# A. C. HARVEY.

## Railroad Signals.

No. 153,485. Patented July 28, 1874.

*Fig. 1.*

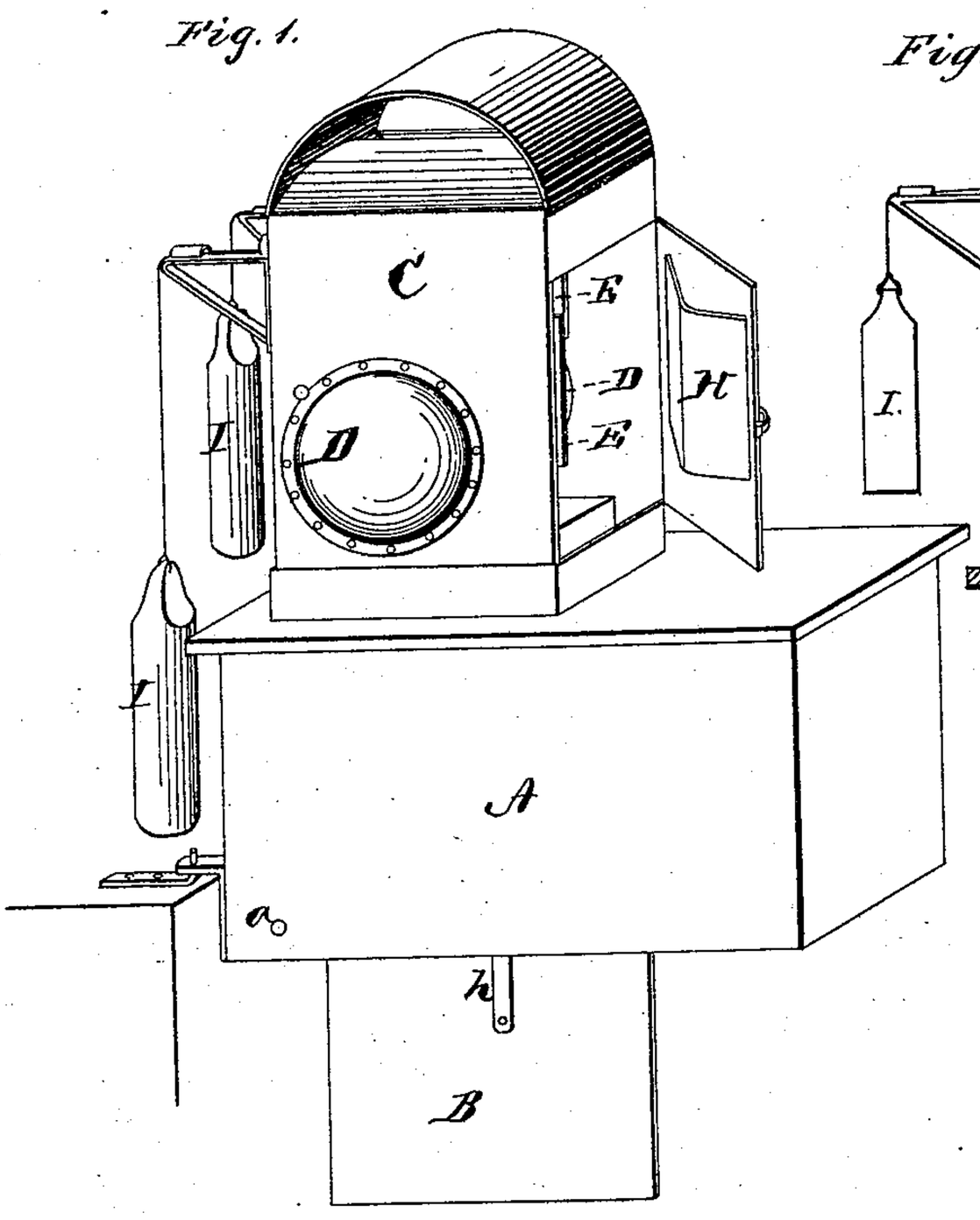
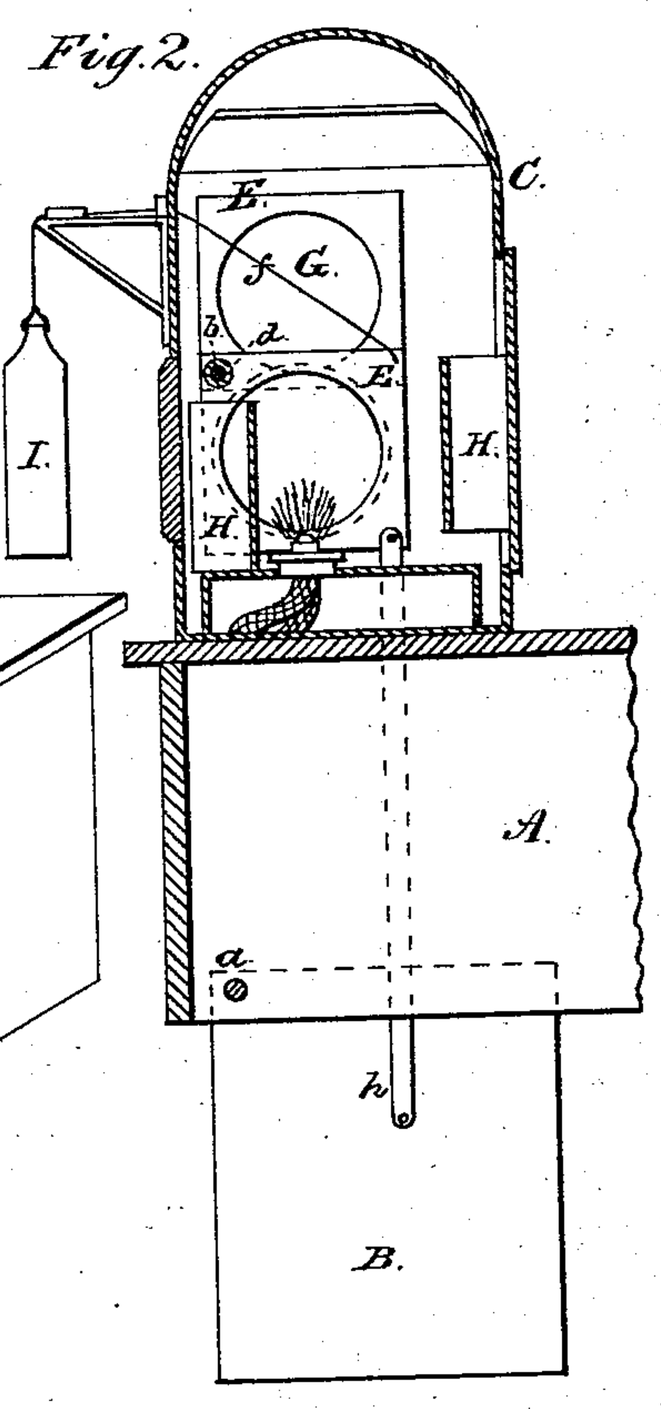



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

ALFRED C. HARVEY, OF ST. JOHNSBURY, VERMONT.

## IMPROVEMENT IN RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **153,485**, dated July 28, 1874; application filed December 8, 1873.

*To all whom it may concern:*

Be it known that I, ALFRED C. HARVEY, of St. Johnsbury, in the county of Caledonia and in the State of Vermont, have invented certain new and useful Improvements in Combined Railroad-Signal and Station-Light; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a railroad-signal for railroad stations, crossings, side tracks, switches, or any point on railroads where changeable white or colored signals can be used to insure safety and dispatch, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a perspective view, and Fig. 2 a longitudinal vertical section, of my railroad-signal.

A represents a box, of any suitable dimensions, divided into two, three, or more longitudinal vertical compartments, in each of which is hung a colored signal-board, B. These boards may be made of any dimensions desired, and may be made of wood or iron, or of iron frames, and of such size as to fit the inside of the signal-box. If made of wood or iron they are painted in any color desired; and if made of iron frames they are covered with any colored material desired to constitute the signal. These colored signal-boards are hinged by a bolt, *a*, passing through the box and boards at one of the lower corners, so as to drop or swing down, and show the full size of the boards or signals. This box and signal-boards constitute the day-signal. On top of the day-signal box A is a lantern, C, about seven by twelve by fourteen inches, more or less, according to the size desired. On the sides of this lantern or night-signal are fastened two large strong bull's-eye lenses, D D, placed directly opposite each other, so as to throw the rays of the light in both directions from the lantern. Inside of this lantern or night-signal are two, three, or more frames, E, for each lens D, into which frames are fastened colored glasses G G.

These frames are fastened to shafts and arbors as follows: The first set of colored glasses and frames are fastened at each end of the main shaft or arbor *b*, so as to both drop or swing in front of the bull's-eye lenses D D between them and the light in the lantern. The second set of frames and glasses are fastened at each end of a hollow shaft or arbor, *d*, that passes over the main shaft *b*, turning on the same and working independent of it. The third set of frames and glasses are fastened to another hollow shaft, the same as the second set, and so on as many sets as may be desired, all working independent of each other, and each set so arranged as to place the colored glasses between the light and the bull's-eye lenses D D. Inside of the lantern or night-signal are two reflectors, H H, bent as shown in Fig. 1, so as to throw the rays of the light directly onto the colored glasses and bull's-eyes, thereby increasing the power of the white or colored lights a great many times over. To each set of frames is attached a chain, wire, or rope, *f*, passing back through the lantern on pulleys to any point desired to work the signal. At the end, or any point desired on the chain, wire, or rope *f*, is fastened a weight, I, or a lever to counterbalance the day and night signals, keeping them in any position desired. To each set of frames E is attached a connecting-rod, *h*, which passes down through the top of the day-signal box A, and attached to the corresponding day-signal board B below, so as to connect the day and night signals, having them work together instantly, both showing the same colors at the same time.

The light to be used in the lantern C may be oil or gas, as the place may require.

I am aware that railroad-signals have heretofore been constructed so as to operate a day and night signal in the same device. I am also aware that such signals have been made so as to be operated automatically by a passing train; but all those heretofore made have had some inconvenience in construction or uncertainty of action, so that they have not gone into use upon roads.

In my construction I have avoided such drawbacks; therefore I do not claim, broadly, operating a day and night signal simultaneously; but

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a lantern, of the frames E E, provided with colored glasses G G, pivoted at one corner within the lantern, the signals B B, pivoted at one corner within the box A, and connected by the rods *h* with the frames E, the connecting wires or cords *f f*, and the exterior weights I I, all constructed and operating substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of November, 1873.

ALFRED C. HARVEY.

Witnesses:
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WM. B. JOHNSON.