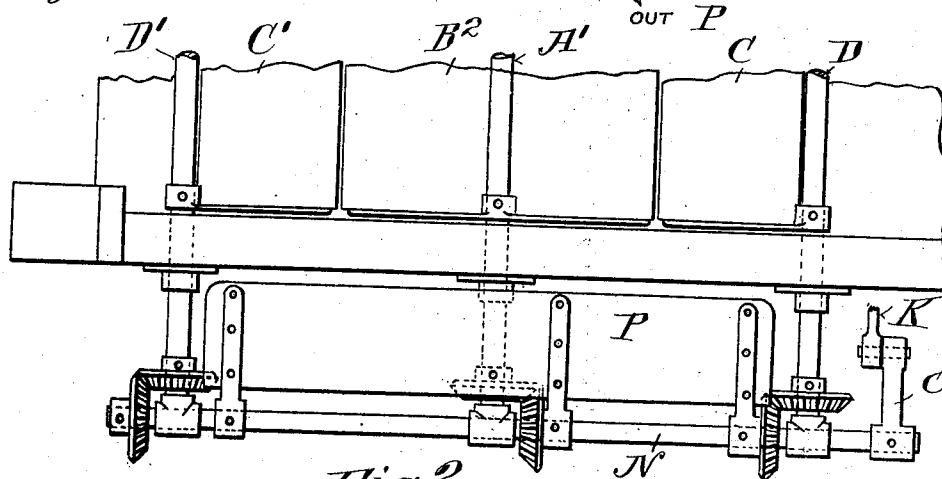
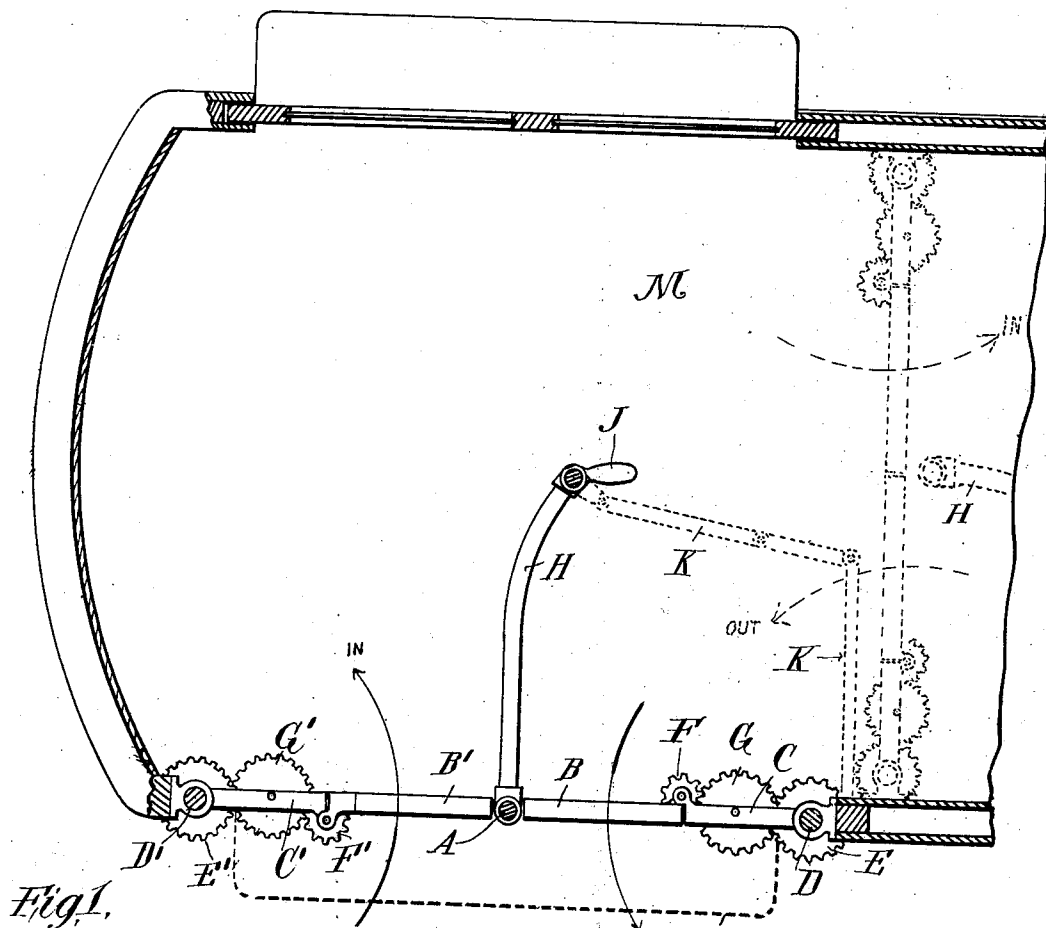


937,870.

2 SHEETS—SHEET 1.



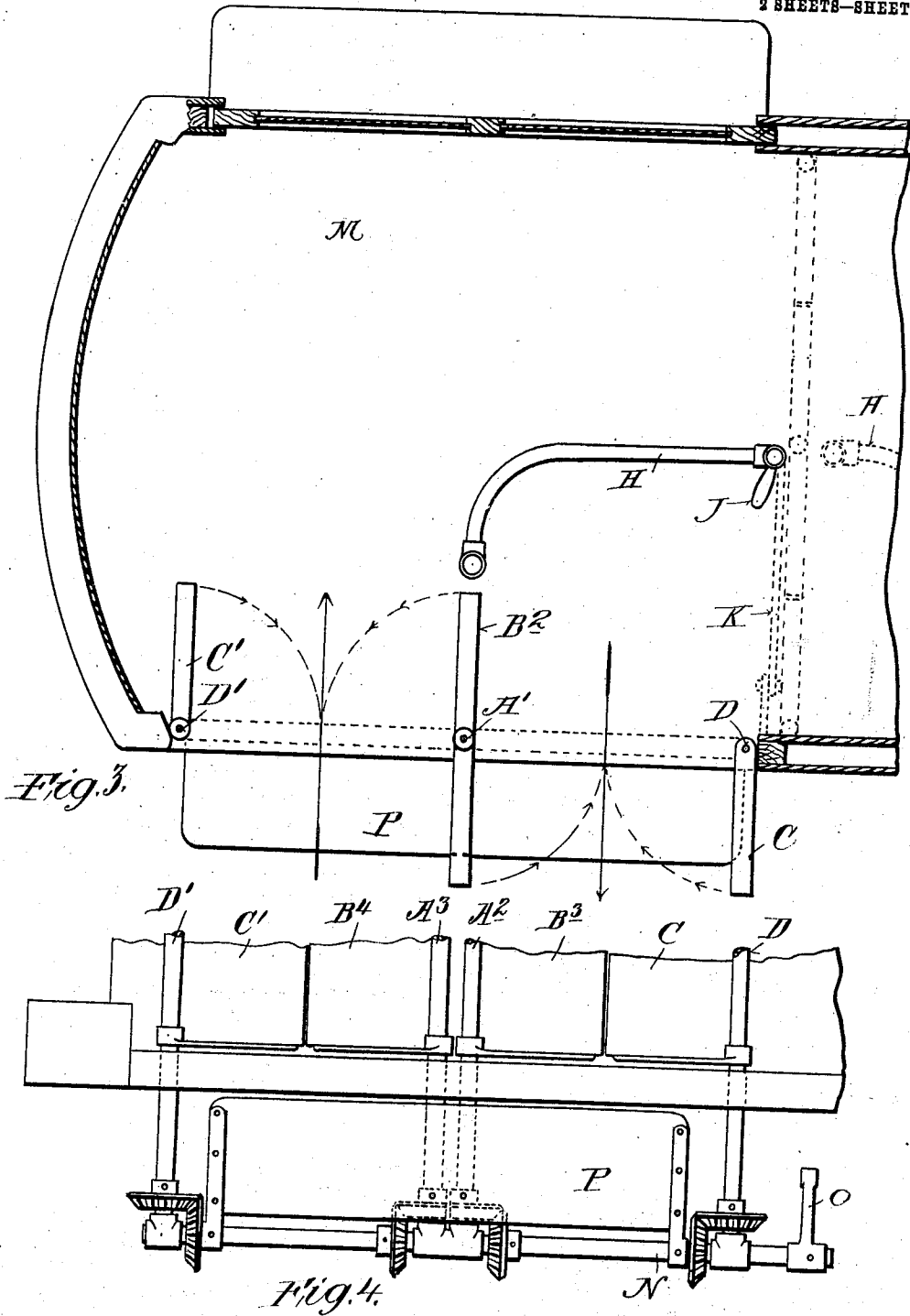
2 Witnesses:
R. H. Thompson
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Harold Rountree Inventor
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DOOR OPERATING MECHANISM.
APPLICATION FILED FEB. 4, 1909.

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Patented Oct. 26, 1909.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HAROLD ROWNTREE, OF CHICAGO, ILLINOIS, ASSIGNOR TO BURDETT-ROWNTREE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DOOR-OPERATING MECHANISM.

937,870.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed February 4, 1909. Serial No. 476,032.

To all whom it may concern:

Be it known that I, HAROLD ROWNTREE, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have made a certain new and useful Invention in Door-Operating Mechanism, of which the following is a specification.

In many instances it is desirable to provide means within an entrance or doorway to divide the same into separate passages, the one capable of use as an entrance and the other as an exit, and in conjunction therewith to employ doors respectively controlling said exit and entrance. This is particularly desirable in case of doors employed on cars thereby affording separate entrance and exit ways for passengers entering and leaving a car and hence very greatly facilitating the handling of the passengers in street or other railway traffic reducing the time required to load and unload the passengers and materially aiding in the collection of fares.

My invention relates to doors and their operating mechanism embodying these characteristics.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawing, and to the various views and reference signs appearing thereon,—Figure 1 is a view in horizontal section of the end of a car showing in plan an arrangement of doors and operating means therefor embodying principles of my invention. Fig. 2 is a view in side elevation, parts broken off, showing a somewhat different arrangement embodying my invention. Fig. 3 is a view similar to Fig. 1 showing in plan the arrangement of Fig. 2. Fig. 4 is a view similar to Fig. 2 showing another arrangement included within the scope of my invention.

In carrying out my invention I provide a standard, post, or other obstruction within the entry way of a door opening and I arrange doors on opposite sides thereof to control the passageways formed thereby through such doorway, and I provide means for controlling the operation of the door,

said means being capable of location at or central from any desired or convenient point. In the operation of the doors I provide for the opening of the doors on one side of the post, standard or other obstruction, in one direction, while the doors on the other side of such post, standard or obstruction are arranged to open in the other direction, thereby affording a most simple and efficient arrangement for separate entrance and exit passageways through the doorway.

In connection with the door arrangement above referred to I also employ a movable step together with means for securing a coincident movement and operation of the doors and step. This arrangement is particularly desirable for use in connection with street or other railway cars. I may also provide, in the case of cars, a railing arranged inside the car and extending into the car from a point adjacent the post, standard or other obstruction in the doorway, thereby forming extended passageways leading to and from the doors on the respective sides of the post or standard, thereby affording a convenient station for the car conductor from which the doors and steps may be controlled and the fares collected. These principles may be embodied in a wide variety of different constructions and arrangements. While, therefore, I have shown, and will now describe various constructions and arrangements for accomplishing the desired results, I do not desire to be limited or restricted in the broad scope of my invention, as defined in the claims, to any specific structure or arrangement.

In the construction shown in Fig. 1, A designates a post, standard or other obstruction, and which, for convenience of description I shall hereinafter refer to as a post intending to include by this term a standard or other form of obstruction for the purposes intended. This post is arranged within the doorway to separate the same into passageways on either side thereof. In these passageways are arranged doors which, in this case, comprise the folding panels B, C, on the one side, and the similar panels B', C', on the other side. The panels B, B', are respectively hinged at one side edge thereof to the proximate side edge of the other panels C, C', the latter being connected at their extreme outer side edges to rock shafts D, D', respectively. A gear E, E', is rigidly

mounted concentric with the shafts D, D', respectively, and these gears, through intermediate gears G, G', drive gears F, F', rigidly connected to the panels B, B', in the axial line of their hinges. By rocking shafts D, D', the panels C and C' are swung into open or closed position, as required, while, coincidentally therewith, the panels B, B', fold upon said panels C, C', or are extended into line therewith. In practice I prefer to rotate the shafts D, D', in opposite directions whereby the door movements in folding upon each other and in attaining their completely opened position will travel in a direction corresponding to the passenger movement. Thus the door section C will be swung outwardly in the exit passageway while section C', will swing inwardly in the entrance passageway, as indicated by the arrows. In connection with the post A, I have shown a railing H, arranged to extend inwardly into the car, where the apparatus is used on a car, thereby extending the passageways inside the car and defining the same, while at the same time affording a convenient station for the car conductor within the car, from which the operation of the doors may be controlled, as, for instance, by means of a control handle J, and connections K, to suitable means, not shown, in this view but corresponding to the operating shaft in Figs. 2 and 4. This railing H, also enables the conductor to collect the fares of the passengers at a point within the car, thereby insuring the collection of all the fares while, at the same time the conductor is in a position to view the entrance and exit ways and to control the same, in supervising the loading or unloading of passengers and to himself be seen or observed by passengers or inspectors inside the car.

In Fig. 1, I have shown the folding door construction as applied to the side of a car M, where there is no platform but it is evident that the same arrangement may be employed on cars having end platforms, in which case the doors may be arranged to control the entry way from the platform to the inside of the car body, as indicated in dotted lines.

In Fig. 2, the shafts D, D', are shown as being operated by gear connection to an operating shaft N, having a crank O, by which it is rocked through the connections K, or otherwise, as may be convenient. The step P, is connected to this operating shaft N, so as to rock or swing into or out of position for use coincidentally with the operation of the doors. In the form shown in this figure of the drawing, however, the post A', instead of being a fixed post as in Fig. 1, is a shaft which is also rocked through gear connection with the operating rock shaft N. And instead of the door panels C, C', having cooperating panels hinged thereto as in the

arrangement shown in Fig. 1, the rock shaft A', carries a panel B², which extends on both sides of the shaft A', the two wings thereof respectively cooperating with the panels C, C'. In this arrangement the door section or panel C and its cooperating wing of panel B², move outwardly in opening, to open the exit passageway, while the section or panel C', and its cooperating wing of panel B, move inwardly to open the entrance passageway, the step P, being lowered into position for use as shown in Fig. 3. In this case the railing H, if used, should be arranged in suitable arrangement with respect to the open position of the panel B², to form the extended passageway to and from the doorway.

In the arrangement shown in Fig. 4, I employ two shafts A², A³, to form the post or obstruction within the doorway and dividing the same into passageways, and to each of these shafts I attach a door section or panel B³, B⁴, respectively, cooperating with the door sections or panels C or C', said shafts being suitably geared, as shown to operating shaft N, to cause said panels B³, B⁴, to cooperate in direction of movement with the panels C, C', in opening, as above explained.

A door construction, and controlling means therefor, embodying the principles of operation as above explained, is specially adapted for use on street cars, though it is to be understood that my invention is not to be limited or restricted in respect to the use to which it is to be put. Where employed on street cars I avoid the necessity of providing sliding pockets in the side of the car to accommodate the doors when opened, and I am enabled to secure a wide opening of the entry way and also to apply the apparatus to the ends of cars where the sides thereof may be somewhat rounded or inclined with reference to the length of the car.

Having now set forth the object and nature of my invention, and various constructions embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent is:

1. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors located on opposite sides of said post, and respectively controlling said passages, the door on one side of said post moving outwardly to open its passage, and the door on the other side of said post moving inwardly to open its passage, and means controlled from a point inside the car but removed from the doors for controlling the operation of the doors.

2. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, independent doors located on opposite sides of said post,

and respectively controlling said passages, the door on one side of said post moving outwardly to open its passage and the door on the other side of said post moving inwardly to open its passage, and means controlled from a point inside the car but removed from the doors for controlling the operation thereof.

3. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors located on opposite sides of said post, and respectively controlling said passages, the door on one side of said post moving outwardly to open its passage, and the door on the other side of said post moving inwardly to open its passage, a movable step, and means controlled from a point within the car, but removed from the doors, for operating the door and step in unison.

4. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, swinging doors located on opposite sides of said post, and respectively controlling said passages, the door on one side of said post swinging outwardly to open its passage, and the door on the other side of said post swinging inwardly to open its passage, a foldable step, and means arranged within the car, but removed from the door for operating the doors and step in unison.

5. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors respectively controlling said passages, a partition arranged within the car to continue the separation of said passages, and means associated with said partition for controlling the movements of the doors, the door on one side of said post moving outwardly to open its passages, and the door on the other side of said post moving inwardly to open its passages.

6. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, swinging doors located on opposite sides of said post and respectively controlling said passages, the door on one side of said post swinging outwardly to open its passages, and the door on the other side of said post swinging inwardly to open its passages, a railing arranged inside the car to continue the separation of the passages, and means associated with said railing for simultaneously swinging said doors.

7. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors having foldable sections and respectively located on opposite sides of said post to control said passages, and means located within the car for moving said door sections simultaneously to open and close said passages.

8. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors having folding sections and respectively located on opposite sides of said post for controlling said passages, the door sections on one side of said post folding inwardly to open the passage controlled thereby, and the door sections on the other side of said post folding outwardly to open the passage controlled thereby, and means located within the car for coincidently folding said door sections.

9. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors having folding sections and respectively located on opposite sides of said post to control said passages, a railing arranged inside the car for continuing the separation of said passages, and means associated with said railing for controlling the movement of the door sections.

10. In a car, the combination with a doorway, of a post arranged therein to divide the same into separate passages, doors having foldable sections and respectively located on opposite sides of said post to control said passages, a foldable step, and means located inside the car for coincidently moving said door sections and step in unison.

11. The combination with a doorway, of a part arranged to divide the same into passages, twin folding door sections arranged on each side of said post, connections between said sections and means for coincidently operating the sections.

12. A passenger car provided with a platform having foldable side doors and a foldable step, means connected with said doors and step and operated by a hand-lever so as to actuate both in unison, substantially as and for the purposes described.

13. A passenger car having a main car body provided with an end platform having a doorway in the side thereof, a post located in said doorway to divide the same into separate passages, infolding twin side doors adapted to open outwardly in opposite directions in unison, and located respectively on opposite sides of said post, and means for actuating said doors, said means controlled by devices within the car.

14. A passenger car, having a main-car-body provided with an end platform having infolding twin side doors adapted to open outward in opposite directions in unison, a foldable step located beneath said doors, and means for actuating said doors and step and said means controlled by devices within the car, substantially as and for the purpose described.

15. In a passenger car, a platform having side double doors adapted to infold toward each other and to open in opposite directions to each other, a foldable step located beneath

said doors and means to actuate said doors and step, in unison, said means located in the opening to the main body of the car from a platform, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in the presence of the subscribing

witnesses, on this 1st day of February, A. D., 1909.

HAROLD ROWNTREE.

Witnesses:

C. C. HUNICKE,
S. E. DARBY.