P. P. CATALANO.

RAILWAY SWITCH.

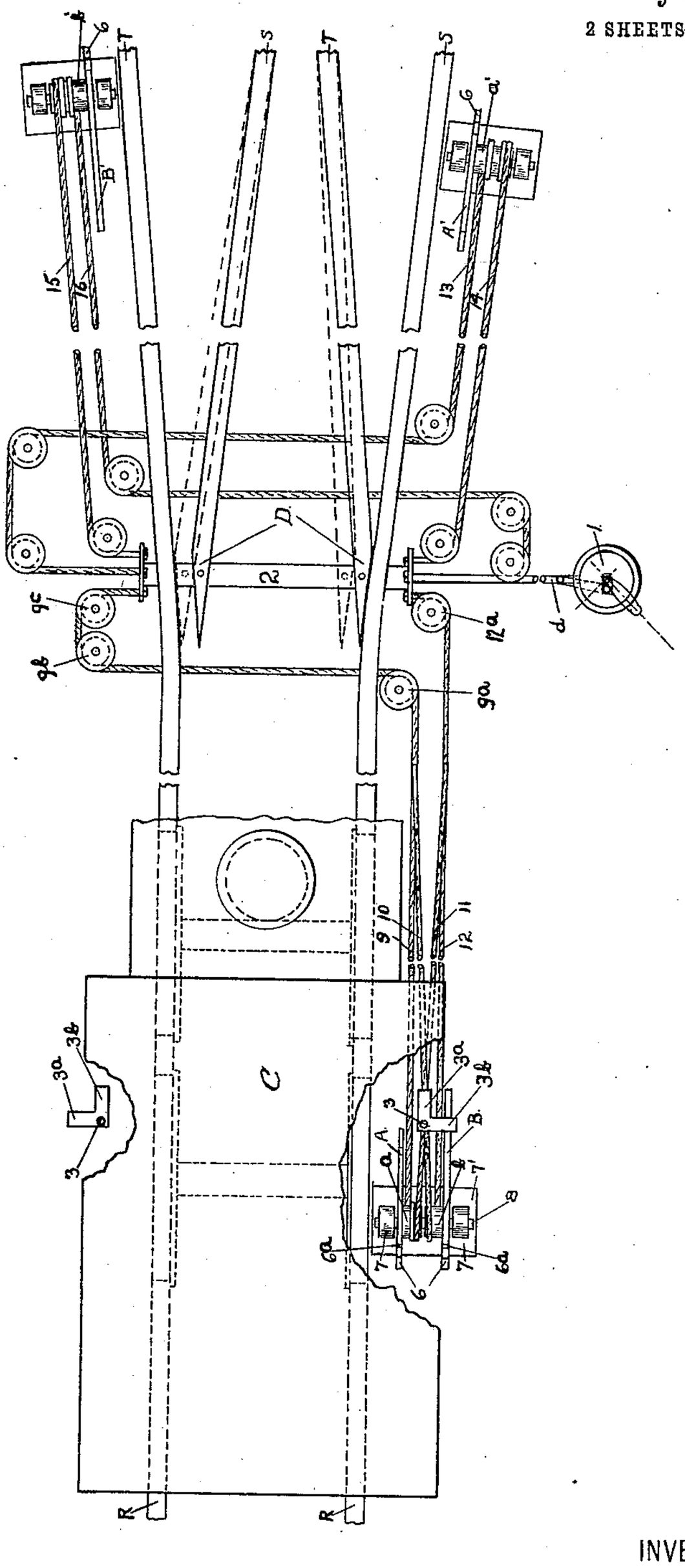
APPLICATION FILED JAN. 11, 1911.

999,093.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

Fig 1.



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2 SHEETS—SHEET 2.

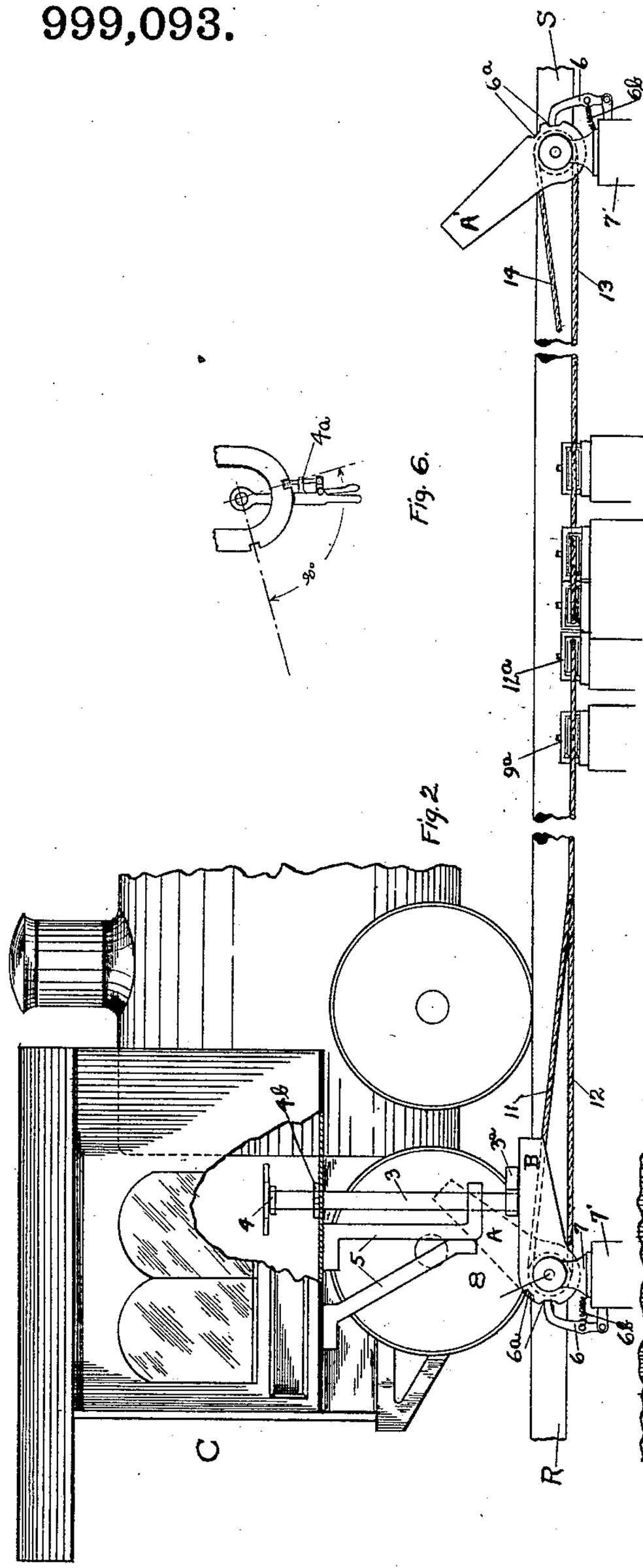

Fig. 2.

Fig. 6.

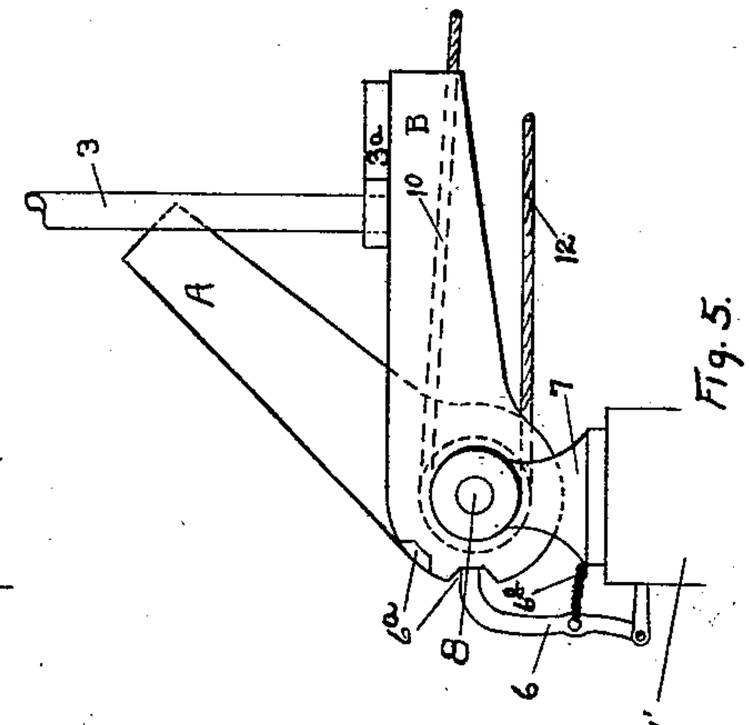

Fig. 5.

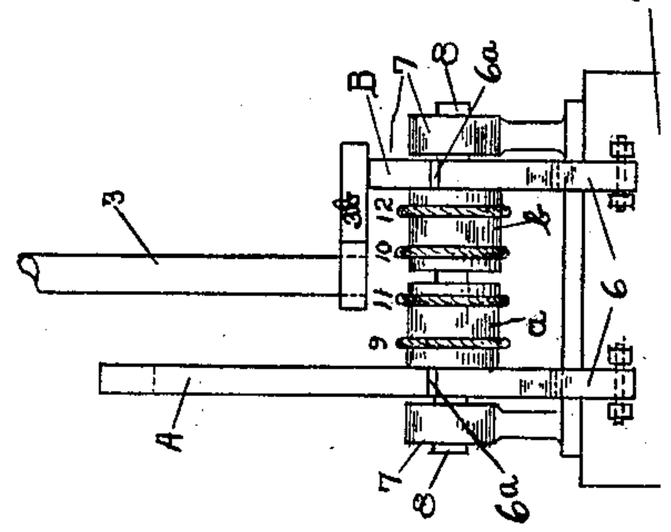

Fig. 4.

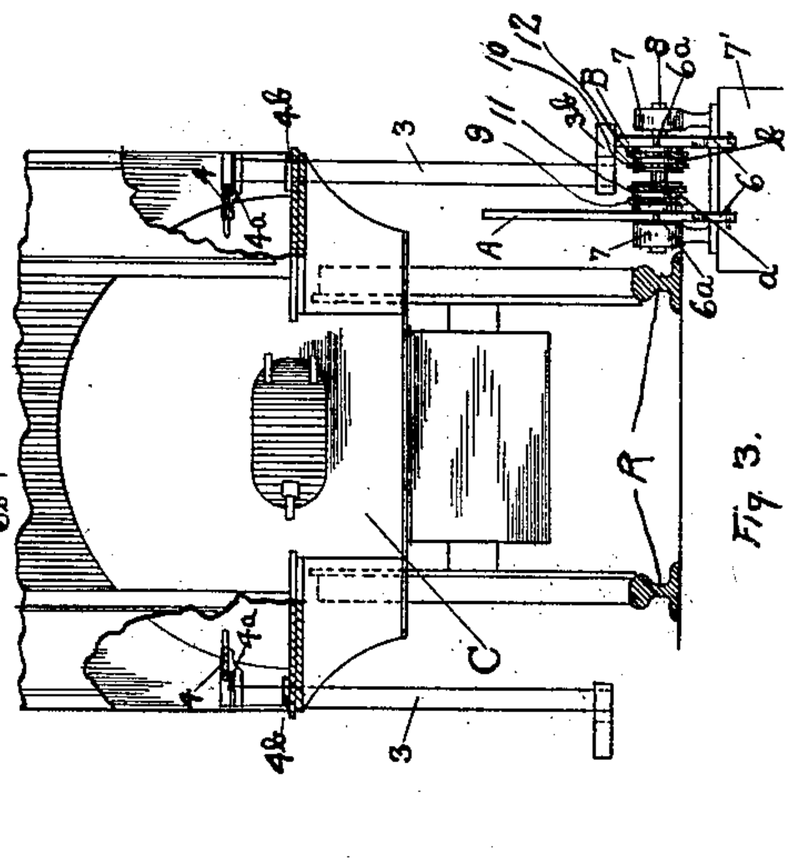

Fig. 3.

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RAILWAY-SWITCH.

999,093. Specification of Letters Patent. Patented July 25, 1911.

Application filed January 11, 1911. Serial No. 602,080.

To all whom it may concern:

Be it known that I, PETER P. CATALANO, citizen of the United States, residing at Lawton Station, in the county of Erie and State of New York, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to improvements in railway switches which are automatically operated from the cab of a locomotive.

The invention comprises a series of obstacles located adjacent to the track, and operatively connected to the switch rails, said obstacles being so arranged that the switch rails may be shifted in either direction and from either side of the switch. The obstacles are actuated by a device carried by the locomotive cab, said device being adjustable to actuate the selected obstacle.

It is the object of the present invention to provide a mechanism of the kind stated which is simple in construction, reliable in operation, and devoid of all complicated parts liable to get out of order and to interfere with the proper working of the switch; and to this end the invention consists in a novel combination and arrangement of parts to be hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a switch constructed in accordance with the present invention, a fragment of the locomotive cab and the mechanism carried thereby being also shown; Fig. 2 is a side elevation; Fig. 3 is a rear end view; Fig. 4 is an enlarged rear elevation; and Fig. 5 is a side elevation of one set of the obstacles and a fragment of the actuating device carried by the cab. Fig. 6 is a plan view of the lock of the actuating device.

In the drawings, R denotes the rails of the main track, and S and T the rails of the tracks branching therefrom.

1 denotes an ordinary hand-operated switch stand for manually actuating the switch rails D controlling the passage of trains from the main track to the two branch tracks, or vice versa. The switch rails are connected by an ordinary switch bar 2, and the latter is connected to the switch stand in the ordinary manner by means of a rod *d*.

On one side of the main track, a suitable distance in advance of the switch, are mounted bearings 7 in which is supported a stationary shaft 8. The bearings 7 are mounted on a base 7′ suitably supported adjacent to one of the rails of the main track, on the outside thereof. On the shaft 8 are loosely mounted two tappet arms indicated at A and B, respectively, the shaft being located so that the tappets may swing in a vertical plane parallel to the main track. To each tappet is connected a winding drum, the drum of the tappet A being indicated at *a*, and the drum of the tappet B, at *b*. These two drums are loose on the shaft 8, and rotate when the tappets are actuated. In the hub portion of each tappet are notches 6^a, one or the other of which is adapted to be engaged by a catch 6 which is pivotally connected to the base 7′, this catch being provided for the purpose of locking the tappets. When the tappets swing downwardly into horizontal position, the catches slip into one of the notches, and thus lock the tappets in this position, and when the tappets swing upwardly into vertical position, the catches slip into the other notch and lock the tappets in this position. The catches operate automatically, they slipping out of one notch and into the other as the tappets swing upwardly or downwardly. The catches are operated by a spring 6^b connected thereto.

On the drum *a* are wound cables 9 and 11, and on the drum *b* are wound cables 10 and 12. These cables are connected to the switch bar 2, so that the latter will be moved when the cables are wound on the drums. The cable 9 extends alongside the track to a point slightly in front of the switch, and then crosses the track, it being led across the track by guide sheaves 9^a and 9^b, respectively, the sheave 9^a being located on the same side as the drum on which the cable is wound, and the sheave 9^b being located on the opposite side of the track. The cable passes from the sheave 9^b to a sheave 9^c and from this extends to, and is made fast to one end of the switch bar 2, this end being the one which is located on that side of the track opposite the side on which the tappets and drums are located. The cable 12 extends and is connected to the other end of the switch bar, and a sheave 12^a is provided for guiding the last-mentioned cable to the switch bar. The cable 10 is spliced or otherwise connected to the cable 9, and the cable 11 is spliced or otherwise connected to the cable 12. It will be seen from the foregoing

that the switch bar will be actuated to shift the switch rails D when the tappets A and B are actuated. The operating position of the tappets is a vertical one, and upon swinging them downwardly into horizontal position, the cables connected to the drum of the tappet which is thus actuated, shift the switch bar and thus set the switch rails. Upon the drum being rotated as stated, one of the cables is wound thereon and the other is unwound, the cable wound on the drum being the one which is connected to that end of the switch bar in the direction of which said bar is moving, and the cable which is unwinding being the one which is connected to the opposite end of the switch bar. Two pairs of cables, together with a drum and actuating cam for each, are provided in order that the switch may be thrown in either direction by the device carried by the cab of the locomotive. The connection also causes one of the tappets to rise while the other one is being lowered, so that one of said tappets is always in vertical position, thus enabling the engineer of the approaching train to observe the condition of the switch, so that he may set the actuating device in the cab accordingly.

In order that the switch may also be operated from the cab if the train is approaching the main track from either one of the branch tracks, there is located adjacent to each of said branch tracks a tappet similar to the tappets already described, and connected to drums over which are wound cables which extend to and are connected to the switch bar 2. Inasmuch as the passage of a train from either of the branch tracks to the main track is controlled by the movement of the switch rails in one direction only, but one tappet and drum are provided for each branch track. The tappet of the branch track S is indicated at A′, the drum thereof at *a′*, and the two cables at 13 and 14, respectively, one of said cables being connected to one end of the switch bar, and the other cable to the other end thereof, suitable sheaves being provided for guiding the cables to said ends of the switch bar.

The tappet of the branch track T is indicated at B′, the drum at *b′*, and the cables at 15 and 16, respectively, these cables being also connected, respectively, to opposite ends of the switch bar, they being guided thereto by suitable sheaves.

The tappets A′ and B′ and the parts associated therewith are mounted in the same manner as the tappets A and B and their associate parts.

Inasmuch as the several tappets are all connected to the switch bar 2, it will be seen that the movement of one of the tappets to shift the switch bar is transmitted to each one of the other tappets, so that said tappets will always be positioned to indicate the condition of the switch. Thus, if the tappet B is swung downwardly, the switch bar 2 will be actuated to shift the switch rails D to the full line position shown in Fig. 1, in which position the main track is connected to the branch track T. When the tappet B swings downwardly, as stated, the tappet A rises, which will indicate to the engineer of the next train approaching the switch that the same is set for the branch track T. If this next train is to take the branch track S, the engineer will set the actuating device in the cab so that it will engage the tappet A, thus shifting the switch rails to the dotted line position shown in Fig. 1, and opening the branch track S to the main track. When the tappet A is depressed, as stated, the tappet B rises, thus again indicating to the engineer of the next train the condition of the switch. In the first-described position of the switch, the tappet A′ will be in elevated position, so that the engineer of a train approaching the main track from the branch track S, may observe the condition of the switch, and act accordingly. In the second-mentioned position, the tappet A′ would be down, which would indicate to the engineer that the switch was already in a position to enable the train to pass from the branch track S to the main track. The tappet B′ also assumes a position which enables the engineer of a train approaching the main track from the branch track T to observe the condition of the switch, said tappet being in upright position when the switch is in the dotted line position shown in Fig. 1, and said tappet being in horizontal position when the switch is in the full line position, in which position the main track is open to the branch track S.

The device for actuating the tappets comprises a vertical stem 3 carried by the cab C of the locomotive, and passing through the floor thereof. To the lower end of the stem is rigidly secured a shoe having branches 3^a and 3^b arranged at right angles to each other and projecting horizontally from the stem. The stem is so located that it may pass between the tappets A and B, and the stem is also rotatable so that the shoe may be positioned to strike the tappets. If it is desired that the branch 3^b strike the tappet B, the stem will be rotated so as to place said branch in the position shown in Fig. 1, in which position the tappet B is in the path of said branch, and the branch 3^a is in a position to pass the tappet A without actuating the same. If it is desired to actuate the tappet A, the stem will be given a quarter revolution, whereupon the branch 3^a is swung in a position to engage the said tappet, and the shoe 3^b is placed in a position to clear the tappet B. The engineer can therefore readily place the rod in a position to actuate the desired tappet.

Tappets A′ and B′ are also actuated by the herein described cab device.

The rod 3 is stiffened by braces 5 which are fastened to the underside of the floor of the cab, and its upper end is provided with a handle 4. A suitable locking device 4ª is also provided for holding the rod in adjusted position. The rod is held at a proper height by means of a set collar 4ᵇ thereon engaging the floor of the cab, as shown in Fig. 2.

I claim:

1. In a railway switch, the combination with main and branch tracks, switch rails controlling the same, and a bar connecting said switch rails; of a horizontal shaft mounted adjacent to the main track and in advance of the switch, a pair of drums supported by said shaft, a tappet arm connected to each drum, a pair of cables wound on each drum, the members of each pair being connected, respectively, to opposite ends of the aforesaid switch bar, and an actuating device carried by the cab of the locomotive and adjustable to engage either one of the aforesaid tappets.

2. In a railway switch, the combination with main and branch tracks, switch rails controlling the same, and a bar connecting said switch rails; of a horizontal shaft mounted adjacent to the main track and in advance of the switch, a pair of drums supported by said shaft, a tappet arm connected to each drum, a pair of cables wound on each drum, the members of each pair being connected, respectively, to opposite ends of the aforesaid switch bar, a drum and tappet mounted adjacent to the branch track in advance of the switch, a pair of cables wound on said drum, and connected, respectively, to opposite ends of the switch bar, and an actuating device carried by the cab of the locomotive and adjustable to engage either one of the aforesaid tappets.

3. In a railway switch, the combination with main and branch tracks, a switch controlling the same, and a pair of tappets located adjacent to the main track, and operatively connected to the switch; of a switch actuating device carried by the cab of a locomotive, said device comprising a rotatable rod depending from the cab and passing between the tappets, and a shoe mounted on the lower end of the rod, said shoe having branches extending horizontally from the rod at an angle to each other and being adjustable by rotation of the rod to engage the tappets, said shoe in one of its positions having one of its branches in a position to engage one of the tappets, and the other branch in a position to clear the other tappet, and in another position the last-mentioned branch engaging the last-mentioned tappet, and the first-mentioned branch clearing the first-mentioned tappet.

In testimony whereof I affix my signature in presence of two witnesses.

PETER P. CATALANO.

Witnesses:
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LILLIAN B. HUTCHINSON.