

(No Model.)

W. H. & F. L. WIGGIN.
SWITCH FOR CASH RAILWAYS.

No. 310,764.

Patented Jan. 13, 1885.

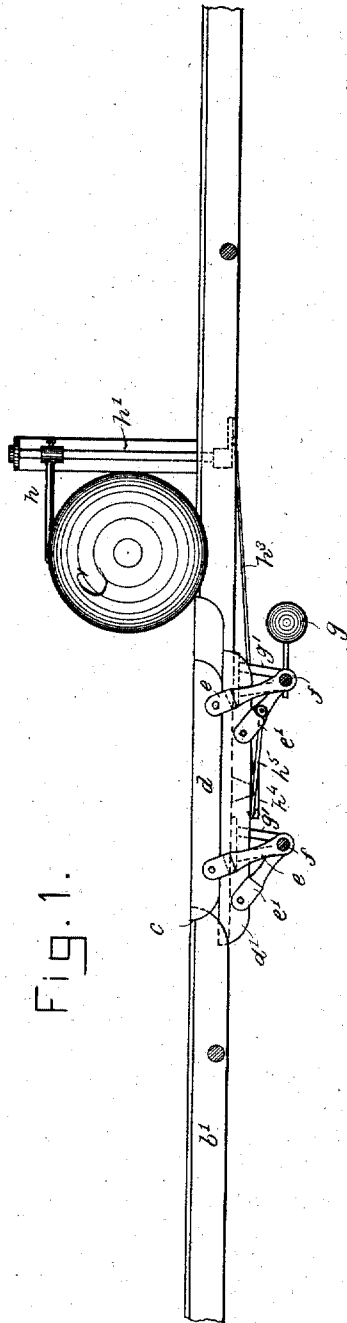


Fig. 1.

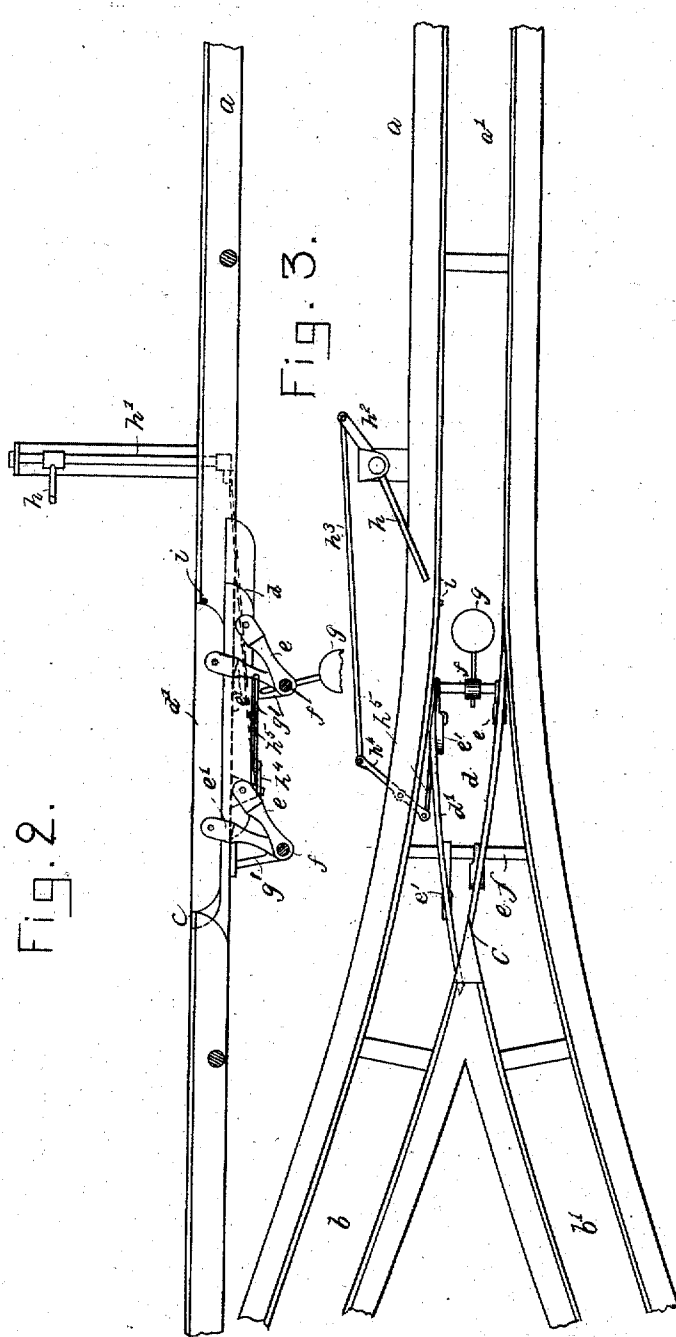


Fig. 2.

Fig. 3.

Witnesses

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WILLIAM H. WIGGIN AND FRANK. L. WIGGIN, OF LOWELL, MASSACHUSETTS,
ASSIGNORS TO W. S. LAMSEN, OF SAME PLACE.

SWITCH FOR CASH-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 310,764, dated January 13, 1885.

Application filed September 10, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. WIGGIN and FRANK. L. WIGGIN, both of Lowell, county of Middlesex, and State of Massachusetts, have
5 invented an Improvement in Switches for Cash-Railways, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 Our invention relates to an automatic switch for cash-railways, such as used in store service, the invention being shown in this instance as embodied in a railway for spherical carriers, which contain the cash within them and roll
15 along the said railway, the said carriers being of different sizes for the different stations or parts of the store to which they go, and the switch being intended to turn all carriers above a certain size in one direction or onto
20 one branch from the main track, and all below such size to another branch of the said track. The rails of the main track diverge at the switch or junction, the two rails of the main track being each continuous by the junction,
25 each forming the outer rail for one of the branch tracks, while the inner or adjacent rails of the said branch tracks meet in a V-shaped point, where the distance between the divergent outer rails is just double the normal
30 distance between the rails of the track; so that two complete tracks of usual width are formed beyond the said V-shaped junction of the inner rails. The switch consists of two movable rails, each of which connects the inner rail of
35 one branch track to the corresponding rail of the main track, or spans the space between the V-shaped junction and one of the main rails at the point where the latter begins to diverge, so that when one of the switch-rails is in proper
40 position a carrier will pass from the main track to the corresponding branch, as if no junction existed. One of the said switch-rails is moved into position to connect the main track with the corresponding branch, and at the same time the other switch-rail is moved
45 away from the position spanning the junction, so as not to interfere with the movement of the carrier, by automatic switch-operating mechanism, the said rails being shown in this
50 instance as supported upon arms connected

with rock-shafts so arranged that by the rocking movement of the said shafts one of the said rails is elevated into proper position to connect the main track and corresponding
55 branch, while the other of the said rails is depressed sufficiently below the level of the track to prevent interference with the passing carrier. The rails are normally held in one position, or so as to connect the main track with
60 one branch, by means of a yielding switch-operating device, (shown in this instance as a weight, although a spring might be used,) and all the carriers below a certain size pass the junction without changing the position of the
65 switch-rails, and consequently go to the branch thus normally connected with the main track. The carriers larger than the said size as they arrive at the junction operate a rail-shifting device, overcoming the said yielding switch-
70 operating device and reversing the position of the switch-rails, so that the main track is connected with the other branch and the said larger carriers pass the junction to the other branch.

Figure 1 is a longitudinal sectional elevation
75 of an automatic switch embodying this invention, showing the switch-rails in their abnormal position, or that assumed when operated by a large carrier; Fig. 2, a similar sectional elevation, showing the switch in the normal
80 position, or connecting the main track with the branch for the smaller carriers, and Fig. 3 a plan view of the switch with the parts in the position shown in Fig. 1.

The rails *a a'*, constituting the main track,
85 or part approaching the junction, over which all the carriers pass, may be of any suitable or usual construction, the said rails at the junction diverging, as shown in Fig. 3, and forming the outer or more remote rails of the branch
90 tracks *b b'*, the former of which is intended in this instance to receive the larger carriers and the latter to receive the smaller carriers. The inner or adjacent rails of the branch tracks meet at a point, *c*, where the branching rails
95 of the main track are at twice the normal distance apart, and the space from the point *c* to one or the other of the rails *a a'* is spanned by one or the other of the switch-rails *d d'*, which thus connect the main track *a a'* with one or
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the other of the branches $b b'$, as desired. The said rails $d d'$ are supported on arms $e e'$, fixed upon rock-shafts f , supported in brackets g , connected with the under sides of the rails $a a'$, the said arms $e e'$ being so arranged that when one pair, as those marked e , is nearly vertical the rail d is supported by them at the level of the rails of the main and branch tracks, while the other arms, as e' , are more inclined from the vertical, and the switch-rail d' supported by them is below the level of the main rails, and consequently has no effect upon the carriers, one of which is shown at C, Fig. 1, passing over the said tracks. One of the rock-shafts f has connected with it a rail-actuating device, (shown as a weight, g ,) which, normally, is in the position shown in Fig. 2, holding the arms e most nearly in the vertical position, and consequently keeping the rail d elevated, thus normally connecting the branch track b' with the main track $a a'$, so that all carriers which do not operate the switch-shifting mechanism will pass from the main track $a a'$ to the branch b' . The carriers above a certain size are intended to pass to the branch b , and consequently the rails $d d'$ have to be shifted to the position shown in Figs. 1 and 3 upon or before the arrival of the said carriers at the junction. The rail-shifting mechanism by which the switch-rails are thus shifted is shown in this instance as consisting of an arm, h , extending over the track a sufficient height above the same to permit carriers below a certain size to pass beneath the said arm without touching it, while the large carriers engage the said arm and turn it aside, as shown in Figs. 1 and 3. The said arm is fixed upon a rock-shaft, h' , provided with an arm, h^2 , connected by a rod or link, h^3 , with one arm of a link, h^4 , the other arm of which is connected by a link, h^5 , with one of the arms e' . Thus when the arm h is turned aside by a large carrier the arm h will be moved from the position shown in Fig. 2 to that shown in Fig. 1, raising the weight g and elevating the rail d , and at the same time depressing the rail d' , as shown in Fig. 1, so that the said rail d connects the branch b with the main track $a a'$, thus causing the large-sized carrier to pass to the branch b , as desired. The arms e in this movement by which the rail d is elevated are carried slightly beyond the vertical position, as shown in Fig. 1, so that the rail d , in returning to its normal or depressed position, first has to rise slightly, and the carrier C, immediately after passing the arm h , enters on the said rail d , and by its weight prevents any vertical movement thereof, thereby keeping it in its elevated position until the carrier has passed wholly onto the branch b . As soon as the carrier C passes off from the switch-rail d the weight g operates to restore the rails $d d'$ to the normal position, raising the rail d' and depressing the rail d , so that the main track is connected with the branch b' . In thus raising the said rail d' the arms e' are

also carried beyond the vertical position, so that the weight of the carriers passing over the rail d' tends to keep it in its elevated position.

The invention is not limited to the exact construction shown, as it is obvious that there may be various modifications in the construction of the automatic switch-operating mechanism without departing from the essential nature of the invention. A stop, i , limits the movement of the rail d' when elevated by the weight g , and the portion of the branch track at the side of the point e constitutes a stop limiting the movement of the rail d when elevated by the large carrier acting on the arm h , the rails being thus stopped after they have passed over the center or axle of the rock-shaft in their upward movement. It will be evident that the main track may be straight, with a turn-out or branch extending from one side, and that different means of adjusting the switch-sections may be employed.

We do not here claim a vertically-movable switch-rail combined with the rails of main and branch tracks, as the same forms the subject of a separate application for Letters Patent.

We claim—

1. The combination, with the continuous main rails forming the main track and diverging to form the outer rails of two branch tracks, and the inner rails of the said branches meeting at a point between the said diverging rails, of the switch-rails adapted to span the space between the said point and the main rails, and automatic shifting mechanism whereby one of the said switch-rails is moved into position to connect the main track with one branch and the other rail is at the same time removed from position to affect the carriers passing over the tracks, substantially as described.

2. The continuous main rails constituting the main track and diverging to form the outer rails of two branch tracks, and the inner rails of the said branch tracks meeting at a point between the diverging main rails, combined with the vertically-movable switch-rails and actuating mechanism therefor, whereby one of the said rails is placed in a position parallel with one continuous main rail, and spanning the space between the other main rail and the junction of the inner branch rails, while the other switch-rail is placed below the level of the main and branch tracks, substantially as described.

3. The main and branch tracks and the switch-rails for completing the connection between the main and either of the branch tracks, combined with the arms supporting the said switch-rails, the rock-shafts connected with the said arms, and the yielding switch-operating device whereby the said parts are normally retained in one position, connecting the main track with one of the branches, substantially as described.

4. The main and branch tracks and switch-rails for completing the connection between the said main track and either of the branch tracks, combined with the yielding switch-operating device whereby the switch-rails are normally retained in position to connect the main with one of the branch tracks, and the automatic shifting device consisting of an arm extending over the main track in position to be struck by carriers of proper size passing over said track, the said arm being connected with the switch-rails, substantially as described.

5. The main and branch tracks, and the switch-rails and arms and rock-shafts supporting the same, as described, whereby one of the said switch-rails is supported above the rock-shaft at the level of the tracks and the other below the said level, the said arms moving slightly beyond the vertical position in elevating the corresponding rail, and being thus retained in position by the weight of the carrier passing over the said rail, substantially as described.

6. The main and branch tracks, and the switch-rails and arms and rock-shafts supporting the same, as described, whereby one of the

said switch-rails is supported above the rock-shaft at the level of the tracks and the other below the said level, combined with shifting mechanism whereby the position of the said switch-rail is reversed, and stops limiting the movement of the said rails, substantially as described.

7. The combination, with the main and branch tracks of a railway, of two switch-rails guided to move vertically, and mechanism for elevating the said rails to complete the main and branch tracks, substantially as described.

8. The combination, with the main and branch tracks of a railway, of two vertically guided and movable switch-rails, and appliances whereby the same are adjusted as the carrier approaches the switch, substantially as described.

In witness whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM H. WIGGIN.
FRANK. L. WIGGIN.

Witnesses:

SAMUEL B. WYMAN,
MELVIN F. HUTCHINS.

It is hereby certified that in Letters Patent No. 310,764, granted January 13, 1885, upon the application of William H. Wiggin and Frank L. Wiggin, of Lowell, Massachusetts, for an improvement in "Switches for Cash Railways," the name of the assignee was incorrectly written and printed "W. S. Lamsen," whereas it should have been *W. S. Lamson*; that the proper corrections have been made in the files and records pertaining to the case in the Patent Office and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 28th day of April, A. D. 1885.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.