revolving casing having an interior annular flange at its lower end and provided with a shell having spirals therein for the emission of light attached to its upper end, a lamp provided with spring-catches to retain it in the said revolving shell, and a cord connecting the inner ends of said spring-catches,

a cap at the lower end of the revolving casing having a downwardly-extending spindle, a hinged bracket having a step or bearing for the said spindle, and mechanism for operating the said revolving casing in either direction, substantially as and for the purpose set forth.

8. A signal-lantern having a revolving shell surrounding the light, and having spirals therein for the emission of light, in combination with reflecting-shutters hinged to diagonally-opposite corners of the lantern-frame, substantially as and for the purpose set forth.

9. The combination of the lantern-frame, the revolving casing carrying the lamp, and the shell having spirals therein for the emission of light, a cap attached to the upper end of said shell and having an upwardly-extending escape-tube, and a tube extending upwardly from the top of the lantern-case and affording a bearing for the said escape-tube, substantially as and for the purpose set forth.

10. The combination of the lantern-frame, the revolving casing extending through the base of the same and having at its lower end a cap provided with a spindle which is stepped or journaled in a hinged bracket, a lamp arranged within the revolving casing, a shell attached to the upper end of the latter and having spirals therein for the emission of light, a cap mounted upon the upper end of said shell and having an upwardly-extending escape-tube, a tube extending upwardly from the top of the lantern-frame and affording a bearing for the said escape-tube, and mechanism for operating the revolving casing and its attachments in either direction, substantially as and for the purpose set forth.

11. In a signal-lantern, the combination, with a lantern-frame, of a revolving casing extending downwardly through the base of the same, suitable mechanism for supporting and operating said revolving casing, a lamp arranged detachably within said revolving casing, a shell attached to the upper end of the latter and having spirals therein for the emission of light, and reflecting-shutters hinged at diagonally-opposite corners of the lantern-frame and provided with operating-rods extending downwardly through the base and provided with handles, by means of which they may be adjusted and manipulated, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE W. SMITH.

Witnesses:

B. F. HARRIS,  
CYRUS WOODBURY.