

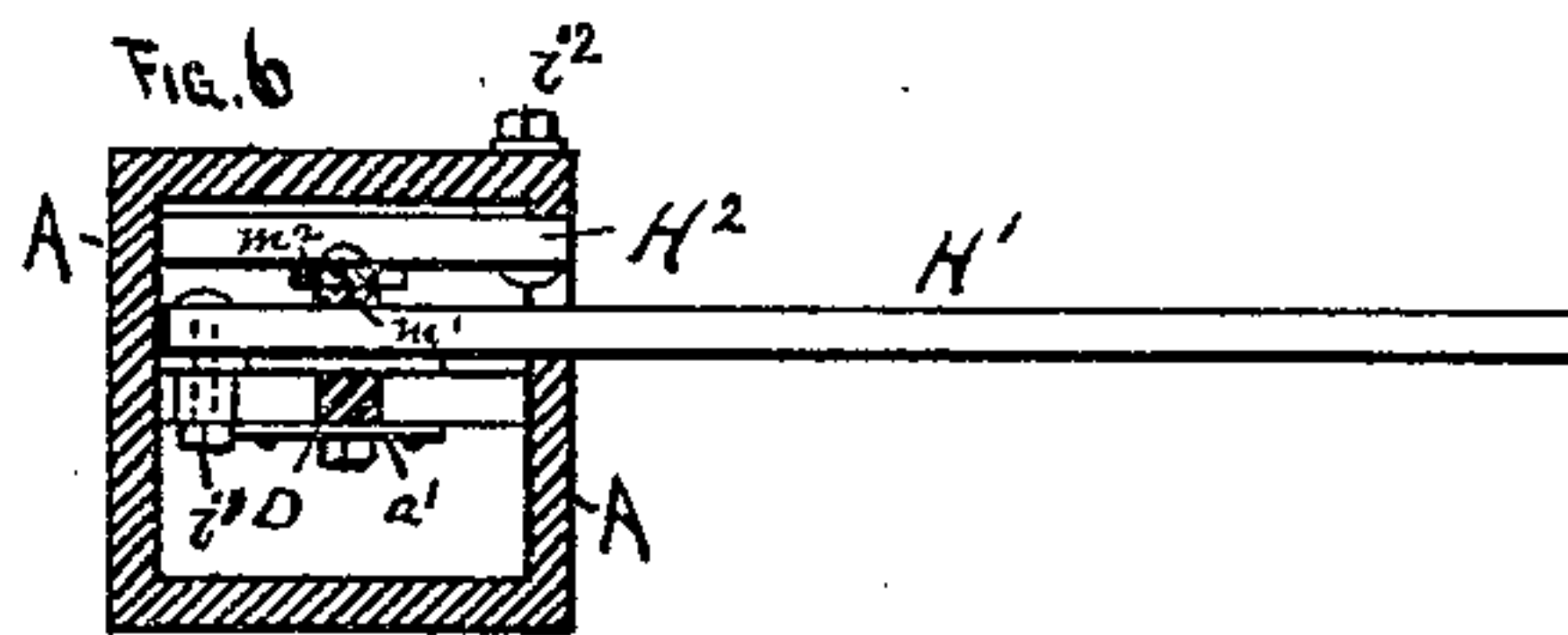
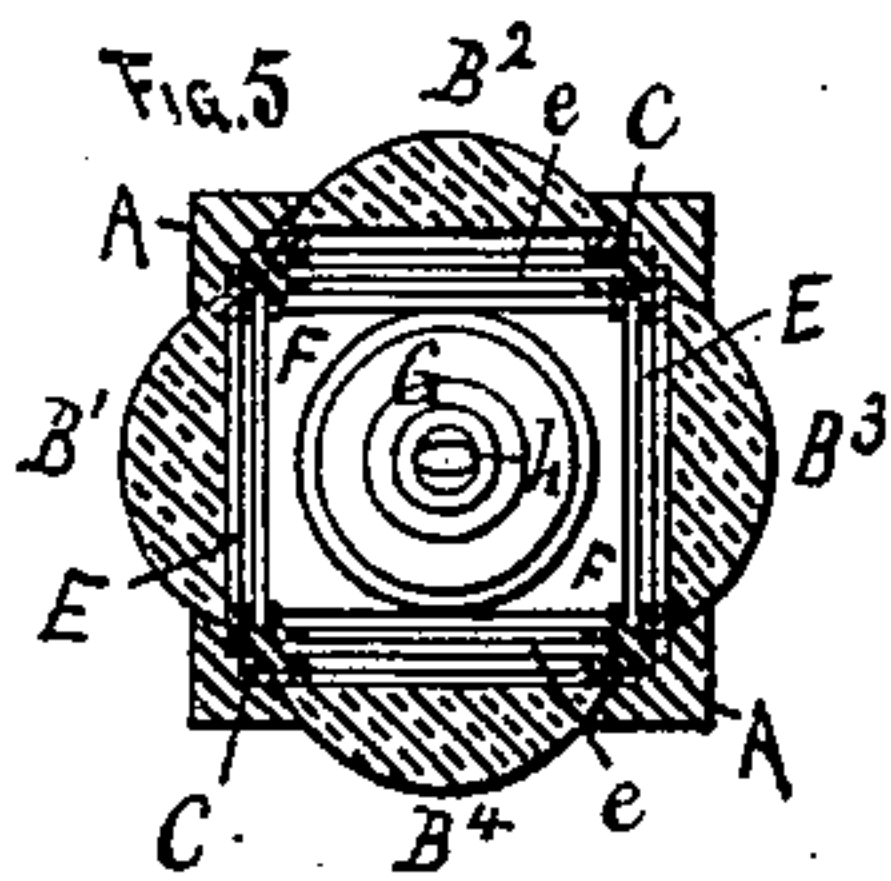
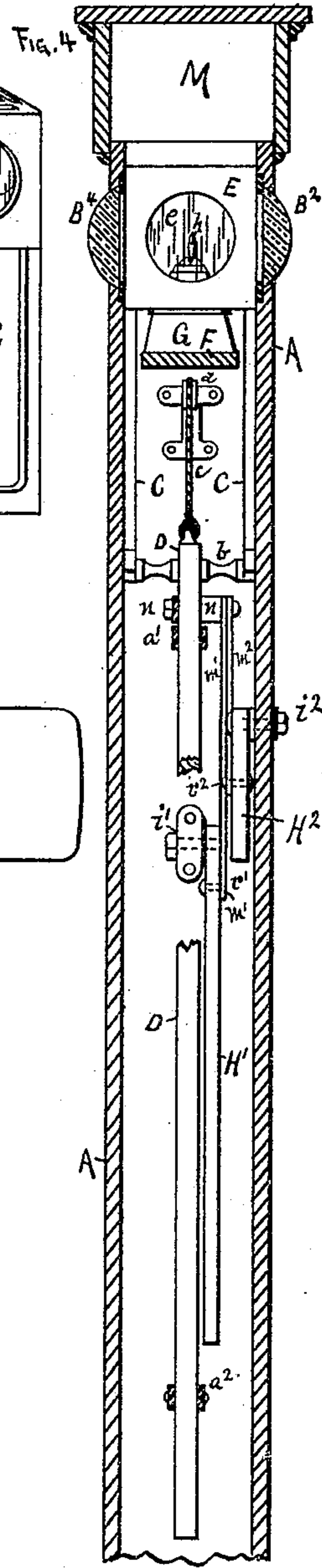
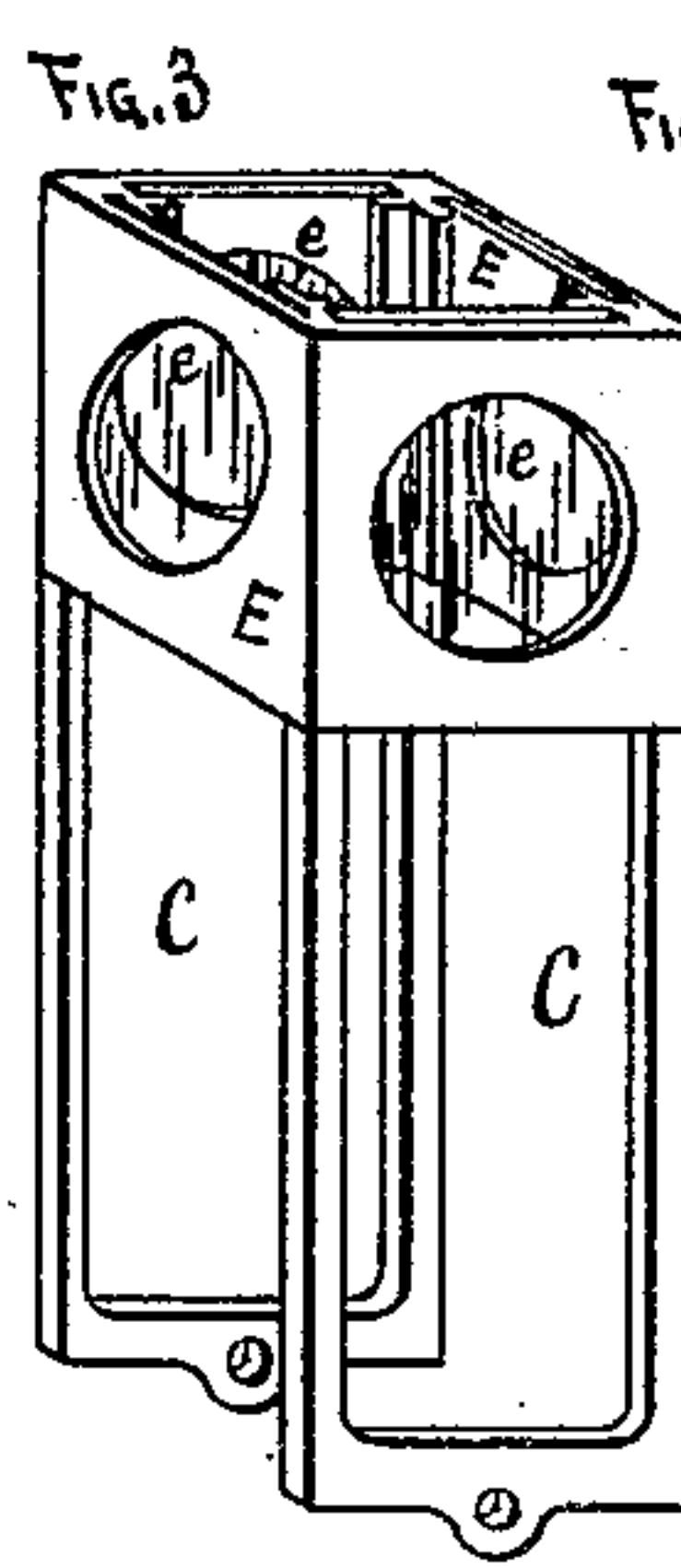
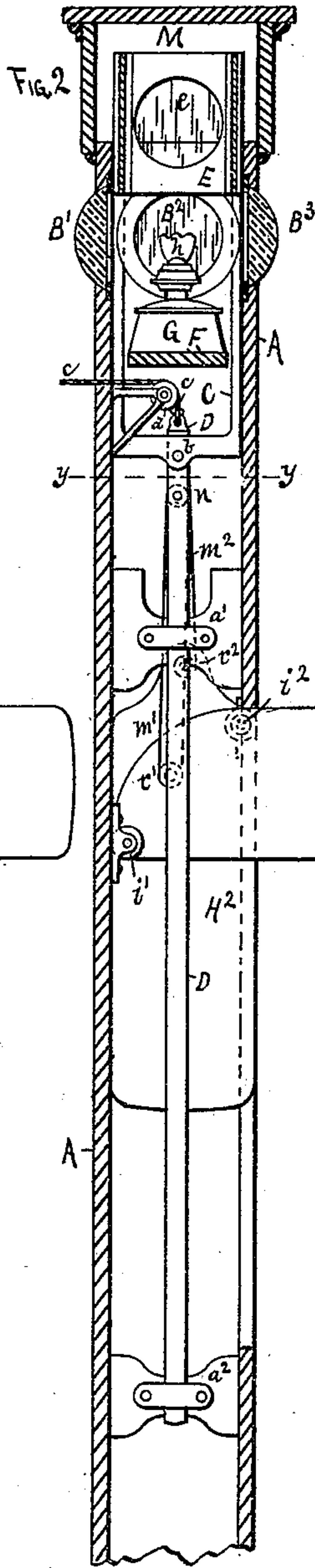
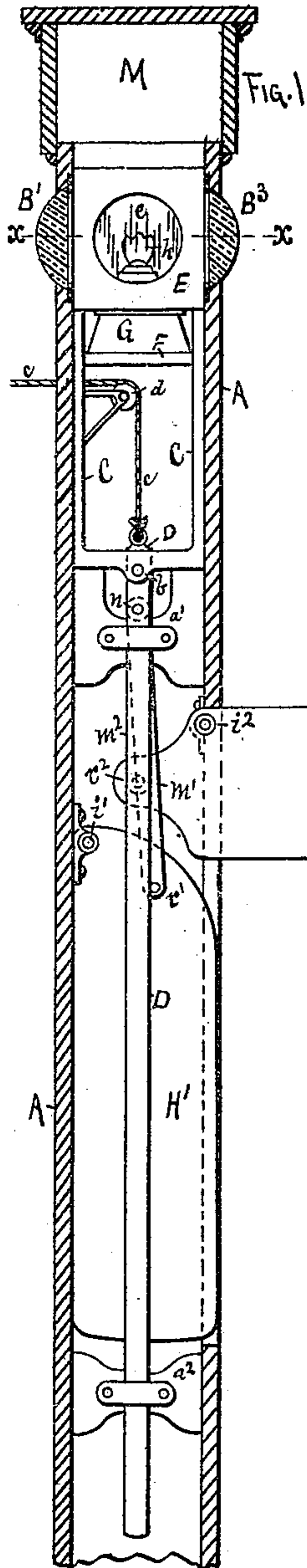
(No Model.)

L. R. MUNSON.

RAILROAD SIGNAL.

No. 270,604.

Patented Jan. 16, 1883.



WITNESSES.
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UNITED STATES PATENT OFFICE.

LOUIS R. MUNSON, OF BRAINERD, MINNESOTA.

RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 270,604, dated January 16, 1883.

Application filed June 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, LOUIS READE MUNSON, a citizen of the United States, and a resident of Brainerd, in the county of Crow Wing and State of Minnesota, have invented certain new and useful Improvements in Railroad-Signals, of which the following is a specification.

This invention relates to signals used upon railroads to denote to conductors or engineers of trains the fact whether they are to wait for orders, and for other uses; and it consists in the construction and arrangement of parts, as hereinafter shown and as specifically claimed.

In the drawings, Figure 1 is a sectional side elevation, showing the colored glass and colored target exposed. Fig. 2 is a similar view, showing the white or safety glass and white or safety target exposed. Fig. 3 is a perspective view of the colored-glass-supporting frame detached. Fig. 4 is a sectional front elevation of Fig. 1. Fig. 5 is a cross-sectional view on the line $x x$ of Fig. 1. Fig. 6 is a cross-sectional view on the line $y y$ of Fig. 2.

This invention relates to that class of signals used upon railroads which expose a lamp or lantern with colored-glass globes or plates, through which the light shines for use in the night-time, and colored targets for use in the day-time; and it consists in devices hereinafter set forth and claimed.

A casing or box, A, is set in any suitable position alongside the track, and high enough to be seen from a long distance, both up and down the road. This casing will be ordinarily about eight inches square on the inside, although the size may be varied to suit circumstances. In the upper part of this casing, a short distance down from the top, are four lenses or "bull's-eyes," B' B² B³ B⁴, one set through the center of each face of the casing A, as shown.

C is a square frame, fitting the inside of the casing, and made considerably longer than the width of the lenses, and provided at the bottom with a long rod, D, working in guides a' a^2 , the rod being connected to the frame C by a cross-bar, b.

c is a cord, connected at one end to the top of the rod D, and passing upward over a pulley, d, and outward through the side of the

casing to any desired distance, so that by pulling upon the cord the bar D and frame C will be raised, and then fall of their own weight when released.

Upon the sides of the upper part of the frame C are plates E, having round holes cut through them conforming to the lenses B' B² B³ B⁴, behind which round holes plates e, of colored glass, are set, as shown. These four openings, covered by the glass, will be in such a position that when the frame C and bar D are lowered down each of the lenses will have a colored-glass plate directly in front of it, as shown in Figs. 1 and 4. The space below the plates E will be left unobstructed, so that when the frame C and bar D are raised upward, as shown in Fig. 2, nothing is left between the lenses and the interior of the casing. Across the interior of the casing A, a short distance below the lenses, a shelf, F, is secured to support a lamp, G, with its flame h opposite to the center and at the focal point of the four lenses, to furnish the necessary light for the signals at night. By these arrangements it will thus be seen that when the frame C is lowered, as shown in Figs. 1 and 4, the colored glass e will be interposed between the lenses and the light h; hence the light from the outside will appear the same color as the glass e. The color of this glass is usually green, although any other color may be used, if required. Then by pulling upon the cord c the frame C will be raised, and remove the colored glasses above the lenses and permit the light h to shine directly through the lenses, and thus show a white light on the outside.

H' H² are two targets—one, H', painted white, and the other painted to correspond with the color of the glasses e, usually green, as before described. The target H' is pivoted at i' to the casing A, and connected by a rod or lever, m' , to the upper part of the bar D at n, and the target H² pivoted at i^2 to the casing A, and also connected by a lever, m^2 , to the bar D by the same pivot, n. The two pivots i' i^2 , it will be observed, are upon opposite sides of the casing A, and upon opposite sides of the bar D, the pivot i^2 of the lever m^2 thus having the pivot i' of its target between

it and the outer end of the target, while the pivot r' of the lever m' is between the pivot i' and lower or outer end of the target H' , so that when the bar D is raised the lever m' will
 5 raise the target H' through the lever m' , and at the same time depress the target H^2 and cause it to fold back into the casing A , as shown in Fig. 2, and then when the frame C and bar D are lowered again the target H^2
 10 will be raised and the target H' lowered down into the casing, as shown in Fig. 1. By this means the same action that changes the color of the light at night changes the color of the target exposed in the day-time, and also pre-
 15 vents more than one color of light or target being exposed at the same time.

The targets and colored glasses will be operated together both day and night; but the glasses will only show at night, and the tar-
 20 gets will only show in the day-time. Thus a signal equally efficient for both day and night is produced.

The great advantage of the four lenses is that the color of the light can be seen from all
 25 sides, so that the operator, who is usually at one side of the signal, can know whether or not the right color is in view without the necessity of going in front of the casing.

The operator is usually some distance away
 30 from the signal; hence the ability to know that the right color is showing without the necessity of going to the signal is important.

This device is intended to be used in signaling trains in regard to "orders" at telegraph-
 35 stations, the green light or green target signifying that the train is to wait for orders; hence as a measure of precaution the apparatus is so arranged that the green light or green target are always exposed unless changed by pulling
 40 upon the cord c . By this means, if the operator is careless, the train will be stopped anyhow; but if the train is not required to stop it is only necessary for the operator to pull the cord c and expose the white light or white tar-
 45 get, which is the signal of "all right, go ahead," then when the cord is released the green light or green target again comes into view.

The frame C and target H' will be heavy

enough to overcome the target H^2 and raise it
 50 up when they fall downward.

Another set of different-colored glass plates may be set in the frame C below the plates e far enough so that by raising the frame one-half its length of throw the white light would
 55 show, as before described, and then by raising it another one-half its throw the other colored glass would show. By this means the signal could be utilized as a danger-signal. This arrangement would of course necessitate a third
 60 target of the same color as the second set of glasses and some slight change in the manner of operating the targets.

A cap, M , upon top of the casing A , by being removed, enables the glasses e to be re-
 65 moved for repairs or cleaning, and one side of the casing A will be hinged, so that the interior may be exposed, if desired.

What I claim as new is—

1. The combination of casing A , having
 70 lenses, a frame carrying colored plates to fit over said lenses, a target, and mechanism for connecting the colored plates and target so that the movement of one will control the movement of the other, substantially as set forth. 75

2. A casing, A , having lenses $B^1 B^2 B^3 B^4$, a frame, C , within said casing, adapted to be raised and lowered and provided with colored-glass plates e , a lamp, G , or other means of supplying light to said lenses and glass plates,
 80 in combination with targets $H^1 H^2$ and means, substantially as described, for connecting said targets with said frame C , whereby the movements of said frame will be communicated to said targets. 85

3. The combination of the casing A , having the lenses $B^1 B^2 B^3 B^4$, frame C , having the colored-glass plates e , lamp G , bar D , levers $m^1 m^2$, and targets $H^1 H^2$, substantially as and for the purpose set forth. 90

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LOUIS READE MUNSON.

Witnesses:

W. R. WHITE,

H. D. FOLLETT.