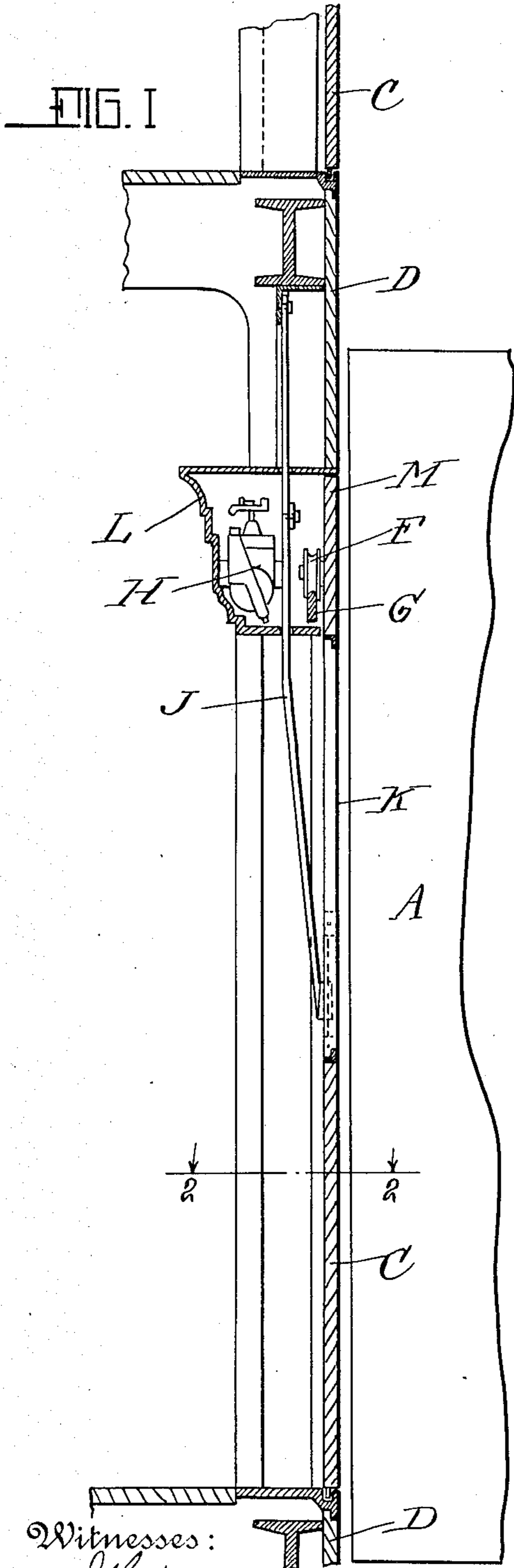


APPLICATION FILED MAY 25, 1907.

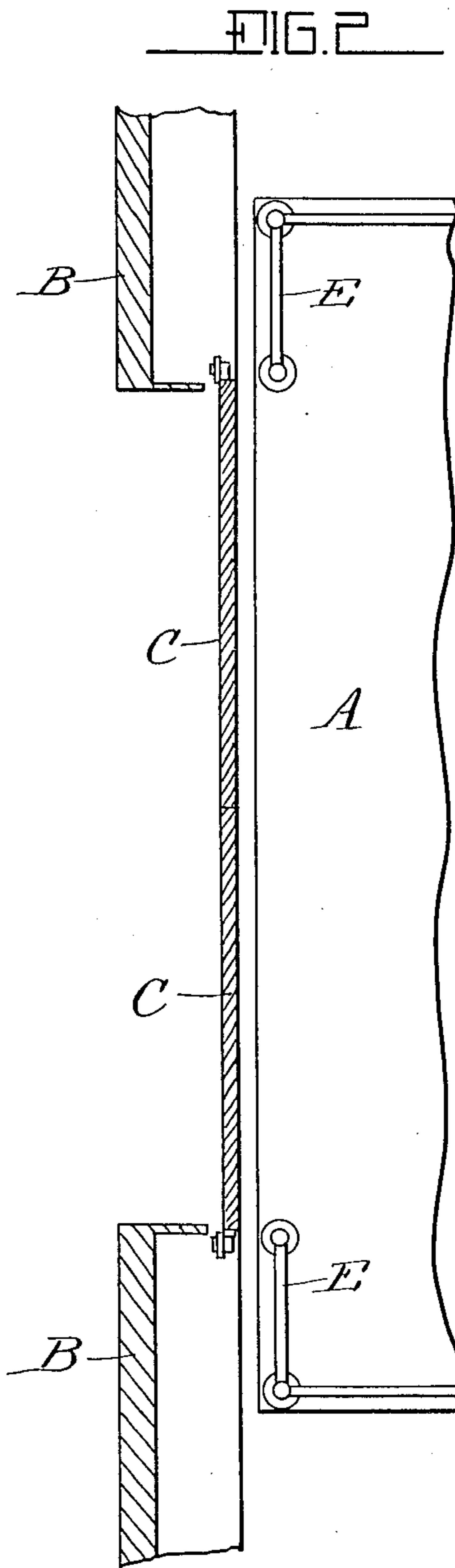
916,607.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.



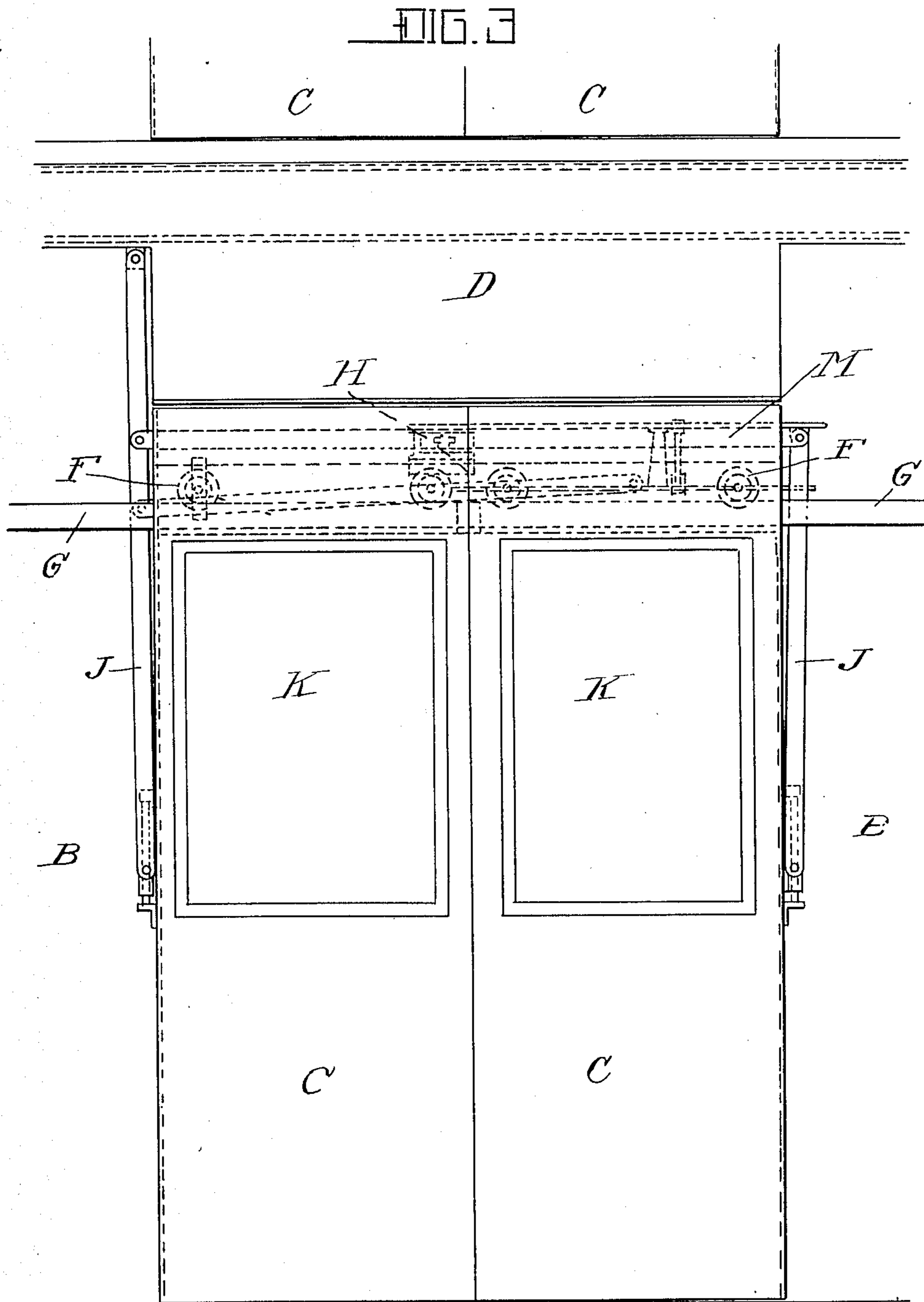
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Inventor
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By his Attorney
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916,607.

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.

FLUSH ELEVATOR-HATCHWAY.

No. 916,607.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed May 25, 1907. Serial No. 375,640.

To all whom it may concern:

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

The invention relates to flush elevator hatchways.

10 The object of the invention is to provide an elevator hatchway which presents a flush surface in front of the car door or opening when all the hatchway doors are closed.

15 A further object of the invention is to provide means whereby projecting ledges or offsets are avoided in the hatchway in front of the car door or opening, when all the hatchway doors are closed, and throughout the entire travel of the car.

20 Other objects of the invention will appear more fully hereinafter.

25 The invention consists substantially in the construction, combination, location and 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.

30 Referring to the accompanying drawings, and to the various views and reference signs appearing thereon,—Figure 1, is a broken view in vertical section of a portion of elevator hatchway constructed in accordance with and embodying the principles of my invention. Fig. 2, is a broken view in transverse section on the line 2, 2, Fig. 1, looking in the direction of the arrows. Fig. 3 is a view in elevation of the inside of the door.

35 The same part is designated by the same reference sign wherever it occurs throughout the several views.

40 In the construction of elevator hatchways as heretofore carried out, the hatchway doors are so mounted with reference to the ceiling and flooring above and below the same, and with reference to the inner wall of the hatchway between floors, and in front of the car door or opening, as to form or leave a projecting or exposed ledge, shelf or other form of extension, above the hatch way door and between which and the floor edge of the car door opening, when the car is ascending, persons occupying the car are liable to be caught and crushed or otherwise injured, or maimed, if not killed, and especially where the car is crowded to the limit of its capacity with pas-

sengers, as frequently happens in the practical operation of elevators where larger crowds are handled. Similarly, such projecting or exposed ledge, shelf or other form of extension below the hatchway door affords a source of danger of a passenger on the car being crowded against the same, or sufficiently far through the car door or opening as to be caught between such shelf, ledge or extension and roof edge of the car door opening and so injured, maimed or crushed, if not killed. A great many serious and often fatal accidents have resulted from this source, necessitating, in many localities, the adoption of special laws and regulations requiring the elevator cars as well as the hatchways to be provided with doors whereby passengers of the car are locked within the car, by closing the car door, thereby avoiding the possibility of being caught between the floor or roof of the car, when the car is ascending or descending, as the case may be, and the ledge or shelf over or below the hatchway door.

45 The provision of a door, on the car, in addition to the hatchway door, and the necessity for opening and closing said door in addition to the opening and closing of the hatchway doors, not only materially increases the expense of the apparatus by reason of the additional door on the car, as well, as the operating mechanism therefor, but also the time required in opening and closing the car door at each stop made by the car, in addition to that required for opening and closing, or controlling the movements of the hatchway door, very materially curtails the carrying capacity per unit of time, of the elevator. Moreover, the provision of an extra door whether with or without controlling mechanism therefor, for the car attendant to manipulate serves to increase the duties of such attendant and to detract from the care and attention that should be given to the running of the car and to the requests of the passengers to stop at the various floors where the passengers desire to alight.

50 It is among the special purposes of my present invention to provide means whereby I am enabled not only to avoid the additional expense involved in the provision of such door but also to avoid the additional care and the consequent division of attention of the car attendant.

55 In carrying out my invention I propose to

so mount the hatchway doors with reference to the inner wall of the hatchway in front of the car doorway or opening that, when all the hatchway doors are closed, a substantially flush continuous surface is presented to such car doorway throughout the entire travel of the car, and to this end, in accordance with my invention, I provide a section of hatchway wall, and above and below, respectively, adjacent hatchway doors, and I arrange the hatchway doors in such relation therewith that the inner surface of the doors will lie in the same vertical plane with the inner surface of said hatchway wall sections, and with the top and bottom edges of the door adjacent respectively the bottom and top edges of the hatchway wall sections immediately above and below it. In this manner the doors when hung are not off-set from the hatchway wall but combine therewith to present, when closed, a flush substantially continuous surface in front of the car doorway.

It is obvious that in a construction and arrangement embodying the principles of my invention as above outlined, it is necessary to provide the flush surface in front of the car doorway or opening, but by making the hatchway doors at each landing as wide as the car itself then, when the hatchway doors are completely open, the entire front of the car may be opened to permit the ingress and egress of passengers, and this is a most important and valuable feature enabling the rapid handling of crowds. It will also be seen that the car may be filled to its utmost capacity without danger of a passenger being caught or crowded between projecting ledges and the roof or floor edges of the car doorway.

In the drawings reference sign A, designates a car; B, the side walls of the hatchway adjacent the vertical edges of the hatchway doors; C, hatchway doors; D, the sections of hatchway wall between floors and above and below adjacent hatchway doors, the hatchway wall sections D, and the hatchway doors C, being so relatively arranged that the inner surfaces thereof lie in substantially the same vertical plane, while the top edge of each door is closely adjacent the lower edge of the wall section D, lying immediately above it, and the lower edge of each door is closely adjacent the top edge of the wall section D, lying immediately below it. As above indicated the car doorway is coextensive in width with that of the hatchway doors when closed. This may be the entire width of the front of the elevator car. As shown, however, and as usual, the car is provided with short sections of front walls, as indicated at E, between the proximate edges of which the car doorway or opening occurs. My invention, however, is not to be limited or restricted in this respect.

As will be obvious the hatchway doors may be of any suitable or convenient type or arrangement and may be supported for movement into open or closed position in any suitable or convenient manner. It is also obvious that means for operating the doors may or may not be provided. My invention, therefore, is not to be limited or restricted in these respects. In the particular form which I have selected to illustrate the principles of my invention, and the best form in which I at present contemplate carrying my invention into practical operation, I have shown hatchway doors of the sliding type, two doors being arranged at each landing, one sliding in one direction and the other sliding coincidently in the other direction, and any suitable or well known connections may be employed to secure such coincident sliding movement. I prefer this type and arrangement of doors for the reason that the widest possible area of door opening is attained in the shortest space of time. As above indicated, however, my invention is not to be limited or restricted in this respect. I also suspend the doors on rollers F, arranged to operate on a track G. The track and rollers, however, are on the outside of the doors, as shown, so that the inner surface of the door may present a flush smooth unbroken surface with the inner surface of the hatchway wall sections D above and below it. I have also indicated at H, a power mechanism for operating the doors, such power mechanism operating upon the doors through a pivoted lever J, in an ordinary manner. This power mechanism and lever, are also arranged on the outside of the door, as clearly shown.

If desired, and in order to afford light in the car, instead of the doors being solid they may be provided with glass or other form of transparent panels, as indicated at K.

Where power mechanism for operating the doors, or where a track and rollers are employed, I prefer to arrange them within a box or casing above the doors as indicated at L, the portion M, of the doors closing such box or casing from the inside when the doors are closed. This is a convenient arrangement for thereby access may be readily gained to the door operating mechanism H, from the inside by merely sliding the door open. All these, however, are details of construction and arrangement to which, in its broadest scope, my invention is in nowise to be limited or restricted, and which may be readily altered, varied or omitted without departure from the spirit of my invention.

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 is:

1. The combination with an elevator hatchway inclosure, of a sliding door there-

for, the inner surface of the door, when closed, lying in the same vertical plane with the inner surface of the wall of the hatchway inclosure above and below the door, door supporting means arranged on the outside of the inclosure, and power devices also arranged outside of the door for moving the latter in the plane of the inner surface of the wall.

2. An elevator hatchway inclosure having a door opening therethrough, and wall sections above and below the door opening, a sliding door for said opening, the inner surface of the door, when closed, and the wall sections above and below the same, lying flush with each other, suspending devices for the door and power mechanism for moving the door in the plane of the inner surface of wall of the hatchway into and out of closed position, said suspending devices and power mechanism being arranged outside of the plane of the flush surfaces.

3. An elevator hatchway inclosure having a door opening therethrough at each landing or floor, and wall sections above and below each door opening, a sliding door for each opening, the inner surfaces of the doors and the inner surfaces of the wall sections all lying flush with each other throughout the length of the hatchway when the doors are closed, and means arranged outside of the flush surfaces for moving each door in the plane of the inner surface of the wall sections into and out of closed position.

4. An elevator hatchway inclosure having doorways or openings therethrough at each floor or landing, and wall sections above and below each door-way, a sliding door for each doorway the inner surfaces of the doors when closed all lying flush with the inner surfaces of the wall sections, means for suspending each door, said means being located outside the flush surfaces and means also located outside of the flush surfaces for moving each door in the plane of the inner surface of the wall sections into and out of closed position.

5. An elevator hatchway inclosure having doorways therethrough and wall sections above and below such doorways, and adjacent the upper and lower edges thereof, a sliding door for each doorway movable in the plane of the inner surface of the wall sections into and out of the closed position, the inner surfaces of the doors, and of the adjacent wall sections all lying in the same vertical plane when the doors are closed, a supporting track for each door, each track being located outside the vertical plane of the inner surfaces of the doors.

6. The combination of an elevator hatch-

way and a sliding door therefor and movable in the plane of the inner surface of the wall sections into and out of closed position, said hatchway having wall sections above and below the door and having their inner surfaces lying in the same vertical plane with the inner surface of the door when the latter is closed, and suspending devices for the sliding door, said suspending device being located outside the vertical plane of said inner surfaces.

7. The combination of an elevator hatchway and a door therefor, said door made in two parts, said parts moving in opposite directions, said hatchway having wall sections above and below the door, the door parts moving in the plane of the inner surface of the wall sections, the inner surfaces of the wall sections and door, when closed, lying in the same vertical plane and supporting means for said door parts, said supporting means being located on the outside of the door parts.

8. The combination of an elevator hatchway and a sliding door therefor, said door movable in the plane of the inner surface of the wall sections of the hatchway into and out of closed position, said hatchway having wall sections above and below the door and having their inner surfaces lying in the same vertical plane with the inner surface of the door when closed and suspending devices for the sliding door, said suspending devices being located on the outside of the door.

9. The combination of an elevator hatchway and a sliding door therefor, said door movable laterally in a right line into and out of closed position, said hatchway having wall sections above and below the door and having their inner surfaces lying in the same vertical plane with the inner surface of the door when closed, and a supporting track and rollers for the door, said track and rollers being on the outside of the door.

10. The combination of an elevator hatchway and a sliding door therefor, said door movable laterally in a right line into and out of closed position, said hatchway having wall sections above and below the door, and having the inner surfaces lying in the same vertical plane with the inner surface of the door when closed, and means for sliding said door, said means being arranged outside the door.

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses, on this sixteenth day of May A.D., 1907.

HAROLD ROWNTREE.

Witnesses:

J. B. BURDETT,
L. M. SHIELDS.