No. 868,354. PATENTED OCT. 15, 1907.

B. F. MERKEL.

SIGNAL SYSTEM.

APPLICATION FILED MAY 1, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

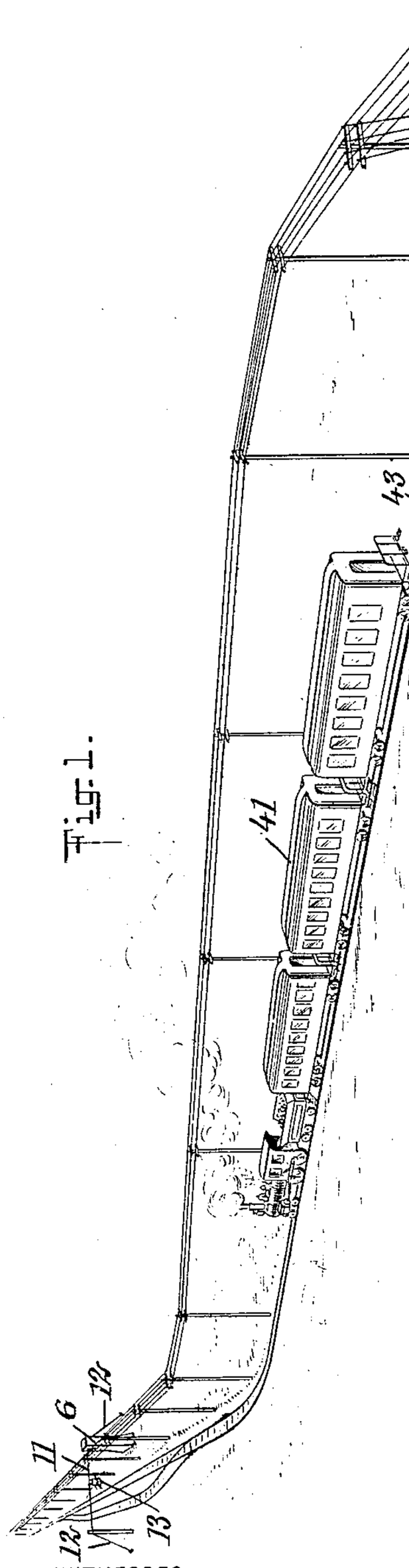
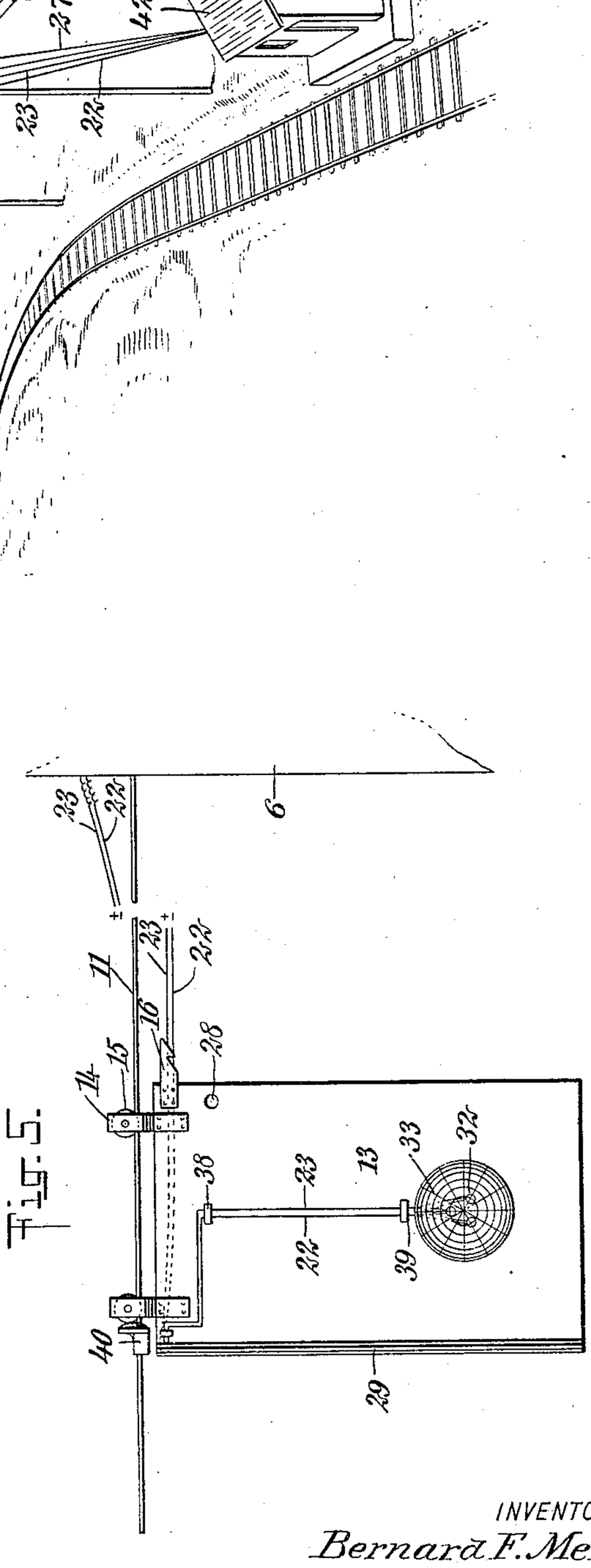


Fig. 5.



WITNESSES

Walter Harrison

INVENTOR

Bernard F. Merkel

BY Munn & Co

ATTORNEYS.

No. 868,354. PATENTED OCT. 15, 1907.

B. F. MERKEL.

SIGNAL SYSTEM.

APPLICATION FILED MAY 1, 1907.

2 SHEETS—SHEET 2.

Fig. 2.

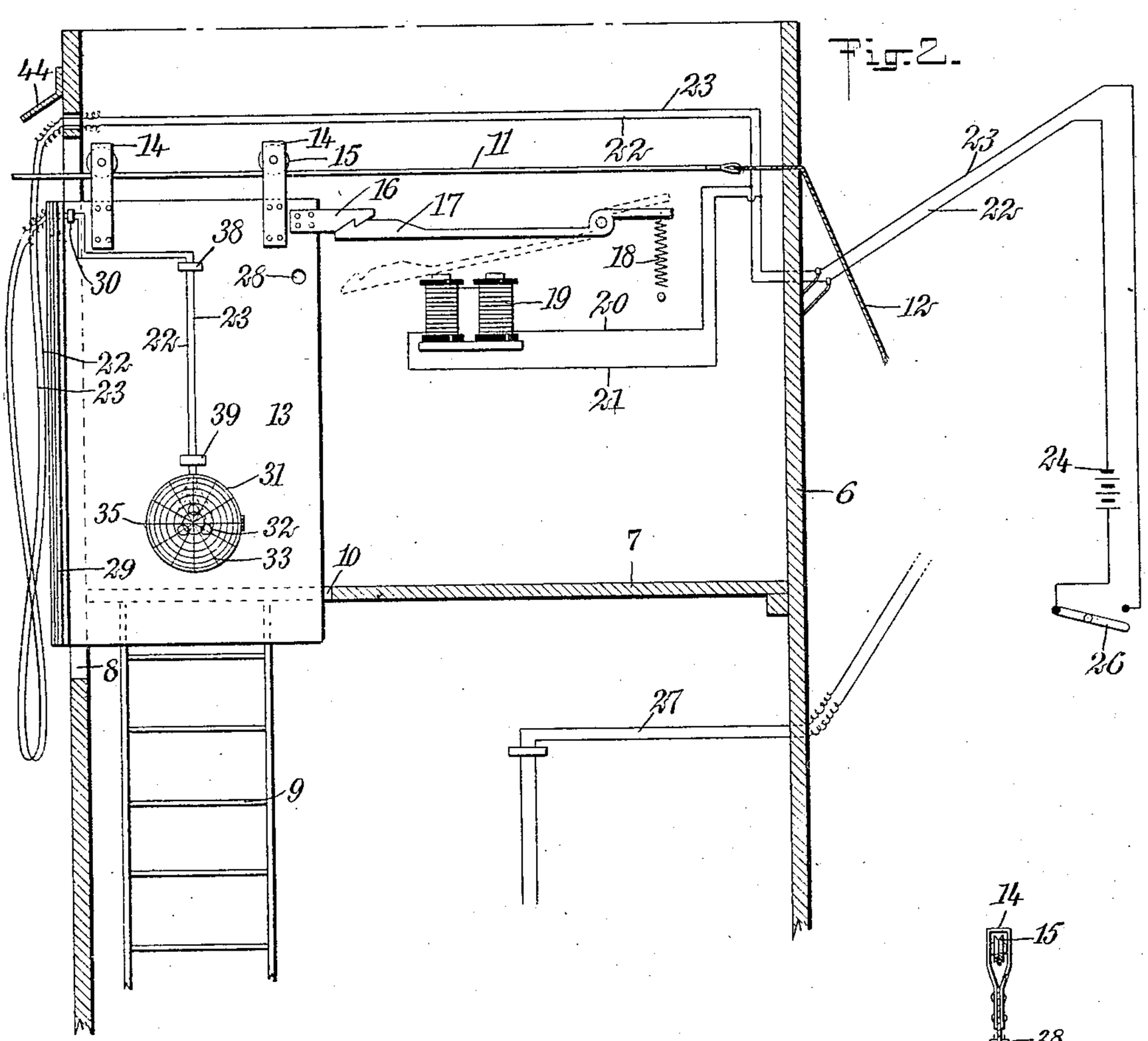


Fig. 3.

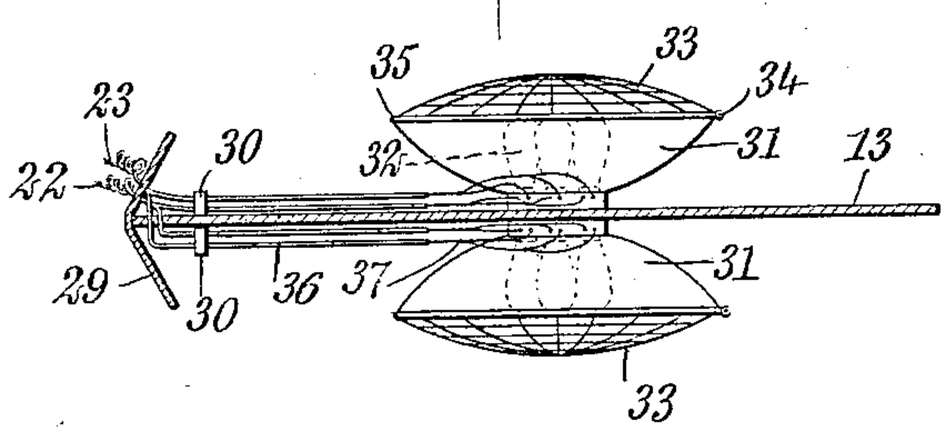
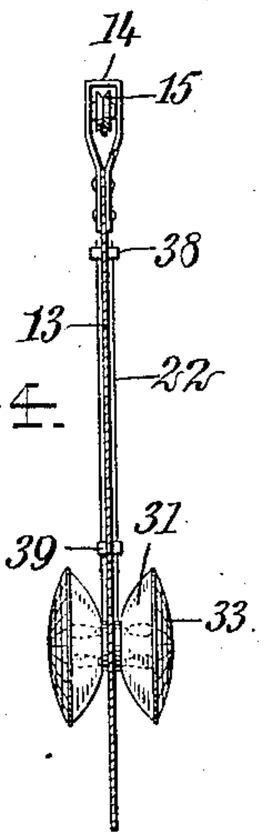


Fig. 4.



WITNESSES

Walton Harrison

INVENTOR

Bernard F. Merkel

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

BERNARD F. MERKEL, OF SALIDA, COLORADO, ASSIGNOR OF ONE-HALF TO GEORGE G. GRISWOLD AND WADE H. GREEN, OF SALIDA, COLORADO.

SIGNAL SYSTEM.

No. 868,354. Specification of Letters Patent. Patented Oct. 15, 1907.

Application filed May 1, 1907. Serial No. 371,290.

To all whom it may concern:

Be it known that I, BERNARD F. MERKEL, a citizen of the United States, and a resident of Salida, in the county of Chaffee and State of Colorado, have invented a new and Improved Signal System, of which the following is a full, clear, and exact description.

My invention relates to signal systems, my more particular object being to provide a system for displaying a target directly over a track where it may be more readily seen by the engineer, and for housing this target as well as rendering it invisible when not in active use.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a fragmentary perspective of a railroad equipped with my invention; this view showing how the signal target is temporarily held directly over the main track at the instant when a train is to be signaled; Fig. 2 is an enlarged fragmentary section of a part of the signal tower, showing how the target is normally housed and ready to be released electrically; Fig. 3 is an enlarged horizontal section through the target and showing the position of the electric lamps and lamp fixtures mounted thereupon; Fig. 4 is a vertical section through the target showing how the lamps and other fixtures are connected thereto; and Fig. 5 is a front elevation of the target and target cable.

A signal tower is shown at 6 and is provided with a floor 7, preferably in its upper part. The tower is provided with a slot 8. A ladder 9 is also provided, for the convenience of trainmen. The floor 7 is provided with a slot 10 registering substantially with the slot 8, as indicated in Fig. 2. A cable 11 is stretched directly across the track, slightly inclined from tower 6 to a post situated across the track, and anchored at each end by means of guys 12, said cable extending through the signal tower.

A target 13, of rectangular form and made preferably of sheet metal painted red, is provided with brackets 14 having grooved and rotating rollers 15 mounted therein on axles or suitable bearings. By this means the target 13 depends from the cable 11 and may be moved longitudinally on the cable. A hook 16 is fixed upon one of the upper corners of the target and is adapted to be engaged by an armature 17 of hook form, suitably mounted in the signal tower. A spring 18 is connected with the armature 17 and tends to retain it in a horizontal position. A magnet 19 is mounted below the armature 17 and is adapted to draw the same downwardly as indicated by dotted line in Fig. 2. This magnet is connected by wires 20, 21 with wires 22, 23, the latter being connected with a battery 24 and with a hand-switch 26 at station 42.

Wires 27, entirely independent of the wiring shown in Fig. 2, provided for the purpose of enabling the operator at station 42 to converse by means of a telegraphone or telephone with trainmen at tower when occasion requires.

The target 13 is provided with a shield 29, this shield being sufficiently large to cover the slot 8, so as to serve to some extent for preventing the entrance of quantities of air, rain or snow into the tower.

Mounted upon opposite sides of the target 13 are concave reflectors 31, each provided with three incandescent lamps 32 and with a convex lid 33, made of wire netting. Each lid 33 is connected by a hinge at 34 with one of the reflectors 31. Clasps 35 are provided for the purpose of keeping lids closed. Tubes 36 of insulating material encircle the wires 22, 23, and thus prevent injury to them as well as improve their condition, said tubes being held in supports 30. The wires are divided at 37 and connected with the incandescent lamps 32. Brackets 38, 39 are employed for the purpose of connecting portions of the wires 22, 23 rigidly with the target 13.

A bumper 40 (see Fig. 5) serves as a limiting stop for the target 13, this bumper being disposed in such position as to stop the target 13 when the latter is directly over the center of the track or in any other predetermined position desired. A train of cars is shown at 41 and a railway telegraph station at 42. A railway track is shown at 43. A shed 44 is mounted upon the tower 6, above the slot 8, for preventing ingress of moisture through said slot. The target 13 is provided with a hole 28.

My invention is used as follows: Signals are to be located at various predetermined points between telegraph stations. We will suppose that the parts are in their normal positions, as indicated in Fig. 2. The shield 29 covers the slot 8 throughout the greater portion of its vertical length and the shed 44 being disposed above the shield 29 assists the latter in preventing the entrance of snow and rain or excessive quantities of cold air into the signal tower. Suppose, now, that the operator at station 42 finds it necessary to transmit an order to a train in motion between station 42 and the next telegraph station. He closes the switch 26 (see Fig. 2) located, we will say, within the station 42. The following circuit is thus completed: Battery 24, switch 26, wire 23, wire 21, magnet 19, wire 20 wire 22, back to battery 24. This completes circuit to lamps, causing them to light, energizes the magnet 19 and causes it to attract its armature 17. The movement

of the armature 17 releases the hook 16 and thereby allows the flag to run down the cable to a position above the center of track as shown in Fig. 1. The magnet 19 offers considerable resistance and does not divert any great amount of current. The incandescent lamps 32 are energized by the following circuit: battery 24, switch 26, wire 23, lamps 32 (in parallel with each other) wire 22, back to battery 24. The lamps begin glowing as soon as the switch 26 is closed. The train having been stopped by the engineer when he sees the signal the conductor goes to tower for orders which are transmitted over telegraphone or telephone by operator at station 42. The occasion for signaling the train having passed, the operator at station 42 now opens the switch 26, thus breaking the circuit, extinguishing the lights and allowing the armature to return to its original position, whereupon one of the trainmen, reaching out from the tower 6 with a pole which is provided with a hook, not shown, enters hook into the hole 28 and draws the target 13 along the cable back into the tower 6. Upon reaching its normal position in the tower the hook 16 is engaged by the armature 17 and thus locked against further movement. In doing this the slot 8 is closed as above described, and the apparatus is ready for another signal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a cable, a target mounted thereupon and movable relatively thereto, electric lamps carried by said target, wires connected with said electric lamps, and means controllable at will from a distance for energizing said electric lamps.

2. The combination of a cable, a target provided with rotating members engaging said cable whereby said target may move automatically, by force of gravity, along the same, electric lamps mounted on opposite sides of said target, electric connections to said lamps, a magnet-controlled member for locking said target in a predetermined position, and electric connections, controllable at will, from a distance, for operating said magnet-controlled member and said lamps.

3. The combination of a tower provided with a slot, a target movable relatively to said tower and provided with a shield for partially closing said slot, illuminating bodies mounted upon said target, and means, controllable at will from a distance, for releasing said target from it's normal position in said tower.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNARD F. MERKEL.

Witnesses:
KATHERINE WILSON,
C. A. CHAMBERLIN.