

J. B. BURDETT.
DIVIDED DOOR FOR STREET CARS OR OTHER PURPOSES.
APPLICATION FILED SEPT. 30, 1910.

1,002,031.

Patented Aug. 29, 1911.

Fig. 2.

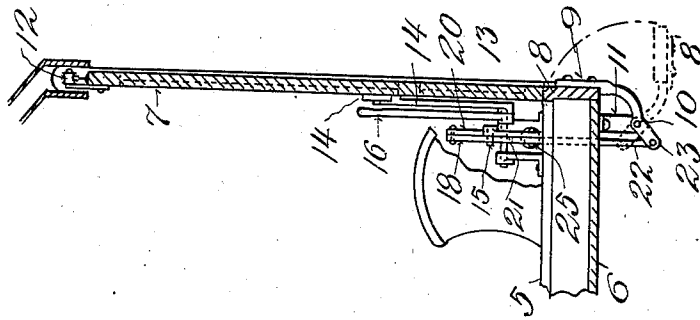
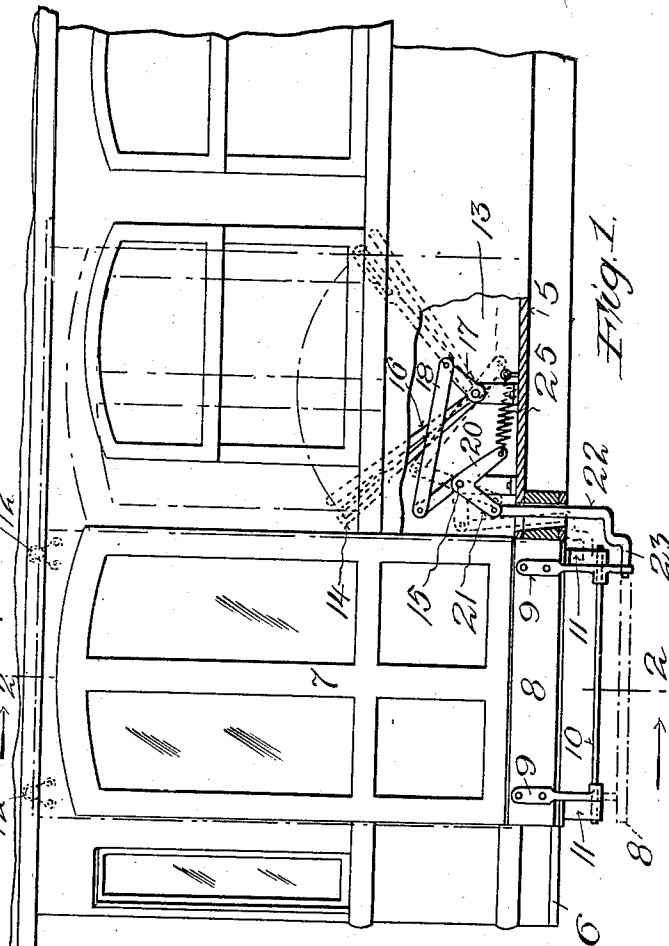
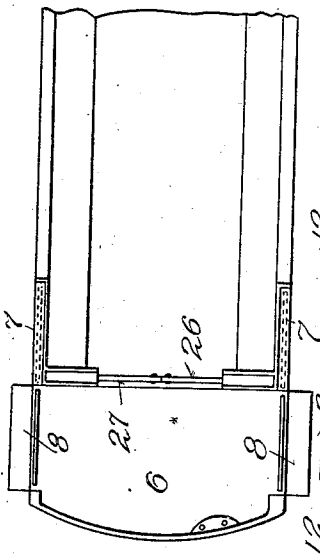


Fig. 3.



Witnesses:
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By his Attorney
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UNITED STATES PATENT OFFICE.

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DIVIDED DOOR FOR STREET-CARS OR OTHER PURPOSES.

1,002,031.

Specification of Letters Patent.

Patented Aug. 29, 1911.

Original application filed July 25, 1908, Serial No. 445,393. Divided and this application filed September 30, 1910. Serial No. 584,593.

To all whom it may concern:

Be it known that I, JOHN B. BURDETT, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have made a certain new and useful Invention in Divided Doors for Street-Cars or other Purposes, of which the following is a specification.

The invention relates to divided doors, and the subject matter thereof is divided from my pending application Serial No. 445,393, filed July 25, 1908.

The object of the invention is to provide a door divided into two portions so arranged and connected that they move in different directions with respect to each other in opening or closing.

Other objects of the invention will appear more fully hereinafter.

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 drawing, 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 side elevation of one end of a car, parts broken out, parts broken off, and parts in section, showing application of a divided door construction embodying the principles of my invention, and a form of interconnecting mechanism therefor for operating the same, and showing in full lines the position of the parts with the door closed, and in dotted lines the position of the parts with the door open. Fig. 2 is a broken transverse section on the line 2, 2, Fig. 1, looking in the direction of the arrows, with the door closed. Fig. 3 is a diagrammatic plan view of the end of the car showing the arrangement of parts.

In the practical operation of street or other cars according to modern practices and methods, it is becoming more and more desirable to provide inclosed platforms at the ends of the car, and to provide the platform with side doors, in place of or in addition to the ordinary transverse bulkhead doors between the platform and the car body. In constructing new cars embodying this method and practice, it is customary to extend the floor of the car body to the ex-

treme ends of the car so that the floors of the platforms at the ends of the car are on a level with the floor of the car body and forms a continuation thereof. In this case the problem of providing the vestibules or platforms at the ends of the car with sliding doors so that such doors may slide into pockets formed in the sides of the car, becomes easy of solution. In converting old style cars with uninclosed platforms, into the inclosed platform type, however, a more difficult problem is encountered since it is not only necessary to provide the platform with side doors, but it is also necessary to make proper provision for steps. Moreover, in most instances of old style cars the floors of the platforms are on a lower level than the level of the floor of the car body.

In accordance with the principles of my invention, I propose to employ a divided door for the side of the car platform or vestibule of such construction and arrangement that, when closed, completely incloses the platform or vestibule, the upper portion of the door moving or sliding into a pocket formed in the side of the car, and the other or lower section or portion of the door, independently mounted, moves or swings down at right angles to the direction of movement of the upper portion, to form a step, the lower level of the platform floor, with reference to the floor of the car body, making it impractical for the entire platform side door to move or slide into a pocket in the side of the car body.

In the accomplishment of the objects and purposes of my invention, therefore, as above indicated, and in one practical embodiment thereof, as shown to illustrate the principles thereof, I employ a divided door, the upper portion mounted to slide in a plane parallel with that of the side of the car, while the lower portion is hinged so as to swing downwardly into position for use as a step when the upper portion is moved into its receiving pocket, and to swing upwardly into position to coöperate with the upper portion to close the platform or vestibule side doorway or opening, when such upper portion is moved into its closed position.

If desired, and as shown, the two portions of the door may be so connected as to be moved in unison with each other, and the

interconnecting means may be so arranged that the relative speeds of movement of the door sections or portion varies according to the relative positions thereof.

5 In the accompanying drawing I have indicated an illustrative construction and arrangement exemplifying a practical application of a divided door embodying the principles of my invention to a street car where-
10 in the floor of the platform at the end of the car is at a lower level than the floor of the car body.

In the drawing reference numeral 5, designates the floor of the car body; 6, the floor
15 of the platform at the end of the car; 7, the upper portion of the divided door; and 8, the lower portion thereof. The lower portion 8, of the door, is carried by castings or brackets 9, supported upon a rock shaft 10,
20 carried by hangers 11, depending from the under side of the platform adjacent the doorway in the side thereof, whereby when said shaft is rocked the lower section 8 of the door is rocked or swung into position for
25 use as a step, or into position to cooperate with the upper section 7, of the door to close the doorway, according to the direction in which the shaft 10, is rocked. The upper section or portion 7, of the door may be
30 supported in the ordinary manner of moving doors, as, for instance, by means of hangers 12, in the case of a sliding door, whereby it may slide into a pocket 13, formed in the side of the car body to receive
35 it. Any desired or well known form of door operating mechanism may be employed to move the door sections and to secure the coincident action thereof. As illustrative of an operative embodiment, I have shown a
40 pivoted lever 14, slidably connected to the door section 7. By rocking lever 14, the door section 7, is moved into or out of closed position, according to the direction of operation of the lever, and when the door section
45 7 is in open position it is received in the pocket 13. The lever 14, may be rocked by any suitable means, and the door sections 7, 8, may be connected together in any suitable manner to secure the coincident
50 movement thereof in different planes or directions. As shown an operating handle or lever 16 is provided for manually rocking a bell crank arm 17, connected by a link 18,
55 with one arm of a bell crank lever 20, pivoted at 15, said operating handle or lever 16, being also connected to operate the door moving lever 14. To another arm 21, of bell crank lever 20, is connected one end of a link 22, said link being connected at its other end
60 to a crank arm 23, on the rock shaft 10, whereby, when the operating lever 16 is rocked the lever 14, is also rocked to shift or move the section 7 of the door, while at the same time the door section 8, is coincidentally moved.

By the relation and arrangement of lever and link connections above described, it will be seen that the relative speeds of movement of the two sections of the door vary according to the positions of the sections. The
70 section 7, of the door begins to move slowly but rapidly accelerates its speed until it approaches its closed position, when such speed is again reduced. So, too, in opening, the
75 section 8 of the door begins its movement slowly and then accelerates but slows down again as it approaches its lowered position. This result is due to the crank arm movements and the shifting leverages exerted thereby according to their arcs of movement.
80 My present invention, however, does not lie in this mechanism, and I do not claim the same herein, and consequently the specific construction thereof may be varied and changed as may be desired without affecting
85 the nature and scope of my present invention as defined in the claims.

In practice I prefer to so arrange the link 18, that when the portion 7, of the door is in its open position, the point of connection of said link with the crank arm 17, will pass
90 closely adjacent a line joining the axis of said crank arm and the point of connection of said link 18 with the bell crank lever 20, as indicated in Fig. 1, thereby
95 making the action a substantially dead center action, so that when the portion 7 of the door begins to move toward its closed position a powerful action of the crank arm 17, is exerted to initiate the raising movement
100 of the door portion 8, this action, resulting from the crank arm moving off its dead center position, helps to overcome the weight of the door section 8, in moving from its lowered position. If desired, however, and in
105 order to assist in balancing the weight of the door section 8, when in its lowered position, I may attach a spring 25, to the crank arm 20, through which the section 8, of the door is operated, in such manner and relation as
110 to be put in tension when said door section is moved into its lowered position.

As above noted my invention in its broadest scope, and as defined in the claims is not
115 to be limited in respect of the means employed to operate the door sections, nor with respect to the point from which the operation of said sections is controlled, the arrangement shown being intended merely as
120 an illustrative form of mechanism and relation of an operative and practical application of my invention. The car platform or vestibule may be separated from the body of the car by the usual doors 26, 27, which move
125 transversely of the car when opening or closing. These doors, however, are not necessary.

I do not claim herein the car structure or arrangement of the door sections or their
130 operating means with reference to the car

structure, as the same forms the subject of my prior application Serial No. 445,393, from which the present application is divided. But

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

10 1. A door having a horizontally sliding portion, and a portion hinged to swing vertically on an axis extending in the direction of movement of the sliding portion, said hinged portion operating when in open position, to form a step.

15 2. A door having an upper horizontally sliding portion and a lower vertically rocking hinged portion forming a step, and connections intermediate said portions whereby they move in unison, the lower portion, in closed position, operating to render the door step inaccessible.

20 3. A door having an upper portion mounted to slide horizontally, and a lower portion mounted independently of the upper portion to move vertically, the lower portion, in opening, being moved into position to form a step.

25 4. A door having a sliding portion and a hinged portion, said hinged portion, in opening, being moved into position to form a step.

30 5. A door having one portion mounted to slide horizontally, and another portion independently mounted and hinged to rock vertically, and means for moving both portions simultaneously, said hinged portion, when moved to open position, forming a step.

35 6. A door having an upper portion mount-

ed to slide, and a lower portion mounted to rock, said lower portion, when moved to open position, forming a step. 40

7. A door having a horizontally sliding portion and a vertically moving portion, connections between said portions to move 45 the same simultaneously, and means for counterbalancing one of said portions, said hinged portion, when moved to open position, forming a step.

8. A door having a horizontally sliding 50 portion, and a vertically rocking hinged portion, connections between said portions to move the same simultaneously, and means for counterbalancing the hinged portion, said hinged portion, when moved to open 55 position, forming a step.

9. A door having a horizontally sliding portion and a vertically rocking hinged portion, said portions connected to move in unison, and means for varying the relative 60 speeds of movement of said portions according to the relative positions thereof, said hinged portion, when moved to open position, forming a step.

10. A door having a sliding and a hinged 65 portion, and connections intermediate said portions arranged to reduce the speed of the hinged portion, in opening as it approaches its open position, said hinged portion, when moved to open position, forming a step. 70

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses, on this 12th day of September A. D., 1910.

JOHN BURRUS BURDETT.

Witnesses:

LEMUEL M. SHIELDS,
HARRY M. HEDGE.