

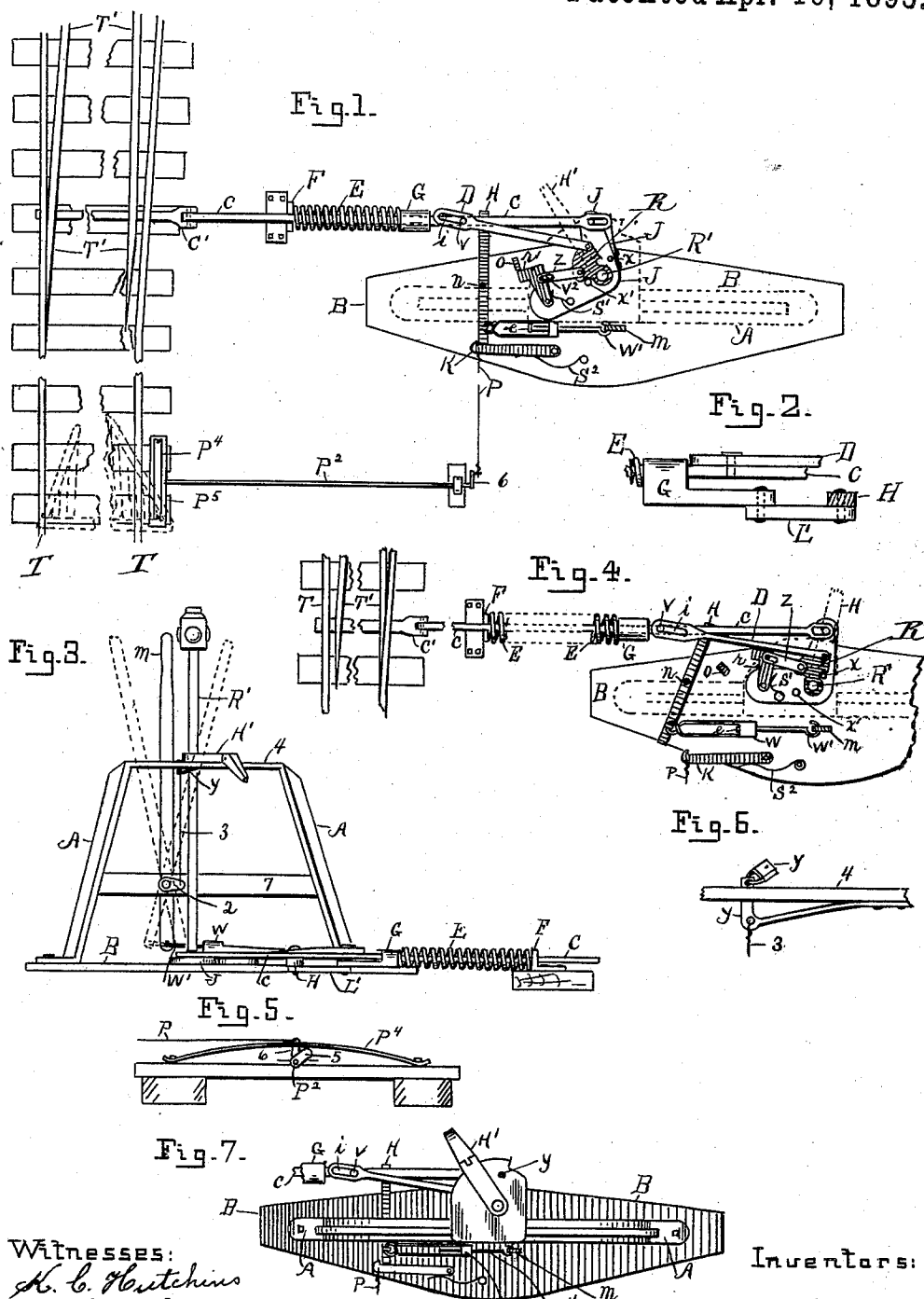
(No Model.)

2 Sheets—Sheet 1.

G. W. DE GRASSE & G. M. MYRICK.
AUTOMATIC RAILWAY SWITCH.

No. 537,635.

Patented Apr. 16, 1895.



Witnesses:

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Ray Hutchins.

Inventors:

George W. DeGrasse
George Myrick

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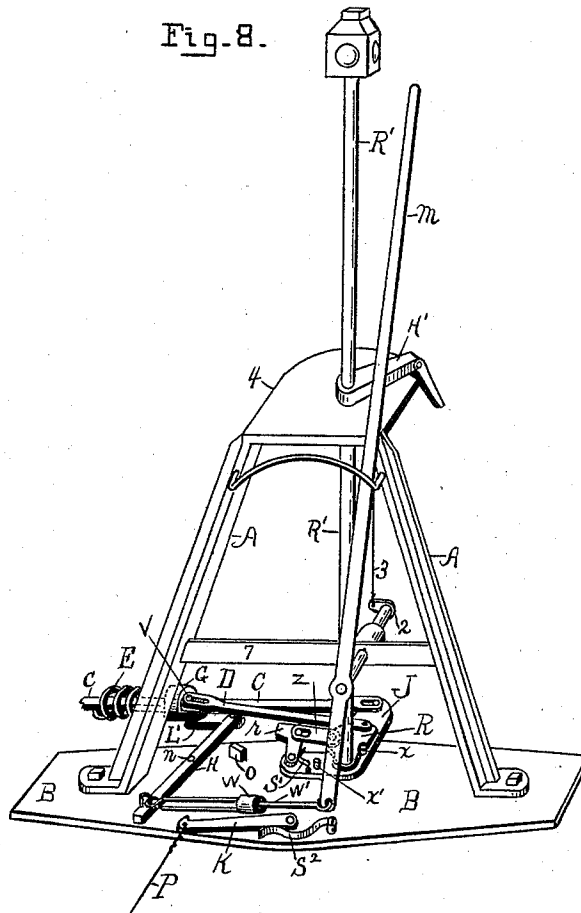
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Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE W. DE GRASSE AND GEORGE M. MYRICK, OF CRETE, ILLINOIS.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 537,635, dated April 16, 1895.

Application filed September 13, 1894. Serial No. 522,947. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. DE GRASSE and GEORGE M. MYRICK, citizens of the United States of America, residing at Crete, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Automatic Railway-Switches, of which the following is a specification, reference being had therein to the accompanying drawings, and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1 is a plan view of the switch mechanism connected with the switch rails, omitting the switch stand frame. Fig. 2 is a detail view showing a portion of the switch rod adjacent to the inner end of the coil spring sleeved thereon, and showing a side view of a spring operated slide thereon, and showing said rod connected with other parts of the switch mechanism. Fig. 3 is a side elevation of the switch stand mechanism disconnected from the switch rails. Fig. 4 is a plan view of the switch mechanism showing the parts reversed from those shown in Fig. 1, and showing the switch rails closed. Fig. 5 is a side view of a spring plate for being engaged by a coming locomotive for automatically closing the switch so the main track will be open to the approaching train. Fig. 6 is a detail view showing a latch connected to the under side of the top plate or table of the switch stand frame for controlling and locking the arm attached to the switch stand shaft. Fig. 7 is a plan view of the switch stand and a portion of the inner end of the switch rod; and Fig. 8 is a perspective view of the switch stand and the parts connected therewith.

This invention relates to certain improvements in automatic railway switches, of the class wherein an approaching train from either direction will automatically close the switch and pass on the main track, which improvements are fully set forth and explained in the following specification and claims.

Referring to the drawings, B represents the bed plate of the switch stand, bearing the frame A having the top plate 4.

R' is a vertical shaft having its lower end stepped in said bed plate B, and journaled toward its upper end in said plate 4, and having secured to it the plate R and jointed

switch arm H', and may have on its upper end a semaphore or lantern as shown.

J is a bell crank plate journaled at its angle on shaft R' between bed plate B and plate R, and is provided with a pair of vertically arranged pins or studs X and X' arranged one on either side of plate R, but far enough away so that said plate may turn in either direction a short distance before it will engage one of the said pins, for turning bell crank plate J in either direction with plate R when it engages either one of said pins, so that plate R can turn within the space between said pins before it will turn with it bell crank J.

r is a spring latch pivotally connected at the outer end of one of its arms to bell crank plate J near the outer end of one of its arms, and is pivotally connected with plate R by means of a link Z as shown in Figs. 1, 4 and 8 said link being provided with a slot in its end connected with said latch, so the latch may swing within the limits of said slot. A spring S' set behind said latch is for the purpose of holding said latch outward so it will catch behind a stud o set in the bed plate B, when the switch is open, and all the parts are in the position shown in Fig. 1.

C is a switch rod having its inner end pivotally connected to the outer end of one of the arms of bell crank plate J, and pivotally connected at its outer end to the switch rail connecting bar C'.

G is a slide sleeved on said switch rod at or near its center, and is connected with one end of a lever H through the medium of a link L' as shown particularly in Figs. 2 and 8 the said lever H having pivotal connection at n with the bed plate B.

E is a coil spring sleeved on the switch rod C between slide G and a vertically arranged plate F secured to some suitable object on the ground, and its resiliency exerts a constant pressure against said slide, and also against the outer end of a connecting rod D pivotally connected to the upper side of said switch rod, and also is pivotally connected at its inner end to the outer end of one of the arms of the bell crank plate R. The outer end of said connecting rod D is provided with a slot i which receives the pin V set in the switch rod C for connecting said rod D to said switch rod C, and the said connecting rod D can

move on said pin the distance said slot is long for the purpose hereinafter named.

m is a lever pivotally connected a short distance above its lower end to the side of the cross bar 7 of the switch stand frame. The lower end of said lever is connected with one end of the lever H through the medium of the link W and the rod W', which rod passes through an eye in one end of said link, and is retained therein by means of the head *e* on the end of said rod, and in such manner that said rod may slide in the eye of said link, such connection being necessary to permit lever H to operate freely when released from its hook, and so at such time it will not be retarded in its action by lever *m*.

2 is an arm secured to a short shaft forming the pivot of lever *m*, the outer end of which arm is connected to a lock latch *y* attached to the under side of the plate 4 of the switch stand by means of the rod 3.

K is a hook pivotally connected at its inner end to the top of the bed plate B in such manner that its hooked outer end will catch over the end of lever H, and a spring S² placed behind said hook presses it constantly toward said lever H so as to cause it to engage therewith. Said hook is connected with a crank 6 on the end of a rock shaft P² through the medium of a wire or chain P. Said rock shaft is designed to be placed at right angles with the main track T, at quite a long distance from the switch stand, and is provided on its end adjacent to the said track with an arm 5, above which is placed an upwardly curved spring plate P⁴ shown in Figs. 1 and 5, and in contact with said arm 5, so that when said plate is depressed it will through the medium of said arm rock said shaft and cause it to release latch K from contact with lever H through the medium of its connection therewith for the purpose hereinafter set forth.

When the switch is in its normal position so as to close the switch and leave the main track open, its parts are in the position shown in Figs. 4 and 8. When it is desired to move the switch rails T' so as to open the switch as shown in Fig. 1, the upper end of the lever *m* is moved so as to cause the lever H connected to the lower end of lever *m* through the medium of link *w* and rod *w'* to be turned to the position shown in Fig. 1, so the hook K will catch over its end and hold it in such position. Such movement of lever *m* will also move slide G connected to the opposite end of lever H against coil spring E so as to compress it and store its strength ready for action whenever hook K is released from lever H as hereinafter stated. Such movement of lever *m* also withdraws the latch *y* down through plate 4 so it will be free from contact with the jointed arm H', so it can be turned. After lever *m* has been thus operated, the switch rod is moved by means of turning the arm H' from the position shown in Fig. 4 to that shown in Fig. 1. Such movement of said

arm will turn the shaft R', and with it the plate R and bell crank plate J through the medium of pins *x* and *x'*, and as switch rod *c* is attached to said bell crank plate J, said switch rod will be moved, and with it the switch rails to which it attaches, to the position shown in Fig. 1. The connecting rod D being connected to plate R will be moved so its outer end will be in contact with slide G, and latch *r* will catch behind stud O for the purpose of holding the parts in the position shown in Fig. 1.

In case the switch should be accidentally left open as shown in Fig. 1, and it is desired that an approaching train should move the switch so as to pass on the main track T, it is intended that the spring plate P⁴ will be depressed by means of mechanism attached to the locomotive of the train, which can be operated by the engineer. The effect of depressing said spring plate will be to cause the hook K to be released from its contact with lever H, thus leaving the coil spring E free to move slide G connected with said lever forward, and with it connecting rod D for the purpose of first turning shaft R' and the plate R to the position shown in Figs. 4 and 8 and release the latch *r* from stud O, and until the connecting rod D has moved far enough so pin *v* will be in the opposite end of slot *i* as shown in Figs. 4 and 8, when farther movement of said coil spring will move the switch rod *c* and the switch rails and close the switch as shown in Figs. 4 and 8 so the main track will be open for the train to pass on, the object of so turning the shaft R' being to turn the signal lantern on its upper end so as to show the proper light along the track, and to turn the arm H' back to its first position.

Should the train approach the switch from the opposite direction from that shown in the broken lines in Fig. 1, the wheels of the train will move the switch rails to close the switch, overcoming the latch *r*, and leaving the parts in the position shown in Figs. 4 and 8, so that if a train approaches from either direction on the main track it will automatically close the switch so the train will not take the switch and cause a disaster.

If it is desired to lock the switch closed and leave the main track open, a padlock *y'* may be used to lock the latch *y* as shown in Fig. 6 when the parts are in the position shown in Fig. 4, so arm H' cannot be turned by some unauthorized person and thus cause disaster.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is as follows:

1. In an automatic railway switch the combination of the rail road rails, connecting bar *c'*, switch rod *c*, coil spring E and slide G sleeved on said switch rod, shaft R', arm H' secured on said shaft, plate R secured on said shaft, slotted connecting rod D for connecting said plate and switch rod, bell crank plate J having the pins *x* and *x'* and journaled on

said shaft, and pivotally connected to said switch rod *r*, pivotally connected to said bell crank plate J, slotted link *z* for connecting said latch and plate R, stud *o*, lever H, link 5 L for connecting said lever H and slide G, hook K, link W, rod W', lever M, having the arm 2, latch *y* connected with said arm rock shaft P² having the arms 5 and 6, spring plate P⁴ and chain or wire P all arranged to operate substantially as and for the purpose set forth.

2. In an automatic railway switch the combination of the railroad rails connecting rod *c'*, switch rod *c*, coil spring E and slide G 15 sleeved on said switch rod, bell crank plate J, shaft R', lever H, link L', hook K, and the means for operating said hook K and latch *r*

all arranged to operate substantially as and for the purpose set forth.

3. In an automatic railway switch the combination of the shaft R', plate R secured thereon, bell crank plate J journaled on said shaft and having the pins *x* and *x'*, latch *r*, slotted link *z*, stud *o*, switch rod *c*, coil spring E and slide G sleeved thereon and slotted connecting rod D for connecting plate R and 25 switch rod *c* all arranged to operate substantially as and for the purpose set forth.

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