

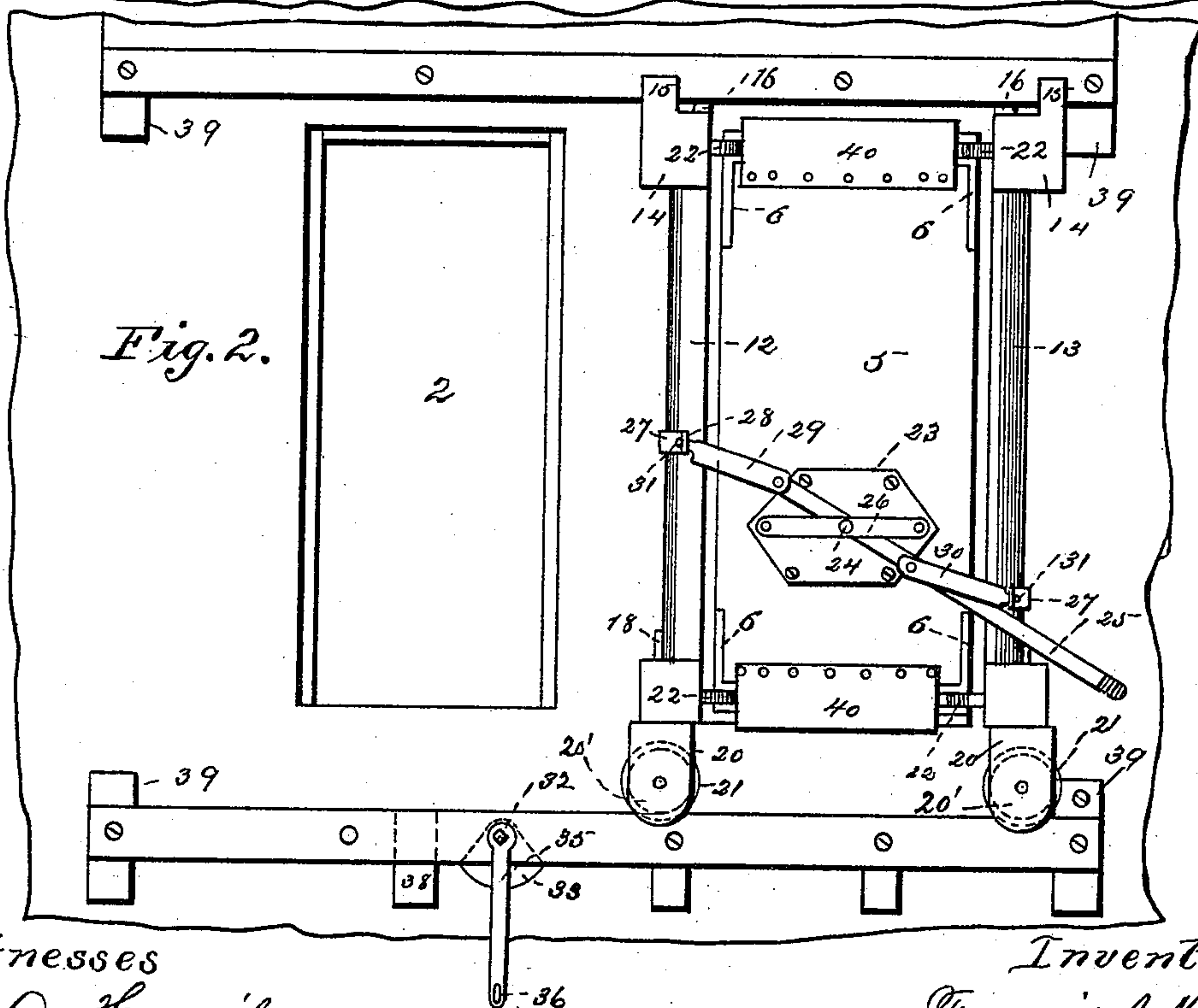
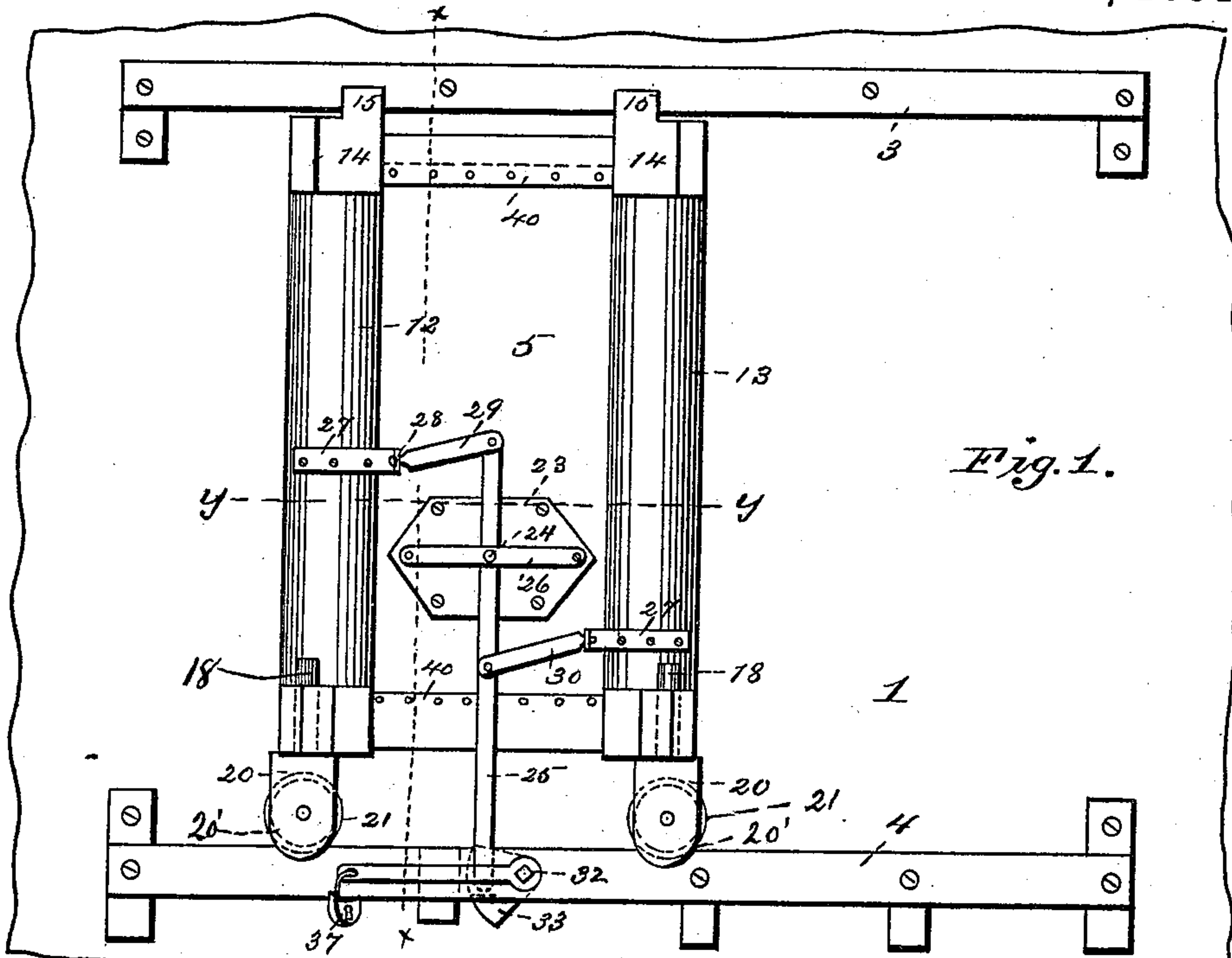
(No Model.)

2 Sheets—Sheet 1.

F. A. MOORE.
CAR DOOR.

No. 464,624.

Patented Dec. 8, 1891.



Witnesses
M. A. Harris
H. D. Donovan

Inventor
Francis A. Moore
by M. B. Harris
Attorney

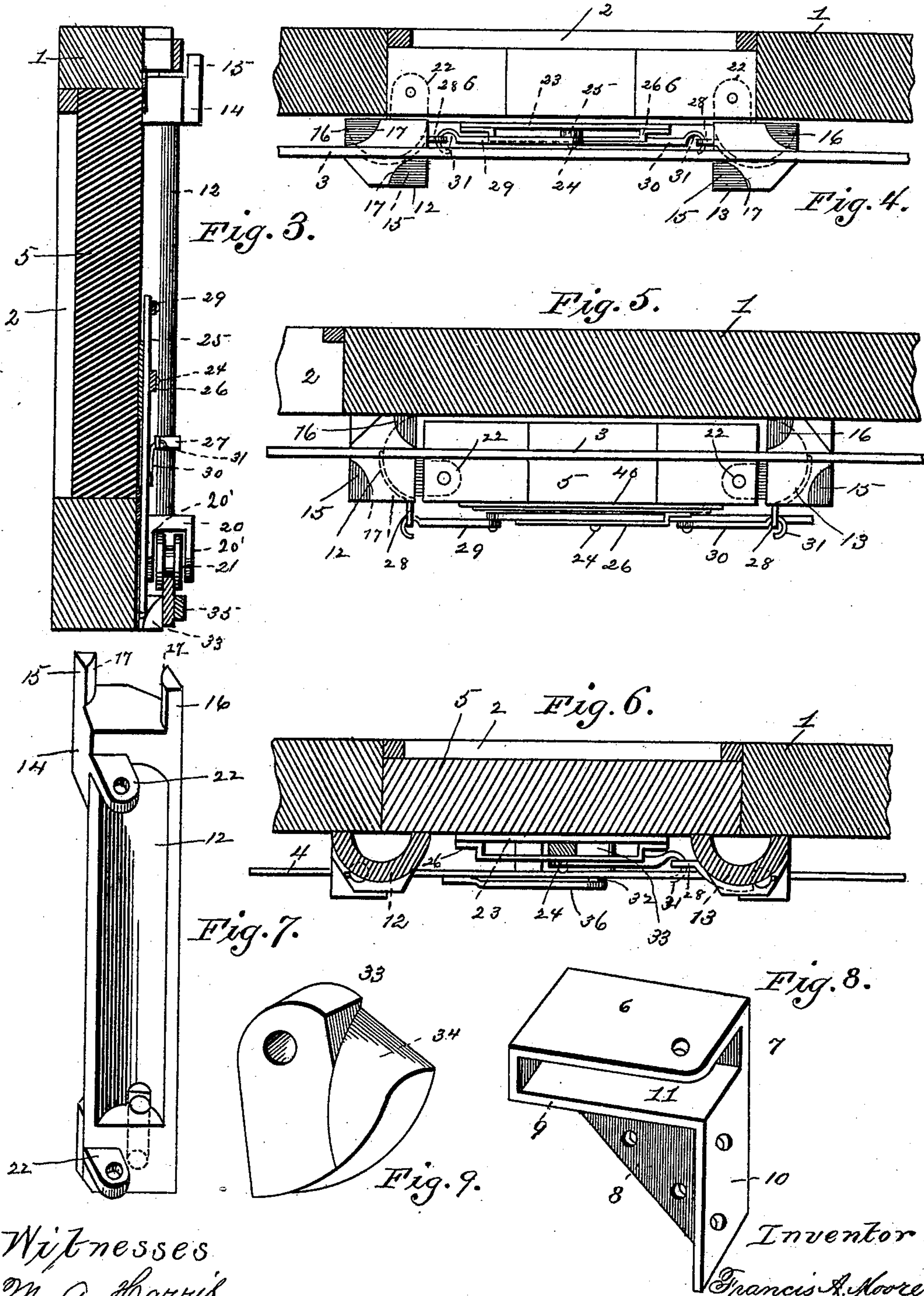
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UNITED STATES PATENT OFFICE.

FRANCIS A. MOORE, OF TYLER, TEXAS.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 464,624, dated December 8, 1891.

Application filed January 23, 1891. Serial No. 378,756. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. MOORE, a citizen of the United States, residing at Tyler, in the county of Smith and State of Texas, have invented certain new and useful Improvements in Car-Doors; and I 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.

My invention has relation to car-doors; and it consists in the construction and novel arrangement of parts, as hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

The object of my invention is to provide a car-door of simple and inexpensive construction that is both fire and water proof; further, to provide a series of levers having a toggle-joint connection with the door, whereby said door is raised from the door-opening and allowed to be slid along on the runners; further, to so construct the lever connection that a brace is formed for the door against inside pressure and locked in such position.

In the drawings, Figure 1 is a side view of a car with my improved door attached, the door being in a closed position; Fig. 2, a similar view, the door being in an open position; Fig. 3, a vertical section on the line $x x$ of Fig. 1; Fig. 4, a top view of the door in a closed position; Fig. 5, a similar view, the door being open; Fig. 6, a horizontal section on the line $y y$ of Fig. 1; Fig. 7, a detail view of one of the hangers; Fig. 8, a detail view of one of the corner-irons; Fig. 9, a detail view of the cam.

Referring to the accompanying drawings, in which like numerals indicate corresponding parts in all the figures, 1 designates the side of a car provided with the usual opening 2 for the door, and secured to the side of the car above and below the opening 2 are runners 3 and 4.

5 designates the door, of the usual well-known construction, of a size adapted to fit within the opening 2 flush with the outer face of the side of the car, as shown, and has secured to it by means of bolts or screws at each corner thereof metallic corner-pieces 6, said pieces consisting of the angular portion

7, the back 8 of which rests against the inside face of the door flush therewith, while the side plates 9 and 10 fit flush with the edges of the door, as plainly shown. The corner-pieces are further provided with sockets or recesses 11, for a purpose presently explained.

12 and 13 designate metallic hangers, which by preference are made half-round and hollow and are provided at their upper ends with the solid heads 14, having rising from them at opposite sides projections 15 and 16, the opposing faces of which are rounded, as shown at 17. These projections are so placed on the heads 14 that they will be on opposite sides of the top runner.

At the lower ends of the hangers 12 and 13 are formed sockets adapted to receive the rounded shank 18 of the roller-brackets 20, said brackets having pivoted between dependent perforated lugs or ears 20' grooved rollers 21, which are designed to fit and work upon the upper edge of the lower runner 4.

Extending at right angles from the head and bottom of the hangers 12 and 13 are perforated ears 22, which ears are pivoted within the sockets or recesses 11, formed in corner-pieces 6, by suitable pins.

Having thus described the door and its hangers, I will proceed to describe the means I prefer to employ, whereby the door may be raised from the opening 2 and allowed to be rolled to one side of said opening or to drop within the opening 2 when it is desired to lock the door.

23 designates a metallic plate secured in any desired manner on the outer face of the door near the central part thereof, and has extending from it a pin 24, upon which is pivoted a lever 25, and to limit the swinging movement of said lever when opening the door I secure upon the plate 23 a guard 26. Secured in any desired manner to the hangers 12 and 13 and at convenient points thereon are plates 27, provided at their outer ends with eyes 28.

29 and 30 designate levers pivoted to the lever 25 above and below the guard 26, and are provided at their ends with hooks 31, which engage the eyes 28, forming a toggle-joint between the levers 29 and 30 and plates 27. The lower end of the lever 25 is formed

into a suitable handle, whereby the lever mechanism may be easily and readily worked.

Journalled on a shaft 32, having a point of bearing in the lower runner 4 and the sill of the car, near the center of the door, is a cam 33, provided with a downwardly and outwardly inclined face 34, against which the lower end of the lever 25 is designed to work, the end of the lever being beveled, as shown, so as to permit of the cam turning.

The shaft 32 projects through the runner 4, and is provided with a squared end, upon which is secured a lever 35, provided in its outer end with an eye 36, which, when the lever 35 is in the position shown in Fig. 1, registers with an eye in the runner 4, through which openings may be secured a seal or lock 37.

In order that the lever 25 may not be thrown too far to the left, thereby straining the lever mechanism, I employ a stop 38, secured to the car between the side of the car and the runner 4, just to the left of the cam 33.

The car is further provided upon each side of the doorway with stops 39 to limit the movement of the door.

To form a perfect joint at the upper and lower edges of the door, I secure to said door upon its outer face metallic plates 40, which may extend over a part of the exterior face of the door, as shown, or may cover the entire exterior face, if desired.

The mode of opening my improved car-door, taken in connection with the above description and accompanying drawings, may be briefly described as follows: Assuming the door to be in the position shown in Fig. 1, and it is desired to open the same, by removing the seal or lock from the lever 35 and turning said lever until it occupies a vertical position, as shown in Fig. 2, and with it turning the cam 33, the inclined face 34 of the cam will free the lower end of the lever 25. Now, by turning the lever 25 to the right, as shown in Fig. 2, the hangers, owing to their pivotal connection with said lever and the door, raise the door from its opening, when it may be slid along on the runners.

When it is desired to close the door, slide

it along on the runners until it is opposite the opening 2, then throw the lever 25 in the position shown in Fig. 1, and turn the lever 33 in a horizontal position, when the lever 25 will be forced against the car-door and held there by the cam. The eyes in the lever 33 and runner 4 will now register, when the seal or lock may be adjusted.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with the car and the door carried thereby, provided at each side with hangers carrying at their lower ends rollers engaging the lower runner and at their upper ends with heads having projections engaging the upper runner, of the corner-pieces 6, constructed as described, carried by the door, having a pivotal connection with the hangers, and means, as shown, for opening and closing the door, substantially as described.

2. The combination, with the car and the door carried thereby, provided along its edges with pivotal hangers having at their upper ends projections engaging opposite sides of the upper runner and at their lower ends with swivel-rollers engaging the lower runners, of the lever 25, having a toggle-joint connection with the hangers, whereby the door is opened and closed, substantially as specified.

3. The combination, with the door provided along its sides with pivotal hangers carrying at their upper ends projections and at their lower ends rollers adapted to work on the lower runner, of the lever 25, having a toggle-joint connection with the hangers, engaged at its lower end by a cam carried by a shaft journalled in the lower runner and sill of the car, and the lever 33 upon said shaft, provided with an eye registering with an eye on the lower runner for the reception of the seal or lock, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS A. MOORE,

Witnesses:

R. W. SAVAGE,

OSCAR MCFARLAND.