

(No Model.)

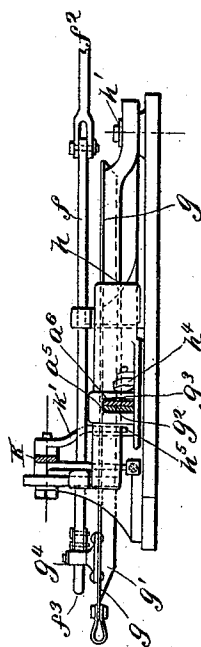
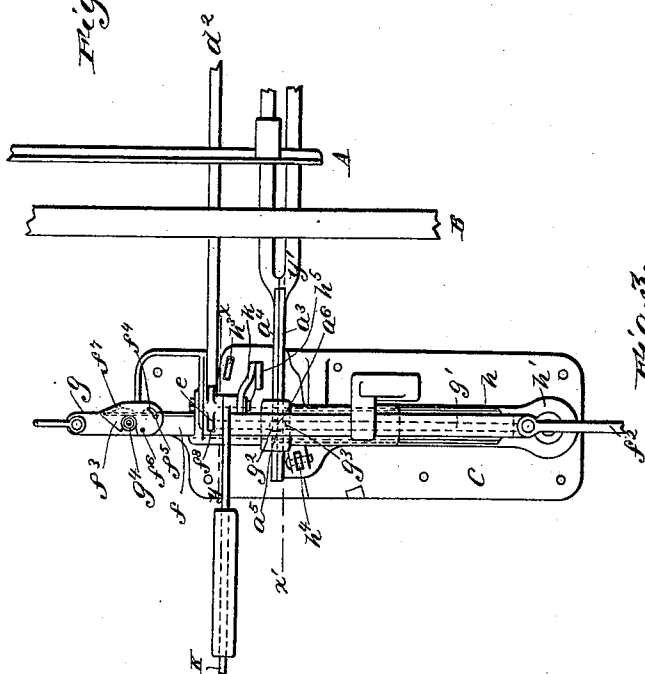
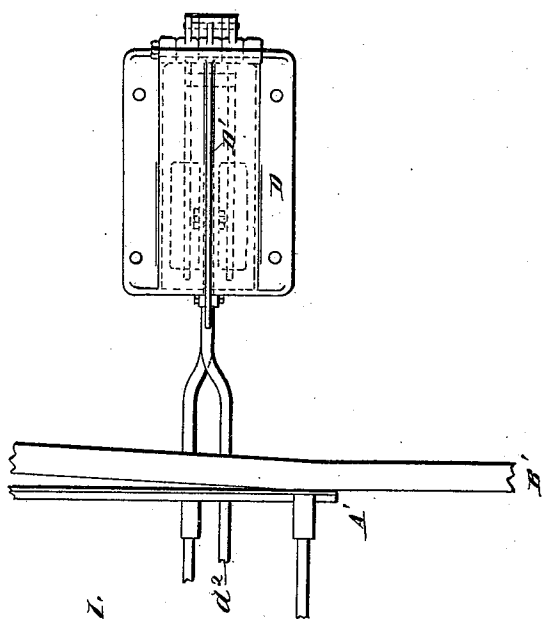
2 Sheets—Sheet 1.

S. T. DUTTON.

SIGNAL AND SWITCH INTERLOCKING APPARATUS.

No. 488,805.

Patented Dec. 27, 1892.



Witnesses:

Walter Allen
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John W. Foster

Inventor:

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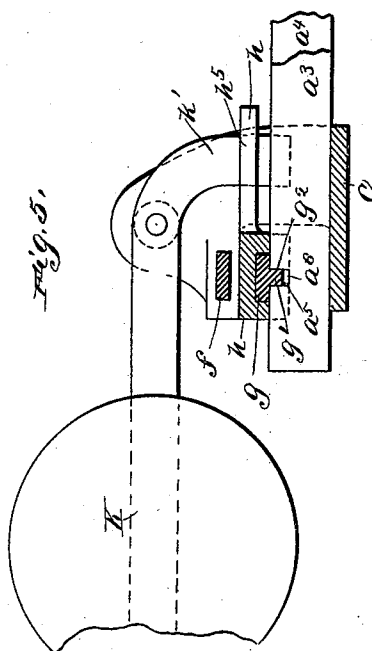
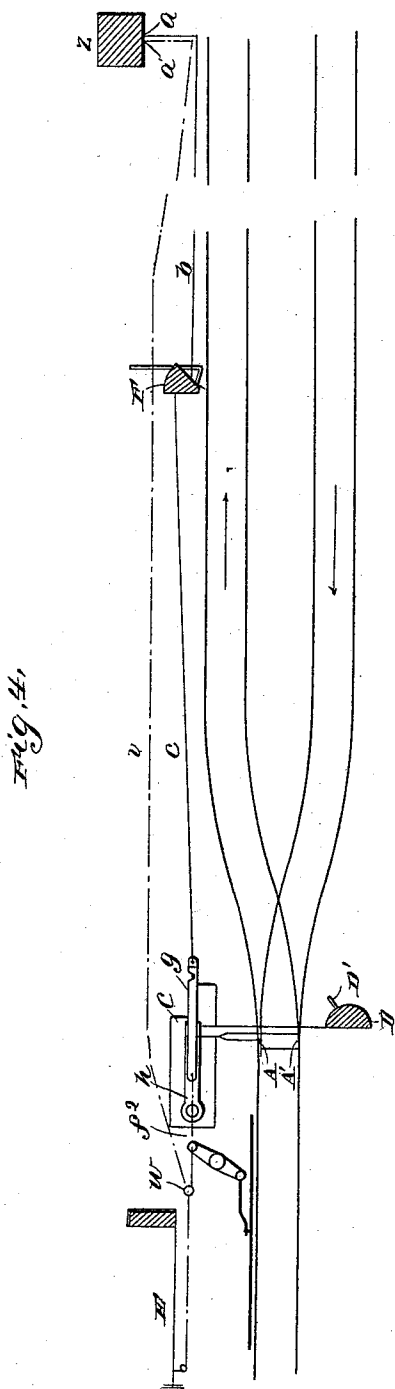
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Witnesses:
Walter Allen
J. M. Foster

Inventor:
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UNITED STATES PATENT OFFICE.

SAMUEL TELFORD DUTTON, OF WORCESTER, ENGLAND.

SIGNAL AND SWITCH INTERLOCKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 488,805, dated December 27, 1892.

Application filed October 12, 1892. Serial No. 448,692. (No model.) Patented in Belgium November 30, 1887, No. 70,748; in England September 20, 1888, No. 13,570; in India May 31, 1889, No. 175; in France July 19, 1889, No. 199,683; in New South Wales August 14, 1889, No. 1,627, and in Victoria September 5, 1889, No. 7,069.

To all whom it may concern:

Be it known that I, SAMUEL TELFORD DUTTON, a subject of the Queen of Great Britain and Ireland, residing at Marl Bank, in the city and county of Worcester, England, have invented certain new and useful Improvements in Apparatus for Securing and Indicating the Movements of Points on Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Patents for this invention have been obtained in the following countries: Great Britain, No. 13,570, dated September 20, 1888; British India, No. 175, dated May 31, 1889; New South Wales, No. 1,627, dated August 14, 1889; Victoria, No. 7,069, dated September 5, 1889; Belgium, No. 70,748, dated November 30, 1887; and France, No. 199,683, dated July 19, 1889.

This invention relates to apparatus for securing and indicating the movements of railway points; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings: Figure 1 is a plan view of the complete apparatus; and Fig. 2 is a side view of the locking devices. Fig. 3 is a cross-section taken on the line xy in Fig. 1. Fig. 4 is a diagram showing in a plan view the application of the apparatus in distant signaling. Fig. 5 is a cross-section taken on the line $x'y'$ in Fig. 1.

A A' are the switch tongues.

B B' are the rails.

C is the base plate of the apparatus for locking the points.

A carrier h is provided, and is pivoted at one end on the pin h' projecting vertically from the base plate. The other end of the carrier is provided with supporting rollers h^3 h^4 which run upon the base plate when the carrier is oscillated. A blade g is supported by the carrier h and is provided with a rib g' underneath it having a notch g^2 . Two slides a^3 and a^4 slide in the said notch g^2 and are connected to the tongues A and A' respectively. The slides a^3 and a^4 have notches a^5

and a^6 respectively, and when the points are set right for the facing direction, as shown in Fig. 1, these notches are both opposite the part g^3 of the locking rib g' , so that the blade g can be moved longitudinally. The blade g is provided with a shackle at one end so that it may be connected to and operated by a lever in the signal cabin in the ordinary manner.

An upper signal-bar f slides in a bracket on the base plate above the blade g . This bar f is provided with a rod f^2 at one end for connecting it to the facing signal. The other end of the bar f has a fork or gab f^3 pivoted to it by the pin f^6 . A pin f^5 projects from the bar f and engages with a guide slot f^4 in the gab. The gab f^3 engages with a pin g^4 projecting from the blade g , and is held in engagement with the said pin by means of the spring f^7 riveted to the bar f and bearing against the gab. If desired, the fork or gab f^3 may be rigidly secured to the bar f , and the spring and the guide pin and slot may be dispensed with, but the spring-pressed gab is preferred.

D is the ground lever box, and D' is the lever for actuating the switch points. The points are represented as set right for the facing direction, and the locking apparatus is in gear. A rod d^2 is provided, and is connected at one end to the lever D', and at the other end to the lock e which is pivoted to a bracket projecting from the base plate C. This rod operates to lock the lever D' when the signal is lowered, and it also locks the upper signal-bar f when the points are moved in the trailing direction.

K is a weighted crank pivoted to a bracket on the base plate C. This crank is provided with an arm K' which engages with a hole h^5 in the carrier h and holds the carrier in its normal position, which permits the deflection of the facing signal and holds the switch points in their facing position, as shown in Fig. 1. When the bar f is in its normal position, and the facing signal is at danger, a notch f^8 in the bar f comes opposite the lock e , so that if the switch points are moved, the rod d^2 is also moved in the direction of the arrow in Fig. 3, and thereby turns the lock e on

its pivot and causes the portion e^2 of the lock to enter the notch f^3 of the bar f , and prevents the bar f from being moved to lower the signal. Should however the facing signal be deflected, the bar f , then being in its forward position, presents a solid surface to the lock e and thereby prevents the lock from moving, and consequently prevents the movement of the points, to which the lock is connected by the bar d^2 .

The dotted lines on the right side of Fig. 3 show how the bar can be connected to the other side of the lock e , if desired.

The action of the apparatus is as follows:
 15 When the facing signal is required to be deflected, and the switch points are set right and are in their facing position, the signalman moves the blade g longitudinally by means of his operating lever, and thereby
 20 locks the switch points. This action also moves the bar f which is connected to the blade g by the pin g^4 , and also moves the rod f^2 and thereby deflects the facing signal. The switch points must be right for the facing direction before the signal can be deflected, otherwise the notches a^3 and a^4 would not be opposite the part g^3 of the rib g' , and the blade g and bar f could not be moved to deflect the signal.
 When the points are right for the facing direction, and the facing signal has been deflected, the blade g locks the slides a^3 and a^4 because the rib g' is moved to engage with the notches in the said blades, and the switch points are thereby locked in the desired position.
 35 When a train passes in the trailing direction, it opens the points automatically, and the slides a^3 and a^4 turn the carrier h on its pivot against the resistance of the weighted lever K , when the signal has been deflected.
 40 This movement of the carrier slides the pin g^4 out of gear with the gab f^3 and releases the bar f from the blade g and allows the facing signal, which is connected to the bar f , to rise to its danger position automatically. When
 45 the last vehicle has cleared the switch points, the weighted crank forces the carrier and the points back to their normal position, which is right for the facing direction, and the disconnection of the gab f^3 from the pin g^4 renders the signal apparatus inoperative until
 50 an attendant has gone to the points and reconnected the gab to the pin, seeing at the same time that everything is in good order at

the points. It will be noticed that no damage is done to the locking apparatus by the points being run through in the trailing direction while it is in gear, and locking the points in the facing direction.

Fig. 4 also shows how the apparatus can be worked from a signal cabin Z at a considerable distance from the points. F is an intermediate ground lever for working the locking devices. There are two levers a a' in the cabin Z . Of these, the lever a is connected to the lever F by a rod b , and the lever F is connected to the blade g by the rod c . The lever a' is connected to the signal E by a wire v which passes over the pulley w .

The action of the apparatus is substantially the same as hereinbefore described.

What I claim is:

1. The combination, with the points, and the notched slides a^3 and a^4 , of the pivoted carrier h , the blade g supported by the said carrier and provided with the notched rib g' engaging with the said slides, and the bar f , for working the signal, detachably connected to the said blade g , substantially as and for the purpose set forth.

2. The combination, with the points, and the notched slides a^3 and a^4 , of the pivoted carrier h , the blade g supported by the said carrier and provided with the notched rib g' engaging with the said slides, the blade f for working the signal, and the spring-actuated gab f^3 detachably connected to a pin on the blade g , substantially as and for the purpose set forth.

3. The combination, with the points, and the notched slides a^3 and a^4 , of the pivoted carrier h , the blade g supported by the said carrier and provided with the notched rib g' engaging with the said slides, the bar f , for working the signal, operatively connected with the blade g , and the pivoted locking plate e connected with the points and adapted to lock the bar f , substantially as and for the purpose set forth.

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

SAMUEL TELFORD DUTTON.

Witnesses:

SUTTON CARBEAU,

Engineer, Shrub Hill, Worcester.

G. W. BULL,

Accountant, Railway Signal Works, Worcester.