(No Model.)

E. L. GILES.

TRACK SWITCH.

No. 321,356. Patented June 30, 1885.

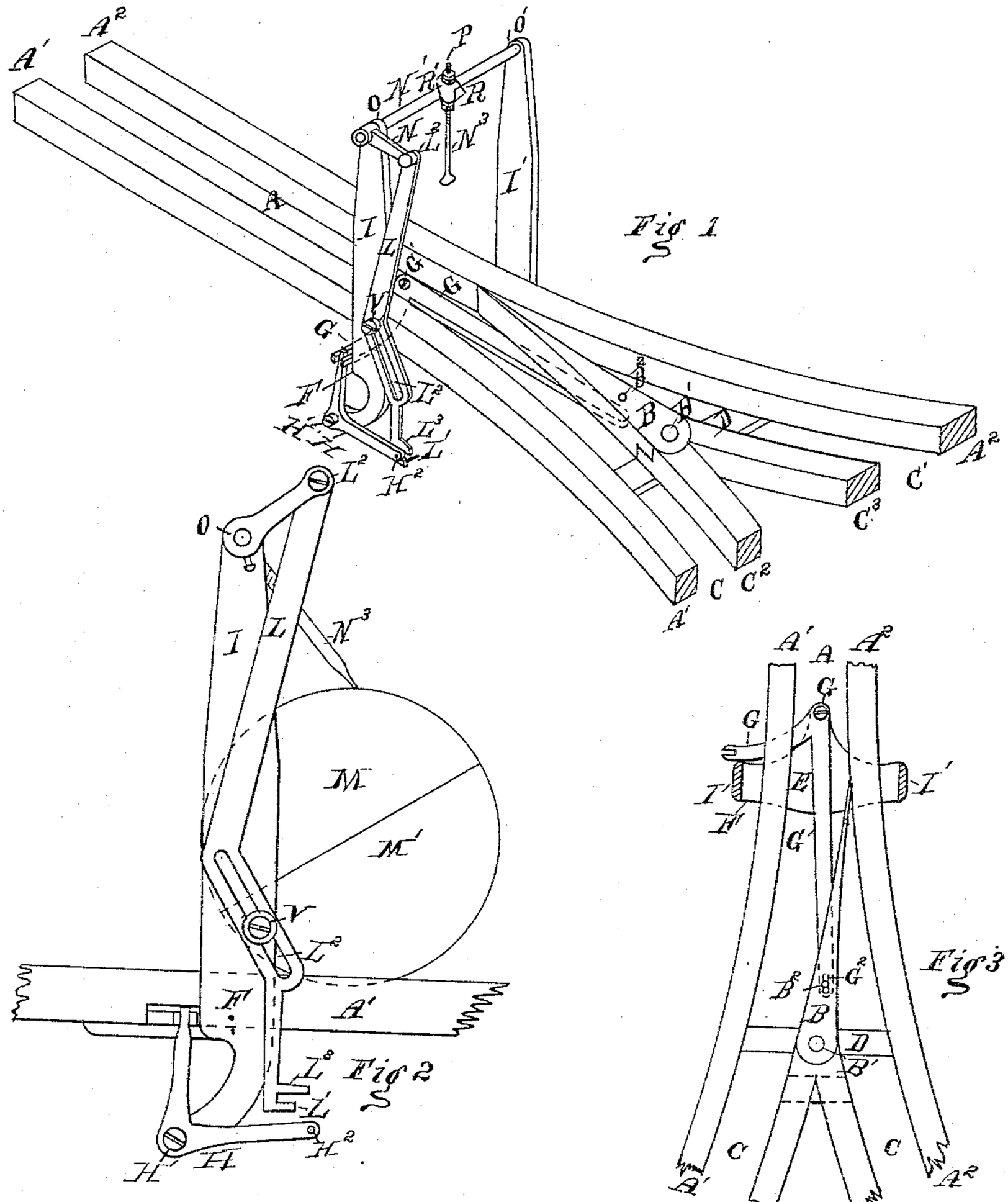

Fig 1

Fig 3

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UNITED STATES PATENT OFFICE.

EDWIN L. GILES, OF LOWELL, MASSACHUSETTS.

TRACK-SWITCH.

SPECIFICATION forming part of Letters Patent No. 321,356, dated June 30, 1885.

Application filed August 23, 1882. (No model.) Patented in France July 3, 1883, and in Germany July 3, 1883.

To all whom it may concern:

Be it known that I, EDWIN L. GILES, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Track-Switches, of which the following is a specification.

My invention relates to switches for directing carriers traveling on a track provided with branches from the main or single track onto either of said branches, or from either of said branches onto the main track, and said invention has special but not exclusive reference to switches for the tracks of "cash-carrying systems," so called, such as are shown and described in United States Letters Patent No. 258,585, granted May 30, 1882, upon the application of William S. Lamson.

In the accompanying drawings, Figure 1 is a perspective view of a track provided with branches, and of the switch-rail and operating mechanism, the switch-rail being in the position it occupies when not in use. Fig. 2 is a side elevation of a portion of the track and switch-operating mechanism, and a carrier operating said mechanism. Fig. 3 is a plan of a part of the track and branches with the switch-rail in the position shown in Fig. 1, also with the bell-crank lever connected to the switch-rail, and with part of the frame which supports the operating mechanism.

A′ A² are rails, which together form a single track, A, (from the left end in Fig. 1,) to the point of the switch-rail B, and beyond that point may be the outer rails of the branches C C′, the inner rails of said branches being designated by the letters C² C³, or, for convenience, the track A C may be regarded as the main line and the track C′ as a branch or siding. The switch-rail B is wedge-shaped, so that its point may lie up against either of the rails A′ or A² and enable said switch-rail to form a continuation of the top and inner face of either of said rails A′ A², and the large end of said switch-rail is pivoted at B′ to a cross-tie, D, which underlies and connects all the rails A′ A² C² C³ at that point, as shown in Fig. 3, or is halved or rabbeted together with the rails C² C³, and the upper half of the switch-rail is pivoted to the rails C² C³ at their junction, as shown in Fig. 1. It is evident that a carrier, M M′, consisting of a hollow ball with its contents, rolling (from left to right in Fig. 1) along the main track or single track will be directed onto the branch C when it reaches the switch-rails, being supported on one side by said switch-rail; also, that if the point of the switch-rail were moved over against the rail A′ a similar carrier so traveling would be diverted onto the branch or siding C′, the near side of the carrier in the latter case being supported by the switch-rail. In the same way a wagon or car with flanged wheels, like a railway car, might be directed from the single track onto either branch, the wheels of one side of the car being supported on the switch-rail. The switch-rail may be operated by hand or by any of the well-known appliances commonly employed for that purpose.

In a cash-carrying system like the one above referred to it is desirable to have the switch-rail moved automatically.

The devices for operating the switch-rail are supported upon a frame, F, consisting of a cross-tie, E, and two upright posts, I I′. This frame may be cast in one piece or not. To the tie E is pivoted the bent lever G, at G′, the long arm of said lever being provided with a slot, G², into which projects a pin, B², secured in a vertical position to the under side of the switch-rail, so that turning the lever G swings the switch-rail on its pivot B′. A bell-crank lever, H, is pivoted to the frame F at H′, its vertical arm taking into a slot in the end of the short arm of the lever G, and its horizontal arm being provided with a stud, H², which engages with a hook, L′, on the lower end of the connecting-rod L. The connecting-rod L is pivoted at its upper end at L² to the arm N. The arm N is secured to the rock-shaft N′ at right angles to the same. The shaft N′ turns in bearings O O′ in the tops of the posts I I′ whenever the down-hanging arm N³, secured to said shaft, is struck by a carrier M M′ traveling on the ways or tracks; That is, if a carrier is of sufficient diameter, it will strike the arm N³, (see Fig. 2,) rock the shaft N′, lift the rod L, and thereby move the levers H G and throw the switch-rail to the left or nearest side of the track in Fig. 1, causing the carrier or cash-ball to take the branch C′, while if the carrier is small enough it will pass under the arm without touching and take the branch C.

If there were only two sizes of carriers or cash-balls M M′, it would only be necessary to adjust the length of the arm N^3 so that balls of one size would operate the switch while the smaller balls would not touch the arm. The length of the arm N^3 is adjusted (it being provided with a screw-thread, P, at its upper end) by the nuts R and check-nuts R′ above and below the rock-shaft. The carriers must all pass the arm N^3 either without touching the same or by moving the same sufficiently; hence it is necessary, in order that carriers having a diameter greater than is sufficient to rock the shaft and turn the switch-rail may pass under the arm, that the hook L′ shall let go of the stud H^2 when the switch-rail is moved the proper distance, otherwise the larger carriers would be unable to pass, or the operating mechanism would be broken. Therefore I provide the connecting-rod L with a slot, L^2, inclined to the general direction and length of the rod L, and through this slot projects the projection V, rigidly secured in the side of the post I, so that when the connecting-rod is raised the hook L′ will be drawn out from under the stud H^2 as soon as the point of the switch is carried against the rail A′.

When the carrier has passed clear beyond the arm N^3, the shaft N′ is rocked back again by the weight of the arms N^3 and N and connecting-rod L, so that the projection L^3 drops down on the stud H^2, and, through the bent levers G H, pushes the switch-rail back into its position, as shown in Fig. 1. By means of the lost motion above described a large number of carriers of different sizes may be made to operate the switch without changing the length of the arm N^3.

A spring-connection between the levers might be substituted for the construction described to permit of the lost motion necessary. The pin N^3 or other device may be arranged at the side or in any other position to be struck by the ball; and any suitable connections may be interposed between it and the switch.

The switch above described is especially adapted for the return-way of the system described in the patent referred to above—that is, the way which leads from the cashier's desk to the stations of salesmen, being inclined from said desk to said stations, or from left to right in Fig. 1. Cars of different heights, or having thereon projections reaching to different heights, would evidently operate such a switch.

By inclining the way shown in Fig. 1 in the opposite direction—that is, from right to left—the switch-rail may be operated by the weight and momentum of cash-balls to discharge the cash-balls from several stations into one way leading to the cashier's desk without the use of the rock-shaft, rods, and levers above described. The rock-shaft, rods, and levers may be placed on a branch to open a switch for a carrier to pass onto the main line.

I claim as my invention—

1. The track or way A of a store service apparatus, provided with branches C C′, and a movable switch-rail, B, and means for causing said switch-rail to be operated by carriers of different sizes traveling on said way, in combination with said carriers, as and for the purpose specified.

2. The combination of the rock-shaft N′, provided with the arms N^3 and N, and the switch-rail B, and connecting mechanism, as and for the purpose specified.

3. The combination of the switch B and operating mechanism with means for securing a lost motion in said operating mechanism, as and for the purpose specified.

4. The combination of the rock-shaft provided with arms N^3 N, the connecting-rod L, provided with the inclined slot L^2 and hook L′, the stationary projection V, the lever H, provided with the stud H^2, and the switch-rail B and connecting mechanism.

5. The combination, in a cash-carrier system, of main and supplemental rails, a switch, a pin or other suitable device arranged to be struck by carriers upon the rails, and connections between the pin and the switch, whereby the latter is moved by and with the pin, substantially as set forth.

6. The combination of rails, switch, connections, and pin adjustable, substantially as described.

7. The combination, in a cash-carrier system, of a main track, a branch track, a switch held normally in alignment with one of the tracks, and a lever and connecting means, whereby the switch is moved upon being struck by a carrier and is restored to position after the carrier has passed the switch, substantially as described.

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