

(No Model.)

W. G. FAY.
AUTOMATIC TRAMWAY SWITCH.

No. 477,749.

Patented June 28, 1892.

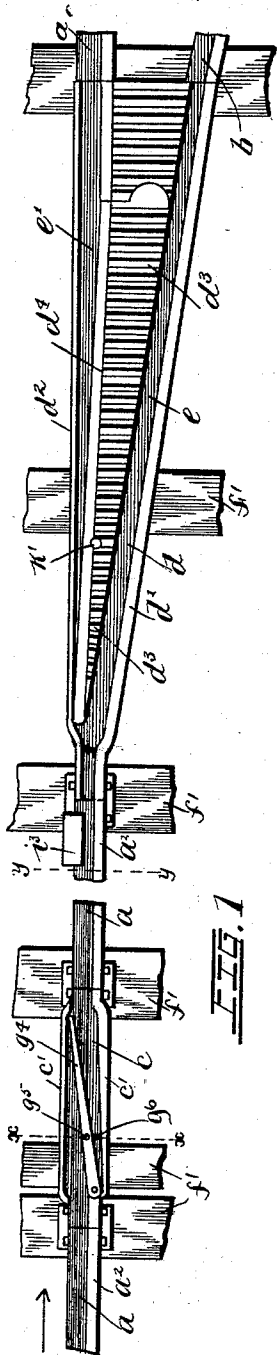


FIG. 1

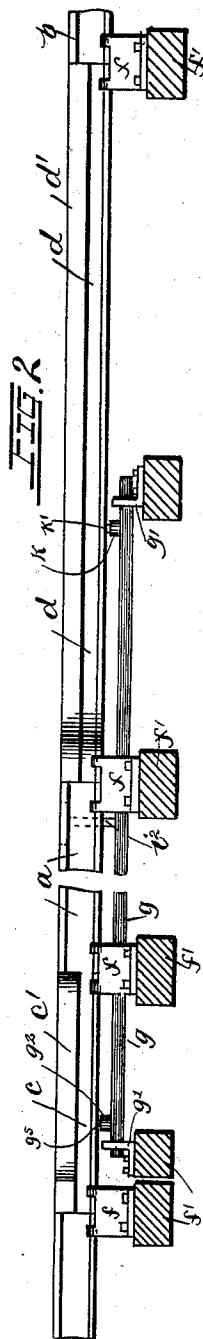


FIG. 2

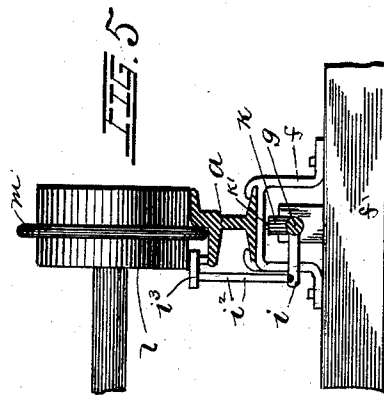


FIG. 3

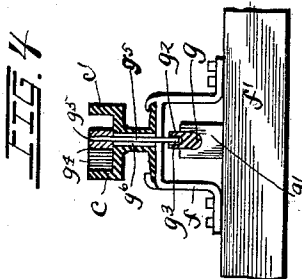


FIG. 4

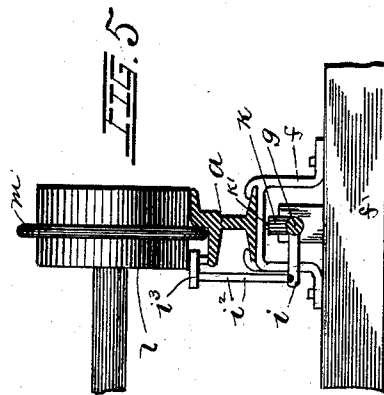


FIG. 5

Witnesses
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UNITED STATES PATENT OFFICE.

WALDO GUY FAY, OF COLUMBUS, OHIO.

AUTOMATIC TRAMWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 477,749, dated June 28, 1892.

Application filed November 16, 1891. Serial No. 412,029. (No model.)

To all whom it may concern:

Be it known that I, WALDO GUY FAY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Automatic Switches for Railways, of which the following is a specification.

My invention relates to the improvement of railway-switches, and has particular relation to that class of switches adapted to be operated automatically.

The objects of my invention are to provide an improved switch-operating mechanism of this class by means of which the cars may be automatically directed at the switch-point to the desired track or branch, to so construct and arrange my improved switch-operating mechanism as to provide for the retention of the switch-tongue in its normal position during the passage of some cars and the throwing of said tongue during the passage of others over the same track, and to construct my improved switch in a simple and effective manner and by its use obviate the necessity of forming excavations between the tracks and thus greatly reduce the expense in the construction thereof. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of the street-railway track provided with my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a view in perspective of one of the car-wheels employed on a portion of the cars. Fig. 4 is a sectional view on line *xx* of Fig. 1, and Fig. 5 is an enlarged sectional view on line *yy* of Fig. 1.

Similar letters refer to similar parts throughout the several views.

a represents a portion of one of the main-track rails, and *b* represents one of the rails of the branch or switch track. As shown in the drawings, the rail *a* is broken at the desired point to receive an intervening plate *c*, which latter forms a continuation and connection of the sections of said broken rail. This plate *c*, as shown in the drawings, is preferably of somewhat greater width than the width of the rail *a*, and is provided on opposite sides with upwardly-projecting flanges, (indicated at *c'*.) At a point in front of the

plate *c*, at what is known as the "switch-point," is supported in the usual manner the usual form of angular switch-plate *d*. This switch-plate, as shown in the drawings, has its smaller end portion joining and forming a continuation of the rail *a*, and is provided with raised flanges (indicated at *d'*) throughout its longer sides. The central angular portion of the switch-plate *d* is provided on its upper side with the usual triangular pivoted switch-tongue *d³*. One side of the triangular switch-tongue *d³* is provided, as shown, with a level tread, (indicated at *d⁴*.) Between the longer sides of the tongue *d³* and the flanges *d²* are formed the usual track-channels *e e'*. As is usual in this class of switches, the switch-tongue *d³* is adapted to be so turned on the switch-plate *d* as to cause its tread *d⁴* to form, practically, a continuation of the tread of the rail *a*, or said switch-tongue may be so turned as to result in leaving open the channel or way *e* and in directing the wheel into said channel.

As shown in the drawings, the track-rails and plates *c* and *d* are supported by suitable chairs *f*, which project from the ties *f'* in the usual manner.

g represents a switch-operating shaft, which, as shown, is journaled in suitable bearings *g'*, which rise from the ties, said shaft extending along beneath the rail *a* and switch-plate *d*, and having its terminations beneath the latter and the plate *c*. This shaft is provided near one end with an upwardly-projecting socket-piece *g²*, which is provided with an end socket, (indicated at *g³*.) Upon the track-plate *c* is pivoted, adjacent to the tread *a²* of the rail *a*, the heel or rear end portion of an operating bar or lever *g⁴*, which normally extends diagonally across its supporting-plate, said bar being of equal height with the rail-tread and flange *c'* of the plate *c*. Depending from the bar *g⁴* is a stud or pin *g⁵*, which, extending downward, passes loosely through a slot or enlarged opening *g⁶*, formed through the plate *c*. The lower end of this stud *g⁵* extends within the socket *g³* of the shaft projection *g²*. At or near the center of the length of the shaft *g* is provided an arm *i*, which projects from said shaft at right angles with the projection *g²*. The outer end of said arm *i* is pivotally connected to the lower end

of a vertical trigger-arm i^2 , which is surmounted by a trigger-plate i^3 , the latter being thus supported at a point opposite the inner side of the track-rail a and normally slightly above the center of the rail-tread of the latter. The forward end portion of the shaft g is provided with an upwardly-projecting socket-piece k , which corresponds with the socket-piece g^2 and which receives the end of a stud k' , which, as prescribed for the stud g^5 , depends from the switch-tongue d^3 and passes through an opening in the plate d , which corresponds with the opening g^6 of the plate c .

In the use of my improved switch mechanism I provide the cars, which are designed to run from the track a onto the branch track b , with one or more wheels having an additional flange, as shown in Figs. 3 and 5 of the drawings. This additional flange, which is indicated at l , is made to project from the inner side of the car-wheel on substantially the same level or plane with the tread l^2 thereof. In providing a car-wheel with this flange I preferably provide the additional flange l with a base-plate l^3 , which is at right angles with the laterally-projecting portion thereof, said base-plate being in the form of a ring, which is bolted or otherwise secured to the inner side of the car-wheel. The additional flange-ring thus formed is preferably formed of two half-circular sections, as shown in the drawings, to facilitate the connection with the wheel-body without removing the axle.

In order to illustrate the operation of my improved switch, I will suppose that a car is moving in the direction of the arrow indicated in Fig. 1, and that said car is provided on one side with one or more wheels having the additional flange l . The usual flange m of the wheel will thus be brought into contact with the inner side of the lever-bar g^4 and result in forcing the latter toward that side of the track on which it is pivoted. This movement of said lever-bar will, through the connection of its pin g^5 with the shaft g , result in said shaft being sufficiently rotated to produce through its connection therewith a corresponding motion of the switch-tongue d^3 . This movement of the switch-tongue d^3 , as will readily be seen, will operate to bring the tread of the switch-tongue into connection with the tread of the rail a . When, however, the wheel has traveled sufficiently forward the additional flange l will be brought to bear upon the trigger-plate i^3 , and the pressure thus submitted to the latter will result through its connection with the shaft g in the latter being sufficiently rotated to force the point of the switch-tongue to the position shown on the drawings, in which position said tongue will serve to close the main-track rail from the entrance of the usual wheel-flange and direct the latter to the branch-track rail b . It will thus be seen that all cars, the wheels of which are provided

with the additional flange, will be directed onto the branch track without any exertion or movement on the part of the car-operator. The switch being thus turned for the direction of cars over the branch track, and it being desired to continue the next car over the main-track rail, it will be seen that the position of the switch-tongue will be changed through contact of the wheel-flange m of the car-wheel with the lever-bar g^4 , and that the wheels of said car having no additional flanges thereon said switch-tongue will not be disturbed during the passage of the wheels.

By the means herein described it will readily be seen that such cars as are desired to run from the main track to the branch track will be automatically directed upon said branch track and that the main-track cars will in no wise be effected at the switch-point.

From my construction it will be seen that the necessity of providing an excavation adjacent to the track-rails or of providing the car-body with engaging projections is obviated, and the mechanism herein shown and described is exceedingly simple and of such construction and arrangement as to insure its positive operation.

While the invention shown is particularly designed for connection and use on street-railways, it is evident that it may be applied to steam or other railways.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic railway-switch, the combination, with the main and branch track, of a switch-plate connecting said tracks, a pivoted switch-tongue on said plate, a plate c between sections of one of the main-track rails, a pivoted lever-bar g^4 normally crossing said plate, a shaft journaled beneath said switch-plate, main-track rail, and plate c , a stud g^5 , connecting said lever-bar g^4 and shaft through a slotted opening in said plate c , and the opposite end of said shaft similarly connected with the switch-tongue, substantially as specified.

2. In an automatic railway-switch, the combination, with the main and branch track rails, a switch-plate connecting said rails, a pivoted switch-tongue on said plate, a plate c between sections of one of the main-track rails, and a pivoted lever-bar g^4 on said plate, of a shaft journaled beneath said switch-plate, main-track rail, and plate c , a stud connecting said switch-tongue and shaft, a stud connecting said lever-bar and shaft, and a trigger-plate supported from said shaft between the switch-point and lever-bar adjacent to the main-track rail and out of the path of the usual wheel-flange, substantially as described.

WALDO GUY FAY.

In presence of—

C. C. SHEPHERD,
BARTON GRIFFITH.