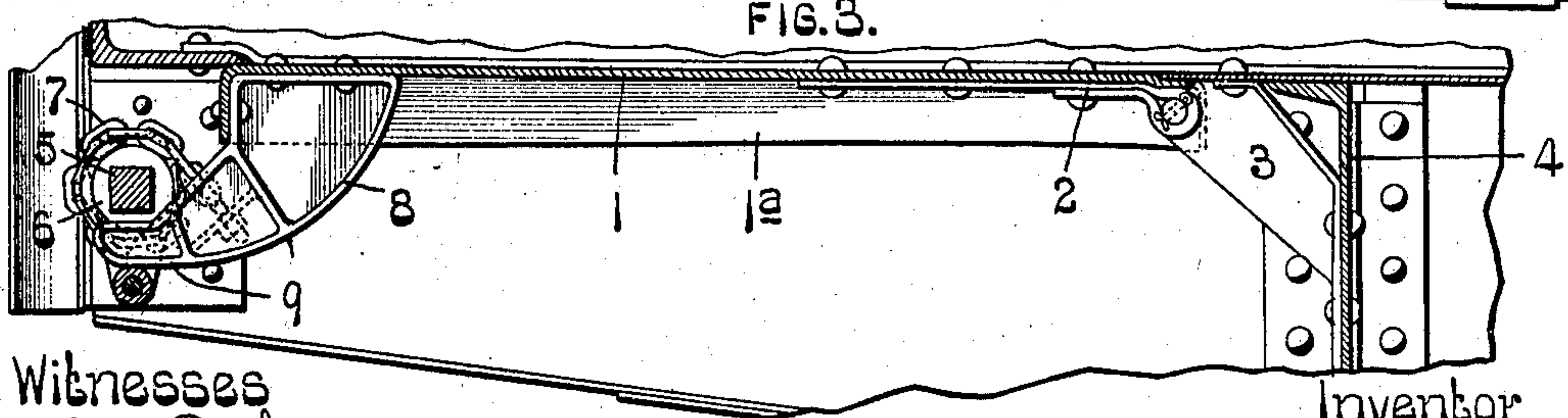
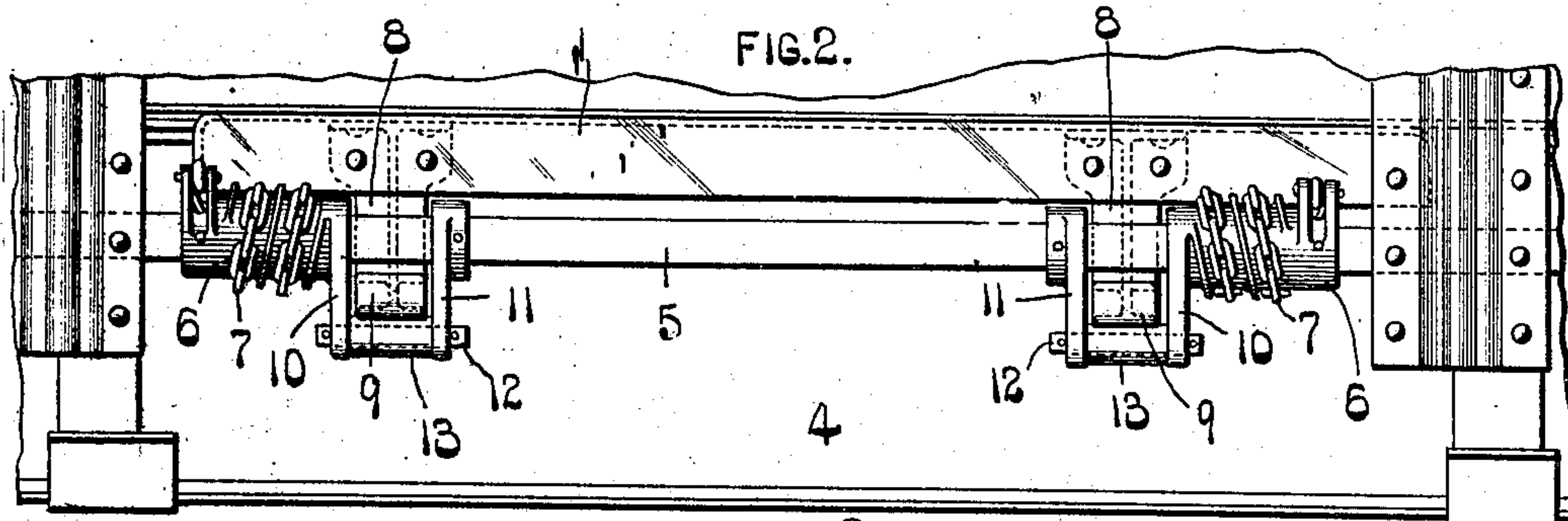
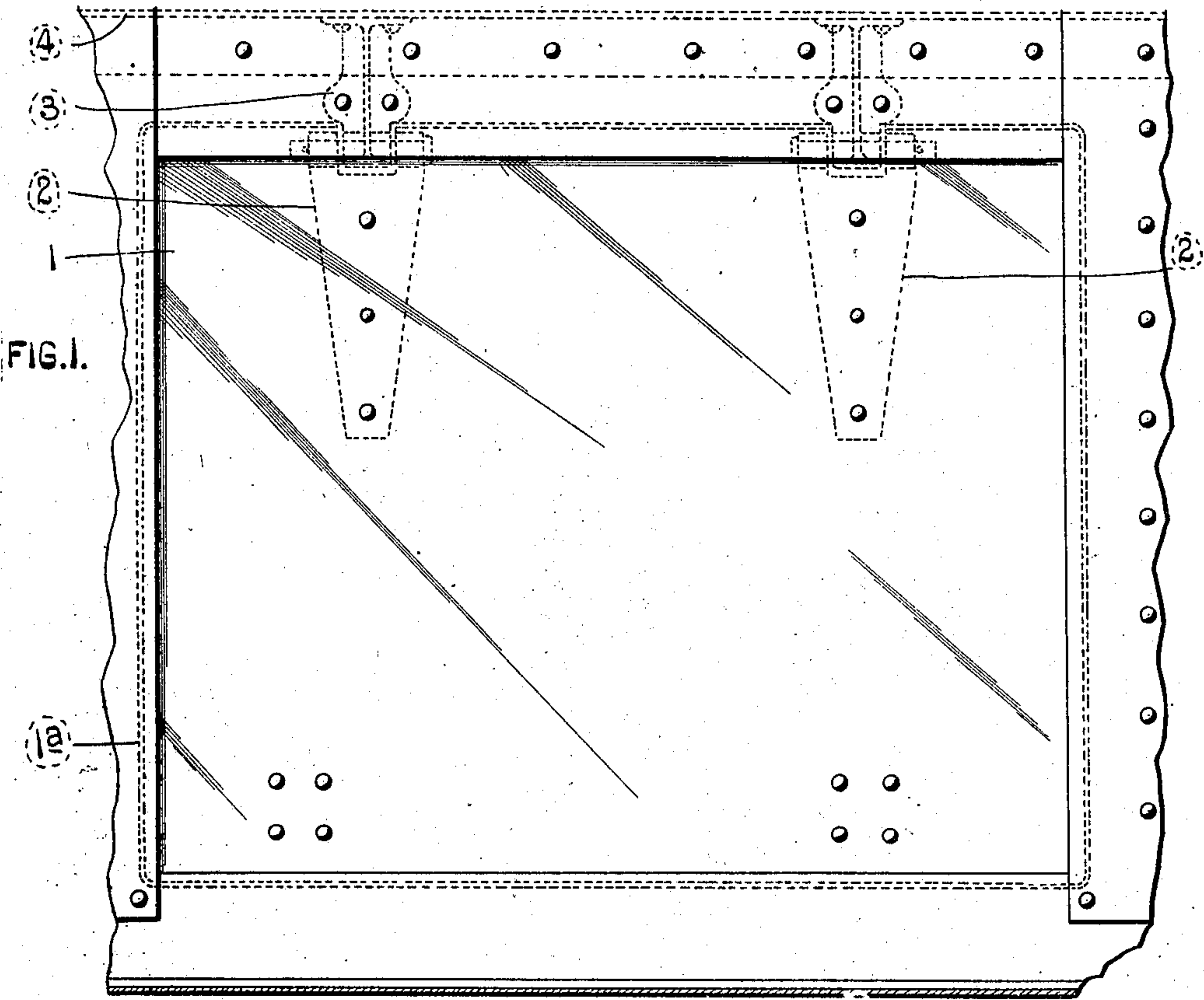


No. 881,576.

PATENTED MAR. 10, 1908.

C. G. HARRINGTON.  
DOOR OPERATING MECHANISM.  
APPLICATION FILED OCT. 15, 1907.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CLEMENT G. HARRINGTON, OF MAPLEWOOD, MISSOURI, ASSIGNOR TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

## DOOR-OPERATING MECHANISM.

No. 881,576.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed October 15, 1907. Serial No. 397,532.

*To all whom it may concern:*

Be it known that I, CLEMENT G. HARRINGTON, a citizen of the United States, residing at Maplewood, St. Louis county, Missouri, have invented a certain new and useful Improvement in Door-Operating Mechanisms, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of a portion of a car provided with my improved door-operating mechanism; Fig. 2 is a side elevation of a portion of the car; and Fig. 3 is a transverse sectional view of a portion of the car.

This invention relates to door-operating mechanisms for cars, and has for its object to provide a door-operating mechanism of simple construction which will securely hold the door in its closed position and which can be actuated easily to release the door and also to return it to its closed position. I have herein shown my improved door-operating mechanism applied to a gondola car but it will, of course, be understood that it could be used on other types of cars which are provided with doors that are opened to discharge the contents of the car.

Referring to the drawings which illustrate the preferred form of my invention, 1 designates a door preferably formed from pressed metal and connected at its inner end by hinges 2 to brackets 3 on one of the center sills 4 of the car. Extending longitudinally of the car and in a lower horizontal plane than the hinges of the door is a winding shaft 5 that is rotatably mounted in brackets, said shaft being provided with drums 6 to which chains or flexible members 7 are secured, the other ends of said chains being connected to the doors. Means are provided for turning the shaft and also for preventing retrograde movement thereof but as said means form no part of my present invention I have not illustrated them in the drawing. Two chains 7 are preferably provided for each door of the car and said chains are secured to castings 8 on the underneath side of the door. Each of said castings is provided with a portion 9 that extends underneath the winding shaft 5 when the door is closed, as shown in Fig. 3, and the winding shaft has yoke-shaped devices connected

thereto for engaging the portions 9 of the castings 8 to hold the door closed. The yoke-shaped devices herein shown each consists of an arm 10 on the drum 6 and an arm 11 secured to the shaft, the outer ends of said arms being connected by a pin 12 on which a roller 13 is mounted. Such a construction is simple and inexpensive but I do not wish it to be understood that I consider my invention limited to yoke-shaped devices of this form as the members on the winding shaft that engage the extensions on the doors could be formed in various ways without departing from the spirit of my invention.

To open the door the winding shaft is turned to carry the yoke-shaped devices out of contact with the portions 9 of the castings 8, thereby permitting the door to swing downwardly, there being sufficient space or clearance around the winding shaft to permit the arms 10 and 11 to rotate without coming in contact with obstructions. To close the door, the shaft 5 is rotated to wind the chains 7 onto the drums and as the door reaches its closed position, the rollers 13, which are carried by the arms 10 and 11, will pass under the extensions on the doors; namely, the portions 9 of the castings 8 and thus hold the door closed. Preferably, the door 1 is provided with an integral downwardly extending flange 1<sup>a</sup> and the castings 8 are so formed that they bear against the portion of the flange at the front edge of the door and are riveted thereto as well as to the door proper, as shown in Fig. 3.

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

1. A car provided with a door, a winding shaft arranged beyond the edge of the door and mounted so that it can rotate but not move or shift bodily relatively to the door, a flexible connection between said shaft and door, a projection on the door immovably connected thereto, and a device connected to the winding shaft for engaging said projection to hold the door closed; substantially as described.

2. A car provided with a hinged door, a rotatable winding shaft arranged beyond the edge of the door and stationarily mounted relatively thereto, a connection between said shaft and door, a projection on the door rigidly connected thereto, and a device connected to said shaft for engaging said pro-



jection to hold the door closed; substantially as described.

3. A car provided with a hinged door, a winding shaft connected to the door by a flexible member and stationarily mounted with relation to said door, a projection on said door which extends underneath the winding shaft when the door is closed, and a device connected to the winding shaft and adapted to pass under said projection to hold the door closed; substantially as described.

4. A car provided with a hinged door, a winding shaft connected to the door by a flexible member, a member secured to the door and projecting beyond the front edge thereof, and a device connected to the winding shaft and provided with a roller which passes under said member to hold the door in its closed position; substantially as described.

5. A car provided with a door, a winding shaft connected to the door by a flexible member, a device connected to the underneath side of the door and having a portion that projects beyond the front edge of the door, and a yoke-shaped member secured to the winding shaft and having a roller on which the projecting portion of the device on the door rests when the door is closed; substantially as described.

6. A car provided with a hinged door, a member secured to the underneath side of the door and having a portion that projects beyond the front edge of the door, a winding shaft, a chain connected to said shaft and to the member on the door, and a device on the shaft which encircles the projecting portion of said member when the door is closed; substantially as described.

7. A car provided with a door, a member secured to said door and projecting beyond the front edge thereof, a winding shaft having a drum secured thereto, a chain connected to said drum and to said member, an arm on said drum, an arm secured to said winding shaft, and a roller arranged between the outer ends of said arms and adapted to pass under the projecting portion of the member on the door when the door is closed; substantially as described.

8. A car provided with a hinged door, a plurality of members secured to said door and projecting beyond the front edge thereof, a winding shaft, chains secured to said members and to said shaft, and yoke-shaped de-

vices on said shaft which engage the projecting portions of the members on the door when the door is closed; substantially as described.

9. A car provided with a hinged door, a winding shaft arranged in a lower horizontal plane than the hinges of said door, a member secured to said door and having a portion that extends underneath said shaft when the door is closed, and a device on said shaft for engaging the projecting portion of said member; substantially as described.

10. A car provided with a hinged door, a winding shaft arranged in a lower horizontal plane than the hinges of the door, a member secured to said door and having a portion that projects downwardly and forwardly from the front edge of the door, said projecting portion extending underneath the winding shaft when the door is closed, and a yoke-shaped device connected to the winding shaft for engaging the projecting portion of said member to hold the door closed; substantially as described.

11. A car provided with a hinged door having a downwardly projecting flange, a winding shaft arranged in a lower horizontal plane than the hinges of the door, a member arranged on the underneath side of the door in contact with said flange and being secured thereto, a portion on said member which projects underneath said winding shaft when the door is closed, and means connected to said shaft for engaging and supporting the projecting portion of said member; substantially as described.

12. A car provided with center sills, a door hinged at its inner end to brackets on said center sills, a winding shaft arranged in a lower horizontal plane than the hinges of said door, members connected to the door and having portions that extend underneath the winding shaft when the door is closed, yoke-shaped devices connected to the winding shaft and having rollers upon which the projecting portions of said members rest, and chains secured to the winding shaft and to said members; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this eleventh day of October, 1907.

CLEMENT G. HARRINGTON.

Witnesses:

WELLS L. CHURCH,  
GEORGE BAKEWELL.