No. 66,056.

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E. H. TOBEY & C. A. NOTT.

SIGNAL FOR RAILROADS.

Fig. 2.

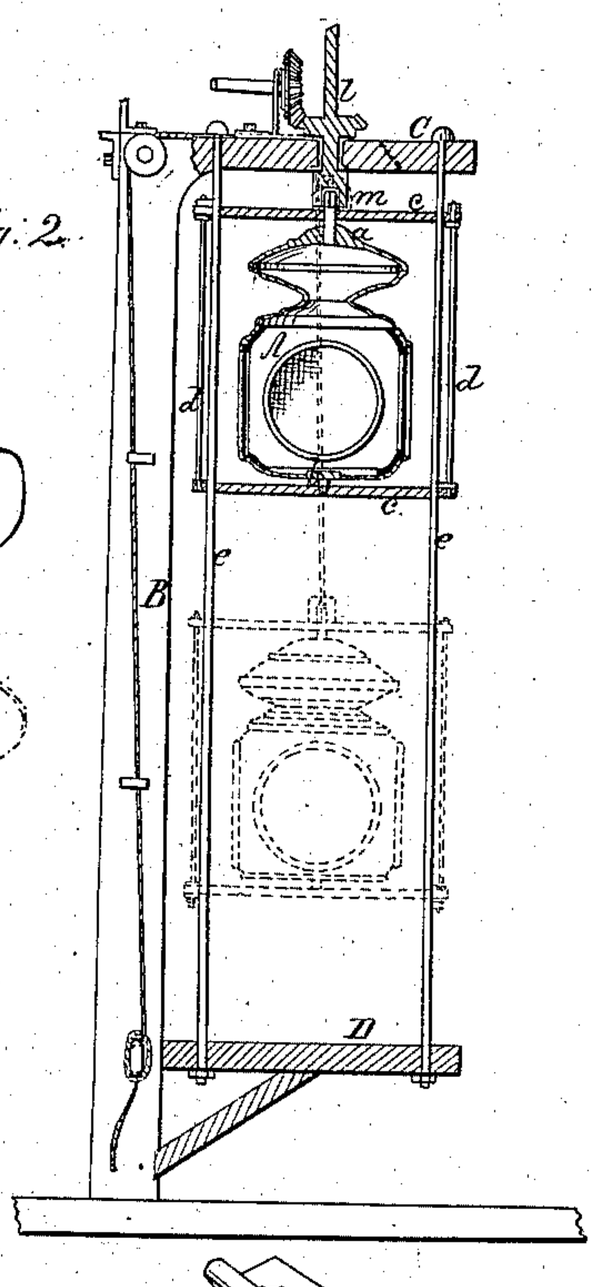

Fig. 1.

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ELISHA H. TOBEY AND COPLEY A. NOTT, OF WATERTOWN, NEW YORK.

Letters Patent No. 66,056, *dated June* 25, 1867.

IMPROVEMENT IN SIGNALS FOR RAILROADS.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that we, ELISHA H. TOBEY and COPLEY A. NOTT, of Watertown, in the county of Jefferson, and State of New York, have invented certain new and useful Improvements in Railroad Signals; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a railroad signal constructed in accordance with our invention; and

Figure 2 is a transverse vertical section of the same through the day-signal and reflector-box, and the spindle which connects the same with the operating mechanism.

Our invention relates to signals used principally on railroads to indicate that the track is clear, or that the switches are properly set, or for other purposes of a similar nature.

The principal drawback to the use of such signals as ordinarily constructed is that there are none so arranged as to be readily operated in a frame of any great height; and it is both inconvenient and difficult when the frame is of such height to place the light in proper position therein, or to remove it, or to elevate or lower it so that it may be held at various distances from the ground, and the same and perhaps greater difficulty is experienced in connecting the signal thus placed with the switch, so that the movement of the switch shall cause the signal to indicate to the approaching train whether or not all is right.

In Letters Patent recently granted one of the parties to this application is described a method of arranging the signal so that it may be used in a frame of great height without trouble; one of the principal features of the invention being that the reflector-box or signal is capable of sliding vertically in the main frame, and at the same time of revolving in a horizontal plane. By this arrangement it may be raised and lowered with ease, and yet revolve in a horizontal plane, so as to display different-colored lights or signals as required by the nature of the case.

Our present invention is based upon this method, and it consists, first, in the combination of the signal device having a sliding and rotary movement of the mechanism for revolving the same in a horizontal plane, under such an arrangement that the said device shall, when elevated in the signal frame, be thrown into gear with the said mechanism; second, in the combination with the sliding and rotating signal device as described of the mechanism for imparting the rotary motion, so that the position of the said device shall be determined by the position of the switch; third, in the combination with the signal-box and mechanism for rotating the same of a day signal actuated by the said mechanism simultaneously with the reflector or signal-box; fourth, in the construction and arrangement of the sliding signal frame and the main frame of the apparatus, and their combination with each other.

To enable those skilled in the art to understand and use our invention, we will now proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawings.

The reflector-box or signal device A may be of ordinary or suitable construction, and is held in its frame by means of pins or rods *a b* projecting from the top and bottom respectively of the box, and having their bearings in the frame in such manner that the box is rendered capable of being rotated upon its axis in a horizontal plane. The vertically sliding frame in which the box is thus mounted consists of two horizontal bars *c c*, connected together and held at the same time a suitable distance apart by means of tie-bolts *d* or equivalent means. The bars are perforated near the ends so as to fit the upright rods *e* upon which the frame slides, and by which it is guided. The main frame of the apparatus consists of an upright post of the required height, which carries arms C D attached respectively to its upper and lower ends, between which arms the guide-rods *e* extend. The signal-box and its sliding frame are elevated and lowered by means of a rope or cord, *x*, which is attached to the top of the frame and then passes over pulley *y* suitably arranged on the main frame until it is brought down to a point within easy reach of the switchman, where it is suitably secured. Near the bottom of the main frame is located the mechanism for operating the switch, consisting in this case of a rod, E, and wheel F. The rod has on its lower end a crank or arm, *f*, which not only moves the switch, but is also connected by suitable means (in this instance a rod, *g*, is employed) with a similar arm, *h*, attached to the lower end of a vertical rod *k*, which extends up as high as the top of the apparatus, where it is connected, by means of bevel gearing o other suitable device, with a spindle or shaft, *l*. The spindle is mounted vertically in the top of the main fram

so as to be capable of rotary motion, and its lower end extends down through the horizontal arm C. In this end is formed an angular socket, *m*, into which the correspondingly-shaped end of the pin *a*, which extends up through the top of the sliding frame, is received, when the frame and box are elevated to a sufficient height. Upon the top of the spindle *l* is a signal arm or ball, G, which may be used as a day signal, the colors upon it corresponding to those upon the reflector-box. Under the arrangement here described it will be seen that the same rod which operates the switch also moves the gearing of the signal apparatus which is connected with the spindle *l*, and that, therefore, the movement of the day signal as well as of the reflector-box, when the latter is elevated so as to be connected with the spindle, depends upon and is entirely governed by the movement of the switch, so that if there be an established code of signals, the position of the switch will be indicated with unerring accuracy by the signal.

The principal advantage of my invention is that the signal device, while thus thrown into gear, as it were, with the switch, can also be raised and lowered, so as to be brought readily within reach of the switch-tender whenever it becomes necessary, and as elevated and thrown again into gear. The whole apparatus is thus under the control of the switchman, who, without moving from his place by the switch, can adjust the light in the frame and throw it in or out of gear as he may find it necessary. The rods upon which the signal-box frame slides, as well as those which are employed in the gearing, are formed preferably of gas pipes or of tubing of the proper size, for the reason that such material is cheap and readily procured, and at the same time of comparatively little weight; the last being an item of considerable importance, as the apparatus is required to be raised to a considerable height in most instances. Instead of using the gearing shown on top of the apparatus to communicate motion to the signal, it will be apparent that by substituting for it arms or cranks similar to those upon the lower ends of the rods E and *k*, one being secured to the top of the rod *k* and the other to the spindle *l*, and connected together by a rod in a similar manner to that shown in the instance referred to, the same effect will be produced. And many other devices may be employed for a like purpose.

Having now described our invention, and the manner in which the same is or may be carried into effect, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the sliding signal-box or other signal device, with the mechanism for rotating the same in a horizontal plane, in such manner that the said device, when raised or elevated to a certain point in the signal frame, shall be thrown in gear with said mechanism, as and for the purpose herein described.

2. The combination of a signal device capable of a sliding and rotary movement as described, with the mechanism for imparting the rotary movement under the arrangement herein described, so that the position of the said signal device, when in gear with the said mechanism, shall be determined by the position of the switch with which the mechanism is connected, as and for the purposes set forth.

3. The combination with the reflector-box and its frame and actuating mechanism, of a day signal, actuated by said mechanism in the manner and for the purposes set forth.

4. The combination of the reflector-box or the other signal device and its sliding frame with the guide-rods upon which the said frame is mounted and held, substantially as and for the purposes set forth.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

ELISHA H. TOBEY,
COPLEY A. NOTT.

Witnesses:
JAMES W. POE,
R. E. INGRAHAM.