

W. H. EVANS.
OPERATING MECHANISM FOR DOORS.
APPLICATION FILED MAY 20, 1908.

918,984.

Patented Apr. 20, 1909.

2 SHEETS—SHEET 1.

Fig. 1

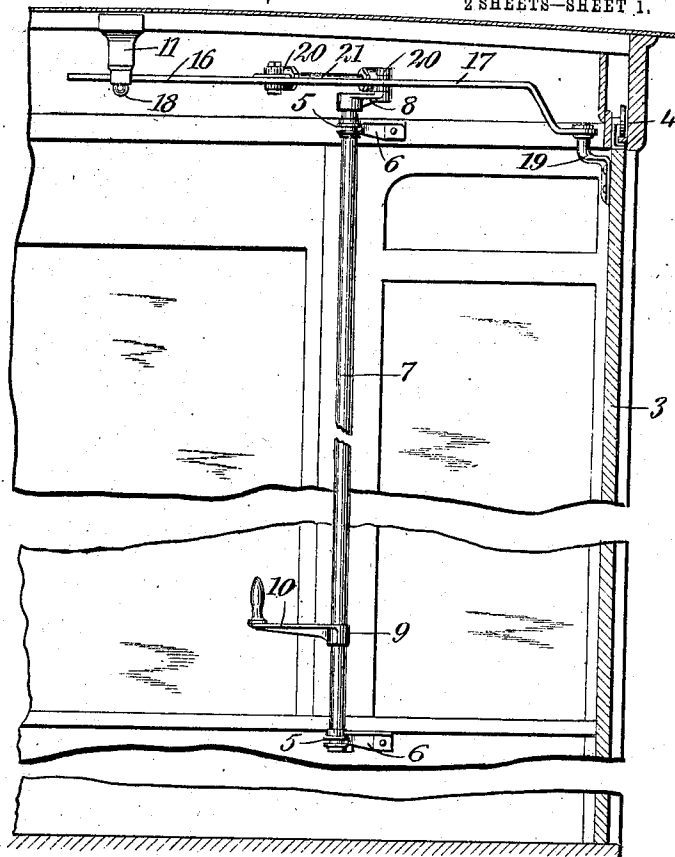


Fig. 6

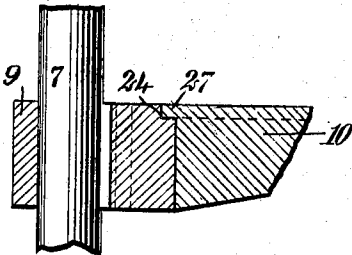


Fig. 4

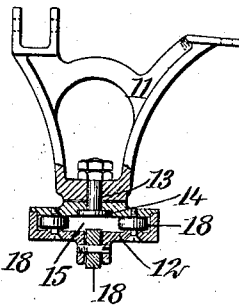
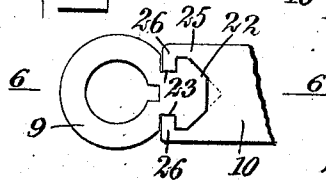


Fig. 5



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2 SHEETS—SHEET 2.

Fig. 2.

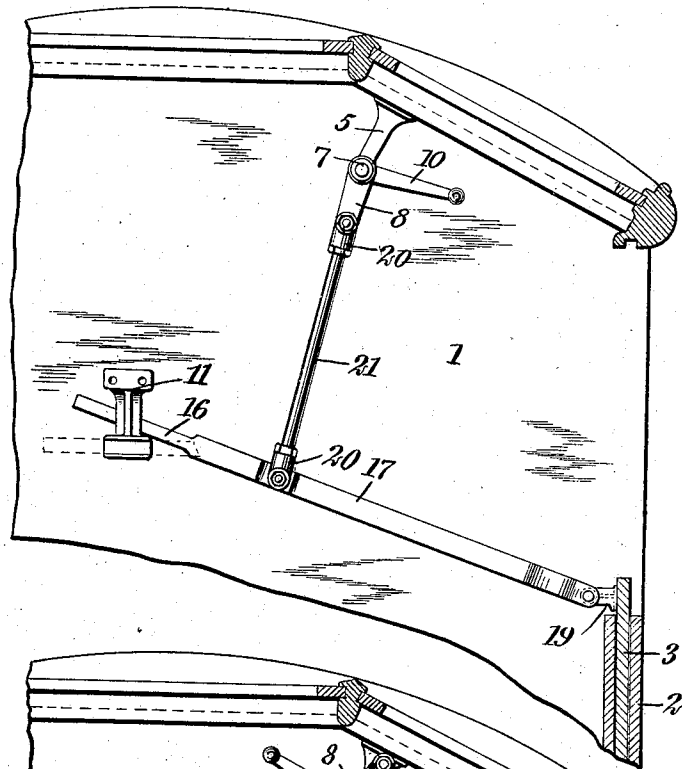
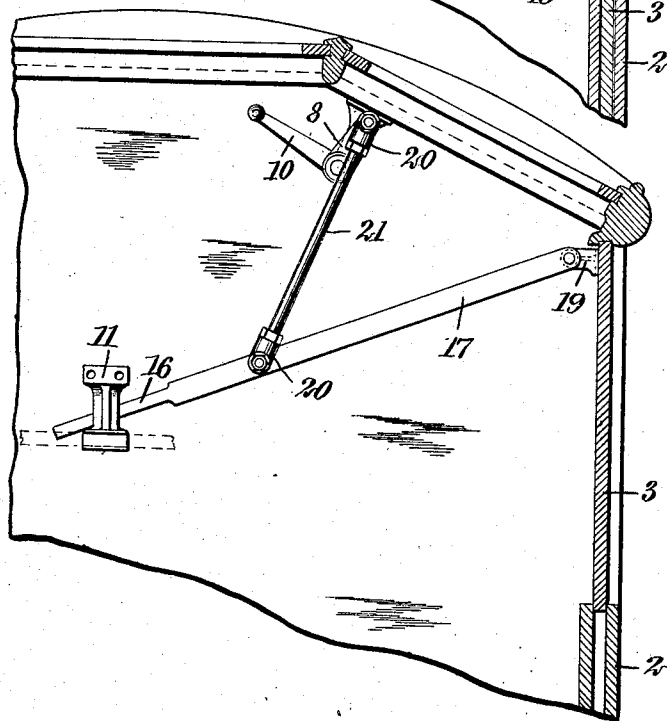


Fig. 1.



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UNITED STATES PATENT OFFICE.

WALTER H. EVANS, OF BUFFALO, NEW YORK.

OPERATING MECHANISM FOR DOORS.

No. 918,984.

Specification of Letters Patent.

Patented April 20, 1909.

Application filed May 20, 1908. Serial No. 433,868.

To all whom it may concern:

Be it known that I, WALTER H. EVANS, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Operating Mechanism for Doors, of which the following is a full, clear, and exact description.

The object of my invention is to provide an operating mechanism for an exit or other door for pay-as-you-enter cars, but it will be understood that the means provided, may be employed to operate doors of almost every description.

As will be seen from the following more complete description of my invention, a vertical shaft is provided, this shaft having a crank secured thereto, the crank being connected by an adjustable connecting rod to an operating lever which is so disposed as to operate the door, one end of the lever being supported in a swivel hanger, provided with roller bearings, which acts as its fulcrum. A detachable handle is also provided which is adapted to engage the connecting means secured to the shaft.

In this specification I will describe the preferred form of my invention, but I do not limit myself thereto, as I consider myself entitled to all forms and embodiments of the invention which may be held to fall within the scope of the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, in which—

Figure 1 is a sectional elevation of a car platform showing my invention in use; Fig. 2 is a plan view of my invention with the sliding door open; Fig. 3 is a similar view with the sliding door closed; Fig. 4 is an enlarged view showing my swivel hanger; Fig. 5 is a plan view showing the means by which the handle is adjusted to the shaft; and Fig. 6 is a sectional view on the line 6—6 of Fig. 5.

By referring to the drawings, it will be seen that the car vestibule platform 1 is constructed in the usual manner, that the side of the car 2, is so constructed as to permit the sliding door 3 to move longitudinally of the car, the sliding door 3 being supported on rollers 4, in the usual manner. Bearings 5 are provided with brackets 6, the brackets being secured to the car vestibule so that the shaft 7 will be dis-

posed vertically. To this shaft 7 is secured a crank 8 which is disposed near the top of the shaft and at the lower portion of the shaft is secured a collar 9, which has means by which the detachable handle 10 may be secured thereto. At the top of the car vestibule is secured a bracket 11 which supports the swivel hanger 12, by means of a pin 13 with a head 14, the head 14 fitting into the upper part of the swivel hanger 12, so that no projecting surface is exposed in the opening 15 which is provided for the introduction of the terminal 16 of a lever 17. In the bottom and at either side of this swivel hanger 12 are disposed roller bearings 18. The other terminal of the lever 17 is pivoted to a bracket 19 which is secured to the sliding door 3. To the crank 8 and to the lever 17 are pivoted connecting rod retainers 20, these connecting rod retainers having threaded portions which mesh with the threaded portions on the terminals of a connecting rod 21. This connecting rod is so adjusted in length by means of the screw connections that the connecting rod retainers 20 with the crank 8 may just pass the centers so that the door 3 may be fastened in an open or in a closed position when the crank 8 is at center. The collar 9 which is secured to the shaft by any approved means, has a pointed projection 22 with vertical side grooves 23 therein and an indenture 24 in the uppermost portion of its pointed extremity. The handle 10 has a triangular jaw 25 with inwardly disposed vertical ribs 26 and a lip 27 projecting at the apex of the angle, the lip being adapted to fit the indenture 24 in the pointed projection of the collar 9. It will thus be seen that the handle 10 will dovetail with the projection of the collar 9, and that it may be readily removed, but when in place it will be firm and will afford the necessary means at all times for operating the mechanism which controls the sliding door.

In using my invention, with the door 3 closed and the crank 8 at center, so that the door is locked, the motorman or conductor, by means of the handle 10, may with little effort, rock the shaft 7, by which means the connecting rod 21 operates the lever 17 which has its center terminal engaging the swivel hanger which forms a fulcrum for it, and with the pressure thus exerted on the lever 17, the other terminal being pivoted to the sliding door 3, the door is moved on its rollers 4 until it is opened, and if desired, by rotat-

ing the shaft 7 so that the crank 8 will be at center again, the sliding door 3 will be locked in an open position.

It will be understood that a pin may be adjusted in the shaft through one of its bearings so that the shaft cannot rotate, and by this arrangement the door will be locked when not in use.

It is understood that the handle 10 may be secured firmly to the shaft, which construction is most desirable when the invention is used on single end operated cars.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an operating mechanism for doors, a door a shaft, a crank secured thereto, a connecting rod having screw threads in its terminals, a lever which is adapted to engage the door, a hanger which supports the lever and which acts as its fulcrum, and two connecting rod retainers having screw threads therein, the connecting rod retainers being pivoted to the crank and to the lever respectively, the screw threads on the connecting rod meshing with the screw threads on the connecting rod retainers to connect the crank on the shaft with the lever.

2. In an operating mechanism for doors, a door a shaft, a crank secured thereto, a connecting rod having screw threads on its terminals, a lever which is adapted to engage the door, a swivel hanger with roller bearings therein which supports the lever and acts as its fulcrum, and connecting rod retainers pivoted to the crank and to the lever respec-

tively, the connecting rod retainers having screw threads which engage the screw threads on the terminals of the rod.

3. In an operating mechanism for doors, a door a shaft, a crank secured thereto, a connecting rod having screw threads therein, a lever which is adapted to engage the door, a swivel hanger with roller bearings therein which supports one end of the lever and which acts as its fulcrum, connecting rod retainers pivoted to the crank and to the lever between the door and the swivel hanger, the connecting rod retainers having screw threads therein which engage the screw threads on the terminals of the rod, and a detachable handle which is adapted to be secured to the shaft.

4. In an operating mechanism for doors, a sliding door, a shaft suitably journaled in the bearings, a crank secured thereto, a connecting rod having screw threads in its terminals, a lever pivoted to the door, a swivel hanger with roller bearings therein which supports the lever and acts as its fulcrum, connecting rod retainers pivoted to the crank and to the lever, the connecting rod retainers having screw threads therein which engage the screw threads on the terminals of the rod, and a handle by which the shaft may be rocked.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses, May 12, 1908.

WALTER H. EVANS

Witnesses:

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BURTON H. BROWNELL