

H. L. FUNKHOUSER.
RAILWAY SIGNAL.
APPLICATION FILED NOV. 9, 1912.

1,057,049.

Patented Mar. 25, 1913.

2 SHEETS—SHEET 1.

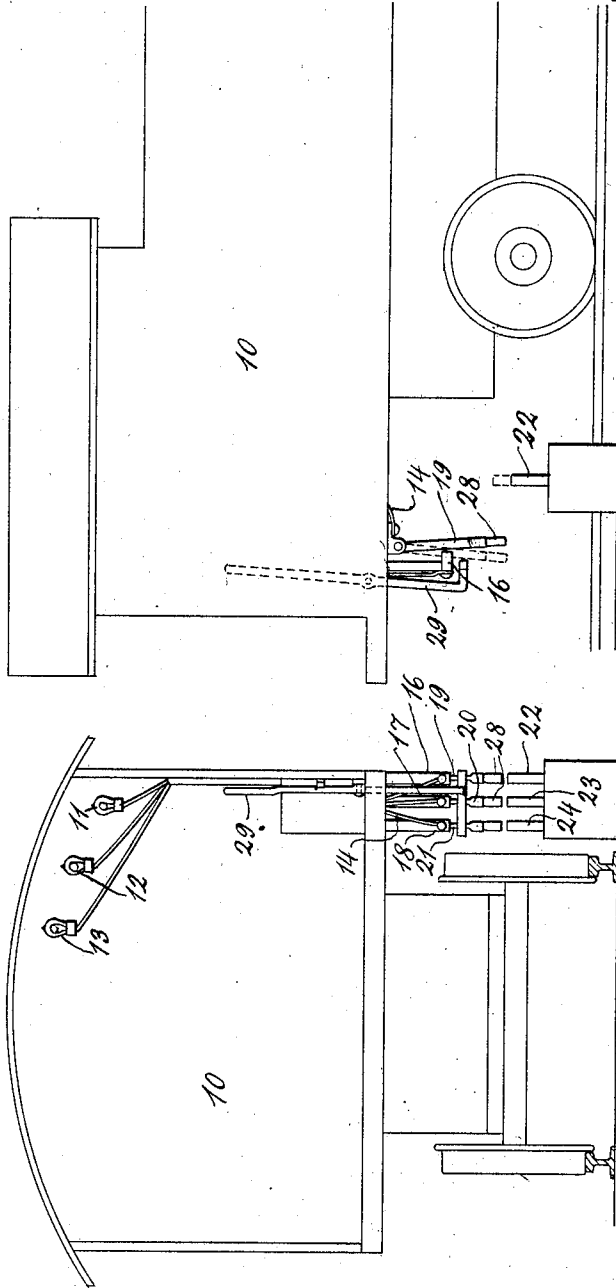


Fig. 2.

Fig. 1.

Inventor

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Witnesses

Einar Larson

W. Schmidt

By Eugene H. Thomas

Attorney

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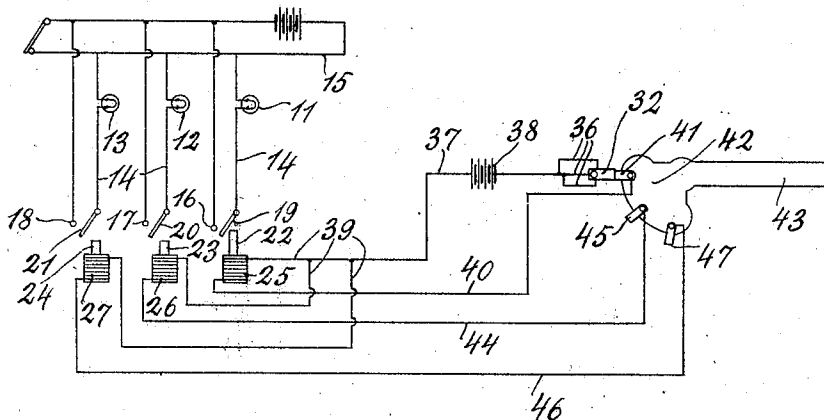
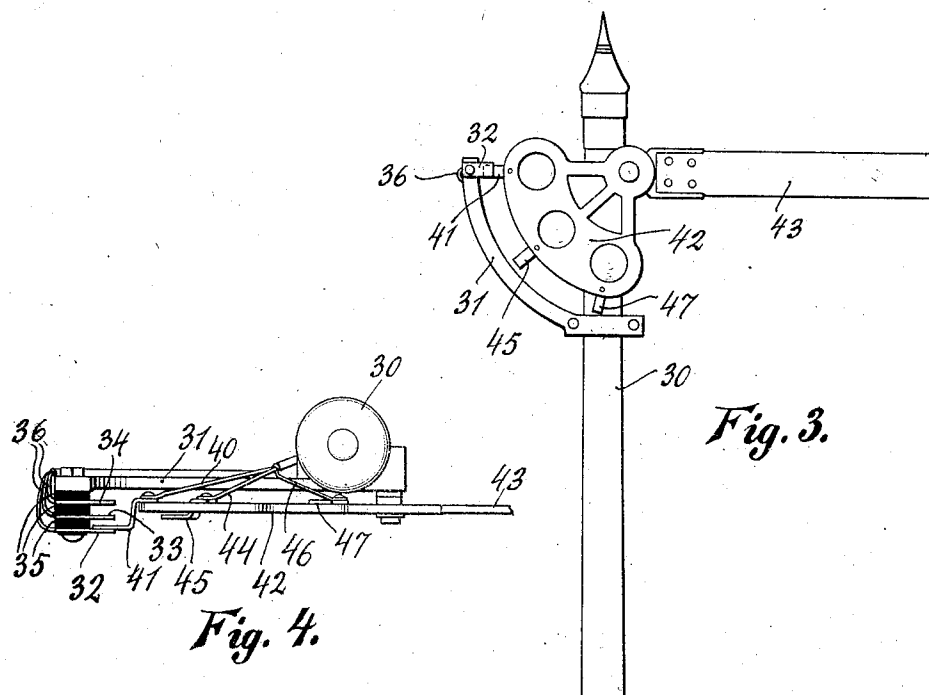


Fig. 5.

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UNITED STATES PATENT OFFICE.

HOWARD L. FUNKHOUSER, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR OF ONE-EIGHTH TO WALTER J. THORNTON, OF BEAVER FALLS, PENNSYLVANIA.

RAILWAY-SIGNAL.

1,057,049.

Specification of Letters Patent.

Patented Mar. 25, 1913.

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To all whom it may concern:

Be it known that I, HOWARD L. FUNKHOUSER, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to railway signals designed to display in the cab of a locomotive the position of the arm of a semaphore.

It is the object of the invention to provide the cab with a series of signal lamps which correspond to the different positions of the semaphore arm, and which lamps are displayed according to the position of the arm.

The invention also has for its object to provide track tappets which control the circuits of the cab lamps, and which tappets, in turn, are automatically selected and placed in operating position by the movement of the semaphore arm. Thus, when the semaphore arm is placed in any one of its several signaling positions, a tappet is placed in a position to close a switch on the cab, said switch being in the circuit of the lamp corresponding to the position of the semaphore arm. A switch and a tappet is provided for each lamp.

These objects are attained by a novel combination and arrangement of parts to be hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a rear end view, and Fig. 2 a side elevation showing the cab equipment and the track tappets. Fig. 3 is an elevation, and Fig. 4 a plan view showing the semaphore equipment, and Fig. 5 is a diagrammatic view of the invention.

Referring specifically to the drawings, 10 denotes the cab of a locomotive in which are located three electric lamps 11, 12 and 13, respectively, the globes of which are red, green and white, respectively, or otherwise colored to correspond to the colors displayed at night by a semaphore lamp. These colors also correspond to the day signaling positions of the semaphore arm, the red light corresponding to the "stop" position of the arm, and the green light to the "caution" position, and the white light to the "clear" position. Thus, when the semaphore arm

is in "stop" position, a red light is displayed in the cab; when in "caution" position, a green light, and when in "clear" position, a white light. Each cab lamp is in a branch circuit 14 taken off a main circuit 15, obtaining its current from any suitable source. On the outside of the cab 10 are three switch points 16, 17 and 18, respectively, the same being carried by suitable brackets mounted on the outside of the cab. Each switch is provided with a pivoted switch blade, the same being indicated at 19, 20 and 21, respectively. By this arrangement of branch circuits and switches any one of the cab lamps may be turned on. 60

Adjacent to one side of the track are mounted three tappets 22, 23 and 24, respectively, which are so located that they may be projected into the path of the switch blades 19, 20 and 21; the tappet 22 being for the blade 19; the tappet 23 for the blade 20, and the tappet 24 for the blade 21. The tappets are movable vertically into and out of the path of the switch blades, this movement being effected by means of electromagnets 25, 26 and 27, a magnet being provided for each tappet. The ends of the switch-blades which strike the tappets are provided with rubber blocks 28 to lessen the impact of the blow. The cab carries a lever 29 which extends through the floor thereof and is widened at its lower end so that it may simultaneously engage all three switch blades and throw the lamp circuits open. 75

On the semaphore mast 30 is mounted an arcuate bracket arm 31 carrying three switch points 32, 33 and 34 respectively, the same being insulated from each other by blocks 35 of insulation as shown in Fig. 4. From these switch points branch conductors 36 lead from a conductor 37 in which is interposed a battery or other suitable source of electric energy 38. From the conductor 37 branch conductors 39 lead to the respective magnets 25, 26 and 27. The circuit of the magnet 25 is completed by a conductor 40 leading therefrom to a switch tongue 41 on the spectacle 42 of the semaphore arm 43. The circuit of the magnet 26 is completed by a conductor 44 leading to a switch tongue 45 on the spectacle, and the circuit of the magnet 27 is completed by a conductor 46 to a switch tongue 47 on the spectacle. 80

The switch tongues 41, 45 and 47 are mounted in different planes on the spectacle 110

42 and they correspond to the positions of the lens thereof. Thus, when the semaphore arm is in "stop" position and the red light is displaying, the tongue 41 engages the switch point 32 and closes the circuit of the magnet 25. The tappet 22 then rises into operative position. This tappet is in the path of the switch blade 19 and when struck thereby, said blade closes the circuit of the red lamp 11 in the cab. The engineer or other occupant of the cab is thus notified of the position of the semaphore. The cab lamp remains on until the circuit is broken by the lever 29. When the semaphore arm is set for "caution" the switch tongue 45 engages the switch point 33, whereupon the magnet 26 is energized and the tappet 23 rises to close the circuit of the green lamp 12 in the cab. When the semaphore arm is set "clear", the switch tongue 47 engages the switch point 34 and the magnet 27 is energized, so that the tappet 24 rises to operate the switch of the white lamp 13 in the cab.

It will be evident from the foregoing that the various positions of the semaphore arm are always signaled to the engineer or other occupant of the cab, so that he may know the

condition of the block or section controlled by the semaphore in case the latter be hidden or obscured from fog or other unfavorable weather conditions.

I claim:

A railway signal comprising a series of electric signal lamps in a cab, switches for the circuits of the respective lamps, a track tappet for each switch, electro-responsive devices for projecting the tappets into the path of the aforesaid switches, a semaphore having its spectacle provided with switch tongues corresponding to the different positions of the semaphore arm, conductors leading from the switch tongues to the respective electro-responsive devices, a series of switch points corresponding to the switch tongues, and conductors leading from said switch points to the respective electro-responsive devices.

In testimony whereof I affix my signature in presence of two witnesses.

HOWARD L. FUNKHOUSER.

Witnesses:

D. F. FUNKHOUSER,
LOLA M. CRISS.