

UNITED STATES PATENT OFFICE.

JAY BAKER, OF WHAT CHEER, IOWA.

CAR-DOOR OPERATOR.

1,059,588.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAY BAKER, a citizen of the United States, residing at What Cheer, in the county of Keokuk, State of Iowa, have invented certain new and useful Improvements in Car-Door Operators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to car door operators.

The object of the invention resides in the provision of a car door operator through the instrumentality of which a sliding door of the type employed in freight cars may be easily and quickly moved to either open or closed position and which will obviate the possibility of binding during the operation of opening and closing the door.

A further object of the invention resides in the provision of a car door operator which may be readily associated with a sliding car door irrespective of the particular detail construction of the latter.

Still another object of the invention resides in the provision of a car door operator which will be durable, positive in operation and comparatively inexpensive to manufacture and install.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a side elevation of a fragment of a freight car showing the improved door operator applied, said door and operator being shown in full lines in the position they would occupy when the door is closed and in dotted lines in the position they would occupy when the door is open. Fig. 2 a section on the line 2—2 of Fig. 1. Fig. 3 a section on the line 3—3 of Fig. 1. Fig. 4 a section on the line 4—4 Fig. 1. Fig. 5 a section on the line 5—5 of Fig. 1, and Fig. 6 a detail perspective view of the gravity controlled switch employed in the operator.

Referring to the drawings, A indicates a

freight car provided with a sliding door B the movements of said door being limited by stops 10 and 11 mounted along the sides of the car in proper position to perform their functions at the desired time.

Mounted upon the car A near the top thereof is a longitudinally disposed rail 12 and engaged over this rail are hangers 13 and 14 by means of which the door B is supported for sliding movement longitudinally of the car.

Mounted upon the outer side of the door B at a point substantially central of the door is a plate 15 provided with a stud 16 having a reduced outer end 17. Rotatably mounted on the reduced outer end 17 of said stud is a roller 18 which is secured against detachment from the stud by means of a washer 19 fixed upon the outer end of the reduced portion 17. Mounted upon the side of the car A above the rail 12 at one end of the opening controlled by the door B is a plate 20 which is also provided with a stud 21 and pivotally mounted upon the latter is an arm comprising hingedly connected sections 22 and 23. Overlapping the free end of the section 23 is one end of an arm 24 provided with a slot 25 through which extends a binding screw 26 and in which is engaged a stud 27 formed on the hinged section 23. By this construction it will be apparent that the arm 24 is capable of limited longitudinal adjustment with respect to the hinged section 23 and that said arm 24 may be locked in a desired adjustment through the instrumentality of the binding screw 26.

The free end of the arm 24 terminates in an enlarged triangular portion 28 and formed in this enlarged triangular portion and in the body of the arm is a Y-shaped slot including a stem 29 and diverging arms 30 and 31, the stem 29 being disposed in the body portion of the arm 24 and the arms 30 and 31 in the enlarged triangular end portion of said arm. Secured to the enlarged triangular end portion 28 of the arm 24 is an extension 32 upon which is mounted a hand grip 33 for convenience in manually swinging the arm 24 and the hinged sections 22 and 23 in a plane parallel to the car side. The arm 24 is strengthened by means of a bridge 34 extending across the stem 29 of the Y-shaped slot.

Pivotally mounted upon the enlarged triangular portion 28 of the arm 24 is a switch the point of which is positioned to control

communication between the stem 29 and the arms 30 and 31 of the Y-shaped slot. The end of the switch 35 adjacent the outer end of the enlarged triangular portion 28 is weighted as at 36 so that as the arm 24 is swung longitudinally of the car the switch 35 will be successively operated by gravity to close communication between the stem 29 and one or the other of the arms 30 or 31 of the Y-shaped slots.

In order to operate the device the roller 18 is disposed within the Y-shaped slots and the arm 24 swung parallel to the side of the car, first in one direction and then the other. This movement of the arm 24 will effect the opening and closing of the door B. When the door B is fully closed the roller 18 is positioned adjacent the outer end of the arm 31 of the Y-shaped slot. Movement of the arm 24 from the position shown in full lines in Fig. 1 toward the position shown in dotted lines will exert a force on the roller 18 in a direction parallel to the opening movement of the door and obviate all binding. During this movement of the arm 24 the roller 18 will move toward the inner end of the arm 31 and thence into the stem 29 of the Y-shaped slot. This movement of the roller 18 will occur during the initial swinging of the arm 24 at which time the switch 35 will be in a position to close communication between the arms 30 and the stem 29 of the Y-shaped slot. During the final movement of the arm 24 the switch 35 is shifted under the influence of gravity so as to close communication between the stem

29 and the arm 31 of the Y-shaped slot and at the same time open communication between said stem and the arm 30. The roller 18 will move during this final movement of the arm 24 toward the inner end of the stem 29 of the Y-shaped slot and is guided into the arm 30 of said slot by the switch 35, moving in the arm 30 in said slot until it assumes the position shown in dotted lines in Fig. 1 when the door B is fully opened. In closing the door the operation is the reverse of that just described as will be obvious.

What I claim is:—

In a device of the class described, the combination with a car having a sliding door, a lever fulcrumed at its top on the car for oscillation across the side of the car, said lever having its lower end enlarged and also provided with a Y-shaped slot the stem of which is disposed in the smaller portion of said lever and the arms in the enlarged lower end, a stud on said car door and engaged in the slot whereby the oscillation of the lever will move said door to open and closed position, and a gravity operated switch carried by the lever for controlling the passage of said stud from the stem to the arms of said slot during the oscillation of the lever.

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

JAY BAKER.

Witnesses:

RUSSELL EDMUNDSON,
CLARENCE WITT.