

No. 842,380.

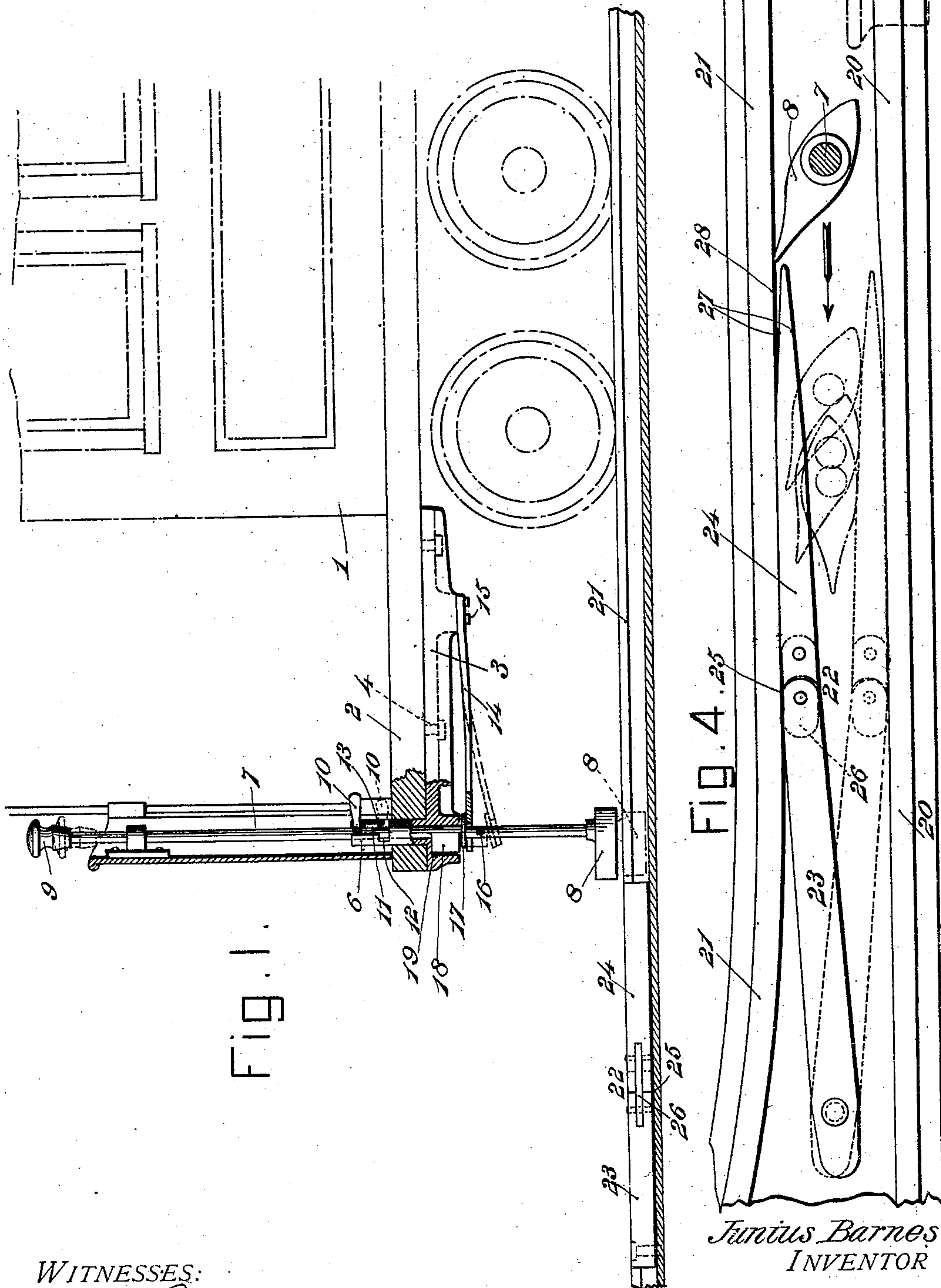
PATENTED JAN. 29, 1907.

J. BARNES.

SWITCH OPERATING MECHANISM FOR CARS.

APPLICATION FILED MAY 24, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

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INVENTOR

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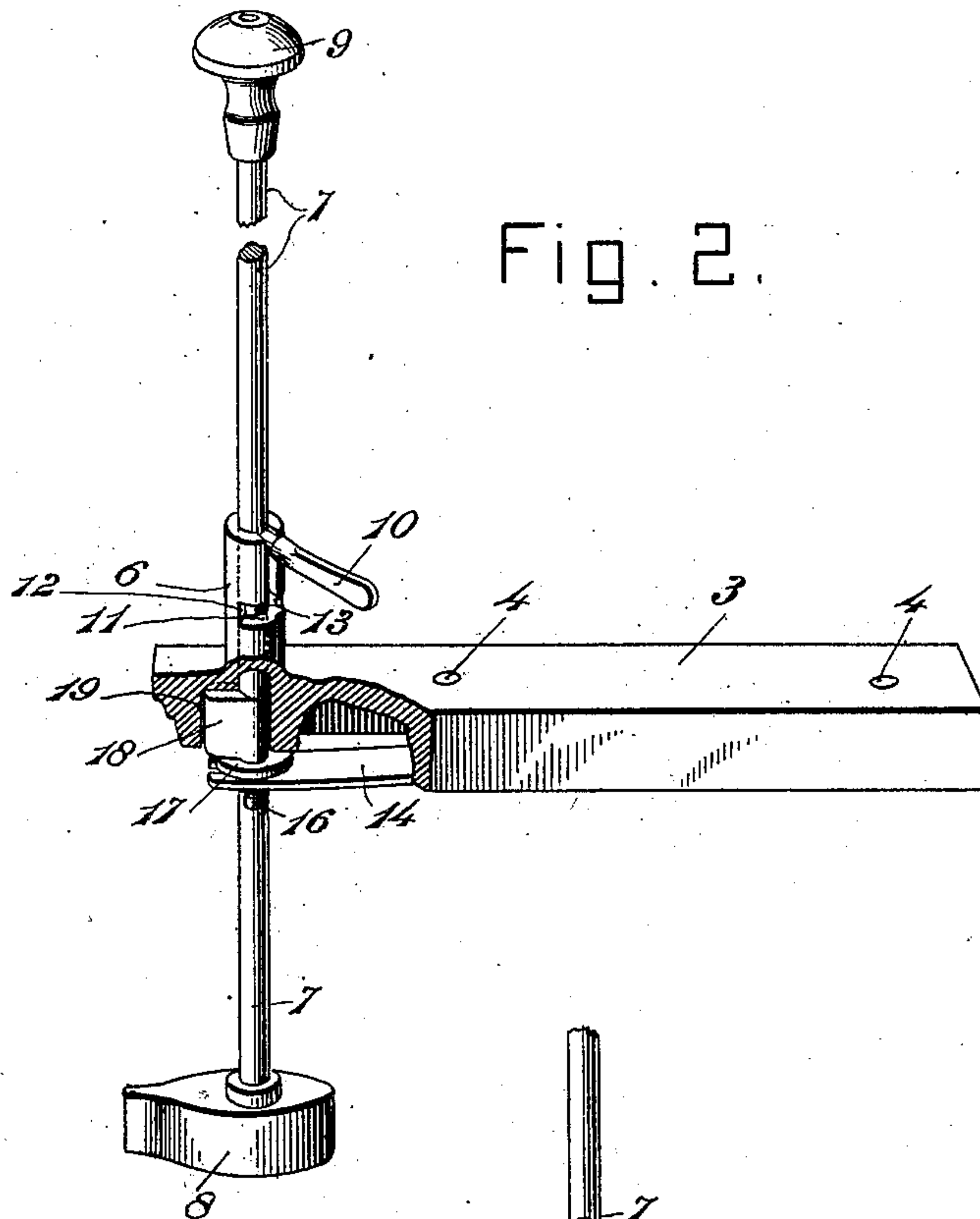


Fig. 2.

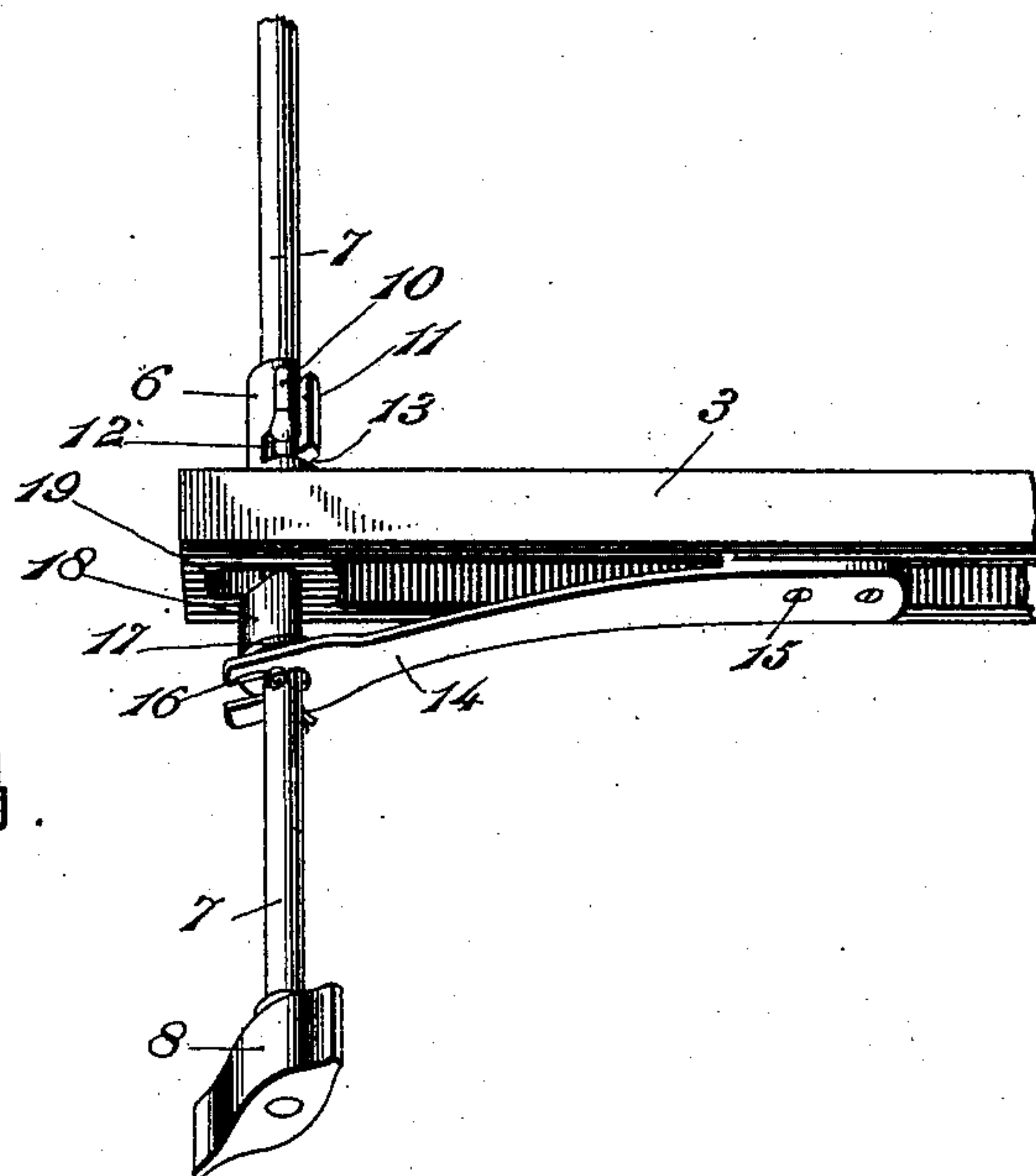


Fig. 3.

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UNITED STATES PATENT OFFICE.

JUNIUS BARNES, OF BURLINGTON, VERMONT.

SWITCH-OPERATING MECHANISM FOR CARS.

No. 842,380.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed May 24, 1906. Serial No. 318,588.

To all whom it may concern:

Be it known that I, JUNIUS BARNES, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented a new and useful Switch-Operating Mechanism for Cars, of which the following is a specification.

This invention relates to a track-switch-throwing mechanism of that type whereby the motorman can actuate the switch from his station at the controlling apparatus for the car, thus rendering it unnecessary for him to dismount and throw the switch, as has been customary heretofore when it was necessary to turn from the main line or track into a branch line, crossover, turnout, or the like.

The invention has for its objects to improve and simplify devices of this character so that they will be inexpensive to construct, easy to apply to cars of any construction, readily controlled, positively reliable in operation, and automatically returned to an initial position after a switch is thrown.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same comprises the various novel features of construction and arrangement of parts, which will be fully described hereinafter, and set forth with particularity in the claims hereto annexed.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a side elevation of a portion of a street-car, showing the switch-throwing mechanism applied thereto. Fig. 2 is a perspective view of the switch-throwing mechanism detached and the parts being in an elevated or inoperative position. Fig. 3 is a perspective view taken from underneath the switch-throwing mechanism and showing the parts in a set position for throwing a switch. Fig. 4 is a plan view of the track-switch.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, 1 represents a car, which may be an electric car for streets or interurban use. At the ends of the car the usual controlling devices will be provided, so that the car can be operated by a motorman from either of the platforms, one of which latter is shown at 2.

The switch-throwing mechanism constituting the subject-matter of the present inven-

tion is of that type adapted to operate only those switches located in either one of the rails. Therefore if it is desired to equip the car so as to permit the motorman to turn off into either a right-hand or a left-hand switch, turnover, or the like, a switch-throwing mechanism would be provided for each rail. Furthermore, if the car be of that type adapted to operate from either end then the car would be provided with four of the separately-operated switch-throwing mechanisms.

The switch-throwing mechanisms are of similar construction. Hence a description of any one is applicable to all.

The mechanism is in the nature of an attachment, so that it is capable of being used on cars at present in operation. It comprises a base-plate 3, which may be of metal, wood, or any other material, as preferred, and is provided with suitable means, such as screw or bolt receiving apertures 4, for attaching it to the under side of the car-bottom, or more particularly the platform. Adjacent one end of the base-plate is an upright sleeve or tubular support 6, that extends through the platform and guides a vertical shaft 7. This shaft extends below the platform to a point a slight distance above the rails on which the car runs and carries a wedge-shaped shoe 8, that is adapted to be moved or depressed for engagement with a tongue-switch of the track when it is desired to throw the same. The shaft may extend upwardly a suitable distance and be provided with a handhold 9, whereby the motorman can depress the shaft by hand. In order that the shaft may be held depressed, the same is provided with a finger or lug 10, that is guided in an inverted-T-shaped slot 11 in the upper end of the tubular support 6. This finger is designed to be engaged by the foot of the motorman, so as to impart a slight rotary motion to the shaft to cause the finger to engage in either end of the horizontal portion of the slot. If desired, the shaft need not extend above the tubular support, since the shaft can be depressed by the foot of the motorman placed on the finger, and after being so depressed the shaft can be rocked in either direction to engage the finger in the notches 12 and 13 of the T-shaped slot by exerting a forward or rearward pressure by the foot.

The shoe-actuating shaft 7 is maintained in an elevated position by means of a spring. This is preferably a spring-leaf 14, anchored

at one end on the under side of the base-plate by means of a screw or other fastening device 15. The forward end of the spring is bifurcated so as to receive between its bifurcations the shaft. On one side of the spring 5 where it engages the shaft is a cotter-pin 16, and on the opposite side is a suitable abutment, shoulder, washer, or the like 17. On the upper side of the washer is a forwardly- 10 extending projection 18 on the shaft 7, that engages normally in a recess 19 in the base-plate. This lug when depressed and turned with the shaft 7 engages the under side of the base-plate and assists to hold the shaft de- 15 pressed, as shown in Fig. 3. The washer 17 rests against the lug or projection 18 and serves to hold the spring under tension when the shaft is depressed.

Referring to Fig. 4, 20 designates the rail 20 of a main line, and 21 the rail of a siding, crossover, turnout, or the like, the same being controlled by a switch 22. The tongue of the switch is made up of two sections 23 and 24, pivoted together at 25 by means of a 25 link or connecting-plate 26, disposed between the bifurcations of the adjacent ends of the two sections. The section 24 is wedge-shaped; but instead of being tapered on straight lines the two surfaces 27 thereof are 30 slightly convex, so that when the switch is closed, as shown in Fig. 4, or is in either of its extreme positions the apex or front edge of the section 24 will be slightly separated from the adjacent vertical web 28 of the rail. The 35 object of this is to facilitate the entering of the wedge of the shoe of the switch-throwing mechanism, as shown by full lines.

From the foregoing description the operation and advantages of the invention will be 40 readily understood. When the car is approaching a switch which is desired to be moved, the motorman at any time before the switch is reached depresses and turns the shoe-carrying shaft 7 in one direction or the 45 other, according to whether the switch is to be opened or closed. If the switch is to be opened, the shaft is turned and held in the position shown in Fig. 3. The car will then approach the switch with the shoe disposed 50 with its length at an angle to the rail, as shown by full lines in Fig. 4. The point of the shoe will therefore engage under the point of the section 24 and cause the switch-tongue to be opened. As the car continues to move 55 forward the shoe is gradually turned by wiping along the convex surface of the switch-tongue from its inclined position to the successive positions shown in dotted and broken lines. By this movement of the shoe the 60 foot-finger 10 and projection 18 are disengaged, respectively, from the notch in the tubular support and the base-plate, so that the shaft will be automatically elevated or raised out of the switch. The switch-tongue hav- 65 ing been moved to its open position, as shown

by dotted lines, the car will be switched into the siding. It will be noted that the section 24 of the switch-tongue when the latter is open is in the proper position to be engaged 70 by the shoe of a succeeding car if it is desired to again close the switch. It will thus be seen that a car can be easily switched from or to a main line in a very simple and ready manner without requiring the motorman to leave his post. 75

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it under- 80 stood that the apparatus shown is merely illustrative and that various minor changes as are within the scope of the appended claims may be resorted to without sacrificing any of the advantages of the invention. 85

What is claimed is—

1. The combination with a car and switch, 85 of a switch-throwing mechanism mounted on the car, said mechanism comprising a shaft extending above and below the floor of the car, a device arranged to hold the shaft in a 90 depressed position, and a shoe on the end of the shaft arranged to throw the switch and to automatically release the shaft from said device after the switch is thrown.
2. The combination with a car, of a switch- 95 throwing mechanism mounted thereon, said mechanism comprising a vertical shaft extending from a point below to a point above the floor of the car, a shoe on the shaft for ac- 100 tuating a switch and which is itself released by the switch, and means for holding the shaft and shoe in a set position.
3. The combination with a car, and a switch, of a switch-throwing mechanism 105 mounted thereon, said mechanism comprising a base-plate, a tubular support thereon which extends upwardly through the floor of a car, a shaft extending through the tu- 110 bular support, a shoe on the lower end of the shaft arranged to actuate the switch and to be automatically released after the switch is actuated, and means for depressing and par- 115 tially turning the shaft.
4. The combination with a car, of a switch- 120 throwing mechanism mounted thereon, said mechanism comprising a base-plate, a tubular support thereon which extends upwardly through the floor of a car and is provided with an inverted-T-shaped slot, a shaft ex- 125 tending through the support, an interlocking finger in the slot for holding the shaft in a depressed position, means for elevating the shaft, and a shoe on the lower end of the shaft for throwing a switch and which is itself actuated to release said finger from the slot 130 to permit the shaft to be elevated.
5. The combination with a car, of a switch 135 throwing mechanism mounted thereon, said mechanism comprising a detachable base-plate for mounting on the floor of the car

and provided with a vertical opening and a recess extending from said opening, a shaft slidably and rotatably mounted in the opening of the base-plate which is provided with a lug normally engaging in the recess, means for depressing the shaft to cause the lug to engage the under surface of the base-plate when the shaft is turned, means for returning the shaft when the lug is disengaged, and a shoe carried by the shaft for actuating the switch and arranged to cooperate with the switch for disengaging the lug from the base-plate to permit the shaft to be elevated.

6. A switch-throwing mechanism comprising a base-plate, a tubular support on the base-plate having an inverted-T-shaped slot, a shaft in the support, a finger on the shaft moving in said slot, a leaf-spring secured on the base-plate and engaging the shaft, and a shoe mounted on the shaft for throwing the switch and arranged to cooperate with the switch for causing the shaft to be turned and the finger released after the switch is thrown.

7. A switch-throwing mechanism comprising a depressible shaft which is adapted to extend through the floor of the car, means for depressing and partially turning the shaft, a device for locking the shaft in depressed position, means for returning the shaft, and a wedge-shaped shoe in the lower end of the shaft, in combination with a rail, and a switch-tongue having a pivoted end section whose sides are slightly convex so as to maintain the point thereof out of engagement with the rail to permit the point of the said shoe to enter between them and said tongue being adapted to actuate the shoe so as to release the shaft to permit the same to withdraw the shoe from the switch.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JUNIUS BARNES.

Witnesses:

M. A. BINGHAM,
M. NELLIE FLYNN.