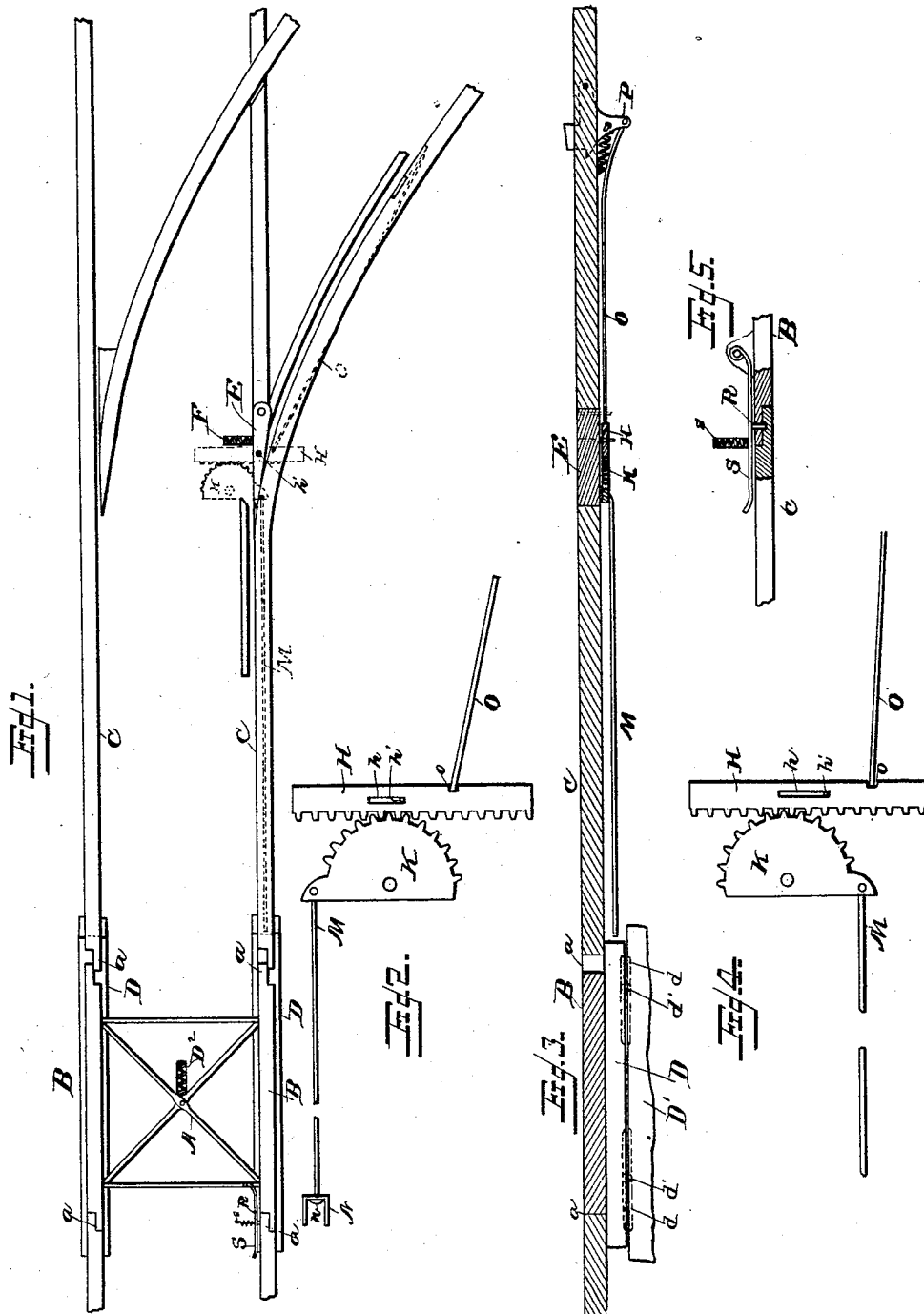


(No Model.)

L. MARCHAND, Jr.
RAILROAD SWITCH.

No. 480,601.

Patented Aug. 9, 1892.



Witnesses
J. M. Fowler
A. J. Stewart

By Louis Marchand, Jr.,
Church & Church
Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS MARCHAND, JR., OF ALLEGHENY, PENNSYLVANIA.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 480,601, dated August 9, 1892.

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To all whom it may concern:

Be it known that I, LOUIS MARCHAND, JR., of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain
5 new and useful Improvements in Railroad-Switches; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked
10 thereon.

This invention relates to improvements in automatic switches, by which is meant that class of switches in which the movable points
15 are shifted automatically by the approaching car, such shifting, however, being under the control of the driver or motor-man, and as the invention has relation particularly to switches for use on tramways in which the propelling
20 power is transmitted through the wheels to the rails—such as the electric cars now in common use—it will be described in connection with such a system, although, as will be apparent to those skilled in the art, it may be
25 applied to other systems without material alteration.

The invention consists, primarily, in moving the switch-points or shifting rails through the medium of a longitudinally-movable section of the track rail or rails, moved in one
30 direction or the other, according to its connection with the switch-points, by the momentum of the car in slackening speed or the power transmitted to the rails in acquiring speed.

35 Further than this the invention consists in certain novel details of construction and combinations and arrangements of parts to be now described, and pointed out particularly in the appended claims.

40 In the accompanying drawings, Figure 1 is a plan view of a switch and its operating mechanism constructed in accordance with my invention, portions of the track being removed to show underlying parts. Fig. 2 is a
45 diagrammatic illustration of the connection for shifting the switch-points when the car is acquiring speed. Fig. 3 is a section longitudinally of one rail. Fig. 4 is an enlarged detail of the operating mechanism for the
50 switch-point. Fig. 5 is an enlarged detail of the lock for the movable track-rail section.

Similar letters of reference in the several figures indicate the same parts.

In carrying the invention into practice it is necessary, as before intimated, to provide a
55 movable section of the track rail or rails, and this I preferably accomplish by uniting by suitable cross-pieces—such as A—two track-rail sections—such as B—forming a comparatively rigid framework interposed in and
60 constituting a portion of the main tracks C. The ends of the movable sections of the main tracks are preferably provided with overlapping portions *a* to preserve the continuity of the rails; but at the same time sufficient play
65 is allowed the movable section to operate the switch-points, as will presently appear. The movable track-sections, it is obvious, may be mounted on or in ways of any approved character; but I prefer to mount the whole section
70 upon longitudinal carriers or base-pieces D, projecting beneath the main track-rails at each end and having on their under sides grooves *d* for the reception of rollers or balls *d'*, which
75 ride upon ways or bearings D', suitably mounted in the track-bed in any approved manner, with which construction, it will be seen, the movable section rides lightly upon its supporting-bearings and moves easily in either direction, enabling me to employ a comparatively
80 light spring D² for returning it to normal position after having been moved by the passing car, as follows: Assuming that the connection with the switch-point is such that the point will
85 be turned to run the car onto the branch when the movable track-section is carried to its forward extreme, it is only necessary for the motor-man or car attendant to apply the brakes at the moment when or slightly before the car
90 reaches the movable section, the result being that the momentum and the resistance offered by the brakes and wheels are sufficient to carry the movable section forward. The slackening in the speed of the car needs be but momentary and slight, as will be understood by
95 those skilled in the art.

Assuming now that the connections between the movable section and rail-point are such that the said point will be shifted when the movable track-section is moved backward or
100 away from the point, the motor-man or car attendant simply applies more power, tending

to increase the speed of the car at the moment when the car is passing onto the movable section, the effect being to carry the movable section in the opposite direction or backward and cause the shifting of the point before mentioned.

Should it not be desired to shift the point in the first instance, the brakes are simply removed or not applied to the wheels during the moment the car is passing over the movable section, and in the second instance the power is entirely removed during the same interval, the result being that there is practically no tendency to shift the movable section and the switch-point remains undisturbed.

The character of the switch point or points employed and mechanism for operating the same directly is of course immaterial so far as the portion of the invention just described is concerned, as there are many mechanisms which will answer the purpose in a more or less efficient manner; but in connection with said movable track-section I have designed an operating mechanism which, so far as demonstrated, operates perfectly and because of its adaptability for application where the switch-point is moved by the shifting of the movable section in either direction and because of its simplicity and reliability it has peculiar advantages in this combination.

The switch-point itself (lettered E in the drawings) is preferably single, as is usual in many switches of this kind, and is adapted to be held in closed position—i. e., with the main line clear—by means of a spring F or any well-known equivalent mechanism, and beneath the switch-point is located a bar or plate H, having a slot *h* therein, with which co-operates a pin *h'* in the switch-point, and this plate or bar *h* is adapted to be shifted by the movable track-section, the connection being preferably through a pivoted gear-segment K, meshing with teeth formed on the bar or plate H and connected by means of a rod M with the movable track-section, or, more properly, said bar is moved by said section, as there is no need of an actual connection between them unless it be desired that the bar shall shift with said section in both directions, a result not especially desirable at the present day.

In the preferred construction the rod or bar M passes along beneath one of the track-rails and co-operates with the outer end of the segment, as shown clearly in Figs. 1 and 3, and it is moved by the momentum of the car rather than by the application of power, as before indicated; but should the latter arrangement be desired a yoke—such as N—is connected to the movable rail-section, and a head *n* on the rod co-operates therewith to draw instead of push the rod, and the rod is connected with the inner end of the segment, as shown in Fig. 2.

When the switch-point has been shifted, it is obvious that unless the car passes into it simultaneously it will automatically close

with the arrangement shown, and to overcome this defect I have provided a catch, which retains the switch in open position until released by the car after its passage onto the siding or branch. As shown, this catch consists simply of a rod O, adapted to co-operate with a notch *o* in the bar H and to be released by a bell-crank lever P, located a short distance beyond the switch on the branch line, with one arm projecting slightly above the track and the other projecting downward and having a connection with that end of the rod. The catch-bar is preferably spring-pressed, and, if desired, the bar M and gear-segment may be spring-pressed, also, in supplement to the spring employed to turn the switch to normal position. The operation of this part of the invention is as follows: The switch under the influence of its spring normally stands with the main line open, and the motor-man, desiring to turn off onto the branch line or siding, manipulates the brakes or power to operate the movable track-section, and through it the rod M, which shifts the switch-point to open the branch line, and the catch or lock, co-operating therewith, holds it in this position, permitting the car to pass off onto said line; but as soon as the car reaches the releasing-lever it is depressed, causing the withdrawal of the catch, when the switch-point returns to normal position under the influence of its spring.

A car can pass from the branch line, as the switch-point may be sprung out by the flanges of the wheel, the slot in the bar H before mentioned permitting of such movement.

To prevent all possibility of the movable track-section being shifted by a wagon or vehicle other than the car, a lock may be provided therefor adapted to be released by the flanges of the car-wheel as the car passes onto said section. This lock consists, preferably, of a spring-pressed pin passing through registering apertures in the overlapping rail ends when the track-section is in normal position and having an enlargement or head on the inside of the track, adapted to be moved inward by the flange of the wheel.

In the drawings the pin is lettered R and is carried on a plate or spring-pressed member S, lying along parallel and adjacent to the inner side of the rail, with its ends turned outward slightly to cause the proper entry of the car-wheel flanges between said plate and rail. The plate itself may be a spring or it may be pivoted and pressed outward by a spring *s*, as shown; but in every instance it is preferably extended some distance along the track, in order that the lock may be held in released position until the movable section is shifted.

Having thus described my invention, what I claim as new is—

1. In a tramway-switch, the combination, with the movable switch-point, of a longitudinally-movable track-rail section, with intermediate connections between said track-rail

section and switch-point, substantially as described.

2. In a tramway-switch, the combination, with the movable switch-point, of a longitudinally-movable track-rail section mounted on anti-friction bearings and intermediate connections between said longitudinally-movable section and switch-point, substantially as described.

3. In a tramway-switch, the combination, with a movable switch-point and the track-rails, of the longitudinally-movable track-rail section having its ends overlapping the stationary track-rails and intermediate connections between the switch-point and movable track-rail section, substantially as described.

4. In a tramway-switch, the combination, with the movable switch-point, of the longitudinally-movable rail-section interposed in each of the track-rails and rigidly connected together and intermediate connections between the movable track-rail section and switch-point, substantially as described.

5. In a tramway-switch, the combination, with the movable switch-point and longitudinally-movable track-rail section for moving the same, of the catch for holding said switch-point in open position and the releasing-lever for said catch located on the branch line, substantially as described.

6. In a tramway-switch, the combination, with the spring-pressed switch-point and catch having the releasing-lever on the branch line for holding said switch in open position, of the longitudinally-movable track-rail section in the main line and intermediate connections between said longitudinally-movable track-rail section and switch-point, substantially as described.

7. In a tramway-switch, the combination, with the movable switch-point, of the longitudinally-movable track-rail section mounted on a base-piece having recesses in its end face, the rollers in said recesses resting on a bearing in the track-bed, and intermediate connections between the switch-point and movable rail-section, substantially as described.

8. In a tramway-switch, the combination,

with the movable switch-point, of the longitudinally-movable track-section, the spring for moving said track-section in one direction, and intermediate connections between said track-section and switch-point, substantially as described.

9. In a tramway-switch, the combination, with the spring-pressed switch-point, of the spring-pressed longitudinally-movable track-section and intermediate connections between said track-section and switch-point, substantially as described.

10. In a tramway-switch, the combination, with the movable switch-point and longitudinally-movable track-rail section, of the segment moved by said track-rail section and connections between the segment and switch-point, substantially as described.

11. In a tramway-switch, the combination, with the switch-point and longitudinally-movable track-rail section, of the segment moved by the track-rail section, the slotted bar moved by said segment, and the pin on the switch-point entering said slot, substantially as described.

12. In a tramway-switch, the combination, with the switch-point, the slotted bar and pin, the segment engaging the bar, and the longitudinally-movable track-rail section for moving the segment, of the catch engaging said bar and the releasing-lever for said catch, substantially as described.

13. In a tramway-switch, the combination, with the movable switch-point and the longitudinally-movable track-rail section having the end overlapping the stationary track-rail, of the bolt passing through said overlapping ends and the plate or bar lying along the inner side of the rail in position to engage the car-wheel flange, said plate or bar being connected with the bolt, substantially as described.

LOUIS MARCHAND, JR.

Witnesses:

H. HUNNESHAGEN,
LOUIS MARCHAND, Sr.