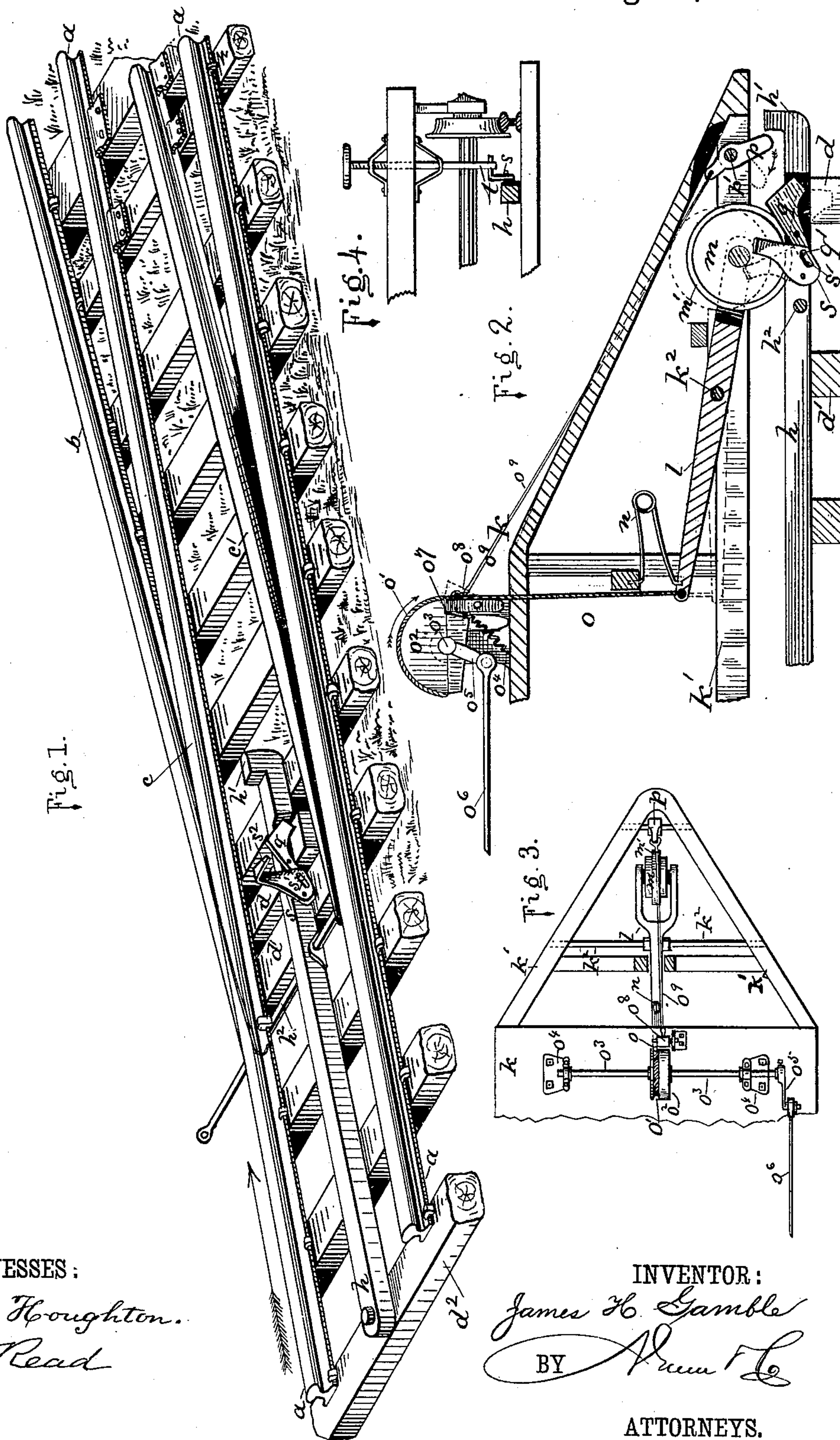


(No Model.)

J. H. GAMBLE.  
RAILROAD SAFETY SWITCH.

No. 262,759.

Patented Aug. 15, 1882.



WITNESSES:  
Thos Houghton.  
W Read

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# UNITED STATES PATENT OFFICE.

JAMES H. GAMBLE, OF NEBO, ILLINOIS.

## RAILROAD SAFETY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 262,759, dated August 15, 1882.

Application filed January 25, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. GAMBLE, of Nebo, in the county of Pike and State of Illinois, have invented a new and Improved Railroad Safety-Switch; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved railroad safety-switch. Fig. 2 is a central vertical section through the cow-catcher of a locomotive, showing my improvement. Fig. 3 is a plan view of the same, and Fig. 4 is a rear elevation of the hind car of a train.

My invention relates to improvements in railroad safety-switches; and it consists in the peculiar construction and arrangement of the parts, as hereinafter more fully set forth.

In the accompanying drawings, *a a* represent the main track-rails of a railroad, and *b* the outer rail of a siding.

*c c'* represent the rails of a spring-switch, adapted to be operated by hand or automatically. The rails *c c'* of the switch are spring or split rails, each secured at one end to the sleepers of the main track, and having their opposite beveled ends resting on the sleepers *d d'* of the main track, on which they are free to vibrate. The spring-rail *c* of the switch forms a continuation of one of the rails of the main track, and the spring-rail *c'* of the switch is a continuation of the inner rail of the siding.

*h* represents a short movable rail, pivoted at one end to the sleeper *d<sup>2</sup>* of the main track, midway between the rails of the main track and projecting forward between the split or pointed rails *c c'*. The forward end of the rail *h* rests on the sleepers *d d'*, and is free to vibrate laterally thereon, and is provided with a lug, *h'*, at its forward end, projecting upwardly, the function of which will be hereinafter described.

*h<sup>2</sup>* represents a rod secured to the beveled ends of the spring switch-rails *c c'*, and to the pivoted rail *h*, and secured at its outer end to a switch-lever of the usual construction, (not shown in the drawings,) whereby the switch may be operated by hand. By this construction it will be seen that the main track and

switch rails are normally in position for cars to pass over the main track in either direction, and that by opening the switch for the siding the cars moving in the direction of the arrow in Fig. 1 will pass on the siding, and after the cars have passed thereon the spring or elasticity of the spring switch-rails *c c'* will draw them back to their normal position for the passage of cars on the main track in either direction.

*k* represents the cow-catcher of a locomotive, in the opposite angular sides *k' k'* of which is secured a shaft, *k<sup>2</sup>*, which passes through a hole in a lever, *l*, carrying at its forward end a small wheel, *m*, journaled in the sides of a slot in the lever and provided with a central flange, *m'*, on the periphery of its tread. The lever *l* and the wheel *m* which it carries lie directly over the pivoted central rail, *h*.

*n* represents a spring, the upper end of which is secured to one of the rear transverse bars of the cow-catcher, the lower end of the spring *n* being secured to the rear end of the lever *l*. The tension of the spring is exerted to force down the rear end of the lever *l* and raise its forward end and the wheel *m* secured thereto, so that the wheel *m* will not come in contact with the pivoted rail *h*, excepting when forced down thereon.

To the rear end of the lever *l* is secured a chain, *o*, which passes thence vertically upward through the frame of the cow-catcher, and is secured in a groove, *o'*, in the periphery of a semicircular pulley, *o<sup>2</sup>*, secured to the horizontal crank-shaft *o<sup>3</sup>*, journaled in standards *o<sup>4</sup>*, secured to the frame of the cow-catcher. The crank *o<sup>5</sup>* of the shaft *o<sup>3</sup>* is connected by a rod, *o<sup>6</sup>*, with a lever in the cab of the locomotive, whereby the rear end of the lever *l* can be raised when desired, thus lowering its front end so as to throw the tread of the wheel *m* on the movable rail *h*. The flange *m'* on the tread of the wheel *m* is arranged centrally thereon, because the sidings of railway-tracks are arranged on both sides of the main track, and the object of the flange is to press the pivoted rail and the switch-rails aside, so that a train of cars can be made to pass automatically from the main track to any desired siding without operating the switch by hand, the



spring switch-rails afterward resuming their position for the passage of trains either way over the main track. The periphery of the semicircular pulley  $o^2$  is provided with a notch 5 or recess,  $o^7$ , adapted to receive a spring-catch,  $o^8$ , and hold the semicircular pulley with the wheel  $m$  resting on the pivoted central rail,  $h$ . To the spring-catch  $o^8$  is secured a rod,  $o^9$ , which passes thence obliquely forward and 10 downward, and is secured at its forward end to a tripping-lever,  $p$ , secured to a shaft,  $p'$ , journaled in the frame of the cow-catcher in front of the wheel  $m$ .

$q$  represents a lever-catch pivoted to one side 15 of the movable rail  $h$  near its free end, and lying directly over the short sleeper  $d$ , and provided at its rear end with a pin,  $q'$ , at right angles to the plane of the lever-catch. The pin  $q'$  passes through a slot,  $s'$ , in the lever  $s$ , 20 pivoted to the movable rail  $h$  in rear of the lever-catch  $q$ , and provided with an arm,  $s^2$ , at right angles to the plane of the lever  $s$ .

In practice a train of cars moving in the direction of the arrow will pass over the main 25 track, the lever  $l$  being depressed at its rear end by the spring, so as to elevate the wheel  $m$  above the pivoted rails opposite each siding. When it is desired to automatically switch the train on a siding the engineer in the cab turns 30 the crank-shaft  $o^3$  by the lever in the cab, which, by its connections, elevates the rear end of the lever  $l$  and forces the wheel  $m$  down upon the pivoted rail  $h$ , the flange of the wheel bearing against one side of the pivoted rail  $h$  35 and opening the switch, so that the train will run on the siding. In the passage of the wheel  $m$  over the pivoted rail  $h$  its lug  $h'$  will strike the lower end of the tripping-lever  $p$ , which will force out the upper end of the trip-lever, 40 which, through its connecting-rod  $o^9$ , will disconnect the spring-catch  $o^8$  from the pulley  $o^2$ , when the spring  $n$  will force down the rear end of the lever, whereby the crank-shaft, semicircular pulley, and their connections for forcing the wheel  $m$  down upon a pivoted rail will 45 be in their normal positions to operate the lever  $l$  and force the wheel  $m$  down upon a pivoted rail when it is again desired to do so. In the passage of the tread of the wheel  $m$  over 50 the movable rail  $h$  it will press the lever-catch  $q$  down and engage it with the end of the short sleeper  $d$ , thus securely holding the switch-

rails locked open for the passage of a train, and the depression of the lever-catch  $q$  from the construction described will elevate the lever  $s$ . 55

To the last car of a train a vertical adjustable rod,  $t$ , (see Fig. 4,) is secured, arranged to strike the arm  $s^2$  in its passage over the track, thereby depressing the lever  $s$  and disengag- 60 ing the lever-catch  $q$  from the end of the short sleeper  $d$ , when the spring-switch will resume its original position. By this construction it will be seen that a train moving in the direction of the arrow can be automatically switched 65 from the main track to any desired siding.

What I claim as my invention is—

1. The combination, with the spring switch-rails  $c c'$  and pivoted rail  $h$ , pivoted midway 70 between the main track-rails and provided with the lug  $h'$  on its free end, of the lever  $l$ , fulcrumed on a shaft secured to the frame of a cow-catcher, and carrying at its forward end a wheel,  $m$ , having a central flange,  $m'$ , spring 75  $n$ , chain  $o$ , pulley  $o^2$ , crank-shaft  $o^3$ , connected with a lever in the cab, spring-catch  $o^8$ , rod  $o^9$ , and tripping-lever  $p$ , substantially as described, and for the purpose set forth.

2. The combination, with the lever  $l$ , having its fulcrum in the cow-catcher and carrying 80 the flanged wheel  $m$ , of the spring switch-rails  $c c'$ , pivoted rail  $h$ , catch-lever  $q$ , provided with the pin  $q'$ , and slotted lever  $s$ , provided with an arm,  $s^2$ , arranged to be struck in the forward movement of the cars by a vertical ad- 85 justable rod,  $t$ , secured to the rear car of a train, substantially as described, and for the purpose set forth.

3. The combination, with the main track-rails  $a$ , siding  $b$ , spring switch-rails  $c c'$ , and 90 pivoted rail  $h$ , provided with the lug  $h'$ , catch-lever  $q$ , having the pin  $q'$ , slotted lever  $s$ , provided with the arm  $s^2$ , and vertical rod  $t$ , adjustably secured to the rear car, of the lever  $l$ , carrying the flanged wheel  $m$ , spring  $n$ , chain 95  $o$ , pulley  $o^2$ , crank-shaft  $o^3$ , connected with a lever in the locomotive-cab, spring-catch  $o^8$ , rod  $o^9$ , and tripping-lever  $p$ , substantially as described, and for the purpose set forth.

JAMES H. GAMBLE.

Witnesses:

K. CRAWFORD,  
D. H. JOHNSTON.