

No. 619,670.

W. A. CASWELL.  
FREIGHT CAR.

Patented Feb. 14, 1899.

(Application filed Sept. 22, 1898.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1

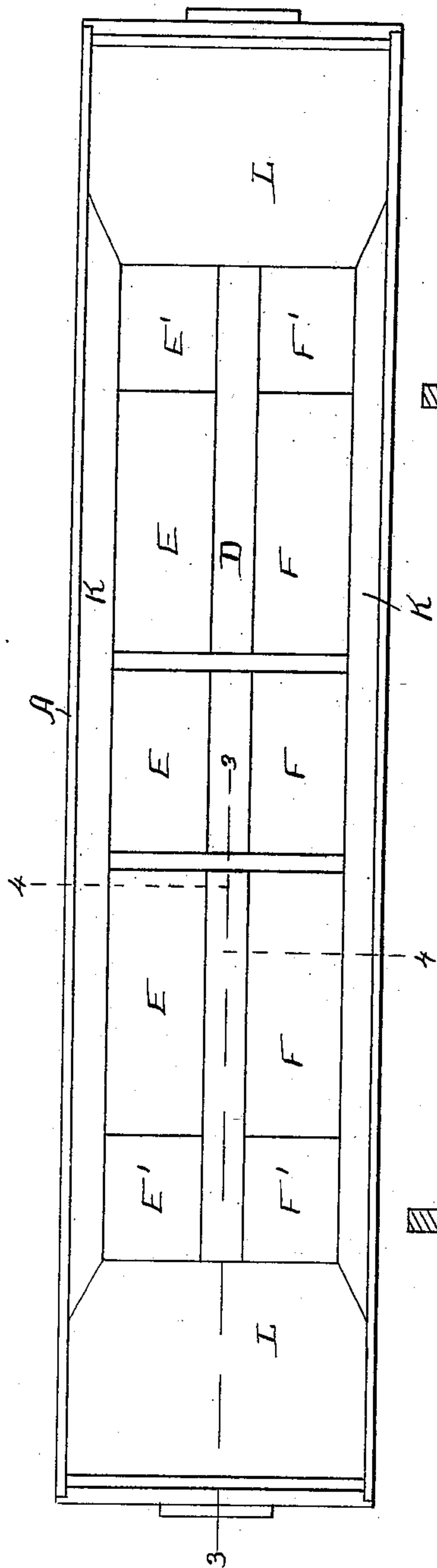


FIG. 4.

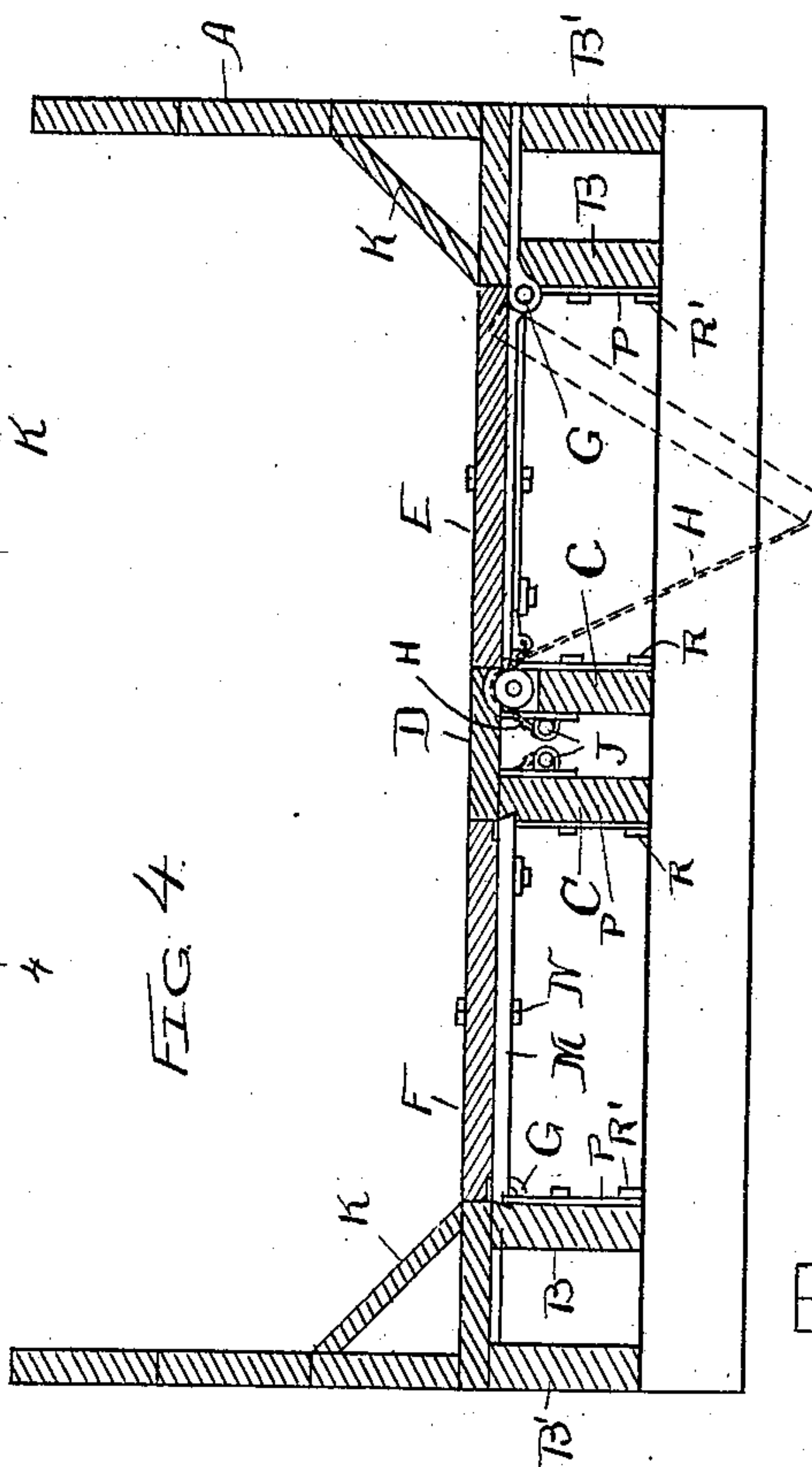
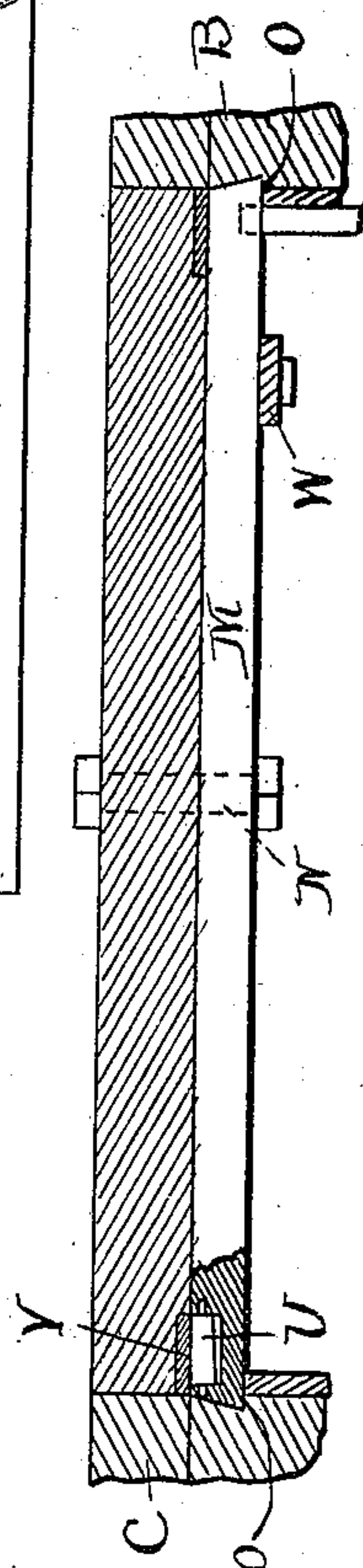


FIG. 5.



WITNESSES:

*Sew. C. Curtis*  
*H. W. Munday*

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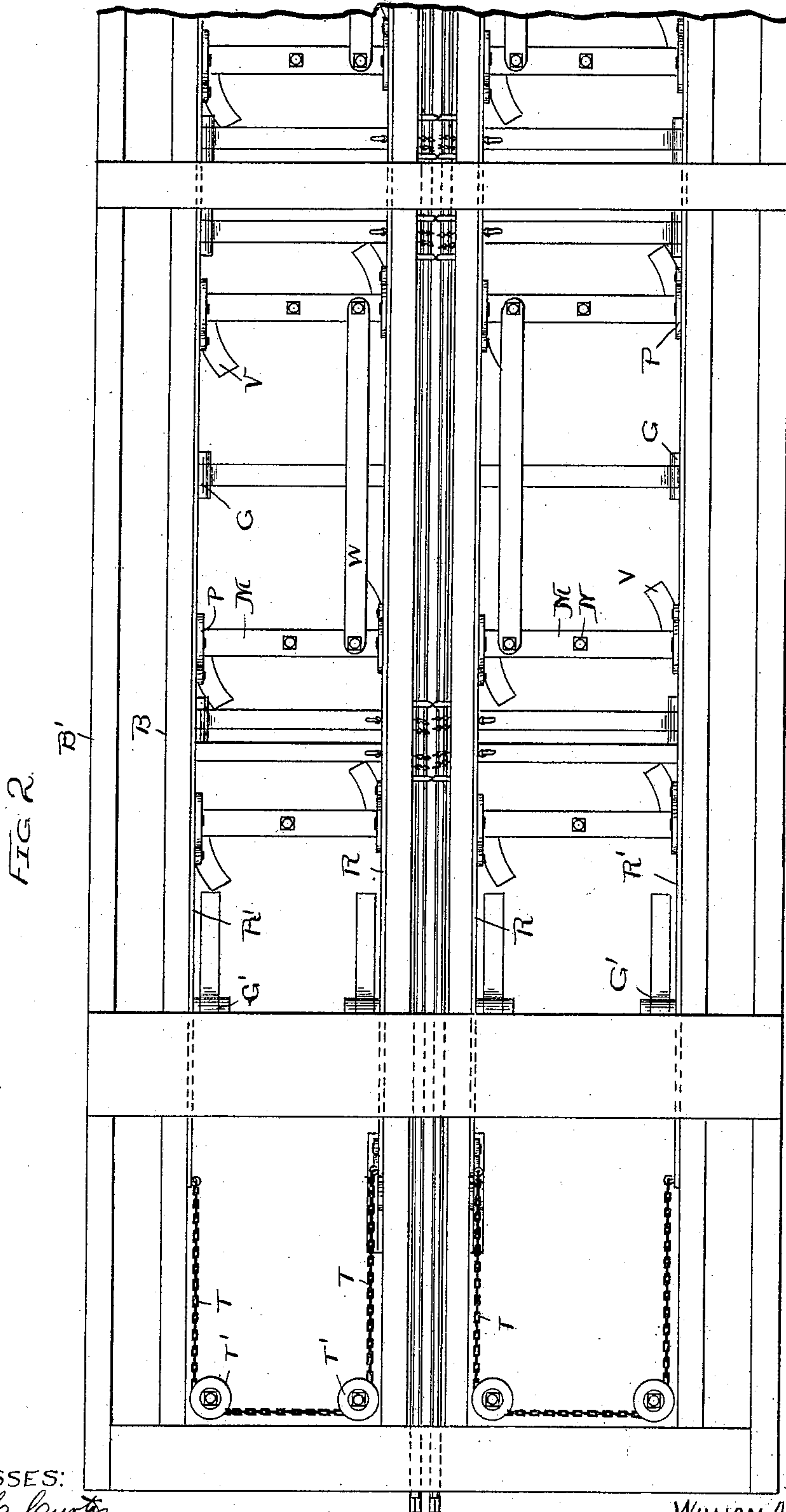
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3 Sheets—Sheet 2.



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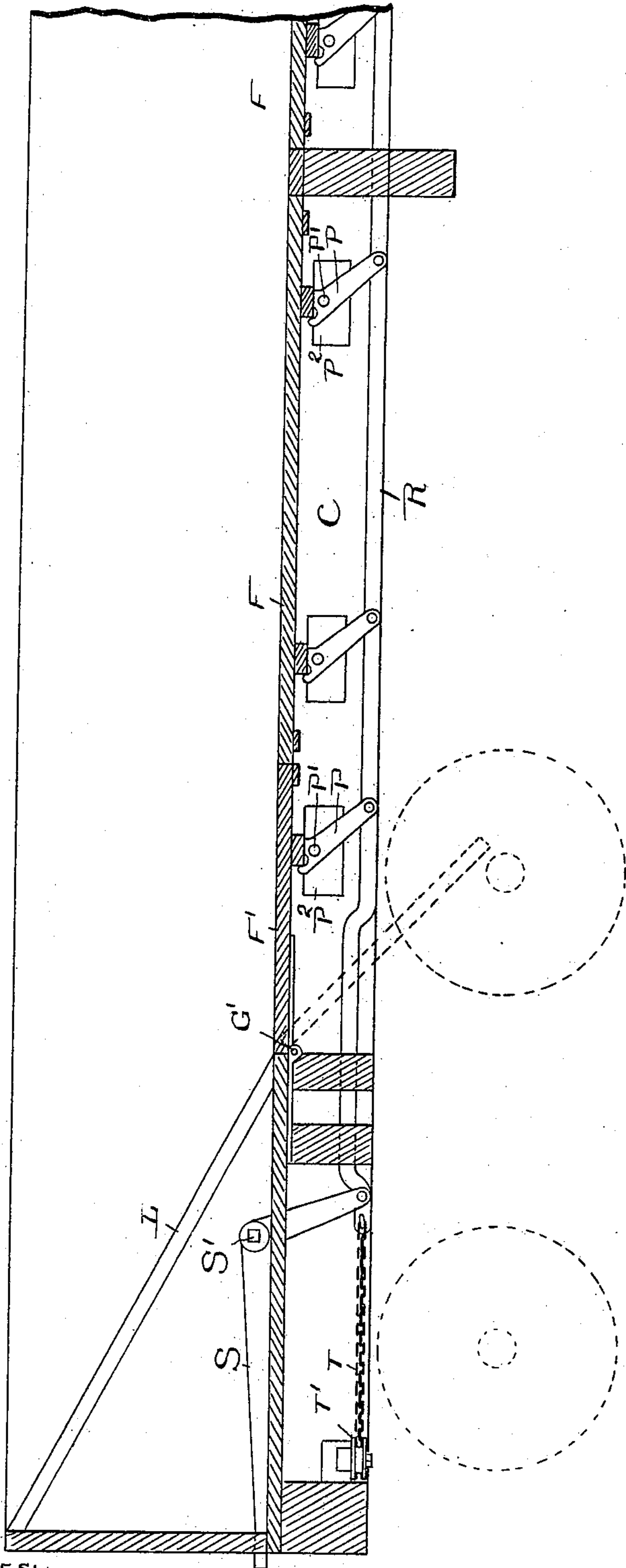
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3 Sheets—Sheet 3.

FIG 3.



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# UNITED STATES PATENT OFFICE.

WILLIAM A. CASWELL, OF CHICAGO, ILLINOIS.

## FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 619,670, dated February 14, 1899.

Application filed September 22, 1898. Serial No. 691,607. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. CASWELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Freight-Cars, of which the following is a specification.

It is often desirable to unload coal and other like materials carried in dump-cars by shoveling instead of opening the dumping-doors of the cars, and it is well known by railroad men that coal and other lump or fine materials carried in the hoppers of dump-cars cannot be well unloaded by means of shovels, because of the shape of the load-carrying part of the car, a flat or level bottom being essential to enable the removal of the entire load by shovels, and as a matter of practice it is customary, where the car is for any reason not to be emptied by dumping in the ordinary way, to shovel off the upper part of the load and then to dump the remainder at some point on the track where it can afterward be removed.

My endeavor in this invention is to produce a car which can be conveniently unloaded in either way, either by dumping or by shoveling.

To this end my improved car is provided with a continuous level floor, a portion of which is formed of trap-doors supported by movable bars whose ends engage the side and center sills of the car.

Figure 1 is a plan view of the car. Fig. 2 is a partial bottom view. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is an enlarged detail vertical section of one of the dumping-doors.

In said drawings, A represents the box or side walls of my improved car.

B B' are the side sills, and C C' the center sills thereof.

The floor of the car is composed of the center plank D, covering the center sills and two series of hinged doors E E' and F F', one series at either side of the center plank. The doors E and F are hinged at their outer edges to the side sills B, as plainly shown at Fig. 4, the hinges being indicated at G, and the doors are adapted to swing downward upon these hinges, as indicated in the case of the door E

at Fig. 4. This manner of opening the doors causes the deflection of the load as it falls through the door toward the center of the track, this being oftentimes very essential, particularly in directing the contents of the car to the chutes commonly employed under elevated tracks. The extent of the opening of the car is regulated by chains H, attached to their swinging edges and also attached to longitudinal shafts J, the ends of which project at the end of the car, as seen at Fig. 2, and are there adapted to receive a wrench, whereby they may be rotated, so as to wind up the chains and close the doors.

The end doors E' and F' are hinged, preferably, at right angles to the other doors, as seen at Fig. 3, where the hinge is indicated at G' and is arranged transversely of the car. The purpose of this is in order that the load may be prevented from falling onto the car-truck, as will be understood from the broken lines in Fig. 3, the door being adapted to carry the material beyond the wheel-axle and toward the longitudinal center of the car.

If desired, inclined boards K may be placed along the sides of the car and other boards L across the ends to facilitate the unloading of the car by dumping. These features, however, may be omitted, if desired, as if omitted they only necessitate a small amount of shoveling in order to completely unload the car, and if omitted they increase the carrying capacity.

I do not depend upon the chains and hinges to sustain the weight of the load. Instead of so doing I provide each door with a pivoted cross-bar M, which is pivoted upon a pivot-bolt N to the under side of the door and is made long enough so that it may engage shoulders O upon both the sills B and C, as plainly shown particularly at Fig. 5. These bars are made strong enough to not only sustain the weight of the load upon the door, but also to prevent any sagging or yielding at the center of the door. To operate these supporting-bars, I employ cam-levers P at each end of the bars. These levers are of the form shown at Fig. 3 and are pivoted at P' to metal plates P<sup>2</sup>, attached to the sills. The series of these cam-levers upon one side are attached to a longitudinal rod R and those upon the other side are attached to a corresponding rod



R', and all the cam-levers upon one side of the car are intended to be operated in unison by means of an elbow-lever S, pivoted at S' and connected to one of the rods, the two  
5 rods being joined at their ends by chains T, passing around pulleys T', so that when said lever S is operated both the rods will be moved in the proper direction to swing the supporting-bars M and carry them away from their  
10 engagement with the sills. As there will be considerable friction in this movement, due to the weight on the doors, I provide the bars at each end with antifriction-rollers U, bearing upon plates V, let into the under surface  
15 of the doors. When the bars are thus swung away from the sills, the doors are free to open under the weight of the load upon them, and they then swing to the position indicated in the case of the door E at Fig. 4.

20 I provide the doors with such number of the cross-bars as their length may necessitate, and where two or more of them are applied to the same door I preferably connect them by bars W, as shown at Fig. 2.

25 My method of supporting the trap-doors possesses advantages over those heretofore used and may obviously be used in other kinds of cars than the gondola car shown.

I claim—

30 1. A flat-bottomed car having a series of

trap-doors in its bottom adapted to permit the dumping of the load, such doors being normally supported upon cross-bars whose ends engage the sills of the car, substantially as specified.

2. A flat-bottomed car having a series of  
35 trap-doors in its bottom adapted to permit the dumping of the load, such doors being normally supported upon pivoted cross-bars engaging at their ends with shoulders upon the  
40 center and side sills of the car, substantially as specified.

3. A flat-bottomed car having a series of  
45 trap-doors in its bottom adapted to permit the dumping of the load, such doors being normally supported upon pivoted cross-bars engaging at their ends with shoulders upon the center and side sills of the car, the car  
being also provided with devices for operating said cross-bars in unison, substantially  
50 as specified.

4. The combination in a car with the series of dumping-doors, of the cross-bars supporting said doors, the cam-levers for releasing  
55 said bars, and the rods joined to and operating said levers, substantially as specified.

WILLIAM A. CASWELL.

Witnesses:

H. M. MUNDAY,

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