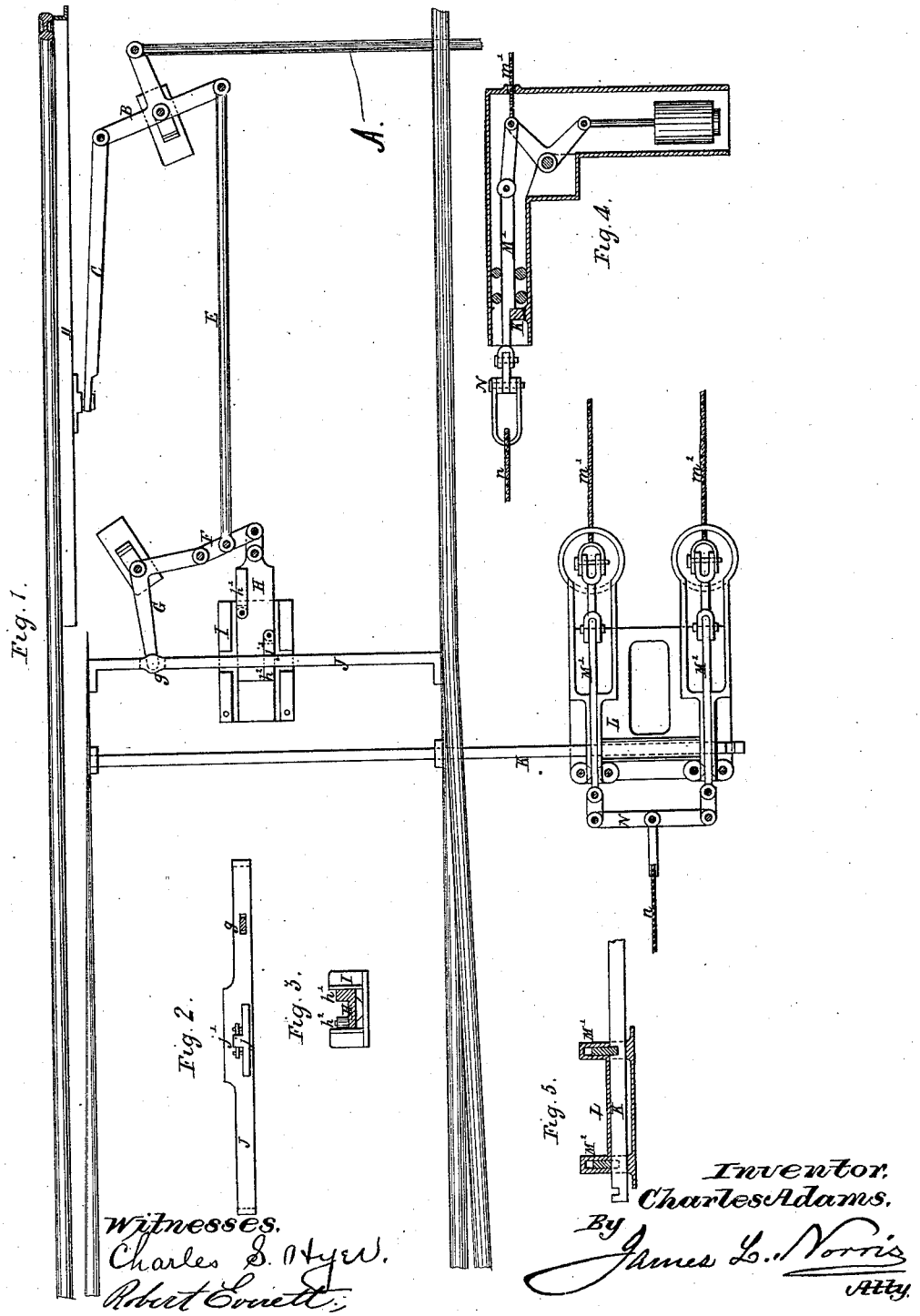
(No Model.)

C. ADAMS.

APPARATUS FOR WORKING RAILWAY POINTS AND SIGNALS.

No. 304,891. Patented Sept. 9, 1884.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR WORKING RAILWAY POINTS AND SIGNALS.

SPECIFICATION forming part of Letters Patent No. 304,891, dated September 9, 1884.

Application filed April 16, 1884. (No model.) Patented in Belgium December 22, 1883, No. 63,621, and in England January 4, 1884, No. 699, and January 11, 1884, No. 1,275,

To all whom it may concern:

Be it known that I, CHARLES ADAMS, a citizen of England, residing at Brussels, in the Kingdom of Belgium, have invented a new and useful Improvement in Apparatus for Working Railway Points and Signals, (for which I have obtained a patent in Belgium, No. 63,621, dated December 22, 1883, and provisional protection in Great Britain, No. 699, dated January 4, 1884, and No. 1,275, dated January 11, 1884,) of which the following is a specification.

My invention relates to apparatus for working railway points and signals, the chief object which I have in view being to insure safety by the use of simple, cheap, and durable mechanism.

I will describe the apparatus which I employ for moving and locking in each position a set of points, and for moving and interlocking with the points a pair of signals—one for each of the two roads which the points command.

Figure 1 of the accompanying drawings is a plan of the apparatus, parts of which are shown separately in other figures, as will presently be described.

A is the rod connected to the ordinary point-lever in the signal-cabin or elsewhere, by the movement of which single lever the shifting and locking of the points are effected in the following manner: The rod A works a three-armed lever, B, to one arm of which is connected by a link, C, the ordinary safety-bar, D, which is mounted on radii at the side of the rail, and which, as is well known, has to make a movement upward when the rod A is moved in either direction. If it happens that any part of a train is over the bar D, the wheel-flanges prevent D from rising, and consequently the rod A cannot be moved until the train has quite passed away from the part of the rail where D is situated. The third arm of the lever B is connected by a link, E, to the middle of a beam, F. One end of the beam F is jointed to a bell-crank lever, G. The other end of F is jointed to a slide, H. This slide, of which Fig. 3 is a transverse section, consists of a plate, from which project two ribs, h' h^2, each of these ribs having a roller mounted at its inner end. The plate H is fitted to slide to and fro in a guide-box, I, and to pass through a slot in a bar, J, that connects the two point-rails. Fig. 2 is a front view of this bar, showing the slot j, through which the plate H passes. This slot j is made longer than the width of the plate by the stroke of the points, and it has at the middle of its upper side a recess, j', with a roller mounted at each side, the space between these rollers being sufficient for passage of either of the ribs h' h^2. One arm of the bell-crank G enters another slot, g, in the bar J. From the two point-rails a bar, K, extends through a double guide-frame, L. (Shown in longitudinal section by Fig. 4 and in transverse section by Fig. 5.) In this frame L are guided two bars, M' M², which are linked to the opposite ends of a beam, N, to the middle of which is attached the pull n, which extends to the signal-lever in the cabin or elsewhere. The farther ends of the bars M' M² are linked to loaded bell-cranks and to pulls m' m^2, which extend each to a semaphore-signal of ordinary kind, counterweighted, so as always to stand at "danger," except when it is pulled down by the tension of its pull m' or m^2.

The bar K and the two bars M' M², that cross it, have notches interlocking with one another in such a manner that when the points are home in one position K presents a notch, through which one of the bars—such as M'—can pass, but is engaged in a notch of the other bar, M², which consequently cannot move. When the points are home in their other position, M' finds no notch in K to pass through, but M² finds a notch. When the points are in any intermediate position, not home either way, neither M' nor M² finds a notch in K to pass through. Finally, when either M' or M² has passed through a notch in K, then K cannot be moved. If both M' and M² are in the position shown in Fig. 1, which is the position when both the signals m' m^2 are at "danger," then both the bars M' M² present notches for passage of the bar K, leaving the points free to be moved. If, now, the rod A be pulled, and if there be no part of a train over the bar D, the middle of the beam F is pushed to the left. Its one end jointed to G cannot move,

because the bar J is held by the rib h^2 engaged in its notch j'. The movement of F, however, causes H to slide to the left until the rib h^2 is out of the notch j', and the rib h' butts against J, which stops the further movement of H to the left; but the bar J, being now in the free space between the ends of the two ribs h' h^2, is free to move, and now the bell-crank G, moved by F, causes the bar J and the point-rails to move over. When they have moved fully over, the notch j' is presented to h', which, by the further movement of F, is caused to enter the notch j', and so to halt the points in their changed position. Thus, if both signals be at "danger," and if there be no wheels over D, the pull of the rod A first unbolts the points by the withdrawal of the rib h^2, then shifts the points by the movement of G, and finally bolts the points in their changed position by the insertion of h'. In like manner the points can be unbolted, moved back, and bolted again by the movement of A in the opposite direction. Again, the points being home, if n be pulled, then, as one of the bars M' or M^2 is held stationary by its notch having K engaged in it, while the other is free to move through a notch in K, the free bar will be moved by one end of the beam N, and one of the signals will be lowered, the other signal remaining at "danger;" but by this movement of one of the bars M' M^2 through the notch in K the bar K becomes itself bolted, and consequently the points cannot be shifted when either signal is moved from its "danger" position. If the signals thus worked are in such a position that they can be seen by the operator, they serve to him as point-indicators, showing which way the points are set, and also as detectors of failure in movement of the points.

Although I have described the point-moving mechanism, which is all between the rails, arranged in conjunction with the duplex signal mechanism, which is all outside the rails, obviously these two sets of mechanism might be used separately. For example, by dispensing with the bar K and the parts outside the rail, the working and locking of the points would still be effected, as described, independently of the signals; or, again, retaining the notched bar K and the signal mechanism, but employing means of working the points other than those described, the working and locking of the signals would be effected as described.

The safety-bar D and the link C for moving it may be dispensed with, if desired, the lever B being in that case a two-armed bell-crank worked by the rod A, and connected by the rod E to the beam F of the point moving and bolting mechanism. It is, however, desirable to retain a safety-bar, such as D, especially in cases where trains rapidly succeed each other, and the pointsman, in his haste, may try to shift the points before a train has passed quite clear of them.

As the safety-bar D is a well-known appliance, I make no claim to it by itself or in combination with points worked otherwise than in the manner herein described.

Having thus described the nature of my invention, and the best means I know of carrying the same into practical effect, I claim—

1. In combination with a set of railway-points and a single pull-and-push point-rod, A, and with a pair of railway signal pulls, m' m^2, and a single signal-pull, n, the lever B, rod C, and safety-bar D, the rod E and beam F, jointed to the bell-crank G and to the bolting-slide H, having ribs h' h^2, to enter the slotted bar J, also the notched bar K, and crossing it the notched signal-bars M' M^2, jointed to the beam N, arranged and operating substantially as and for the purpose herein set forth.

2. In combination with a set of railway-points and a single pull-and-push point-rod, A, and with a pair of railway signal pulls, m' m^2, and a single signal-pull, n, the lever B, rod E, and beam F, jointed to the bell-crank G and to the bolting-slide H, having ribs h' h^2, to enter the slotted bar J, and also the notched bar K, and crossing it the notched signal-bars M' M^2, jointed to the beam N, substantially as described.

3. In combination with a set of railway-points and a single pull-and-push point-rod, A, the lever B, rod C, and safety-bar D, the rod E and beam F, jointed to the bell-crank G and to the bolting-slide H, having ribs h' h^2, to enter the slotted bar J, substantially as herein described.

4. In combination with a set of railway-points and a single pull-and-push point-rod, A, the lever B, rod E, and beam F, jointed to the bell-crank G and to the bolting-slide H, having ribs h' h^2, to enter the slotted bar J, substantially as described.

5. In combination with the notched rod K, attached to a set of railway-points, and with a pair of railway signal pulls, m' m^2, and a single signal-pull, n, the notched signal-bars M' M^2, crossing K and jointed to the beam N, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of March, A. D. 1884.

CHARLES ADAMS.

Witnesses:
JAMES PUNTER,
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