No. 784,750. PATENTED MAR. 14, 1905.

E. L. MORGAN.

RAILWAY SIGNAL.

APPLICATION FILED JULY 16, 1904.

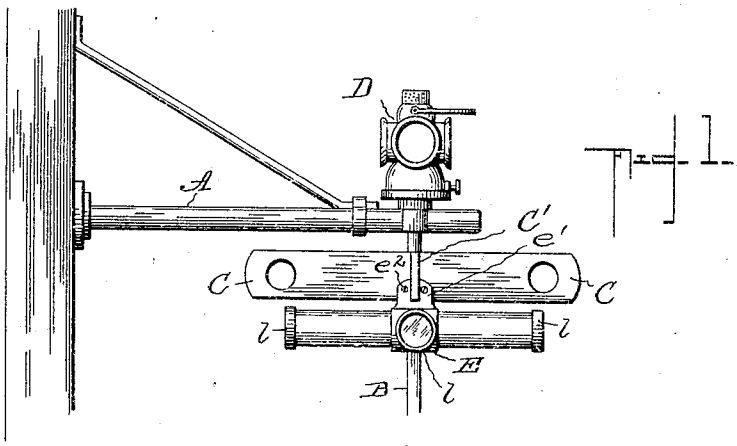


Fig. 1.

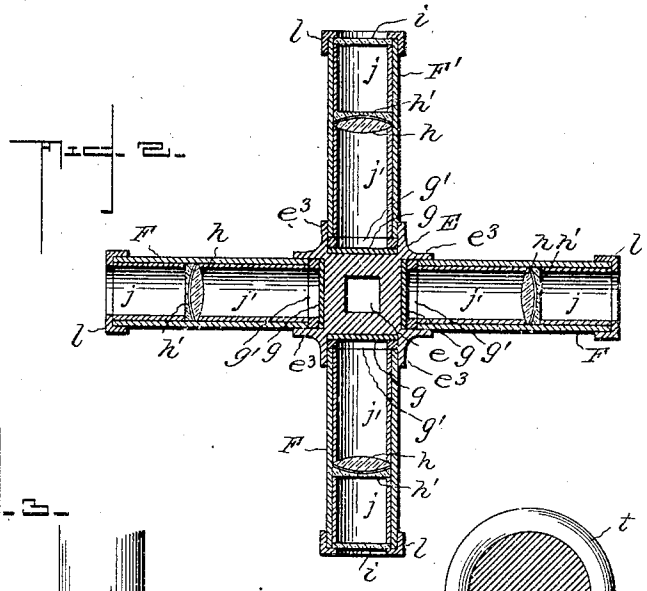


Fig. 2.

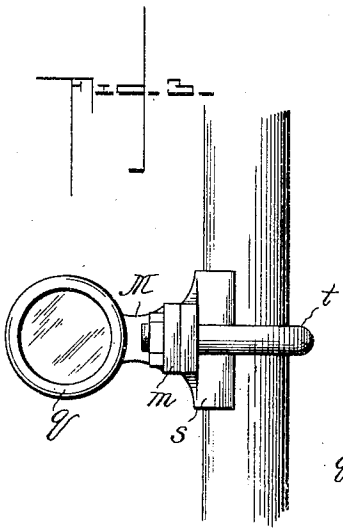


Fig. 3.

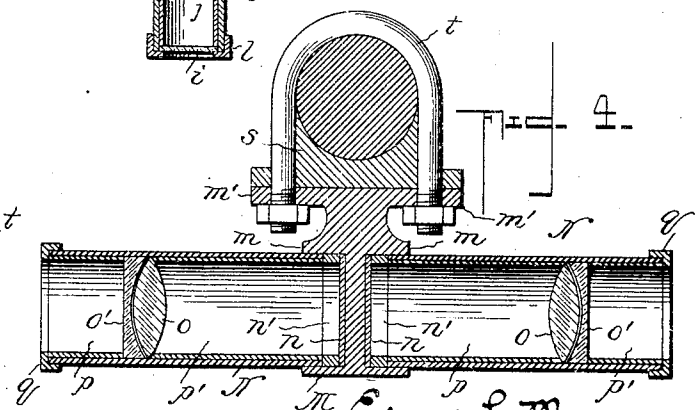


Fig. 4.

Witnesses
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No. 784,750. Patented March 14, 1905.

UNITED STATES PATENT OFFICE.

EDWARD L. MORGAN, OF LITTLE ROCK, ARKANSAS.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 784,750, dated March 14, 1905.

Application filed July 15, 1904. Serial No. 216,718.

To all whom it may concern:

Be it known that I, EDWARD L. MORGAN, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented a Railway-Signal, of which the following is a specification.

The primary object of this invention is the production of a novel, safe, and reliable signal device especially adapted for railways and which will be operative in conjunction with the usual headlight of the locomotive in such manner as to show a signal-light when arranged for that purpose.

With this main object in view the invention contemplates the provision of a strong reflecting medium which when properly arranged with respect to an approaching locomotive will reflect the headlight thereof back to the cab in the nature of a signal-light, taking the place of the lantern now commonly employed.

The construction, operation, and practical advantages of the invention will be hereinafter set forth, and what I particularly claim as novel and wish to protect by Letters Patent will be more specifically set forth in the appended claims.

In the drawings, Figure 1 is a view illustrating the application of the invention to a train-order board and arranged for both the usual red and white signal-lights. Fig. 2 is a horizontal sectional view thereof enlarged. Fig. 3 is an elevation, also enlarged, showing an arrangement of device to provide two reflectors or signals disposed in opposite directions and intended for application as hereinafter specified. Fig. 4 is a sectional view thereof.

In the several applications of the invention as herein illustrated there is employed primarily a tube open at its front end and provided in its rear closed end with a reflector, whereby said tube when directed or set in the direction of an approaching locomotive-headlight will reflect such light back to the approaching locomotive, and hence serve as a signal, it being contemplated, as hereinafter described, to intensify the reflected light by means of lenses placed in the tube, and though in the present instance the device is shown as a railway-signal its application is not restricted, for obviously it could be employed as a signal to drivers of other light-carrying vehicles, such as automobiles, steamboats, &c.

In Figs. 1 and 2 of the drawings the device is constructed to provide four reflectors disposed in the form of a cross and adapted to show either a red or white light up and down the track, as is usual, the several tubes being connected together at a common central point and secured to a rotatable rod or shaft by which they are turned. In this instance the device is used in connection with the ordinary train-order board; but it will be obvious that the same arrangement may be also used upon a switch-stand or other situation requiring the red and white lights. Referring to said figures of the drawings, the letter A designates the usual bracket which supports the train-order board; B, the vertical rod or shaft rotatably supported therein; C and C′, the red and white arms of the semaphore, and D the lantern commonly employed and which may be used in addition to the signal device hereinafter described. These parts are all of the usual construction and are illustrated herein to show one form of application of my invention.

In carrying out my invention I employ a socket-casting E, Figs. 1 and 2, which is provided centrally with a square opening e, through which the rod or shaft B passes and from which projects an attaching flange or wing e', by which the device is secured in place, in the present instance to the arms C by screws e^2. At four sides of this socket-casting are sockets e^3, threaded at their outer ends to receive the threaded ends of a corresponding number of tubes F and F′, and said sockets are of sufficient depth to receive a reflector g and collar g', both of which are removable for convenience in cleaning and polishing the reflector.

The tubes F and F′ are plain and are threaded in the sockets, being employed to concentrate the rays of light, and in order to intensify

the reflected light one or more lenses are placed in each tube. In the tubes F, which are adapted to show a white light, I employ a double convex lens h in conjunction with a plano-concave lens h', placed in front of the same, while in the tubes F', which are adapted to show a red light, a colored glass, (red,) as i, is used in addition to the lenses h and h', said colored glass being located at the outer end of the tube. For the purpose of holding the lenses h and h' in place sleeves j and j' are employed, against which latter sleeve the colored glass i bears and is held by a retaining-ring l, threaded on the outer end of the tube. In this application of the device the tubes F and F' display white and red lights, respectively, which are disposed to correspond with the arms C and C' of the semaphore or train-order board, the said arms being employed for day signaling, as is usual, and in operation the signals are set by turning the rod or shaft B and locking the same.

In Figs. 3 and 4 the socket-casting M is provided with two opposite sockets only, and said sockets, as m, are similar to the sockets e^3 and are each adapted to receive the reflector n, collar n', and tube N. This socket-casting is provided with lateral extensions or ears m', having bolt-holes and by which the device is attached to its support, in the present instance by the block s and U-bolt t. The tubes N, as in the case of the tubes F, are provided only with the lenses o and o', similar to the lenses h and h', in order that a white light may be reflected, said lenses being held in the proper place by the sleeves p and p' and retaining-ring q.

The device just described is the preferred form of signal for general purposes in that when employed it will be understood that when the reflected light is seen it will indicate the way is clear, and conversely when no light is seen the train should stop for further orders. Such arrangement would of course dispense with the usual red light, and when applied to a switch-stand any movement of the switch beyond its proper position would throw the signal device or reflector out of line with the track, and thereby cause the engineer to stop the train.

I contemplate a modification of the invention in the form of a pocket signaling device, in which instance a plain tube is used having at one end a reflector and intermediately the lenses, as in the other forms. This signal is intended to be carried by conductors, trainmen, and others who may desire to stop a train at any time or place.

From the foregoing it will be seen that I provide a signal which is entirely reliable, being operative in conjunction with the headlight required of every locomotive in motion after dark. It is also apparent that the device will not require the attention necessary with a lantern—such as cleaning, fueling, and lighting—the neglect of which in the case of the lantern often results in accidents.

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

1. A signal device for the purposes set forth, comprising a tube open at its forward end, and a reflector located in the rear end of the tube and adapted to reflect the light of an approaching light-carrying vehicle.

2. A signal device for the purposes set forth, comprising a tube open at its forward end, a reflector in the rear end of the tube, and a lens located in the tube in front of the reflector, whereby to reflect the light of an approaching light-carrying vehicle.

3. A signal device for the purposes set forth, comprising a tube open at its forward end, a reflector in the rear end of the tube, a lens located in the tube in front of the reflector, and sleeves for holding said lens in place.

4. A signal device for the purposes set forth, comprising a socket-casting, a reflector located in the socket, a collar bearing against the lens, and a tube threaded in the outer end of the socket against the collar, substantially as shown and described.

5. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, a reflector in each socket, and tubes threaded in said sockets, whereby to reflect the light of a light-carrying vehicle approaching the device in either direction.

6. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, and lenses in the tubes in front of the reflectors, substantially as shown and described.

7. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, lenses in said tubes, and sleeves in the tubes at either side of the lenses to hold the latter in place.

8. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, lenses in said tubes in front of the reflectors, and sleeves in the tubes at either side of the lenses to hold the latter in place, together with a retaining-ring threaded on the outer end of the tubes, substantially as shown and described.

9. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets and projections or wings for attaching the same to a support, reflectors located in the sockets, tubes threaded in the sockets, lenses

in the tubes, sleeves in the tubes at either side of the lenses to hold the latter in place, colored glasses in the outer ends of the tubes and fitting against the adjacent sleeves, and retaining-rings threaded on the outer ends of the tubes, as shown and described.

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

EDWARD L. MORGAN.

Witnesses:
JOE ASHER,
CHAS. F. MARTIN.