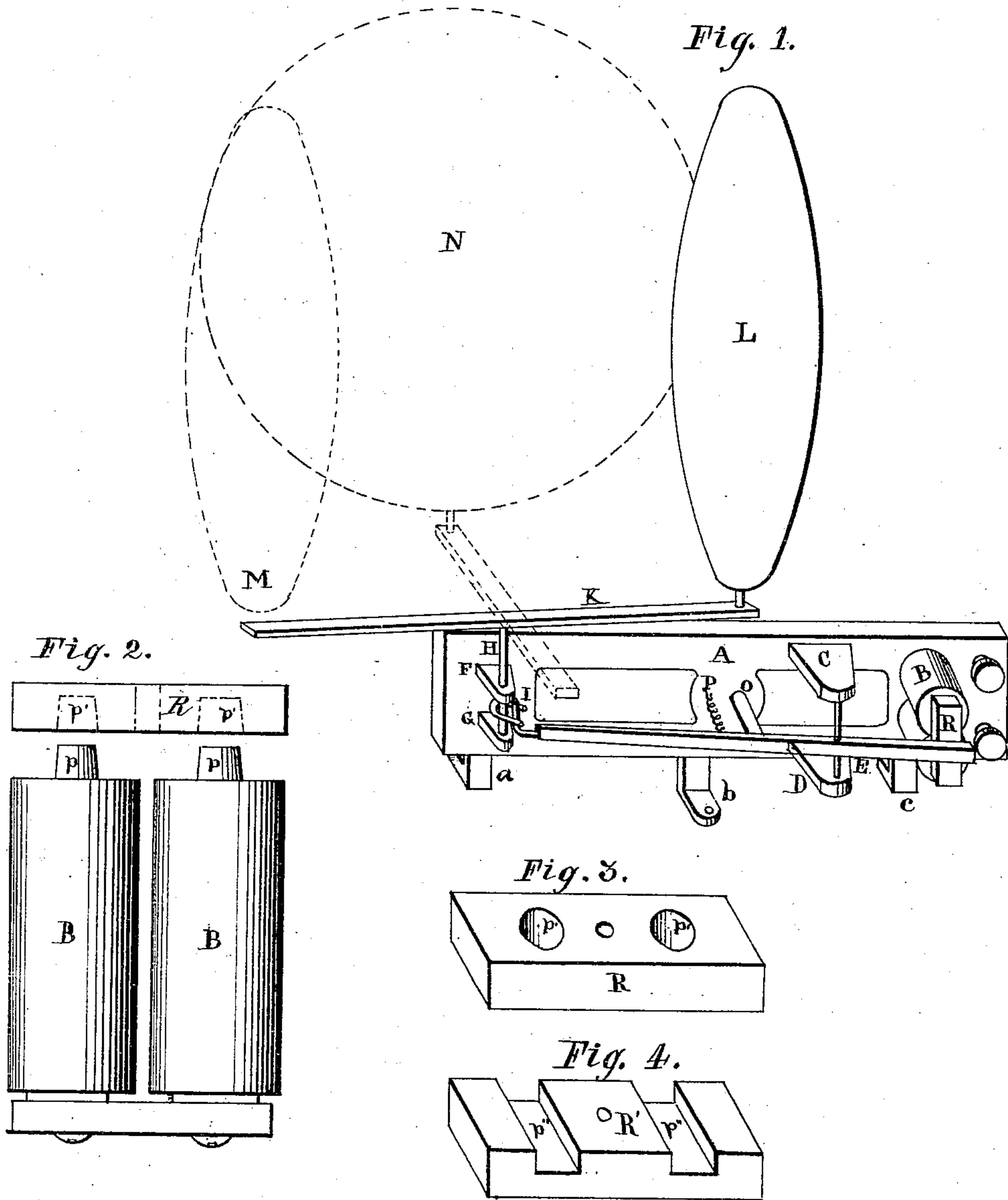


W. ROBINSON.
Electric Railway Signals.

No. 153,613

Patented July 28, 1874.



Witnesses,

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WILLIAM ROBINSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ELECTRIC RAILWAY-SIGNALS.

Specification forming part of Letters Patent No. **153,613**, dated July 23, 1874; application filed July 18, 1873.

To all whom it may concern:

Be it known that I, WILLIAM ROBINSON, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Electric Railway-Signals, of which the following is a specification:

The invention consists in a signal provided with two or more banners having their faces in planes parallel or at right or other angles to each other, in combination with a magnet and suitably-interposed mechanism operating or controlling said banners by means of said magnet; also, in the combination of a magnet, an armature-lever, and a crank with a cross-arm adapted to carry one or more banners, or a banner and counterpoise.

In the drawing, Figure 1 is a face view of the signal mechanism, in which—

A is the base or frame, supported in a vertical position by the feet *a b c*. The frame A, which is, preferably, a casting, supports the electro-magnet B, and is provided with the lugs C D, between which the horizontally-moving armature-lever E is pivoted. The frame A is also provided with lugs F G, which sustain the rod H in a perpendicular position, yet leaving the same free to move on its axis. To the rod H is fixed the slotted crank I, within which plays the upturned end of the lever E. To the upper end of the rod H is attached the horizontally-moving cross-arm K, which carries at one end the banner L, and at the other end the banner M, or, in lieu thereof, a suitable counterpoise. The planes of the banners are, preferably, at right angles to the vertical plane of the rod K. For purposes of description it will be sufficient to consider the rod K as carrying only one banner, L, as in practice one banner only is usually used, the other being replaced by a counterpoise. N is the orifice of the signal-house, looking from the inside.

The mode of operation is as follows: When the magnet B is magnetized it attracts its armature R, and thus throws the opposite end of the lever E outward. The latter, gearing into the crank I, turns the rod H one-quarter around, and, consequently, also swings the rod K and the banner L through an angle of ninety degrees. The banner now stands at

right angles, or approximately so, to the plane of the orifice N, being in a position of concealment, and continues so while the magnet B continues to exert a force on its armature R. As soon, however, as the magnet B is demagnetized, the position of the lever E, with all its dependent mechanism, is reversed by the spring P, the banner L swinging in front of the orifice N, and thus remaining in a state of exposure as long as the magnet B remains demagnetized. When the signal is to be exposed by magnetizing the magnet B, instead of by demagnetizing the same, it is only necessary to change the position of the signal with reference to the orifice N, so that the above-described movements will be reversed. When it is desired that the movement of the signal shall control an additional circuit for operating another signal, or for other purpose, any simple or well-known attachment suitable for accomplishing the desired effect may be used; thus, in practice, I make an attachment to the rod H in such a manner as to control another circuit. By this means the position of the primary signal is positively indicated at a distant point by another signal. Suitable stops are provided to limit the movements of the cross-arm K, and the post O may be used to limit the movement of the lever E.

It will be seen that the magnet B and lever E may occupy any suitable position relatively to the crank I and rod H without affecting the spirit of the invention.

In certain cases it is preferable to use the additional banner M—as, for instance, when it is necessary that a signal shall be clearly seen from both sides of the signal-house, and the two banners may be of the same or of different colors. Furthermore, instead of one or two banners arranged as described, two, four, or more may be used, of contrasting colors, arranged so that the contrasting colors shall be at right or other suitable angles to each other. To accomplish this let four arms radiate from the rod H at right angles to each other, and in a horizontal plane. On the arm, at right angles to the arm K, let a white banner be placed. This, it is evident, will stand at right angles to the red banner L. It is also

evident that when the red banner is concealed the white one is exposed, and the reverse, when the red is exposed the white is concealed.

What I claim as new, and desire to secure by Letters Patent, is—

1. A signal provided with two or more banners having their faces in planes parallel or at right or other angles to each other, in combination with the magnet B and suitably-interposed mechanism operating or controlling

said banner by means of said magnet, substantially as specified.

2. The combination of the magnet B, lever E, and crank I with the cross-arm K, adapted to carry one or more banners, or a banner and counterpoise, substantially as set forth.

WILLIAM ROBINSON.

Witnesses:

G. E. SANGSTON,
C. NORWOOD.