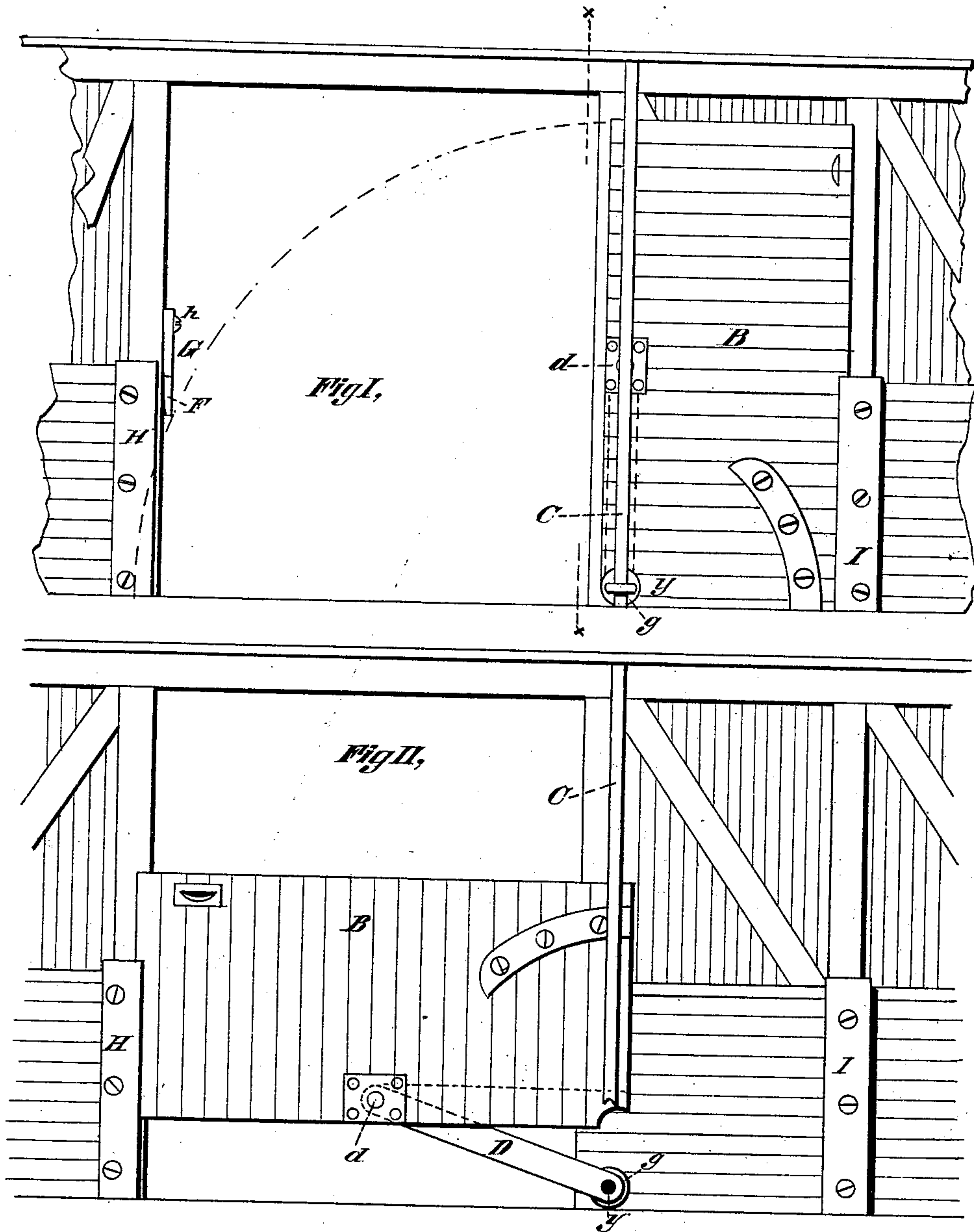


F. W. CHAFFEE.
Freight-Car Door.

No. 217,859.

Patented July 29, 1879.



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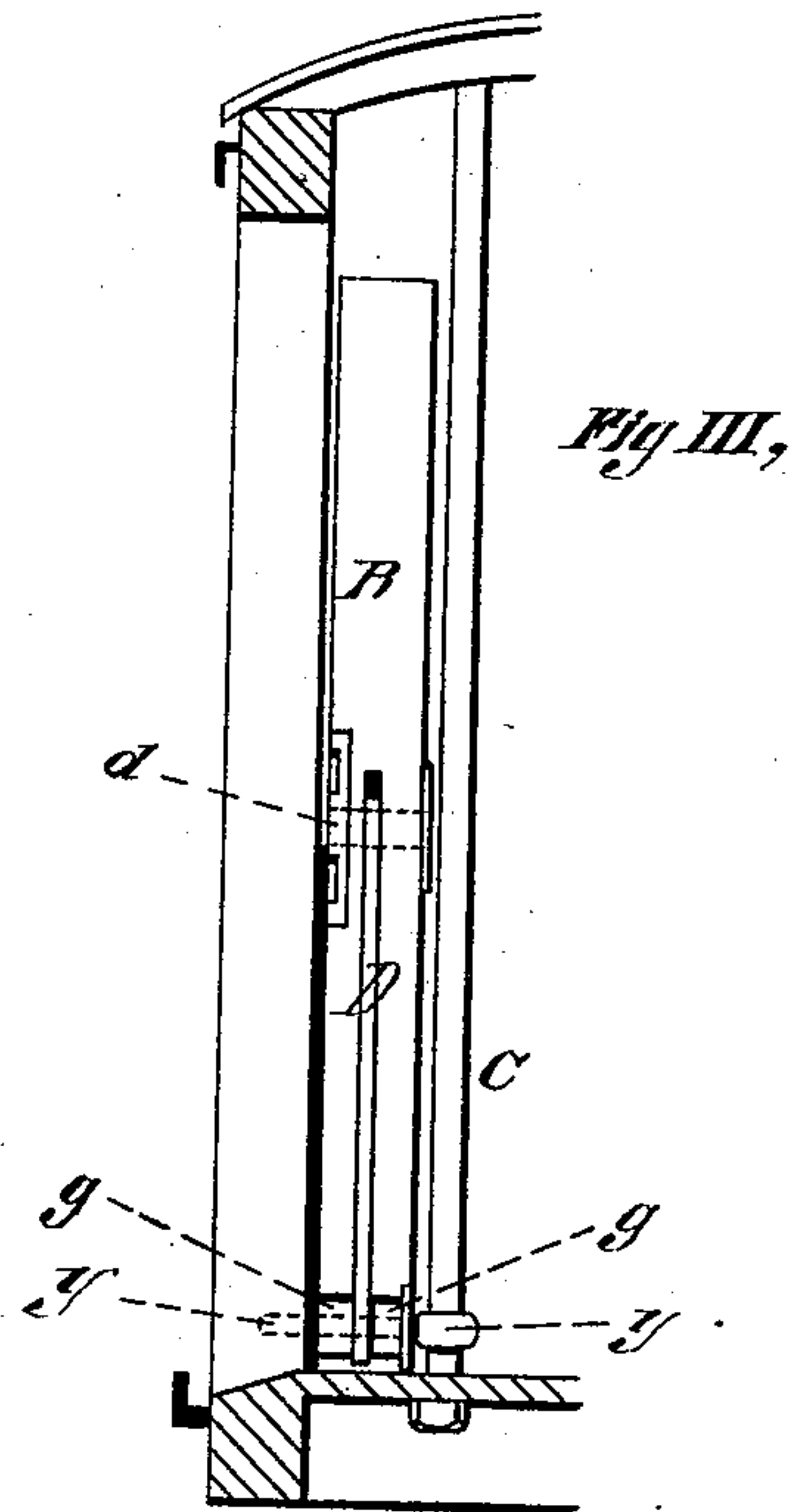
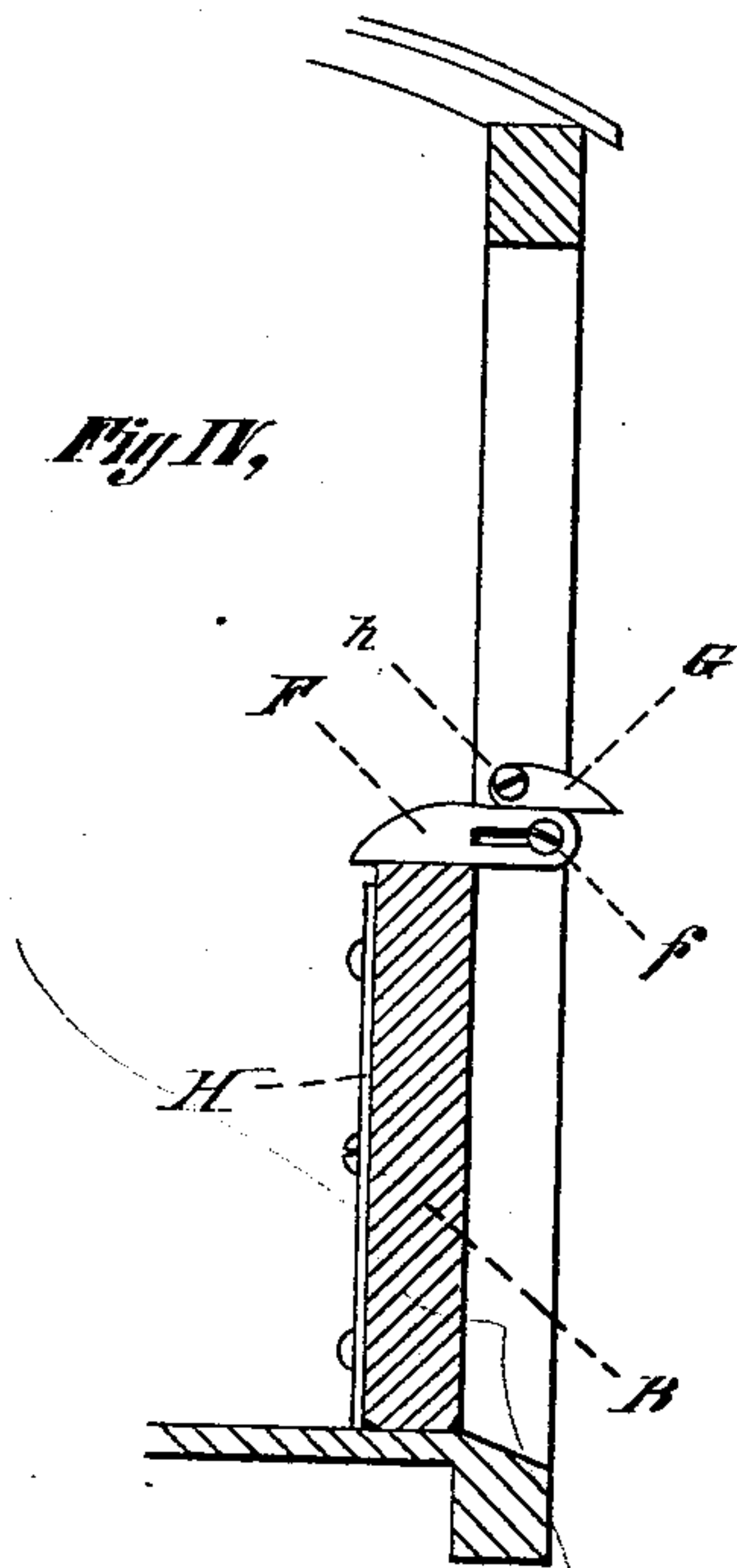
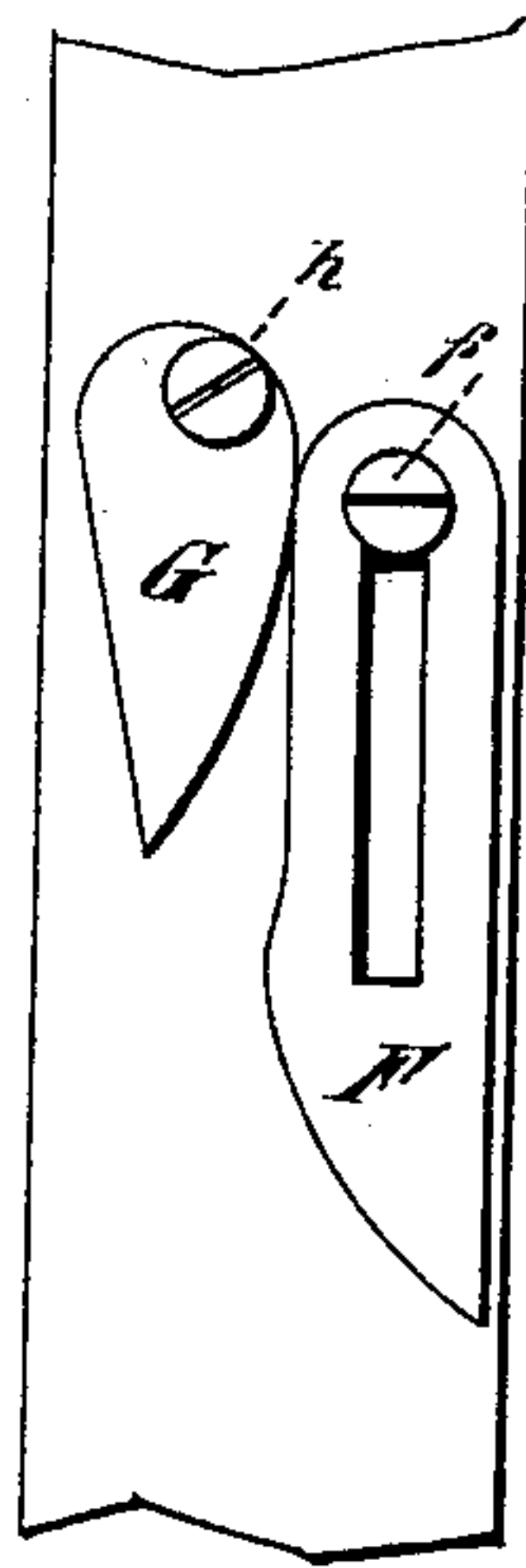


Fig V,



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UNITED STATES PATENT OFFICE.

FRANK W. CHAFFEE, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN FREIGHT-CAR DOORS.

Specification forming part of Letters Patent No. **217,859**, dated July 29, 1879; application filed May 29, 1879.

To all whom it may concern:

Be it known that I, FRANK W. CHAFFEE, of Springfield, Massachusetts, have invented an Improvement in Freight-Car Doors, of which the following is a specification.

This invention belongs more particularly to that class of car-doors known as "grain-car doors;" and the first part relates to the method of hinging the door to enable it to be either swung over on one corner to entirely expose the doorway, or be raised vertically its whole length to permit a graduated flow of grain beneath it from the car, the second part relating to the catch or lock for securing the door when closed.

In the drawings, Figures I and II are side elevations of the door in different positions within the car relative to the doorway. Fig. III is an end view on line *x x* of Fig. I. Fig. IV is a section through the door when closed, showing its lock or catch; and Fig. V is an enlarged detail, showing the position of the lock when inoperative.

The mechanism for permitting and governing the twofold movement of the door B consists of the beam or toggle D, which is received in a recess in the lower side or edge of the door, and, being hinged at one of its ends, at *d*, to the door, has its other hinged to the car at a point coincident to the corner of the door, so that the door B, when swung from a closed position to be placed in that shown in Fig. I, rests upon the beam D, and turns with it upon its hinge at *y*, the beam becoming, in effect, only a hinge attached to the corner of the door. But when it is desired to raise the door or pry it up from the outside to permit the flow of loose grain from within the car, the toggle or beam, swinging on its two hinges at *d* and *y*, permits the door to leave the sill with its lower edge parallel thereto, so that the grain may flow the whole length of the doorway.

I find in practice that by placing the hinge *d* in the center of the length of the door B, as shown in the drawings, the door may be raised upon this hinge from twelve to fifteen inches, without having its end swung clear of the side of the doorway, with the depth of bearing usually given doors within grain-cars, this distance being the largest usually required, and amply sufficient for the egress of loose grain;

but by changing the position of this hinge, with a consequent lengthening of the beam D, a much greater interval can be left in raising the door, while it still extends from side to side of the doorway.

The hinge *y* is formed upon a bolt passing from the rod C to enter the side of the car, as shown in Fig. III, and as in freight-cars having an inner door this rod C always occupies this position as a support and guide to the door, it forms a convenient point of attachment for the hinge-bolt.

To prevent the entire weight of the door from being concentrated upon the bearing-surface of the beam D and bolt where they form a hinge, I place upon the bolt, on each side of the end of the beam, loose thimbles *g g*, upon which the corner of the door is fitted to rest, as it bears also upon the beam when the door is swung, so that the friction is distributed upon the hinge-bolt for the width of the door, and undue wear thereby prevented.

It will be seen that no special housings or fittings are needed to set up this door or adapt it to any of the cars of usual form of construction, the cleats H I and the rod C having always been used, so that the door to be adjusted requires to only have the bolt passed through the corresponding hole in the end of the beam D, and through the thimbles *g g*, and be secured to the side of the car and rod C, when the door is ready for use.

The beam or toggle D, when let into the bottom of the door, is always protected from the blows of shifting freight and other shocks, which would bend or break any rod or beam exposed, and both sides of the door may thus be left free from any raised or projecting surface, to enable it thereby to lie close to the side of the car and be hugged by rod C.

The lock consists of two pieces—the one, F, being an elongated piece, provided with a lengthened slot, which permits it to be slid upon the stem of a screw, *f*, to have one end projected over and upon the top of the door B, the flange of the screw confining the piece F to the jamb of the doorway. When resting upon the door and upon the screw *f*, as shown in Fig. IV, the cam G, hinged at *h* in the same plane with piece F, is swung to firmly bind it against the door and thus secure it.

When it is desired to release the door, the handle or free end of the cam is pushed inward, and the latch-piece F is slid off from the door and allowed to drop down on its screw as a hinge, the parts F G then assuming the position shown in Fig. V, where, hanging against the side of the doorway, they are removed from all interference with either door.

Now, having described my invention, what I claim is—

1. In freight-cars, a door hinged to one end of a toggle or beam, hinged in its turn at its other end to the car at a point coincident to one lower corner of the door, to, in effect, form a corner-hinge for the door, and thereby adapt it to be either swung over on its hinged corner to rest upon one of its ends, or be raised to have its bottom remain parallel to the car-floor,

while its ends still bear against the sides of the doorway, substantially as shown and described.

2. In combination with the door B of a freight-car, the beam D, recessed in the bottom of the door, and hinged, respectively, to the bottom of the door at *d*, and to the car at *y*, for the purpose as specified.

3. In combination with the door B of a car, the latch formed of the elongated slotted piece F, having the hinge *f*, and cam-lever G, adapted to operate together in the manner and for the purpose set forth.

FRANK W. CHAFFEE.

Witnesses:

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