

No. 698,789.

Patented Apr. 29, 1902.

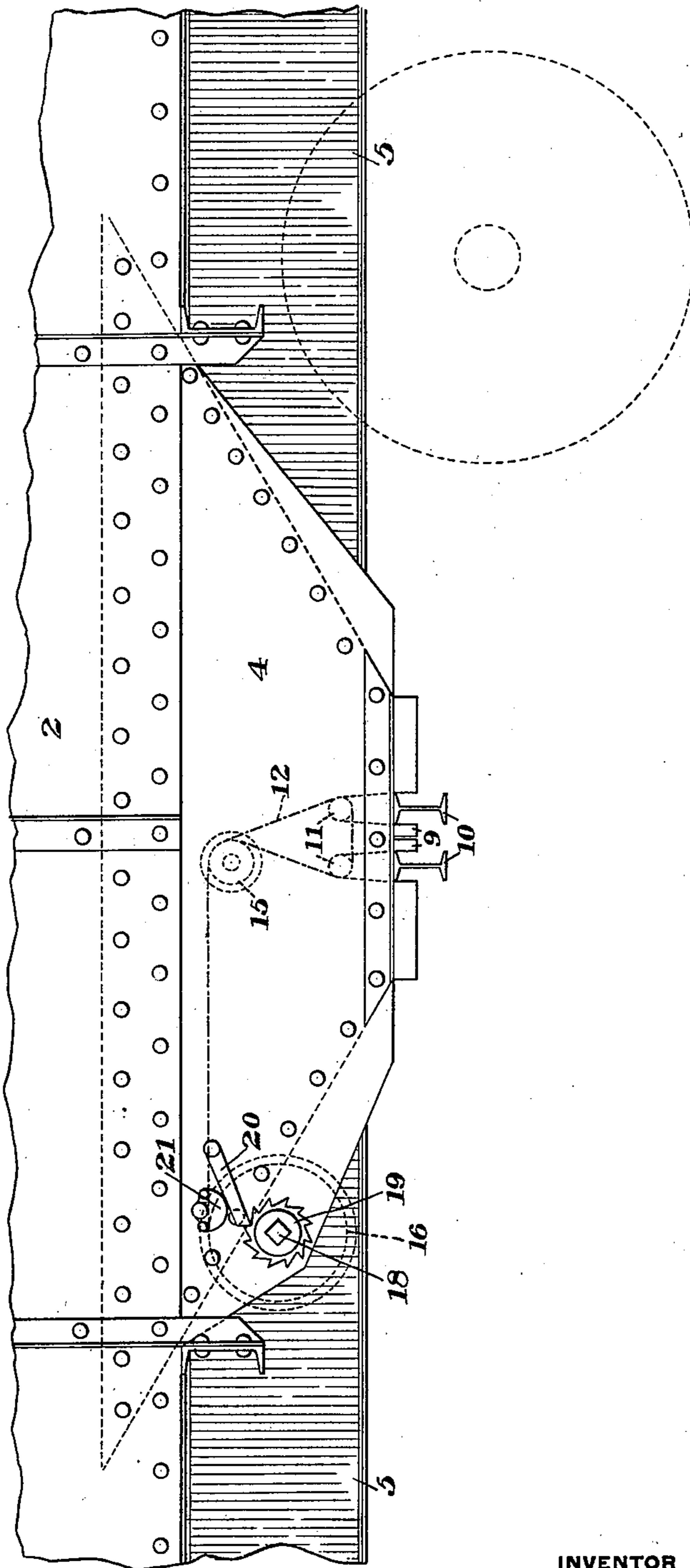
A. B. BELLOWS.  
CAR DOOR MECHANISM.

(Application filed Dec. 20, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES

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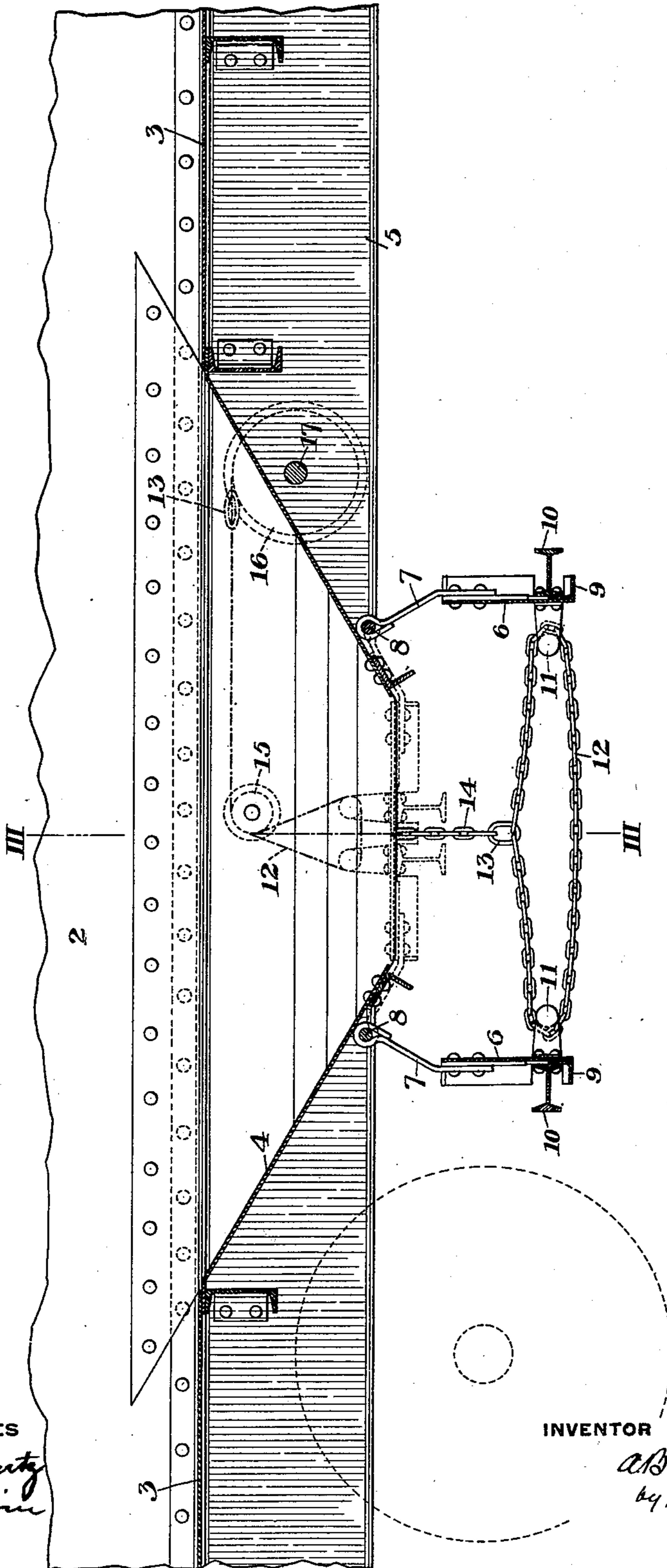
A. B. Bellows  
by Barlow & Rymer  
his attys.

**A. B. BELLOWS.**  
**CAR DOOR MECHANISM.**  
 (Application filed Dec. 20, 1901.)

(No Model.)

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Fig. 2.



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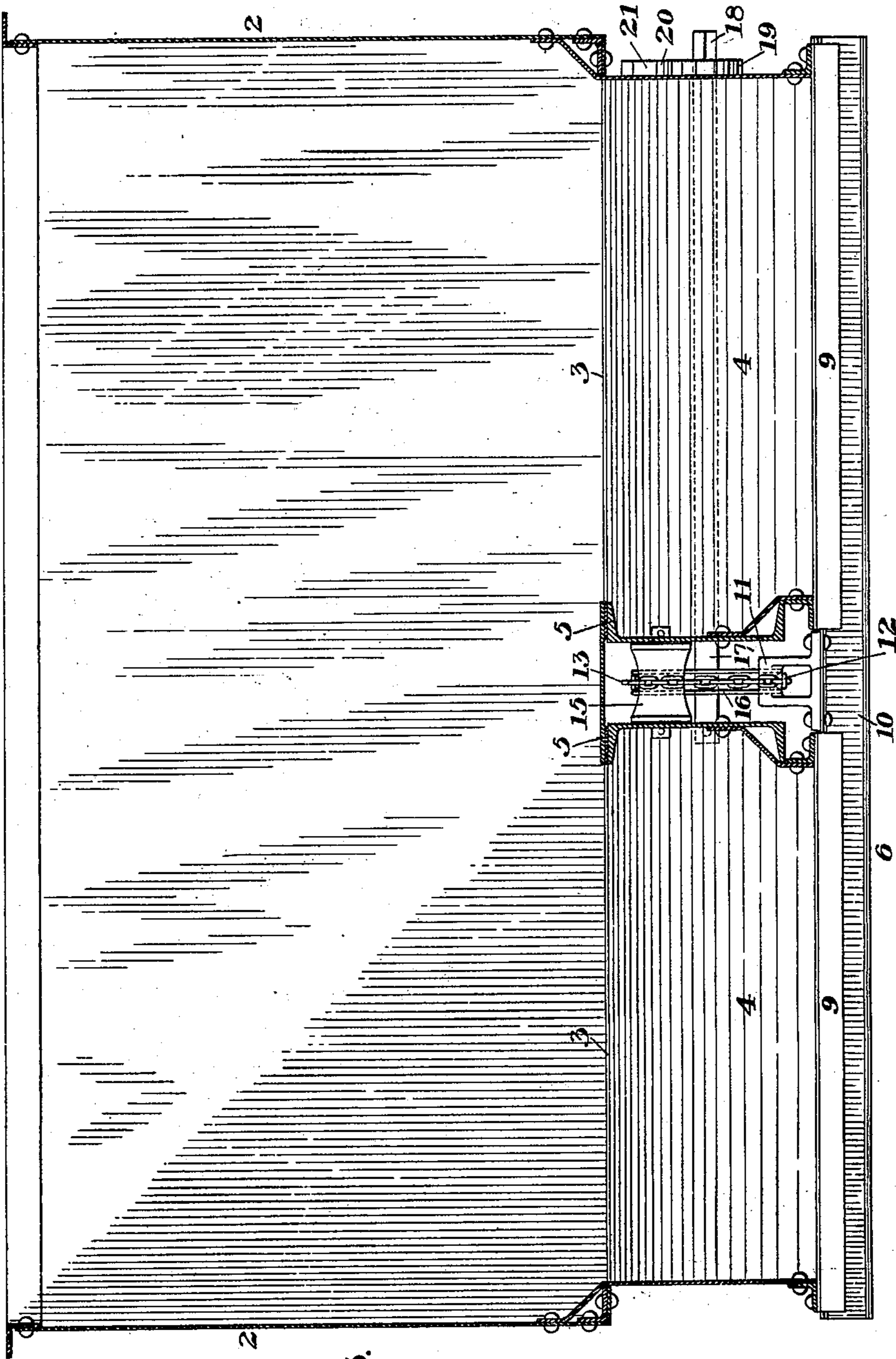


Fig. 3.

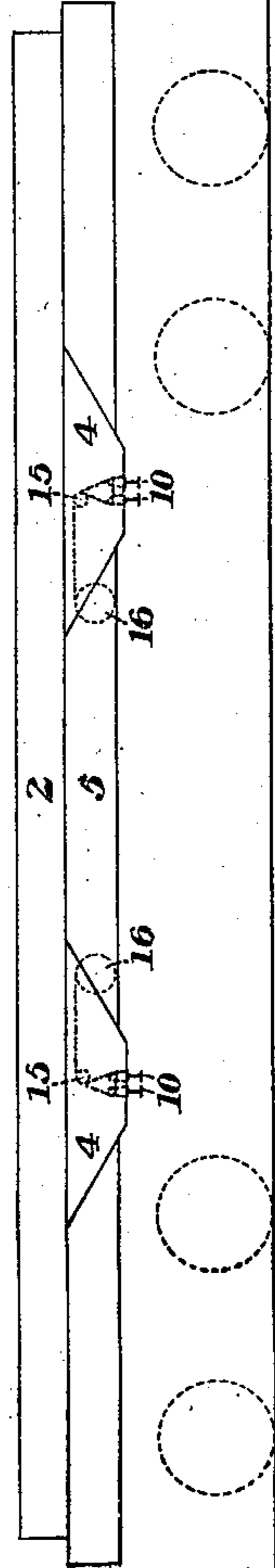


Fig. 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

ARTHUR B. BELLOWS, OF PITTSBURG, PENNSYLVANIA.

## CAR-DOOR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 698,789, dated April 29, 1902.

Application filed December 20, 1901. Serial No. 86,688. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR B. BELLOWS, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Car-Door Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation showing a portion of a gondola car provided with my improved door mechanism. Fig. 2 is a longitudinal vertical section of the same, showing the doors in open position with their closed position in dotted lines. Fig. 3 is a vertical cross-section on the line III III of Fig. 2; and Fig. 4 is a diagrammatic side elevation of a car, illustrating the position in which the doors may be placed.

My invention relates to that class of doors for cars wherein two doors, forming a pair, swing downwardly and apart in opposite directions; and its object is to provide simple and effective mechanism for equalizing the closing of the pair of doors and, further, for simultaneously closing two pairs of said doors.

In the drawings I show a gondola car having sides 2 2 and a bottom 3, provided with four hoppers 4, arranged in pairs at opposite sides of the transverse axis of the car, one of each pair being on the opposite side of the center sill from its mate. I have shown the center sill as composed of two channels 5 5, with the flanges turned outwardly, plate-girder sides being used without the use of side sills; but the door mechanism constituting the present invention may be applied to the car as shown or to any other style of car or hopper desired.

Each hopper is provided with downwardly and oppositely swinging doors 6 6, preferably carried on hinge members 7, pivoted to shafts 8. The meeting edges of the doors are provided with rolled angles 9, and in the rear of these angles each door of one pair is secured to the corresponding door of the pair on the other side of the center sill by means of an I-beam 10, secured to each such door and extending transversely of the car.

Secured to each I-beam at a point between the two members of the center sill is a yoke

or eye 11, which projects upwardly when the doors are in closed position.

A chain loop 12 has its opposite portions extending through the two yokes or eyes, this chain loop having its end secured to an eye 13, from which a chain 14 extends over a guide-pulley 15, pivoted between the center-sill members, to a winding-drum 16 upon transverse shaft 17. This shaft has a squared outer end 18 for applying a wrench and is provided with the usual ratchet-wheel 19, engaged by pawl 20, controlled by lock 21.

When the doors are closed, the two portions of the loop extend upwardly over the guide-pulley, the loop 12 being at about the point shown in dotted lines in Fig. 2. On releasing the winding-drum the doors swing downwardly and outwardly in opposite directions, and the chain loop is paid out, the parts then assuming the positions shown in full lines in Fig. 2. When the chain is wound up to close the doors, the lifting action is equalized upon each, the flexible loop extending through the yokes acting to pull equally on each.

The preferred position of the winding-drums is shown diagrammatically in Fig. 4 in connection with the hoppers upon a gondola car.

The advantages of my invention result from the simplicity of the equalizing device for the doors and, further, from the connection between the doors of the two pairs and the location of the chains within the center sill.

One end of the loop may be secured at a stationary point on the car-body, the equalizing device may be applied to a single pair of doors, the shape and location of the guides or yokes for the flexible loop may be changed, and many other variations may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. The combination with a car, having a longitudinal center sill, of twin doors arranged in pairs on each side of the sill and arranged to swing downwardly and outwardly, guides for the doors, a flexible loop extending between the guides, and a connection for acting upon at least a portion of the loop; substantially as described.

2. A car having two pairs of doors similarly

arranged on each side of the longitudinal axis, connecting bars or beams secured to corresponding doors of each pair, guides secured to the connecting-bars between the lines of the  
5 center sill, and an equalizing flexible loop extending through the guides; substantially as described.

3. A car having a pair of doors, upwardly-projecting guides symmetrically arranged on  
10 said doors, a chain loop having its opposite

legs extending through said guides, and a flexible connection leading from the loop to a winding-drum; substantially as described.

In testimony whereof I have hereunto set my hand.

ARTHUR B. BELLOWS.

Witnesses:

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L. M. REDMAN.