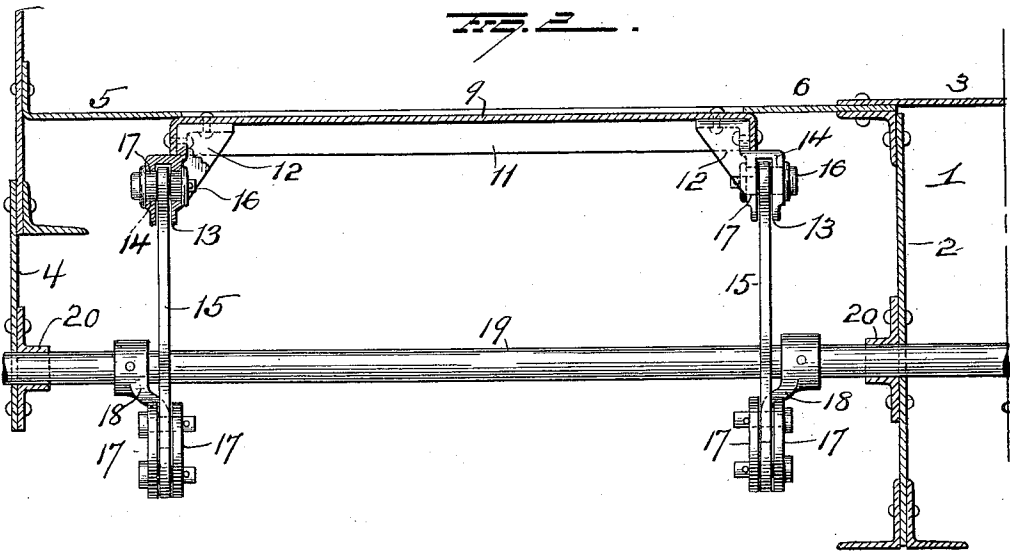
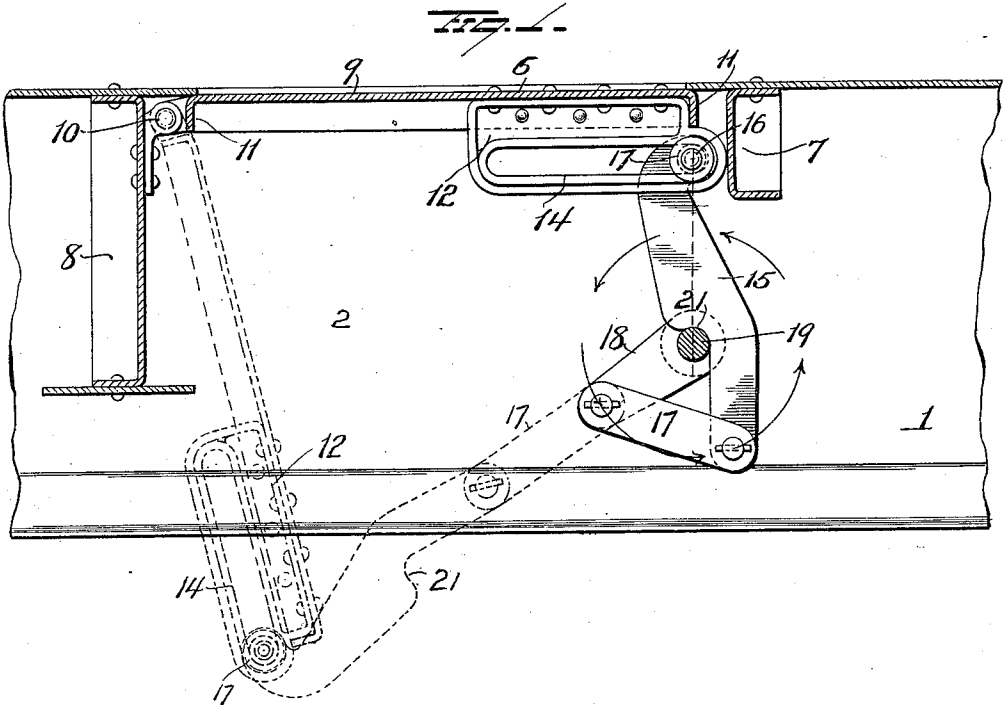


J. E. TESSEYMAN & R. R. WEAVER.
 DROP DOOR MECHANISM FOR CARS.
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1,022,516.

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DROP-DOOR MECHANISM FOR CARS.

1,022,516.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOHN E. TESSEYMAN and ROBERT R. WEAVER, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Drop-Door Mechanism for Cars, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in drop door mechanism for cars, and while it is specially adapted to a level floor gondola car, and is so shown, it may be applied to other types of cars when such doors are used or are desirable.

In most of the cars now in use the door space is confined to the areas between the sides and center sill and the cross bearers, and the object of this invention is to secure as large openings for the doors as is possible when the doors are in their open positions, and provide door opening and closing mechanism so located as not to be damaged by the discharge of the load, or interfere with the free discharge.

A further object is to provide door opening and closing mechanism that will be of few parts, simple in construction and positive in operation, the construction being such that the door will be forced by unyielding means to a closed position and so held with the line of stress substantially vertical.

With these and other objects in view our invention consists in the parts and combination of parts and in the details of construction as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in longitudinal section partly in elevation through a portion of the floor and one door, the operating mechanism being shown in elevation, and Fig. 2 is a vertical transverse section through the side, center-sill and floor of the car, and through the door and one bracket, the other bracket and door actuating mechanism being shown in elevation.

1 represents the center sill or girder consisting of longitudinal members 2 connected by cover plate 3; 4 the sides of the car, and 5 and 6 floor sections secured in the usual and well known manner.

7 is a cross bearer extending from the center girder or sill to the side of the car and 8 is a cross bearer extending from side to center sill, diaphragms being introduced between the longitudinal members of the center sill in line with these cross bearers 8 so that the latter are in effect continuous from side to side of the car. The door or doors 9 as the case may be, are located intermediate cross bearers 7 and 8, and the center girder and side of the car and one object of our invention, is as before stated, to utilize as much of the space as possible. This we accomplish by hinging the door to the larger cross bearer, and have its free end terminate adjacent to cross bearer 7, sufficient floor space 5 and 6 being left at the sides of the door to cover and protect the door actuating mechanism.

The door 9 is hinged to the brackets 10, and is made slightly larger than its opening so that when fully closed, it will underlap the floor at all four sides as clearly shown in Figs. 1 and 2. This door is preferably flanged at its sides and ends as at 11, for the purpose of strengthening it, and is provided at its sides, near its free end with the brackets 12, which latter are riveted to the door 9 and to its side flanges 11, and projects at the sides under the flanges, as clearly shown in Fig. 2, so that the flanges also rest on the top surface of the brackets. Each bracket has a longitudinal slot 13 opening downwardly, and also with two closed horizontal closed slots 14. The central open slot 13 and the closed side slots 14 extend approximately throughout the length of the bracket so as to permit of the necessary movement of the lever 15, one end of which rests within the open slot 13 and carries an axle 16 with two rollers 17 thereon, one in each closed slot 14. The opposite end of each lever 15 is connected by a link 17 with the crank 18 on shaft 19, mounted in bearing 20 carried by the sides and center girder of the car. This shaft may extend the full width of the car so as to operate a door on the opposite side of the center girder.

There are, as shown in Fig. 2, two cranks 18, two links 17 and two levers 15 to each door. Each lever 15 is provided intermediate its ends with a shoulder 21 rounded to conform to, and rest on the shaft 19. This shoulder 21 is so located, that, when resting on the shaft, as shown in full lines in Fig. 1,

the door will be fully closed, and supported on the rigid arms with the line of stress in a vertical plane passing through the center of the shaft 19 as shown in the dotted line in Fig. 1.

Shaft 19 may be operated from the side of the car by lever, pawl and ratchet such as are now universally used, and to open the door the shaft 19 is turned in the direction of the arrows, and after the initial starting movement, the weight of the door and its load then forces the door and its actuating mechanism to the position shown in dotted lines in Fig. 1. During this movement, the shoulders 21 of the levers 15 ride on and over the shaft 19 and finally leave it, and when the door is fully open, they rest in line with links 17 and cranks 18. To close the door, the shaft is turned in the reverse direction. During this movement the cranks 18, carry the links 17 and levers 15 onto and over the shaft, until the curved shoulders of the levers 15 rest on the shaft 19. During these movements of the parts, the rollers 17 move in their slots or guides 14, and during the last part of the closing movement the levers 15 being fulcrumed on the shaft 19, are as positively actuated as if they were fixed to the shaft.

With this improvement all the operative parts of the mechanism are located in vertical planes below the floor of the car, so that when the door is opened, they do not interfere with the free discharge of the contents of the car, nor are they in position to be injured by the falling material.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of our invention. Hence we would have it understood that we do not wish to confine ourselves to the exact construction and arrangement of parts shown and described, but

Having fully described our invention what we claim as new and desire to secure by Letters-Patent, is:—

1. The combination with a hinged door, of a shaft located in a plane below the door, levers having a loose connection with the doors, and each provided intermediate its ends with a shoulder adapted to rest loosely on said shaft, and means connecting the shaft and levers whereby when the shaft is rotated to lower the door, the said levers

turn and have a longitudinal sliding movement on said shaft.

2. The combination with a hinged door having guides at its sides near its free end, of a shaft located in a plane below the door, levers having a sliding bearing in said guides and each provided intermediate its ends with a shoulder adapted when the door is closed to rest on said shaft, and means connecting the said shaft and levers whereby when the shaft is rotated to lower the door the said levers turn and have a longitudinal sliding movement on said shaft.

3. The combination with a hinged door having guide brackets at the sides near its free end, of a shaft mounted below but adjacent the free end of the door, and provided with cranks, levers each having sliding bearing in a guide bracket and each provided intermediate its ends with a shoulder adapted when the door is closed, to rest on said shaft and form a solid lock for the door, and links connecting the opposite ends of said levers to the cranks whereby when the shaft is turned to release the door, the levers have a turning and sliding movement on the shaft, and when the shaft is turned to close the door, the levers have a sliding and rotary movement in the reverse direction on said shaft.

4. The combination with a hinged door having slotted guide brackets at its sides near its free end, of a crank shaft mounted below but adjacent the vertical plane of the free edge of the door, two levers each provided intermediate its ends, with a shoulder adapted when the door is closed to rest on said shaft and having a sliding connection at one end with said slotted guides, and links connecting the other ends of said levers and cranks, whereby when the shaft is turned to release the door, the levers first turn and then slide on the shaft and pass over and away from the shaft, and in the closing movement of the door, are drawn up to and on the shaft, and then slide and turn thereon to fully close the door.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses.

JOHN E. TESSEYMAN.
ROBERT R. WEAVER.

Witnesses:

B. C. HANNA,
W. E. WEEKS.