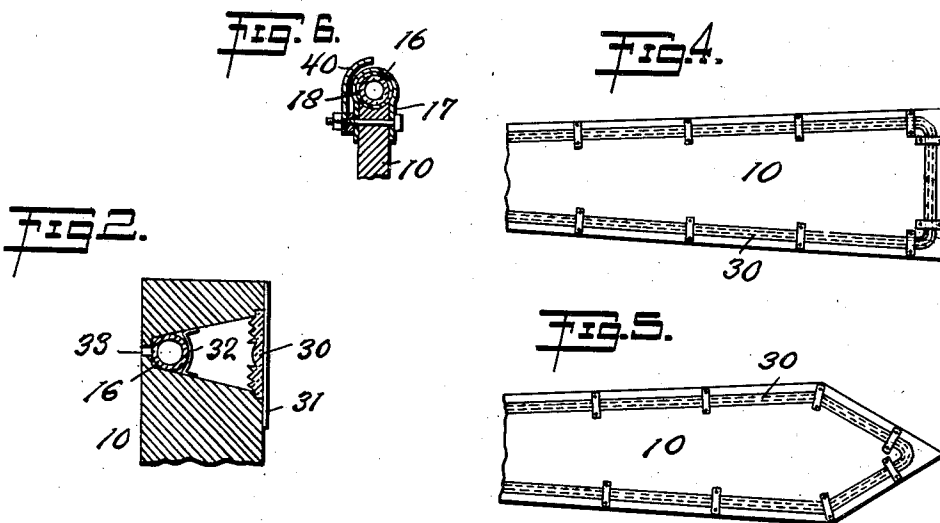
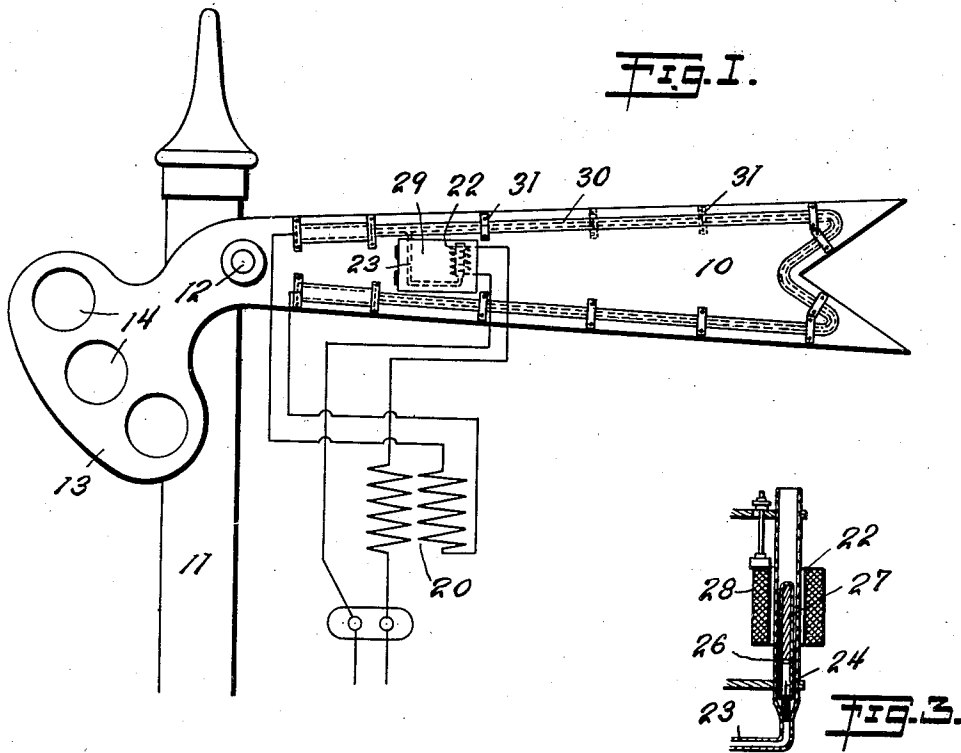


A. H. FARGO.
RAILROAD SIGNAL.
APPLICATION FILED OCT. 22, 1910.

1,041,988.

Patented Oct. 22, 1912.



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UNITED STATES PATENT OFFICE.

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RAILROAD-SIGNAL.

1,041,988.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed October 22, 1910. Serial No. 588,443.

To all whom it may concern:

Be it known that I, ARTHUR H. FARGO, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Railroad-Signals, of which the following is a specification.

This invention relates to railroad signals, and more particularly to semaphores.

The object of the invention is to illuminate the semaphore arm at night, and especially to provide means for outlining the particular contour of the arm with a continuous line of light.

To this end, the invention consists in a signal outlined by a tubular light, as herein illustratively shown and described and more particularly pointed out in the claims.

Further objects and features of the invention will appear hereinafter.

In the accompanying drawings showing by way of illustration the preferred embodiment of the device: Figure 1 is an elevation of the upper part of a semaphore with its arm provided with illuminating means in accordance with my invention; Fig. 2 is a cross-section through the arm; Fig. 3 is a detail of the feeder-valve used in connection with the particular form of light illustrated; Figs. 4 and 5 are detail views of the outer end portions of two other semaphore arms of different outlines; and Fig. 6 is a detail sectional-view illustrating a modified form of the invention.

In Fig. 1 the invention is shown as embodied in a three-position automatic signal of the lower quadrant type, but the invention may be applied to signals of other kinds, as for instance the two-arm type. The arm of Fig. 1 is shown as having a fish-tail end, while Fig. 4 has a square end and Fig. 5 a pointed end.

The numeral 10 indicates the arm and 11 the post, both of which may be of ordinary construction, the arm being adapted to move to different signal positions by virtue of the pivot support 12 as is customary. The arm is shown as provided at its rear end with the spectacle and counterweight 13, having the three colored glasses 14, but it will be obvious that these latter may be omitted if desired. A customary rod actuated by a motor or the like, not shown, swings the arm from one position to another.

In accordance with the invention, illuminating means are provided for outlining the arm 10. The particular means illustrated comprises a tube 16, bent into general conformity with the outline of the arm and attached thereto, in general parallelism with the top, bottom and end edges thereof, preferably closely adjacent these edges. Figs. 1, 4 and 5 show the tube bent into conformity with three different outlines of arm, and it will be obvious that the tube may be arranged so as to correspond to any desired outline of arm. The tube may be attached to the arm in a great variety of ways. In the construction shown in Figs. 1, 2, 4 and 5 the arm is channeled and the tube is received in this channel. In Fig. 6 the tube is shown attached along the edges of the arm, with a reflector 40 behind it, the tube being held by clips 17 and guarded at the region of these clips by felt or other suitable cushioning means 19.

In the best embodiment of the invention the tube 16 is covered, and the channel in the arm is preferably closed, by means of a transparent guard 30, preferably consisting of an elongated lens formed of independently removable sections, arranged end to end. This guard or lens may be variously formed, but is preferably flat on the outer face, so as to lie flush with the face of the arm, and provided on the inner side with suitably formed surfaces for refracting the light rays so that they emerge substantially parallel. The lens sections may rest against ledges or rabbets in the tube-receiving channel, and are held removably in position by any suitable means, such as straps 31 passing across the outer faces of the lens sections over the joints thereof and secured at their ends to the semaphore arm by screws or the like. Suitable devices, such, for example, as shown at 32, may be employed for holding the tube 16 at the bottom of the channel and spaced from the lens and guard 30.

In the preferred embodiment of the invention, slots or openings 33 are formed through the arm at the bottom of the tube-receiving channel, so as to permit of restricted passage of light at the back of the arm, so that the engineer or mortorman may know when he is running against the signal.

While the particular kind of light employed may be varied, I have illustrated

what is known as the Moore vacuum tube light, in which the rarefied gas in the tube acts as a conductor and is rendered luminous or incandescent by the passage of current.

20 is a transformer for supplying the tube with current, the secondary of the transformer being connected to carbon electrodes in the ends of the tube 16 as is customary. Preferably, these ends of the tube are located adjacent the pivotal region of the arm. The transformer may be located on the post or on any other suitable portion of the apparatus. As is customary, a feeder-valve 22 is located at the end of a branch 23 of the tube. This valve may be, and preferably is, of known construction, in which a porous carbon plug 24 is cemented into the small branch tube and is normally covered by mercury, the level of which is varied by the glass displacer 26 which also carries the iron core 27 of the solenoid coil 28, which is connected in series with the transformer. As the tube attains a higher vacuum due to the continued passage of current, this valve operates to lift the glass displacer so as to allow the level of the mercury to fall exposing the porous carbon plug 24, through which air filters into the tube to restore the pressure to normal working condition.

The feeder-valve 22 and the branch tube 23 may be protected by a metal cover 29 or the like, hinged or otherwise attached to the semaphore arm.

The signal constructed in accordance with my invention is used in the day time in exactly the same manner as ordinary semaphores. At night the current is turned on, so that the arm is illuminated with a continuous line of light, enabling the position and nature of the arm to be ascertained in the dark as readily as in daylight.

It will be understood that many changes in form, proportions, arrangements, and details, may be made without departing from the spirit of the invention.

What I claim as new is:

1. In a railroad signal, a member movable to a plurality of signal positions, and means for continuously illuminating the member comprising a long vacuum tube and means whereby electric current is caused to pass through rarefied gas in the tube and render the same luminous, said tube being carried by and conforming to the outline of the top, bottom and end edges of said member.

2. In a railroad signal, a semaphore arm having oblique end edges, and means for illuminating the arm comprising a long vacuum tube and means whereby electric current is caused to pass through rarefied gas in the tube and to render the same luminous, said tube being carried by and angled

to outline the oblique end edges, the top edge and the bottom edge of said arm.

3. In a railroad signal, the combination of a semaphore arm having a reentrant angled, fish-tail outer end, and means for illuminating the arm comprising a long vacuum tube and means whereby electric current is caused to pass through rarefied gas in the tube and to render the same luminous, said tube being carried by said arm and extending along parallel to the upper edge of the arm, then bent to form a reentrant angle conforming to and outlining the fish-tail end of the arm, and then bent back and extending in parallelism to the lower edge of the arm.

4. In a railroad signal, a semaphore arm having a channel formed in one face and corresponding to the outline thereof, and luminous means for outlining the arm comprising a long vacuum tube and means whereby electric current is caused to pass through rarefied gas in the tube, said tube being sunk in said channel below the face of the arm, and a transparent lens guard occupying the top of the channel and covering the tube.

5. A railroad signal comprising a semaphore arm movable to a plurality of signal positions and provided with a long channel formed at one side thereof and conforming to the outline of the arm, a long illuminating tube located in said channel, means whereby said tube is continuously illuminated and an elongated lens and guard formed in sectional lengths covering said channel and tube.

6. A railroad signal comprising a member movable to a plurality of signal positions and provided with an outlining channel formed at one side thereof, electrical means for luminously outlining the signal including a partially exhausted tube disposed in said channel below the face of the signal and means whereby electric current is caused to pass through the rarefied gas in the tube and render the same luminous, an elongated lens and guard formed in sectional lengths and located in the top of the channel over said tube, and means for retaining the sections of said lens removably in position so that they may be removed at the front of the member.

7. A railroad signal comprising a semaphore arm movable to a plurality of signal positions and provided with a channel at one side thereof, and electrical means for illuminating said arm comprising a partially exhausted tube in said channel, said channel communicating with openings leading to the rear side of the arm whereby a restricted amount of light is allowed to pass through the back of the arm.

8. A railroad signal having a semaphore arm constituting the blade of the signal and

means carried by said blade for illuminat-
ing and outlining the arm comprising a
long vacuum tube containing a rarefied gas
without internal filaments, said tube be-
5 ing carried by said arm and extending
along parallel to the upper edge of the arm,
then bent to form an angle conforming to
and outlining the end of the arm, then bent
back and extending parallel to the lower
10 edge of the arm, the tube having ends to

which electrodes for the electric current are permanently connected.

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

ARTHUR H. FARGO.

Witnesses:

WM. F. BISSING,

J. J. KOZINN.