(No Model.) 3 Sheets—Sheet 1.

J. McCLAY.

RAILWAY CAR.

No. 418,739. Patented Jan. 7, 1890.

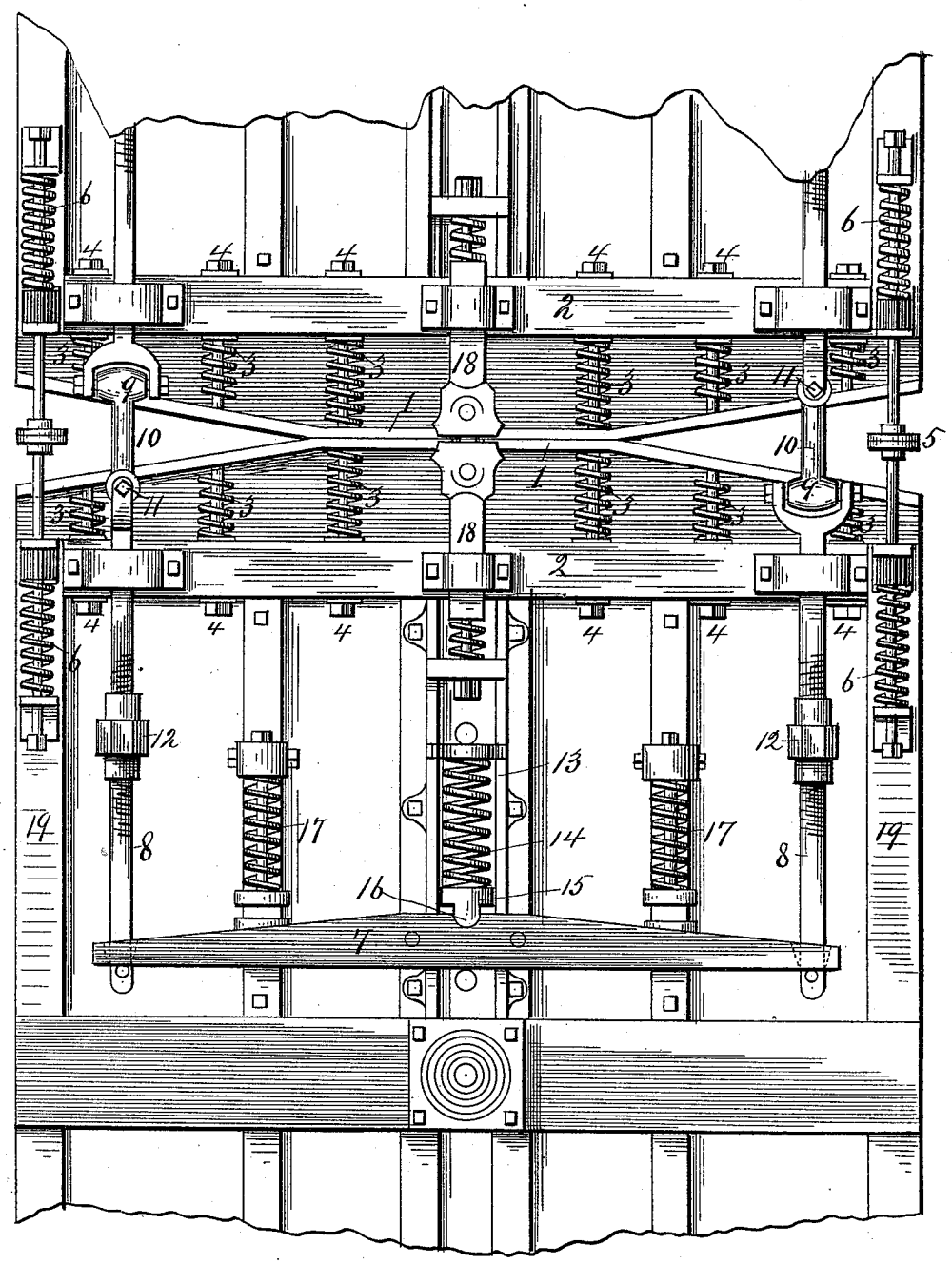

Fig 1

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(No Model.) 3 Sheets—Sheet 2.

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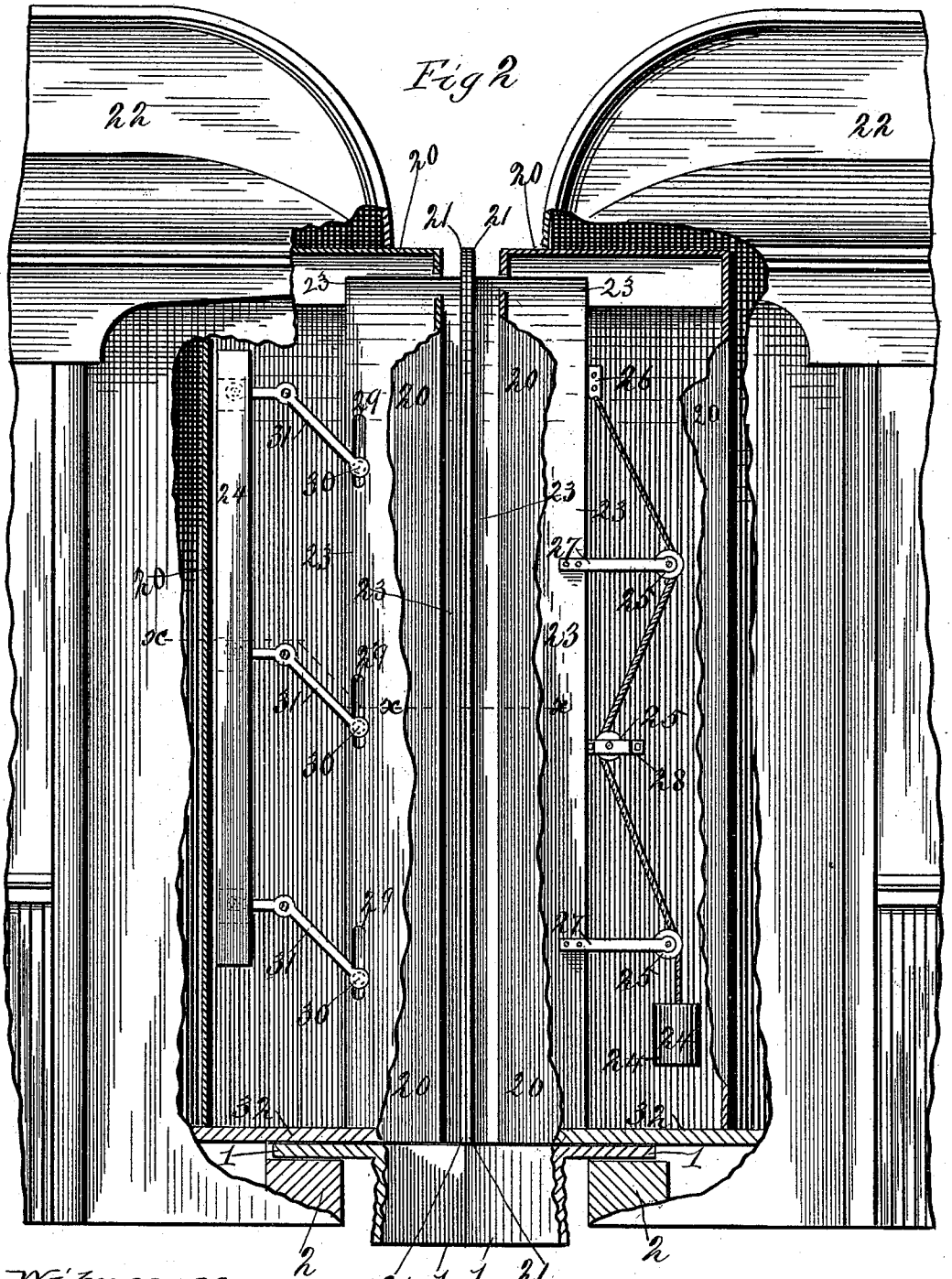
Fig 2



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(No Model.) 3 Sheets—Sheet 3.

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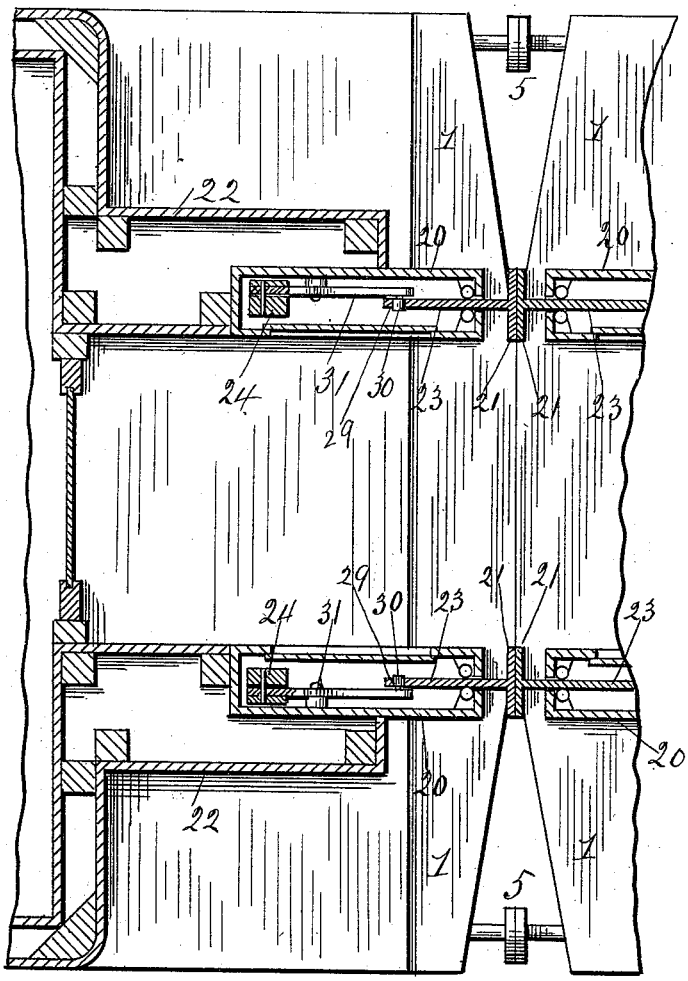

Fig 3

Fig 4

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UNITED STATES PATENT OFFICE.

JOHN McCLAY, OF CHICAGO, ILLINOIS.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 418,739, dated January 7, 1890.

Application filed June 19, 1889. Serial No. 314,817. (No model.)

To all whom it may concern:

Be it known that I, JOHN McCLAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

My invention relates to improvements in passenger-cars; and it pertains to the construction of the buffers, couplings, and vestibules or closed passages between the cars and means of entrance and exit.

The objects of my invention are, first, to construct cars so that when coupled together the buffers, couplings, and vestibule devices will so coact as to reduce all oscillations and vibrations to the minimum; second, to provide against all possibility of telescoping; third, to reduce to a minimum all concussions caused by sudden startings or stoppings of the train from whatever cause, and thus increase the safety in case of collisions; fourth, to provide adjustable frames for closing the passages between the cars automatically, so as to make a vestibule-passage, and to operate the same by weights, so as to keep the faces of the frames firmly together when the cars are coupled and permit all necessary motion required. I attain these objects by the mechanism illustrated in the accompanying drawings, which are hereby made a part of this specification, in which—

Figure 1 is a plan view of the coupling devices and buffer devices attached to the floor-frame of a car. Fig. 2 is a side view of the vestibule device, with part of one side of the box 20 cut away to show the weights 24 and their attachments to the plate 23. Fig. 3 is a detail plan section of Fig. 2, taken on the line *x x;* and Fig. 4 is a sectional view of the door, recess, and steps placed in the side of a car, section being made vertically through the center of the door.

Similar figures of reference refer to similar parts throughout the drawings.

The buffers 1 are iron frames suitably attached to the end sills 2 of the car and arranged to yield to jars and concussions. They are held extended by the buffer-springs 3, which are of sufficient strength to furnish the required resistance. These springs 3 are furnished with guide and supporting bolts 4, passing through the coils and end sills 2, as shown. Side buffers 25 are attached to the side sills 19 of the car, and are provided with buffer-springs 6, as fully shown in the drawings.

The coupling device consists of an evener 7, coupling-rods 8, and couplers 9, provided with arms 10 and joints 11, the joint being so arranged that the arm moves in a plane at right angles to the bolt of the coupler 9. The coupling-rods are provided with turn-buckles 12 to adjust their length as may be required, and also to draw the coaches into contact with each other, so that there shall be no play between them, except such as may be permitted by the action of the springs and the weights operating against the buffer face-plates 21. This evener 7 is preferably a bar of metal, as shown; but it may be a half-elliptic spring. The evener is placed in a box 13 through a slot, (not shown,) and is held extended by the the evener-spring 14. The follower-plate 15 of this spring 14 is provided with a central projection or pivot 16, which engages a slot or recess in the evener 7, as shown, and upon which the evener 7 oscillates. The coupling-rods 8 are suitably attached to the ends of the evener 7. Auxiliary evener-springs 17 are placed on either side of the box 13 to aid in keeping the evener extended. Their use and action are obvious. An ordinary coupling attachment 18 is attached, as shown. It may be of any standard pattern. Its use is for attachment in switching in the yards and with cars not provided with my coupling-arms.

The buffer device can be constructed, if desired, so as to permit a depression of eleven inches. In a train of ten cars this would give an aggregate of one hundred and ten inches, or more that nine feet, sufficient to insure almost absolute safety in case of collision.

The device for keeping the vestibules or passages between the cars constantly closed when the cars are coupled together is shown in Fig. 2. It consists of a box or frame 20, a buffer face-plate 21, provided with wall plate or plates 23, rigidly attached, or, if preferred, connected by joints and weights 24, arranged by a combination of either pulleys or levers, so as to operate against the wall-plate, or, if

desired, against the buffer face-plate, so as to keep the buffer face-plates 21 constantly extended. The drawings show two methods of such arrangement—one with pulleys and cord and the other and preferable mode with lever, both operating against the plate 23.

The wall-plate 23 furnishes a wall between the openings of the cars and a guide and frame to hold the buffer face-plate 21 in position. It slides into the box or frame 20 through a slot 29, which, if desired, is provided with rollers 30 to reduce friction. The buffer face-plate 21 and the wall-plate 23 attached to it extend all around the passage-way, like the frame of a door, and when extended the buffer face-plates 21 project to or beyond the end of the buffer-frame 1, so that when the cars are coupled the faces impinge each other with the full force of the weights. The wall-plates 23 run, preferably, on rollers (not shown) to reduce friction. Rollers may for this purpose be placed both above and below, or friction guide-plates may be used. The box or frame 20 is made to receive the plate 23 and allow space for the weights and their attachment and necessary motion. Where it is desired to have the weights operate against the plate 23 by pulleys and cord, a suitable method of arrangement is shown in Fig. 2, the action and operation of which are obvious. A preferable method of causing the weights to so operate is by levers 31, one arm of which is jointed to a weight 24, which is preferably one long piece of metal. The other arm is provided with a roller 30, which plays in a slot 29 in the wall-plate 23, the action and operation of which are obvious.

These three devices—the buffer, the coupling, and the vestibule—combine to prevent oscillations and vibrations, and thus make the train solid. They also prevent the possibility of telescoping.

The buffer device, as shown in the drawings, does not provide for any platform-entrance to and from the cars. I have, therefore, to make the combination complete devised a side entrance to the car. (Illustrated in Fig. 4.) A recess is made in the side of the car of sufficient depth to receive the steps 35 and permit the under casing 36 of the steps to be in line with and conform in finish to the outside wall of the car. A chain 37 or cord is attached to the steps, by which they are pulled up from the inside of the car by hand or automatically by weights or springs, the construction and arrangement of which will readily suggest themselves to any one skilled in the art. The door 38 is placed in the recess, as shown.

Having thus shown the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In railway-cars, the combination of the evener 7, the coupling-rods 8, provided with suitable couplers, the turn-buckles 12, the evener-spring 14, the buffer-frame 1, the buffer-springs 3, the rods 4, the sills 2, the box or frame 20, the wall-plate 23, the buffer face-plate 21, and the weights 24, provided with means to operate against the plate 21 or 23, so as to keep the buffer face-plate 21 extended, for the purpose and substantially as described.

2. In railway-cars, the combination of the recess in the side of the car, with a door for entrance, and steps hinged to the floor of said recess and adapted to be folded up therein, with a cord or chain to lift the steps up or let them down, for the purpose and substantially as described.

3. In railway-cars, the combination of the evener 7, the coupling-rods 8, provided with suitable couplers, turn-buckles 12, the box 13, and with the evener-spring 14, for the purpose and substantially as described.

4. In railway-cars, the combination of the buffer face-plate 21, the wall-plate 23, the weights 24, provided with means to operate against the plate 21 or the plate 23, so as to keep the buffer face-plate 21 extended, with the box or frame 20 and the floor covering the buffer-frame and projections of end sill, for the purpose and substantially as described.

5. As an article of manufacture, a vestibule device for closing part of the space between two railway-cars, consisting of a box or frame 20, buffer-face plate 21, wall-plate 23, and weights 24, provided with means to operate by pulleys and cord or lever, so as to keep the buffer-face plate constantly extended, for the purpose and substantially as described.

6. In railway-cars, the combination of a box or frame 20 with the wall-plate 23, the buffer face-plate 21, the weights 24, provided with means to operate by pulleys and cord or by levers, so as to keep the buffer face-plate constantly extended, the ordinary platform of a passenger-car, and the doors and connections with the ends of a car, for the purpose and substantially as described.

7. In a railway-car, the combination of the evener 7, the coupling-rods 8, provided with suitable couplers, the evener-spring 14, and the side springs 17, for the purpose and substantially as described.

8. In a railway-car, the combination of the evener 7, the coupling-rods 8, the joint 11, the coupler-arms 10, the coupling 9, and the evener-spring 14, for the purpose and substantially as described.

9. In a railway-car, the combination of the buffer-frame 1, the buffer-springs 3, the bolts 4, the end sills 2, the side buffers 5, the side buffer-springs 6, and the side sills 19, for the purpose and substantially as described.

10. In a railway-car, the combination of the evener 7, the coupling-rods 8, provided with suitable couplers, the evener-spring 14, the buffer-frame 1, the buffer-springs 3, the bolts

4, and the sills 2, for the purpose and substantially as described.

11. In a railway-car, the combination of the box or frame 20 with the wall-plate 23, the buffer face-plate 21, the weight 24, provided with means to keep the buffer face-plate 21 constantly extended, the evener 7, the coupling-rods 8, provided with suitable couplings, the evener-spring 14, the buffer-frame 1, the buffer-springs 3, the bolts 4, and the sills 2, for the purpose and substantially as described.

JOHN McCLAY.

Witnesses:
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WILLIAM R. CHURCH.