

(No Model.)

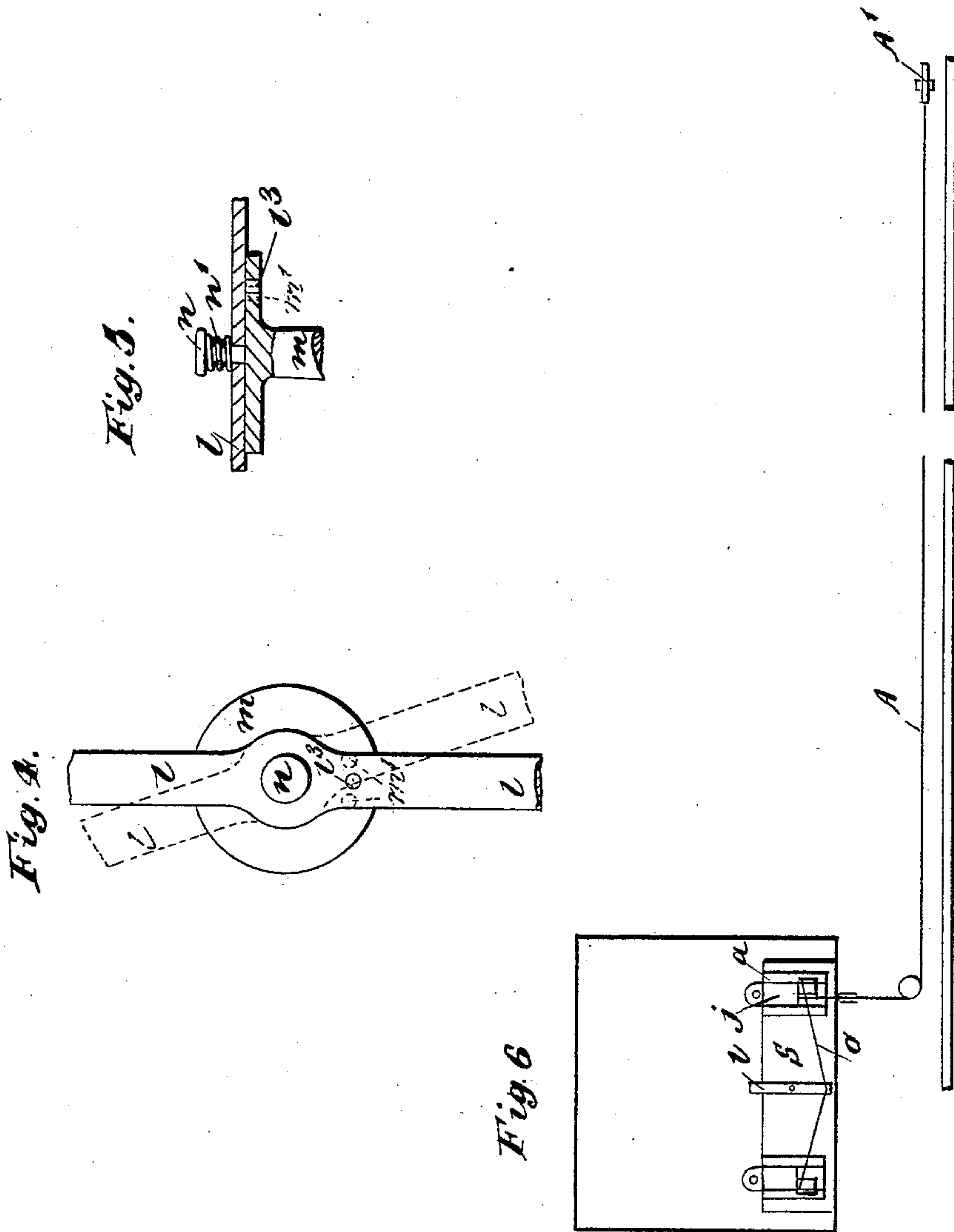
2 Sheets—Sheet 2.

R. G. MARKS.

APPARATUS FOR LOCKING RAILWAY SIGNALS.

No. 496,165.

Patented Apr. 25, 1893.



Witnesses
James Miller,
Albert Edward Ellen

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by George Henry Rayner
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR LOCKING RAILWAY-SIGNALS.

SPECIFICATION forming part of Letters Patent No. 496,165, dated April 25, 1893.

Application filed December 17, 1892. Serial No. 455,454. (No model.)

To all whom it may concern:

Be it known that I, ROBERT GAMBLE MARKS, gentleman, a subject of the Queen of Great Britain and Ireland, residing at 10 Russell Street, Thornes, Wakefield, in the county of Yorkshire, England, have invented certain new and useful Improvements in Apparatus for Locking Railway-Signals, of which the following is a specification.

My invention relates to improvements in signaling apparatus for railways, and has for its object to provide an arrangement whereby a signalman is prevented from operating the signals, allowing a train to pass into a station or section, while another train is standing on a main line, either on the right line, or which may have been shunted on to the wrong line, namely, from one line to another or out of a siding on to the main line. This arrangement is such that the cross over lever in the signal box is ordinarily held by a catch, and is prevented from being actuated until the catch is released. This catch is connected to a locking device placed near the home signal lever so that when the catch is moved from the cross over lever it releases a pivoted plate, belonging to the locking device and allows it to fall over the home signal lever, holding the lever and preventing the signalman from actuating it. When the train is standing on its right line without any shunting operation having taken place, the driver or other person on the train steps off and pulls a lever at the side of the line, connected with a wire or chain leading to the locking device belonging to the signal levers for that line, thus releasing the device and locking the signals protecting the train.

Referring to the accompanying drawings, Figure 1 is a perspective view of my apparatus applied to the cross over and home signal levers of a home signal box; Fig. 2 a side view and Fig. 3 a plan of the locking device used in connection with the home signal levers; Figs. 4 and 5 detail views of part of the apparatus and Fig. 6 is a diagrammatic view of the connections to the line, outside the signal box.

The apparatus is mounted upon a shelf S, placed in the signal box behind the row of levers. On this shelf is fixed a standard *m*, having a lever *l*, pivoted at *n*, upon it, which

has at one end a projection *l'* adapted to pass in front of the cross over lever C, and prevent it from being pulled forward. The other end of the lever is provided with a stud *l*², to which are attached the two chains *o* actuating the two locking devices for the home signal levers H and H'. Each chain is attached at its other end to a similar stud C', on a bell crank lever *c*, pivoted to the upper part of the locking device. This device consists of a box *a*, having two tubes *e* at its upper part, with a slot in each, extending through the greater part of its length. These tubes have cylindrical pieces *e'*, sliding longitudinally in them and connected together by a plate *j*, passing through the slots. A spring *h* is situated at the back of each tube, pressing against the pieces *e* and pushing them in the forward direction of the box. Another plate *b* is pivoted at *i*, near the bottom of the box, having a circular hole *g* at its free end, which, when released, falls into the position shown in the box *a*, the home signal lever H passing through the hole *g*, being thus prevented from moving forward until the plate *b* is lifted. This plate is shown in the box *a'* in its raised position, being held therein by the plate *j* and a lip *f* on the upper surface of the plate *b*, which lip rests on the edge of the plate *j*, when the latter is in its forward position, thus leaving the lever H' free. On moving the lever *l* in either direction, and thus moving the catch *l'* from the cross over lever C, one of the chains *o* is pulled which being attached to one end of the bell crank lever *c* turns it on its pivot. On the other end of the lever C. is a stud *s*, having one end of a short chain *p* attached, the other end of which is connected to the plate *j*. Thus when the lever *c* is turned in the manner above mentioned, the chain *p* pulls the plate *j* away from the lip *f*, frees the plate *b*, and allows it to fall on the lever H or H'. Immediately the lever *l* is brought back to its ordinary position the springs *h* return the plate *j*, ready to hold the locking plate *b* again, when it is raised, to free the home signal lever H.

Figs. 4 and 5 show a convenient method of attaching the lever *l*, in which three holes *m'* are formed in the support *m*, one directly in front of the center and one on each side.

The lever l is furnished with a pin l^3 , which can take into any one of the holes, thus holding the lever in one of three positions; in the normal position, holding the cross over lever, 5 or in either of the side positions releasing one or other of the locking devices. The pivot n is provided with a spring n' , which holds the lever l down on the support, but allows it to be raised slightly, releasing the pin from the 10 hole when the lever is to be turned aside. It will then, immediately the pin has reached one of the side holes, cause it to enter thus preventing the lever getting accidentally knocked aside.

15 The signalman has simple instructions which indicate to him the direction in which the lever is to be moved.

According to Fig. 6 a wire or chain A is connected to the plate j , passing over pulleys and 20 leading to the outside of the box and to a lever A' situated at a suitable point at the side of the line, so that should it be desired, an engine driver or fireman on an engine which has been stopped on the line, can get off his 25 engine and, by pulling the wire, release the locking piece, thereby preventing another train being signaled, the signalman not having operated the crossing lever. An additional safety guard is thus provided, if de- 30 sired, the same instrument being employed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In apparatus for locking railway signals, consisting of a lever l , with catch l' at its end, 35 adapted to retain in its ordinary position the crossing lever, the other end of the lever being connected to a locking device for each home signal lever, comprising a catch and a retaining plate with spring, the arrangement

being such that either locking device can be 40 operated according to the direction in which the lever l is moved, substantially as and for the purposes specified.

2. In apparatus for locking railway signals, consisting of a lever l with projection l' , a 45 hinged plate b with hole g , adapted to be retained in open position by means of a sliding plate attached to the lever l by a flexible connection, and to operate substantially as described and for the purposes specified. 50

3. In an apparatus of the kind described the combination of a lever l , with projection l' adapted to pass in front of the cross over lever and prevent its being actuated, with a box a , within which is hinged the locking 55 piece b carrying the sliding plate j , which serves to hold the locking piece in inoperative position, the plate j being connected to one end of the lever l by a flexible connection, and adapted to be withdrawn on pulling 60 the lever to one side.

4. In a signaling device of the kind described the combination with a lever l having the catch l' and a locking device consisting of a hinged perforated plate and a retaining 65 plate furnished with springs, of a line A connected to the retaining plate and passing to a lever A' at the side of the line, so that the locking device can be operated from the line, substantially as described and for the pur- 70 poses specified.

In witness whereof I have set my hand, in presence of two witnesses, at London, this 1st day of December, 1892.

ROBERT GAMBLE MARKS.

In presence of—

ALBERT EDWARD ELLEN,
FRANK WILLIAM PATTISON.