

UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 739,401, dated September 22, 1903.

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To all whom it may concern:

Be it known that we, WILLIAM DOLL and FRANK A. BRANDSTETTER, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to railway-switches, and particularly to that type employing a movable switching-frog as a part of the switch equipment for directing a train on and off a siding or side track.

To this end the invention contemplates a novel construction of switch which entirely obviates the cutting of the main-track rails and the employment of such frogs as are usually associated with the contiguous ends of the main-track and siding rails in the ordinary railway construction, thereby preserving the continuity of the main track, so that a perfectly smooth track is provided for the train when the switch is closed. This is of special advantage in obviating the dangers incident to a rapidly-moving train passing over stationary frogs and separated rail ends at the point where the switch is provided for the siding.

Also the invention has in view an effective arrangement of switch elements which provide when adjusted to a switching position a smooth track for directing the train on and off the siding without pounding over the main-track rails or permanently-fixed frogs.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described, illustrated, and claimed.

The essential features of the invention involved in the novel construction and arrangement of the movable switching-frog and its useful arrangement in connection with the switching-rails are necessarily susceptible to modification without departing from the spirit of the invention; but the preferred embodiment thereof is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a railway-switch embodying the present invention and show-

ing the operative relation of the switch elements to the main-track and siding rails. Fig. 2 is a sectional elevation on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary plan view showing more plainly the arrangement of the switching-frog in its normal inactive position. Fig. 4 is a detail in perspective of the same construction and arrangement of parts shown in Fig. 3. Fig. 5 is a detail elevation on the line 5 5 of Fig. 1, showing a portion of the main-track rail and one of the switch-rail ends.

Like reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying out the invention one of the principal objects thereof is to provide an arrangement of switch elements which entirely obviates the necessity of cutting the main-track rails or interrupting the continuity thereof in any way, hence presenting a perfectly smooth main track, which in the drawings is designated by the reference-letters M M.

The improvements contemplated by the present invention cooperate with the main-track rails M and the siding-rails S S'. It is to be observed that the siding-rail S is arranged in fixed position wholly at one side of the main track, while the fixed siding-rail S' consists of the separate aligned rail-sections s s', the section s being arranged at one side of the main track and terminating in proximity to one of the rails of the latter and the section s' being arranged in fixed position obliquely between the main-track rails M.

The interval between the siding-rail sections s s' to provide for extending the siding across the main track is designed to be occupied by the movable switching-frog 1, constituting an essential feature of the present invention.

The movable switching-frog 1 consists of a short rail-section having a hinged or pivotal connection 2 at one end with the adjacent end of the inside siding-rail section s', whereby the frog is free to be swung entirely across the adjacent main-track rail M and also inside of the plane of such rail, as clearly shown in the several figures of the drawings.

The movable or pivoted switching-frog is suitably supported within the plane of the

main track at a higher elevation than the adjacent main-track rail, and to permit of forming a continuous siding-switch the said frog for a considerable portion of its length is provided with an under cut-away portion 3, producing a frog-tongue 3^a, adapted to swing across and extend over the top of the adjacent main-track rail and to rest rigidly on top of a fixed sleeper-block 4, preferably of triangular form and arranged closely in the angle between the end of the siding-rail section *s* and the adjoining outer side of the adjacent main-track rail. When the switching-frog is adjusted to such position, as plainly shown in Fig. 1 of the drawings, the same provides a direct continuation of the siding-rail sections *s s'* directly across the top of the adjacent main-track rail.

When in its inactive closed position, the movable switching-frog is designed to be drawn into the shouldered supporting-seat 5, formed in the upper side of a stationary guard-rest 6, secured on the sleepers between the main-track rails and serving to protect the frog itself as well as the trackmen.

At the inner side of one of the main-track rails there is also preferably arranged an inclined guide-bar 7, on which moves the base of the frog 1 as it swings toward and from the adjacent main-track rail, and the inclined surface of the said guide or guide-bar 7 is in such direction as to lift the frog-tongue 3^a into the seat 5 when the frog is drawn back to a closed position.

The movable switching-frog described is associated with the laterally-movable switch-rails 8 and 9, connected for movement in unison by a tie-bar 10 and hinged or otherwise suitably connected at one end, as at 11, respectively, with the ends of the siding-rail sections *s s'*. The switch-rail 8 is therefore disposed outside of the main track and the switch-rail 9 within the main track, so that the two switch-rails will move against and away from the opposite rails of the main track.

The united switch-rails 8 and 9 have suitably connected thereto one end of an adjusting-rod 12, the other end of which has a link connection 13 with the switch-stand lever 14, with which is also suitably connected one end of an operating-rod 15, the other end of which connects with a bell-crank 16. This bell-crank also has connected thereto one end of an adjusting-rod 17, passing beneath the track-rail and having a pivotal connection, as at 18, with an intermediate point on the movable switching-frog 1. The manipulation of

the lever 14 provides for a synchronous action of the switch-rails and the switching-frog in the opening and closing of the switch.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described switch will be readily apparent without further description, and it will also be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In further explanation of the advantages involved in the construction herein described it is to be noted at this point that the switching-frog 1 when thrown across the adjacent main-track rail *M* projects sufficiently above the tread of such rail to support the car-wheels at an elevation whereby their flanges will clear the main-track rail in passing on or off of the siding.

It will be further observed that inasmuch as the entire switch arrangement is supported on the same ties as the main track in case the latter settles the switch also settles therewith, so as not to disturb the operative relation of any parts.

The switch-rail 8 has a tapered end and projects above the rail *M* when in contact therewith. The ball of the wheel being broader than the tread of the rail comes in contact with the incline and is elevated, thereby allowing its flange to clear the top of rail and out on switch.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

In a railway-switch, the combination with the continuous main-track rails, of the siding-rails, one of which has separate sections respectively upon opposite sides of one of the main-track rails, a fixed sleeper-block arranged in the interval between the outer side of said main-track rail and the siding-rail, and a swinging switching-frog having a pivotal or hinge support at one end and provided with a cut-away portion producing a tongue adapted to be moved across the top of the adjacent main-track rail upon the fixed sleeper-block, and also to position on the stationary guard-rest, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM DOLL.

FRANK A. BRANDSTETTER.

Witnesses:

WM. F. DOYLE,

GEORGE M. BOND.