

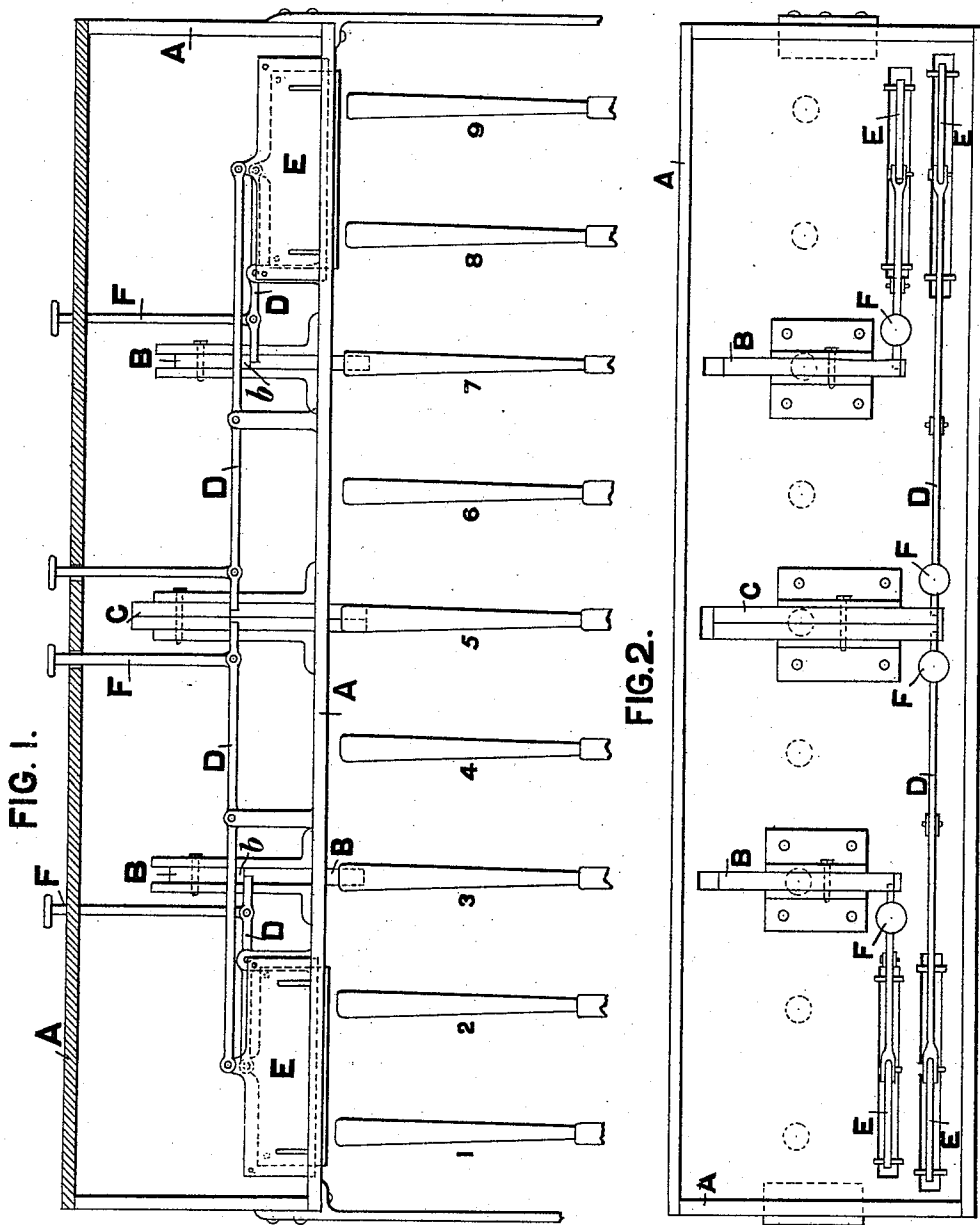
(No Model.)

3 Sheets—Sheet 1.

A. HALL.
RAILWAY SIGNALING APPARATUS.

No. 486,335.

Patented Nov. 15, 1892.



Witnesses

James F. Duhamel
Horace A. Dodge

Inventor

Arnold Hall,
by Dodge & Sons,
Attys.

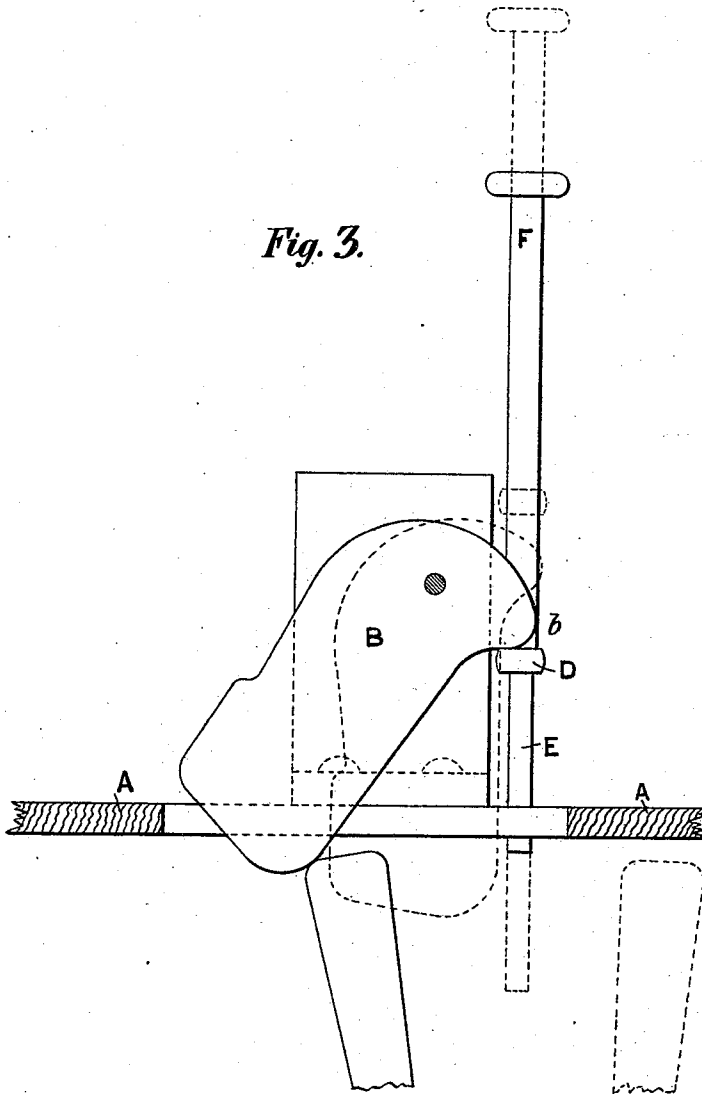
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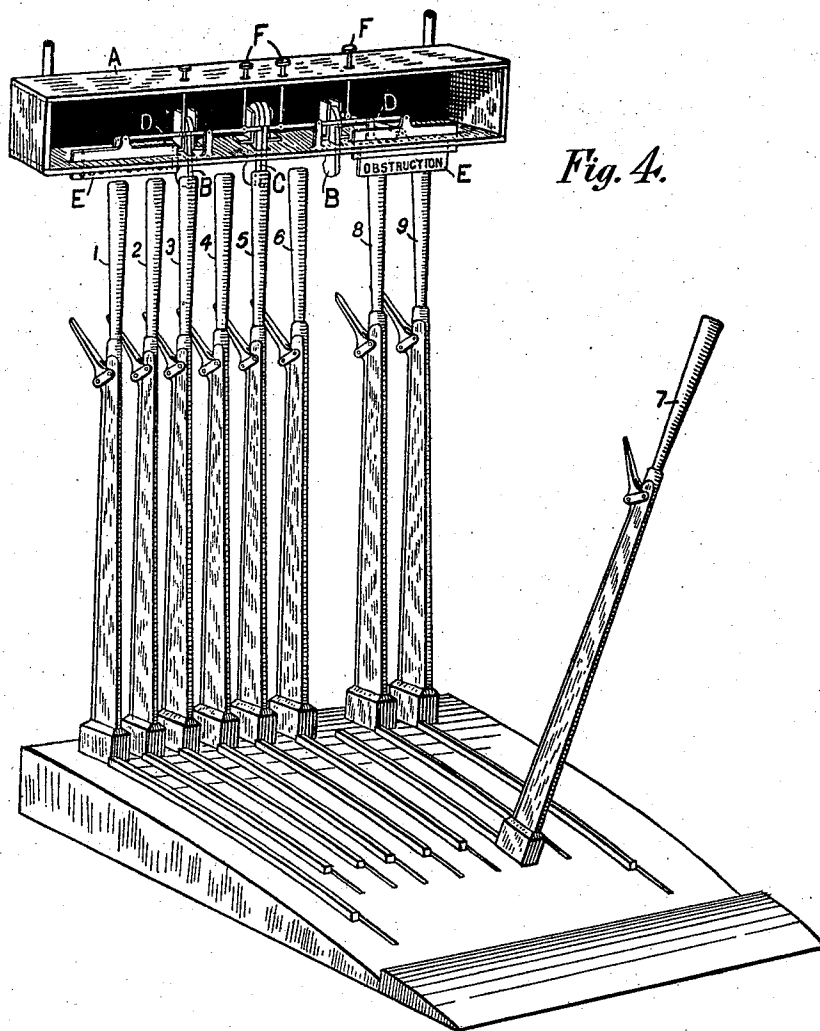
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UNITED STATES PATENT OFFICE.

ARNOLD HALL, OF ALT CAR AND HILL HOUSE STATION, ENGLAND.

RAILWAY SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 486,335, dated November 15, 1892.

Application filed April 16, 1892. Serial No. 429,399. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD HALL, signal-man, a subject of the Queen of Great Britain, residing at Altcar and Hill House Station, Cheshire Lines Railway, in the county of Lancaster, in the Kingdom of England, have invented a certain new and useful Improvement in Railway Signaling Apparatus, of which the following is a specification.

The most frequent cause of collisions at the present time is the forgetting by the pointsman that he has shunted the train onto the main line and his consequently signaling the line as clear. This cause of collision all the present systems of lock-signaling are powerless to avert, and indeed it has hitherto been thought impossible to satisfactorily deal with it. If, however, the lock-signaling could be so arranged that after a point-lever has been brought back into position none of the lines connected with the line onto which the train has been shunted can be signaled as clear until the pointsman performs a special act for making them clear, the vast number of accidents that now take place would be in a great measure avoided.

My invention is designed to prevent accidents of this sort, and to this end comprises certain devices for use in conjunction with the levers working the points and signals ordinarily in use on railways.

The invention may be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, a plan; Fig. 3, a detail view of one of the tappets and handles, and Fig. 4 a general view of the apparatus in perspective.

In the figures levers 1 and 2 are the home and distant signals of the down line; 3, the siding points for the down line; 4 and 6, "dummies," not in use at the present time; 5, cross-over points; 7, siding points for the up line, and 8 and 9 home and distant signals of the up line. Above the line of levers in the lever-frame I place a box A or even a board, and in this box A or on the board I pivot certain tappets B and C over the cross-over road-lever 5 and the siding-levers 3 and 7. The said tappets are pivoted in the box above and hang below the top of the handles of the point-levers 3, 5, and 7,

so that if any of the latter are pulled over they move away from and allow these tappets to move. The nose *b* of each of the tappets, Fig. 3, catches on and holds down the end of horizontal pivoted lever D, carrying at its opposite end a broad weight E, like a board, preferably having written on it in large letters "Obstruction" or its equivalent. This board hangs in front of those levers operating lines having connection with the road on which the engine or train has been shunted. Now in ordinary circumstances in shunting the train and bringing the lever back there is nothing to indicate that the train is still upon the line. In this case, however, there is the board with the word "Obstruction." Furthermore, until the lever or levers carrying the board or boards with "Obstruction" are set again it is impossible to move any of the levers behind it, and the signal-man's attention is accordingly drawn to the fact that there is a train on the line and he has to remove the obstruction before he can use the levers.

If lever 3 is pulled over, it only liberates the board in front of the down-line signal-levers. In the same way lever 7 is shown on Fig. 4 as just having liberated the board marked "Obstruction" in front of the up home and distant signals. If, however, the cross-over line-points' handle 5 be moved, the tappet C liberates the levers for both boards, so that the signals of both up and down lines are blocked. When the lever 7 is brought back to the tappets into its proper place, the board marked "Obstruction" still hangs, and neither of the levers of the obstructed line can be brought to "safety" until the little handle F, connected with the lever carrying the obstruction-board, is pushed down, so as to push the obstruction-board out of sight and out of the way of the signal-levers and again hook the light end of the lever D under the nose of the tappet B. When this is done, the signal-levers 8 and 9 can be pulled into position.

The simple mechanism herewith illustrated can be applied to the most complicated signal-boxes, as separate horizontal levers and boards can be used in connection with each point-lever, the board connected with that point falling down in front of the signals of the lines effected by that point. Each handle F is marked with the number of the point

of its corresponding point-lever. Thus the handle F, which controls the levers 8 and 9 only, will be marked by the figure "7," as it controls the signals of the lines which are worked by the lever 7.

It is not absolutely necessary to place the box with the obstructions above the levers. It can be in any convenient part, and the obstruction can be of any convenient nature, so long as it will lock those levers operating the block-road.

I declare that what I claim is—

1. In railway signaling apparatus, the combination, with two or more levers, of a signal board or sign adapted when released to prevent the actuation of one of the levers and means, substantially such as shown and described, actuated by the other lever for releasing the signal-board.

2. In railway signaling apparatus, the combination, with two or more levers, of a signal board or sign adapted when released to prevent the actuation of one of the levers, means, substantially such as shown and described, actuated by the other lever for releasing the signal-board, and resetting devices for the said board or sign.

3. In railway signaling apparatus, the up and down levers and cross-over lever, in combination with two signal-boards adapted when released to lock the two first-mentioned levers, and means, substantially such as shown and described, actuated by the cross-over lever for releasing the signal-boards.

4. In a railway signaling apparatus, the combination, with the two groups of levers 1 2 3 and 7 8 9 of signal boards or signs adapted when released by the levers 3 and 7 to lock the levers 1 2 and 8 9, a second set of signal boards or signs adapted when released to also lock the levers 1 2 and 8 9, a lever 5, and means, substantially such as shown and described, actuated by the lever 5 to release this second set of signs or locking-boards.

5. In a railway signaling apparatus, the combination, with the home and distance levers, of a siding-lever, a cross-over lever, and two distinct locking devices for the home and distance levers, one set being brought into action by the movement of the siding-lever and the other by the movement of the cross-over lever.

6. In combination with a lever, as 1, a lever 3, a tappet B, bearing upon lever 3 and provided with a nose b, and a signal board or lock E for lever 1, provided with an arm D.

7. In combination with levers 1 and 3 and box or frame A, pivoted sign or board E, provided with arm D, a tappet B in the path of lever 3 and provided with nose b, and a rod F, connected to arm D.

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

A. HALL.

Witnesses:

G. C. DYMOND,
H. T. SHOOBRIDGE.