

(No Model.)

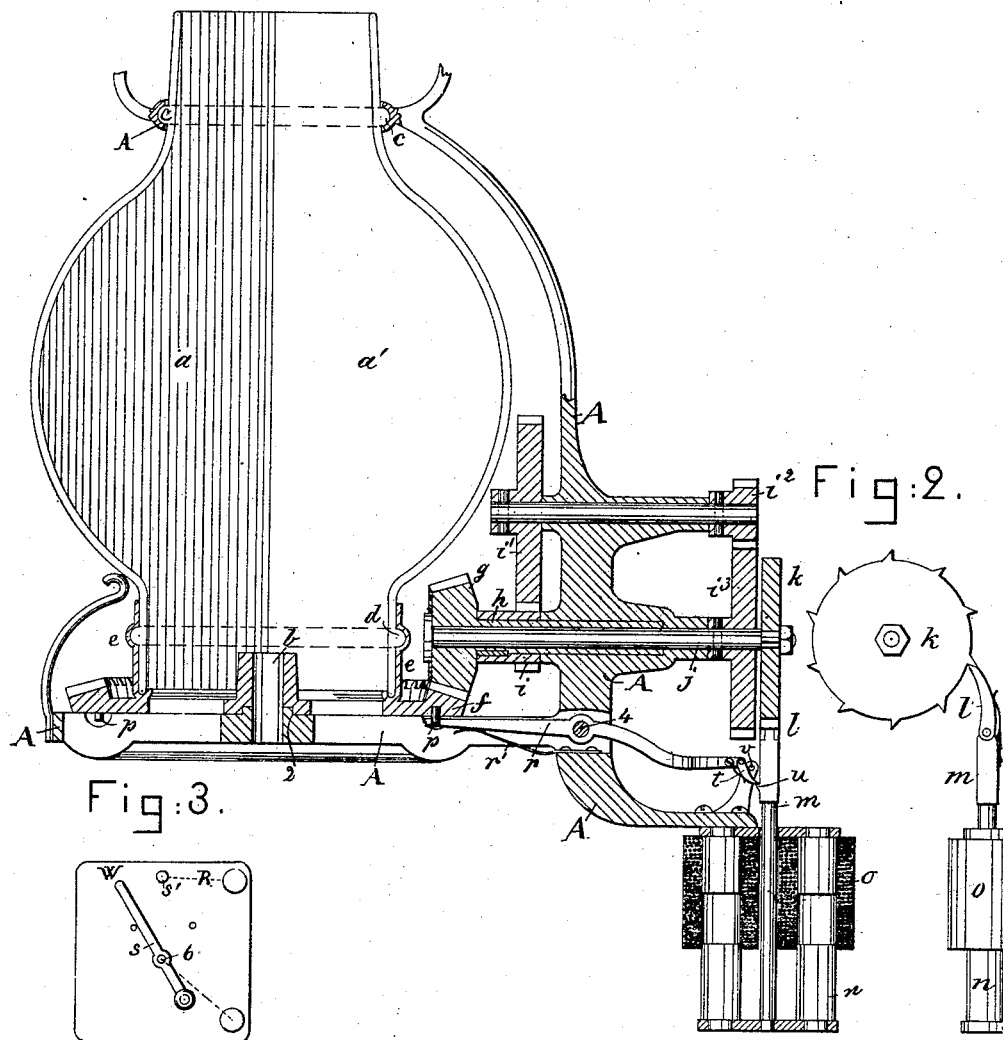
G. O., J. P. A. & J. F. HANLON.

RAILWAY SIGNAL.

No. 267,195.

Patented Nov. 7, 1882.

Fig:1.



Witnesses
Fred A. Powell
B. J. Noyes.

Inventors.
Geo. O. Hanlon, Jos. P. A. Hanlon,
and John F. Hanlon
by *Lowell Hargrove Attys.*

UNITED STATES PATENT OFFICE.

GEORGE O. HANLON, JOSEPH P. A. HANLON, AND JOHN F. HANLON, OF
CAMBRIDGE, MASSACHUSETTS.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 267,195, dated November 7, 1882.

Application filed September 2, 1882. (No model.)

To all whom it may concern:

Be it known that we, GEORGE O. HANLON, JOSEPH P. A. HANLON, and JOHN F. HANLON, of Cambridge, Middlesex county, Massachusetts, have invented an Improvement in Railway-Signals, of which the following description, in connection with the accompanying drawings, is a specification.

Our invention relates to a signal for railways; and it consists mainly in a lantern or light-inclosing case having segments of different color, mounted to rotate so as to bring the said segments successively in the path of the rays of light. The said lantern is actuated by an electro-magnet, which at each impulse moves a sufficient distance to present a new segment before the light, and thus give a different signal from that displayed before the said movement takes place. A locking device engages the rotating lantern when it is moved a sufficient distance to change the signal, the said locking device being automatically released when the electro-magnet begins to move the lantern. An electric switch is employed to send the successive electric impulses required to move the lantern, the said switch indicating by its position the position occupied by the lantern.

Figure 1 is a vertical section of a sufficient portion of a signal-lantern and its operating mechanism to illustrate this invention; Fig. 2, an end elevation of the device actuated by the electro-magnet, and Fig. 3 a plan view of the key or switch by which the electric impulses are sent to operate the lantern.

The globe or lantern is composed of segments *aa'*, of different color—one, for instance, being clear glass and the other red or green—the said segments being shown as each forming one-fourth of the said lantern, which may be of any usual or suitable form for containing any desired kind of light, it being in this instance shown as having a socket, *b*, to receive a carbon pencil for an electric light. The said globe or lantern is provided near its upper end with a projecting flange, *c*, fitting loosely in the upper portion of the frame-work *A* of the apparatus, so that the said globe *a a'* can rotate freely in the said frame-work. Said globe is also provided near its lower end with

a flange, *d*, fitting tightly in a socket, *e*, upon a bevel-gear wheel, *f*, the central hub of which forms the socket for the carbon or support for other illuminating apparatus, and has a bearing at 2 upon the frame-work *A*, the said gear-wheel *f* and frame-work *A* being made open, or having spokes beneath the globe *a a'*, in order to supply air, if oil or other fuel is used for illuminating.

The said bevel-wheel *f* meshes with the bevel pinion *g*, mounted on a tubular spindle, *h*, and connected by a train of gearing, *i i' i'' i'''*, with a shaft, *j*, having mounted thereon an actuating toothed or ratchet wheel, *k*, the teeth of which are engaged by a pawl, *l*, carried by a rod, *m*, connected with the armature *n* of an electro-magnet, *o*, the said armature being shown as having cylindrical poles moving axially into the hollow coils of the said magnet, in order to give a long range of movement to the said armature. When the armature *n* is attracted by the magnet *o* the pawl *l*, engaging the teeth of the actuating-ratchet *k*, moves it for the space of one tooth, and thus, through the intermediate gearing, rotates the gear *f* and lantern *a a'* thereon for the space of a quarter of a revolution, or arc, which may be occupied by a segment of one color in the said globe, so that the light proceeding in a given direction has its color changed, and consequently affords a different signal.

The gear *f* is provided with a series of studs, *p*, corresponding in position with the arcs occupied by the different sections *a a'* of the lantern, the said studs being engaged by a locking device, (shown as a lever, *r*,) pivoted at 4, and provided with a pawl, *t*, engaged by a projection, *u*, on the rod *m*, so that when the said rod begins its upward movement under the influence of the magnet *o* to rotate the wheel *k* and lantern the said lever *r* is disengaged from the projection *p*, permitting the gear *f* to rotate freely after the said locking-lever *r* is thus disengaged. The pawl *t*, in the further upward movement, engages a projection, *v*, on an arm of the frame-work *A* of the apparatus, and is thus disengaged from the projection *u* on the rod *m*, permitting the lever *r* to return to its normal position (shown in the drawings) under the action of the spring

1 *r'*, so as to engage the next stud *p* on the lan-
 tern, thus arresting its movement at the proper
 time. When the magnet *o* is demagnetized
 the armature *r*, with its rod *m*, is retracted by
 5 its weight, assisted, if needed, by the force of
 a spring in the usual manner, and engages the
 next tooth of a ratchet, *k*, ready to actuate the
 lantern when the magnet *o* is again magnet-
 10 ized. The currents are sent for the purpose
 of magnetizing the said magnets by means of
 a switch, *s*, (see Fig. 3,) pivoted at 6 and con-
 nected with a suitable battery. The metallic
 portion of the said switch, in moving across
 between the letters W R, makes contact with
 15 a button, *s'*, connected with the line leading
 to the magnet *o*, thus sending a current through
 the said magnet and causing it to rotate the
 signal-lantern, as before described. The let-
 20 ters R W are intended to represent red and
 white—the colors of the segments *a a'* of the
 lantern usually employed; and it will be seen
 that the position of the switch *s* adjacent to
 one or the other of the said letters will indi-
 25 cate the position of the lantern, as the said
 lantern will always change its position when
 the said switch is changed from one to the
 other of the said letters.

We claim—

1. In a signal, the globe or lantern composed
 30 of segments of different color, mounted to ro-
 tate in its frame-work, combined with an act-
 uating-magnet and intermediate mechanism
 between the armature of the said magnet and
 the said lantern, whereby it is rotated to pre-
 35 sent a different segment in the path of the
 light when the said armature is moved, sub-
 stantially as described.

2. The combination, with the lantern com-

posed of segments of different color, of a sup-
 porting gear-wheel for the said lantern, and
 40 an actuating-ratchet operatively connected
 with the said gear-wheel, and an electro-mag-
 net and its armature provided with a pawl to
 engage the teeth of the said ratchet and ro-
 45 tate the said lantern, substantially as described.

3. The combination of the lantern having
 segments of different color, mounted to rotate,
 as described, and provided with locking-pro-
 jections, with an actuating electro-magnet, its
 50 armature, and a locking device for the said
 lantern operated by the armature of the said
 magnet, as described, whereby the said lan-
 tern is released when the magnet begins to ro-
 tate it, and is engaged and locked at the end
 of the said rotation, substantially as described. 55

4. The lantern composed of segments of dif-
 ferent color, mounted to rotate upon a pivoted
 wheel provided with locking-projections, com-
 bined with an electro-magnet, its armature, in-
 60 termediate mechanism between the said arma-
 ture and supporting-wheel for the lantern, and
 a pivoted locking-lever normally in the path
 of the said projections and operated by the
 said armature, whereby it is removed from the
 path of the said projections when the arma- 65
 ture begins to move the signal, substantially
 as described.

In testimony whereof we have signed our
 names to this specification in the presence of
 two subscribing witnesses.

GEORGE OTTO HANLON.

JOSEPH P. A. HANLON.

JOHN F. HANLON.

Witnesses:

JOS. P. LIVERMORE,

BERNICE J. NOYES.