

(No Model.)

2 Sheets—Sheet 1.

G. M. McMAHAN.
CAR DOOR.

No. 540,024.

Patented May 28, 1895.

Fig. 1.

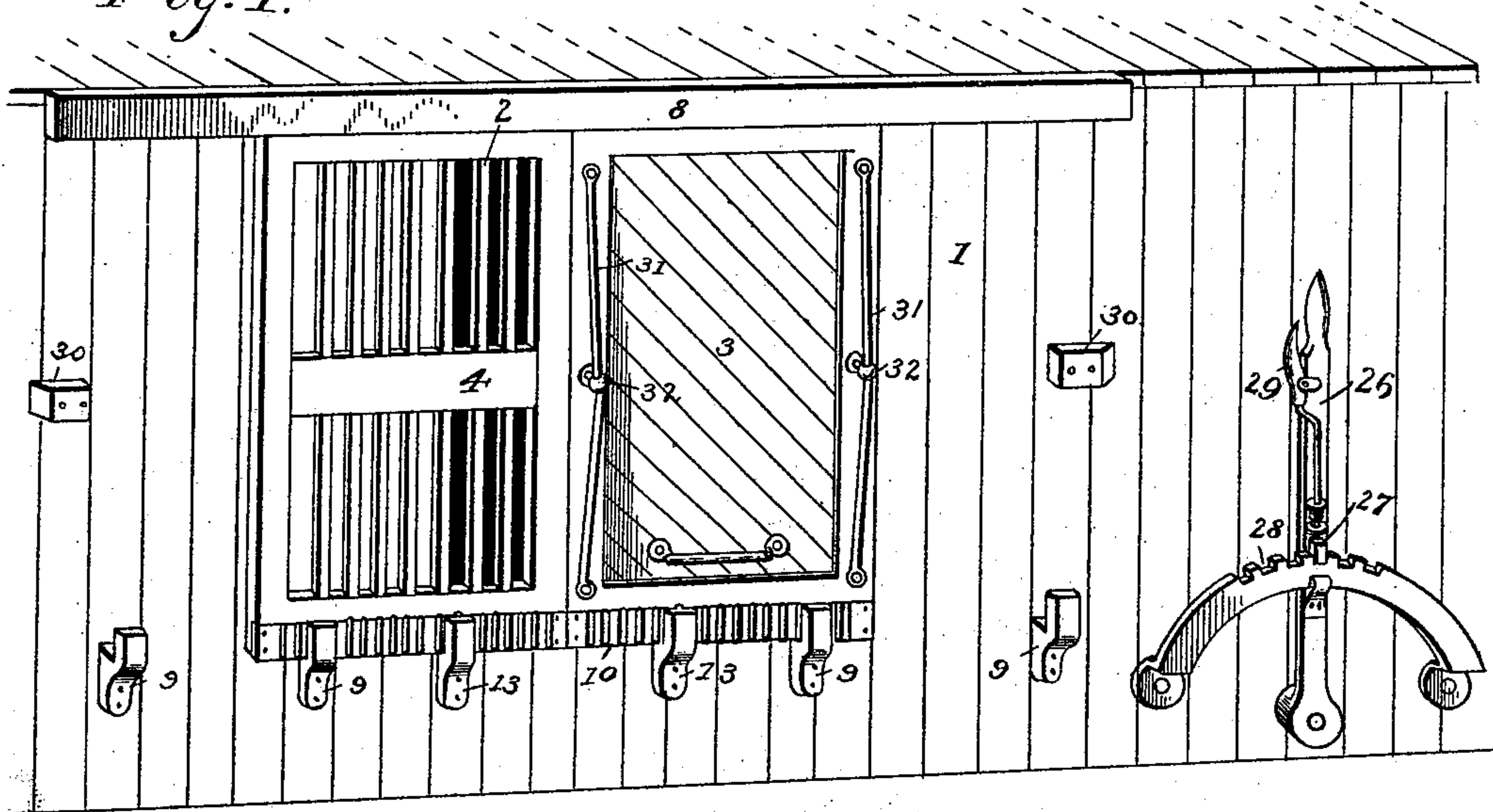
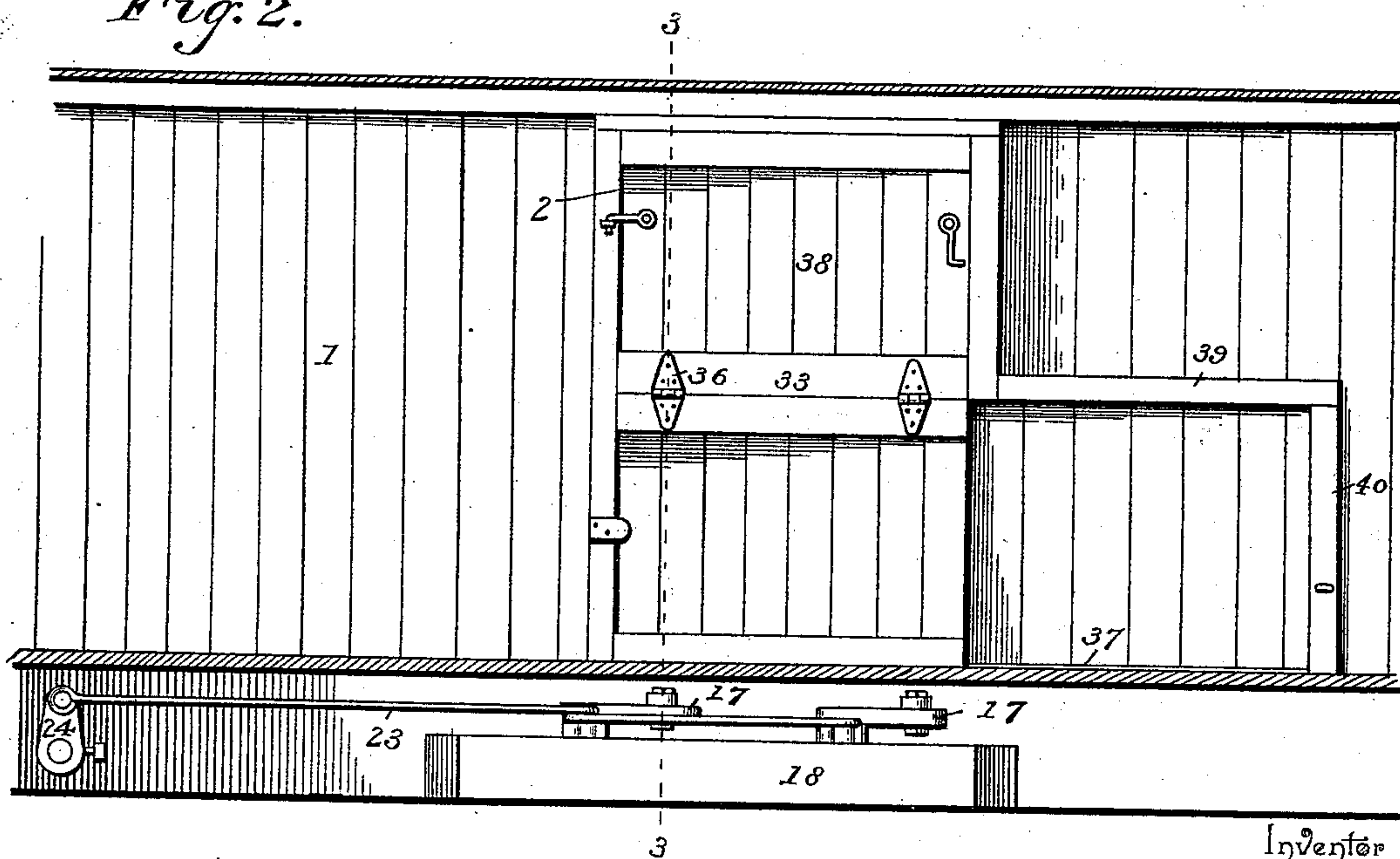


Fig. 2.



Inventor

Witnesses

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J. F. Riley

By his Attorneys,

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C. A. Snow & Co.

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2 Sheets—Sheet 2.

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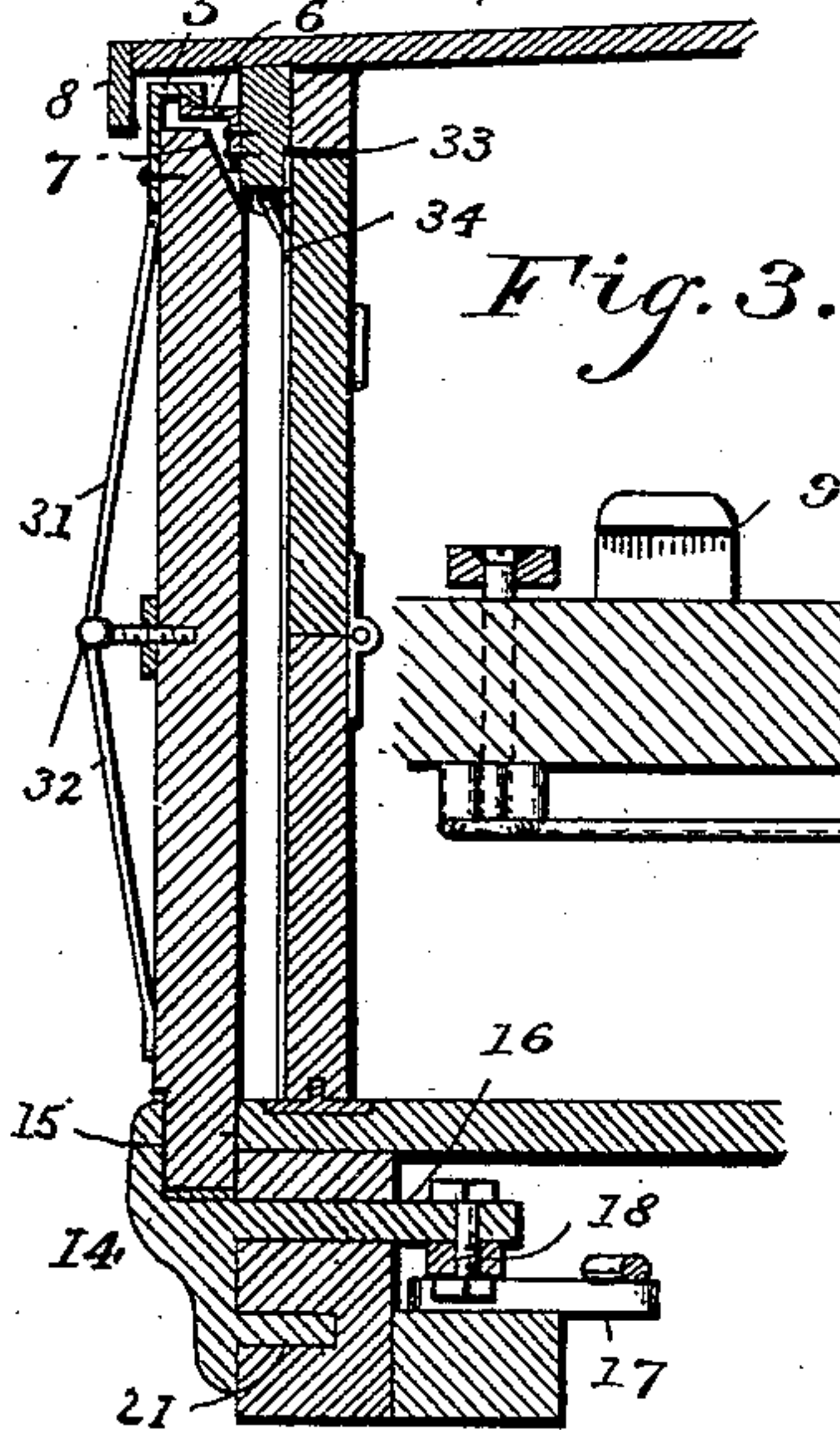


Fig. 3.

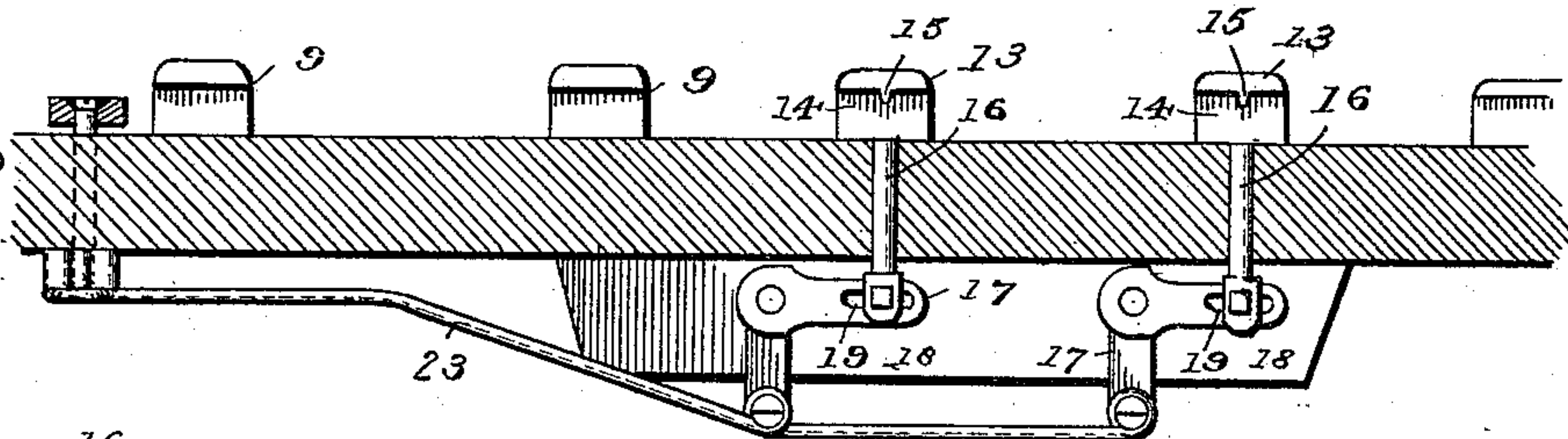


Fig. 4.

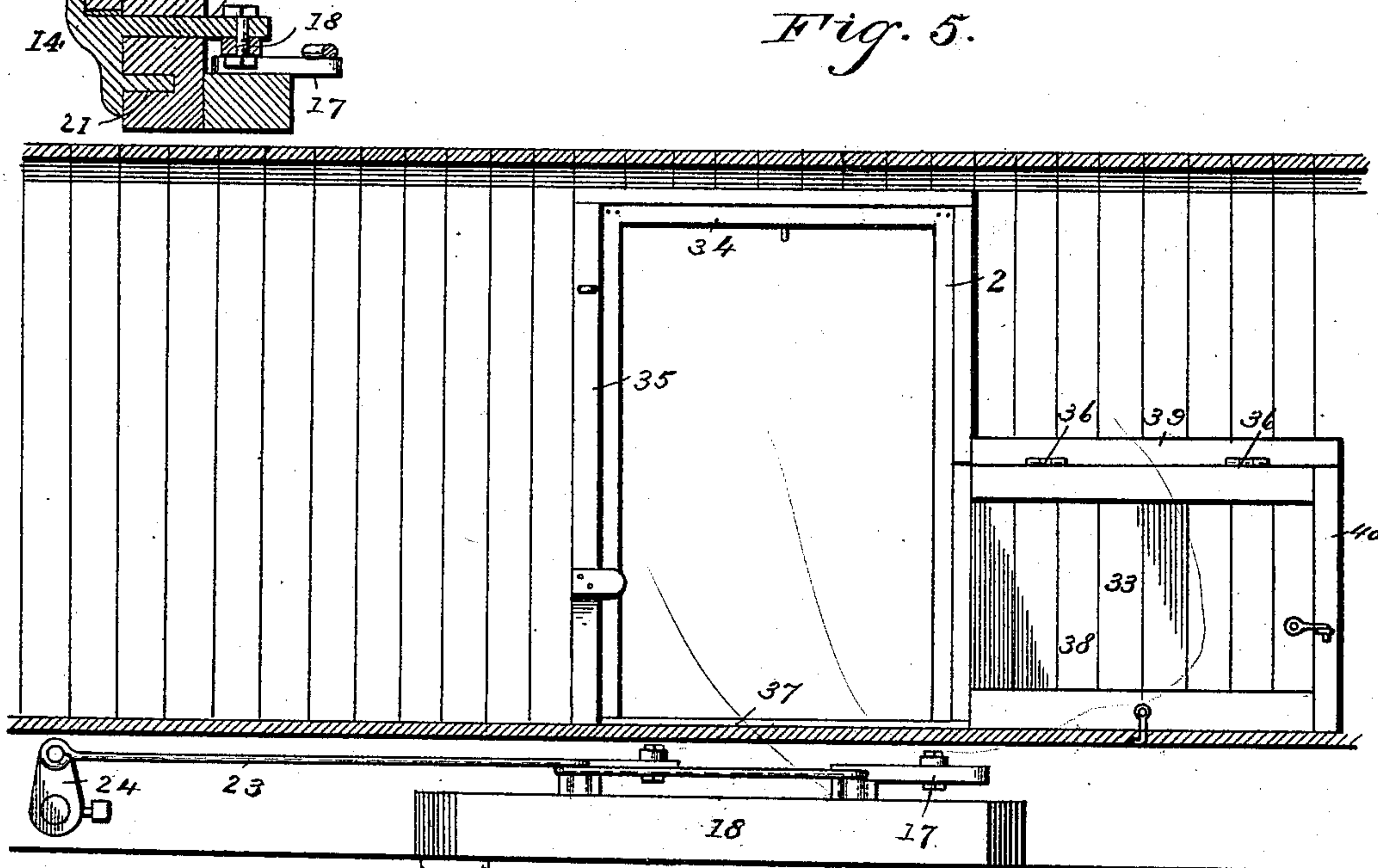


Fig. 5.

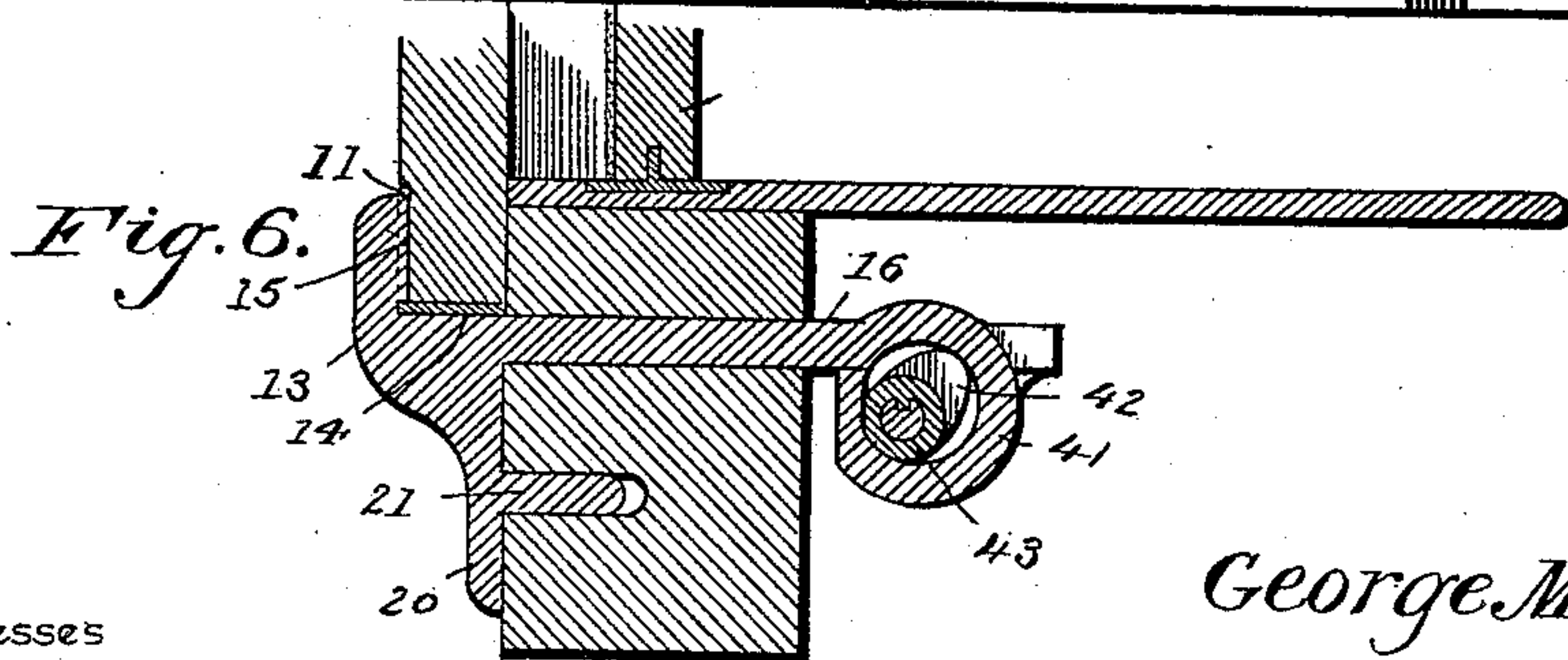


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE M. McMAHAN, OF LOUISVILLE, KENTUCKY.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 540,024, dated May 28, 1895.

Application filed July 17, 1894. Serial No. 517,826. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. McMAHAN, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Car-Door, of which the following is a specification.

The invention relates to improvements in car doors.

The objects of the present invention are to improve the construction of car doors, and the means for operating the same, to enable doors to be secured at any desired adjustment for the purpose of forming a closed, or a stock, or ventilated car, and to provide an inner tight-fitting door, to adapt a car for refrigerating purposes.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a portion of a car provided with my improvements. Fig. 2 is a vertical longitudinal sectional view of the same, the inner door and the operating mechanism of the outer doors being shown in elevation. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 2. Fig. 4 is a horizontal sectional view. Fig. 5 is a view similar to Fig. 2, the inner door being folded and opened. Fig. 6 is a detail sectional view illustrating another manner of actuating the dogs.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a car having a door opening 2, and provided with a solid outer door 3, and a ventilating or stock door 4; and these doors are adapted to be used singly to form either a closed car or a stock car; or they may be employed together to form a ventilating space at one side of the door opening.

Each door is provided with a continuous hanger 5, arranged on a track 6 extending longitudinally of the doorway and disposed at the top thereof, and continued a suitable distance at each side of the same; and the upper

inner edges 7 of the outer doors 3 and 4 are beveled to clear the track or the supports thereof. A guard 8 is arranged at the top of the door and extends over the track to shed water and to protect the top of the door; and ordinary metal brackets 9 are arranged to support the doors at their lower edges.

Each door is provided at its bottom with a horizontal rack bar 10 having recesses or notches 11; and transversely disposed dogs 13 are mounted on the car at opposite sides of the door opening at the bottom thereof to engage the rack-bars, whereby the outer doors are secured at any desired adjustment. Each dog is provided with an L-shaped portion 14, to receive the lower edge of the door, and it is provided on the inner face of the flange of the L-shaped portion 14 with a vertical rib or tooth 15 to engage the notches or recesses of the rack-bar. It is provided with an inward extending shank 16 slidingly mounted on the car frame, and connected at its inner end with a slotted arm of a bell-crank lever 17, a pivot bolt 18 being arranged in the slot 19 of the bell-crank lever and connecting the shank to the lever. The dog has a depending portion 20, and extending inward therefrom is a pin or projection 21, arranged in a socket 22 for supporting the dog and preventing the same from twisting and yielding to any strain exerted on the doors in attempting to open the latter.

The bell-crank levers 17 are located below the car floor. Their inner arms are parallel, and are pivotally attached to a connecting rod 23, which has its outer end similarly attached to an arm of a crank shaft 24. The arm 25 of the crank shaft is located at the inner end thereof; and on the outer end of the shaft is fixed an operating lever 26 located on the outer side of the car and carrying a spring actuated detent or pawl 27, arranged to engage a segmental ratchet 28, a latch lever 29 being mounted on the operating lever adjacent to the handle thereof for controlling the detent or pawl, whereby the operating lever may be readily secured at any desired adjustment. By swinging the operating lever inward toward the doors the dogs are moved

outward, and are disengaged from the rack-bars to permit the doors to be opened and closed, or arranged at any desired adjustment.

Stops 30 are mounted on the car for limiting the outward movement of the doors; and the outer door 3 is provided adjacent to each vertical edge with a truss 31, which may be formed in any suitable manner and which consists of a strut 32 centrally arranged, and a truss wire or rod secured at its ends to the top and bottom of the door 3.

The car is provided at the inner side of the doorway or opening with an inner refrigerator door 33, and it has an elastic weather strip or packing 34, surrounding the door opening and located within the framing strips 35.

The inner door is composed of upper and lower sections hingedly connected at 36. The lower edge of the inner door is mounted on a track rod 37 and provided with eyes to receive the same; but any other desired form of track may be employed. The upper section 38 of the inner door is adapted to fold down, as illustrated in Fig. 5 of the accompanying drawings, and when in this position the inner door is moved longitudinally away from the door opening in a way formed by the track, and an upper cleat 39, an end cleat 40 being provided to form a stop; and suitable fastening devices, such as hooks and eyes, or the like are provided for securing the inner door in its open and closed positions.

It will be apparent that the construction for manipulating the car doors, is simple and inexpensive in construction, positive and reliable in operation, and adapted to receive readily a seal, the latter being placed on the operating wheel which must be moved to gain access to the car. It will also be apparent that the doors may be readily arranged for forming a refrigerator car, a closed car for ordinary freight, grain or the like, or a stock or ventilated car.

It will be seen that the operating mechanism is located out of the way, and that the principal portions thereof are not exposed to the weather, or in danger of being broken.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle, or sacrificing any of the advantages of this invention, such as employing other mechanical connections between the operating lever and the dogs for actuating the latter. In Fig. 6 of the accompanying drawings the dogs are provided at their inner ends with yokes 41, which receive eccentrics 42 mounted on a rod 43, whereby when the rod is turned the dogs will be moved inward and outward.

By beveling the door 3 at its upper inner edge to clear the track, it may be drawn in closely by the dogs to make the car storm proof.

What I claim is—

1. The combination with a car, of a slidingly mounted car door provided at its bottom on its outer face with a rack, and a transversely disposed dog movably mounted on the car and provided with an upward extending flange, receiving said rack and provided on its inner face with a tooth for engaging the same, whereby the car door is secured at the desired adjustment, substantially as described.

2. The combination with a car, of a car door slidingly mounted thereon and provided at its bottom on its outer face with a rack, a transversely disposed dog having a vertical flange and provided on the inner face of the same with a tooth for engaging the rack and provided with an inward extending shank slidingly mounted on the car, said dog being provided below the shank with an inward extending projection or pin slidingly mounted on the car, and operating mechanism connected with the shank of the dog, substantially as described.

3. The combination with a car, of a door mounted thereon and provided at its bottom with a rack, a transversely disposed dog slidingly mounted on the car and having an upward extending portion or flange provided on its inner face with a tooth and arranged to engage the rack, a bell-crank lever mounted on the car and having one of its arms connected with the dog, a crank shaft journaled on the car and having at its inner end a crank arm connected with the bell-crank lever, and an operating lever connected to the outer end of the shaft, substantially as described.

4. The combination with a car, of the outer doors 3 and 4 mounted thereon and provided at their bottoms with racks transversely disposed dogs slidingly mounted on the car and arranged to engage the racks and having inward extending parallel shanks, bell-crank levers mounted on the car and arranged at the inner terminals of the shanks and having their outer arms connected therewith, a shaft journaled on the car and provided at its inner end with a crank arm, a connecting rod pivotally attached to the crank arm and similarly connected to the inner arms of the bell-crank levers, and an operating lever mounted on the outer end of the shank, substantially as described.

5. The combination of a car having an outer door, and provided at the inner side of its door opening with an elastic packing, a track arranged at the bottom of the door opening, an inner refrigerator door composed of upper and lower hinged sections and mounted on the track, the upper section being adapted to swing downward for folding, and the way arranged at one side of the door opening to receive the inner door when the latter is folded, substantially as described.

6. The combination with a car, of a door slidingly mounted thereon and provided at its

bottom with a rack, a transverse dog mounted
on the car at the bottom of the door and hav-
ing an upward extending flange and provided
on the inner face of the same with a tooth, and
5 having an inward extending shank, a shaft
 journaled on the car an operating lever mount-
ed on the outer end of the shaft, and connec-
tions between the inner end of the shaft and
the shank of the dog, whereby the latter is ac-

tuated, substantially as and for the purpose 10
described.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

GEORGE M. McMAHAN.

Witnesses:

W. T. SUTTON,
C. S. LAMPPIN.