

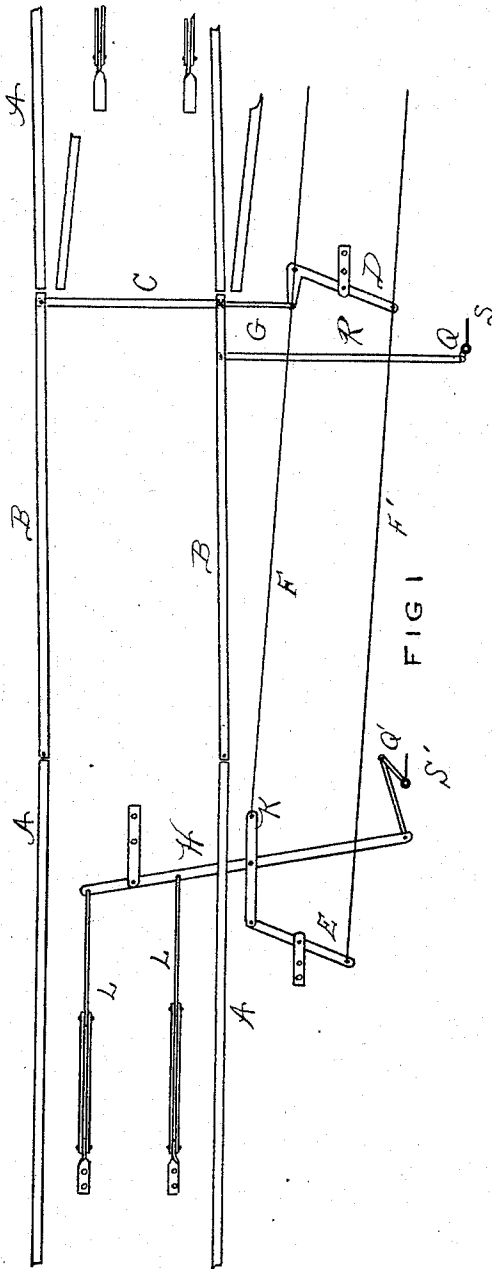
(No Model.)

2 Sheets—Sheet 1.

T. D. WILLEVER.
RAILWAY SWITCH.

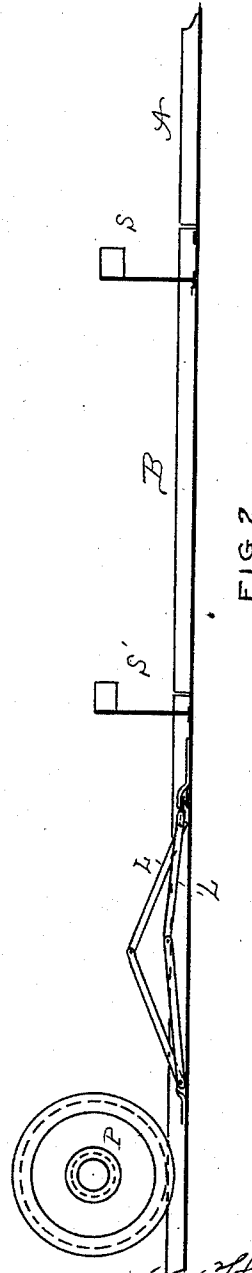
No. 527,188.

Patented Oct. 9, 1894.



WITNESSES:

Wm. F. Donovan
Mary A. Burnite



INVENTOR

Thomas D. Williver
BY
Scott & Carlow
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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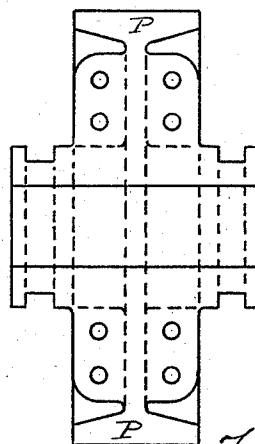
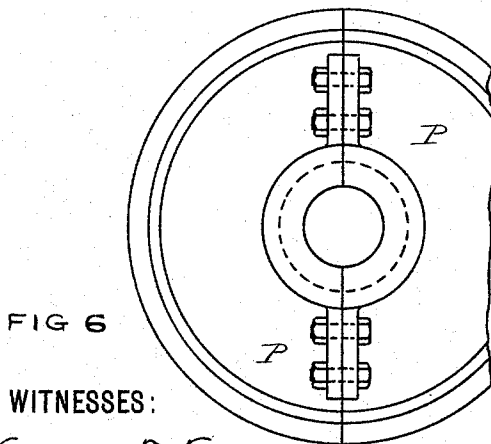
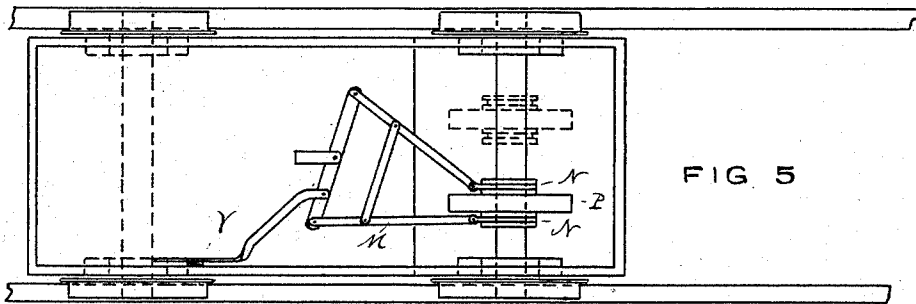
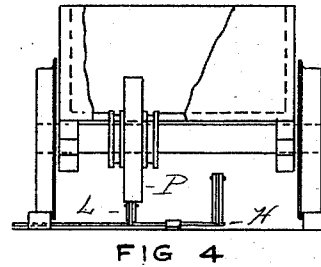
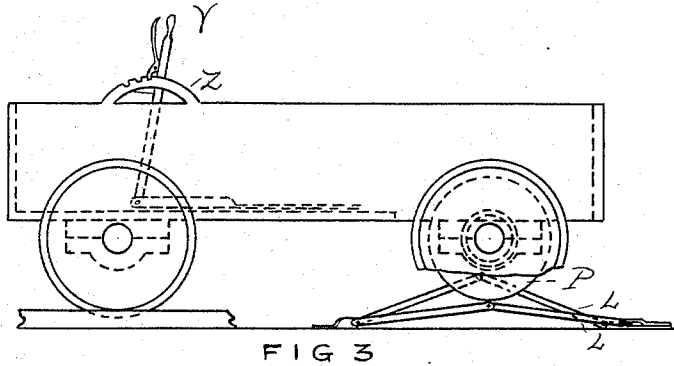


FIG 6

FIG 7

WITNESSES:

William F. Donovan
Mary A. Burnite

INVENTOR

Thomas D. Williver
BY *Scott & Barlow*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS D. WILLEVER, OF IRVINGTON, ASSIGNOR OF ONE-HALF TO GEORGE
O. WILLEVER, OF PHILLIPSBURG, NEW JERSEY.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 527,188, dated October 9, 1894.

Application filed April 10, 1894. Serial No. 507,064. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. WILLEVER, a citizen of the United States, residing at Irvington, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Railway-Switches; 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.

My invention relates to improvements in railway switches and the object thereof is to provide a switch system which shall be at all times under control of the engineer, driver or other person on the locomotive, train or car, while the same is in motion.

In the drawings accompanying this specification Figure 1 is a plan view of the fixed or local switch mechanism and signal. Fig. 2, is a view in elevation thereof, showing also a detached car wheel and disk wheel. Fig. 3, is a view in side elevation of the disk wheel and its operating mechanism as attached to a car, and in engagement with one of the toggle joints. Fig. 4, is an end view of the same. Fig. 5, is a plan view of the same. Fig. 6, is a view in side elevation of the disk or tappet wheel, and Fig. 7, a view in elevation of the inner face of one of the halves of the said disk or tappet wheel.

A is the main track and B, the switch rails. The latter are hinged or pivoted to any suitable solid support on the road bed so as to permit a limited sidewise radial movement thereof for the purpose of switching. These switch rails B are connected together at their unhinged ends by means of a cross bar c pivoted at each end thereof to the said rails. A pair of levers D and E centrally fulcrumed to a solid support are located at one side of the track and swing in a horizontal plane. The ends of the said two levers D and E are connected to each other directly or intermediately by two tightly stretched wires, rods, or pipes F F' the said wires, rods or pipes, being nearly in line with the main track and the levers D and E are thus caused to act in accurate unison with each other. By the use of a compensator of ordinary form for such purposes, the said wires may be maintained

in proper length without regard to variable heat and cold to which they are subjected. A link, rod or bar G connects the lever D to the cross-bar c or to one of the switch rails B if preferred.

A lever H is fulcrumed to a solid support between the tracks and one end thereof extends outward, under and beyond the track rail. To a part of the said lever H, beyond the track is pivoted a link K. The wire F is secured to one end of the said link K and one end of the lever E pivoted thereto at the opposite end of the said link K.

Two toggle pointed levers L L are mounted in a vertical plane between the tracks. The toggles are rigidly secured at one end and the other ends thereof engage with the lever H by pivotal relation therewith, or by means of a slot in the said ends if preferred. The alternate depression of the said two toggles L L will respectively open and close the switch through the intermediate connecting mechanism as will be understood. When one toggle is up, the other is down, and vice-versa, setting the switch in its two positions. A similar pair of toggles, is situated beyond the switch (see Figs. 1 and 2) at any sufficient distance, say two thousand feet more or less, and connects intermediately in the same manner as the toggles L L already described with the lever D. The object of this, is to enable the operator to make what is known as a "flying switch" that is the switching of a portion of a train while under headway. For instance, the locomotive, and cars, if any, is separated from the portion of the train to be switched, and running ahead of the same, throws the switch open by means of the toggles beyond the switch in the line of movement of the train. The cars being under headway, but at a slower speed than the locomotive the former are switched as desired, and the locomotive returns for the caboose or other cars on the main track as will be understood.

A signal or signals S S' may be used in connection with the switch, and in reality forms a part of the same so far as the safety of the system is concerned. The said signals S S' indicate an open or closed switch. This part of my invention comprises an upright

partially revolving signal standing on one side of the track. The flag or plate is attached to an upright standard. The latter being provided with an arm Q near its base on the forward rod R connects the said arm to one of the switch rails and shifting the latter turns the signal one quarter of a revolution throwing the field of the flag "in sight." On the rear signal, the lever H is pivoted to the arm Q' and the two signals necessarily operate in accurate unison. As a safety device the signals, as will be seen, are absolutely reliable. The shifting of the switch rail, must of necessity set the signal positively and security is attained so far as the signals indicating the position of the switch is concerned.

Thus far I have confined myself to the description of the "fixed" or local part of the switch mechanism and signals. I will now take up the operating device which under direction of the engineer or other person on the train controls the switch system from the locomotive, train, or car. This device is shown in Figs. 3, 4, and 5 of the drawings. A disk wheel P is mounted upon an independent journal or shaft of the locomotive or car, or if preferred may be mounted on one of the axles thereof. If on a locomotive, it may be placed on the "pony truck" and if on a street car, on one of the axles thereof, or on a separate axle of its own if desired. The mounting of the disk wheel to any particular part of the car is a mere matter of choice and convenience, the object being to have convenient control of the same. This disk wheel P is capable of a sliding motion from side to side upon its axis. A frame M approximately triangular in form is pivoted to the under side of the car body or any convenient solid support affixed to the car. The sides of the frame M extend forwardly and are respectively pivoted to two rings N which fit snugly but freely in grooves formed in bosses of the said disk wheel. For this purpose the said rings are provided with eyes to which the said arms are pivoted. In Fig. 5 a dotted outline of the disk wheel P is shown which indicates its position when shifted to that side. At or near

one end of the base of the said frame M is pivoted a rearwardly extending bar or rod, and to this at its extreme end is pivoted an upwardly extending hand lever Y fulcrumed to the side of the car body or other convenient solid support. The disk wheel P may be shifted from side to side by means of this lever as will be apparent. The said hand lever Y has three positive positions, and is retained or set in the said positions by a segmental slotted segment Z and a spring actuated holder which drops in the three slots respectively. This particular arrangement is not new as it is in common use upon locomotives for reversing the engine. The positions of the disk wheel thus indicated are for engagement with either of the toggles or for neutral position when the disk wheel is not to engage with either toggle, that is to say, in its inoperative position.

I contemplate using the toggle and similar mechanism to that described for operating the same in connection with a block signal system which is intimately related to my switch system as a whole. This however will form the subject of a subsequent application on my part. It will be noticed that no independent locks are required on my switch system.

I claim—

1. A railway switch comprising toggles L, L, lever H, switch rails B, bar C, link G, levers D, E, and wires F, F', adapted to be operated by a shifting tappet wheel on the engine or other vehicle on the track, substantially as described and set forth.

2. A combined railway switch and signal comprising toggles L, L, lever H, switch rails B, bar C, link G, levers D, E, wires F, F', signals S and rod R, all adapted to be operated by a shifting tappet wheel on the engine or other vehicle on the track, substantially as described and set forth.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

THOMAS D. WILLEVER.

Witnesses:

G. W. GELUR,
MARY A. BURNITE.