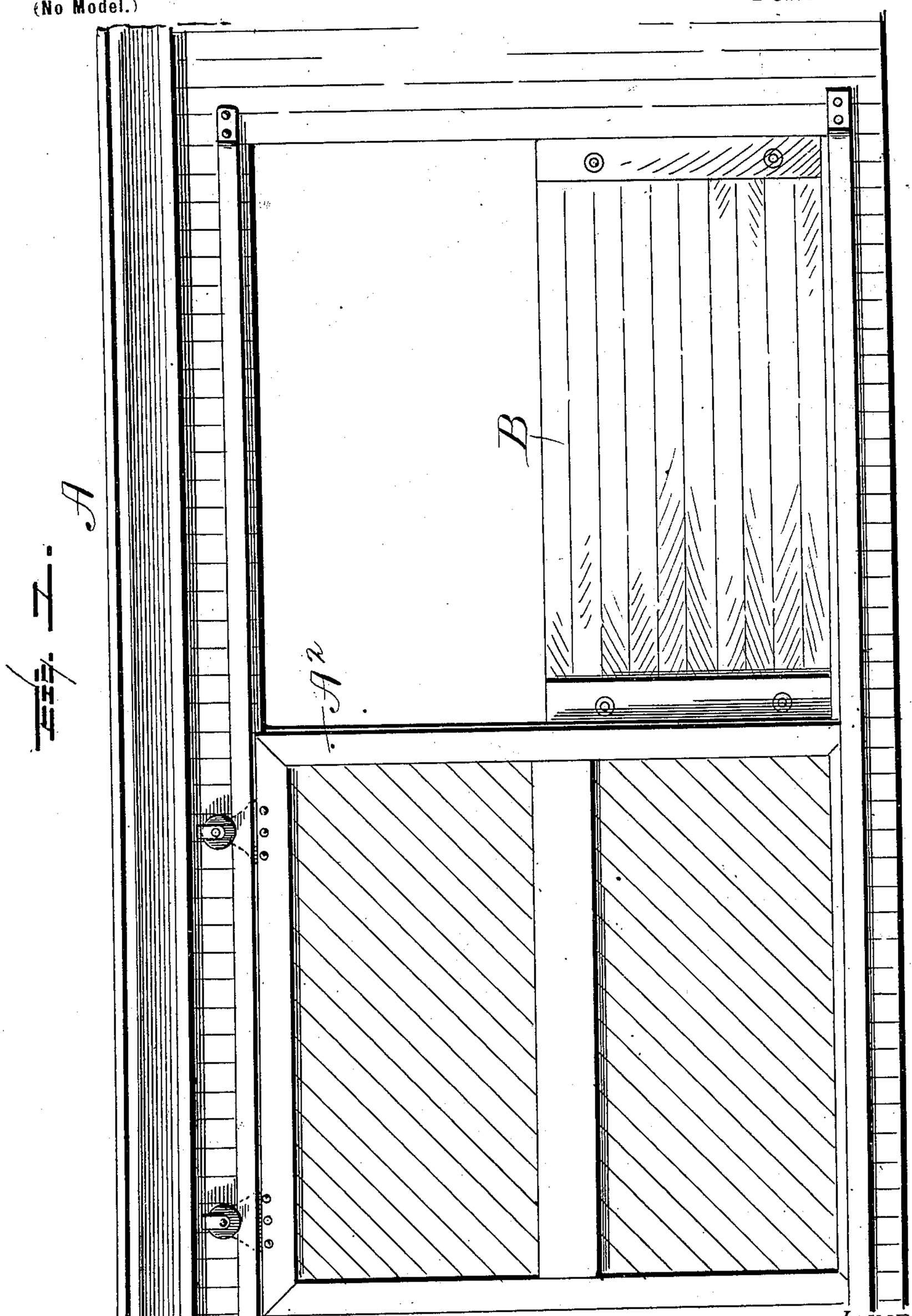
No. 660,949. Patented Oct. 30, 1900.

J. CLARKE.

GRAIN CAR DOOR.

(Application filed June 23, 1900.)

(No Model.) 2 Sheets—Sheet 1.



WITNESSES:

L. C. Hills

R. M. Elliott.

INVENTOR:

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Fig. 2.

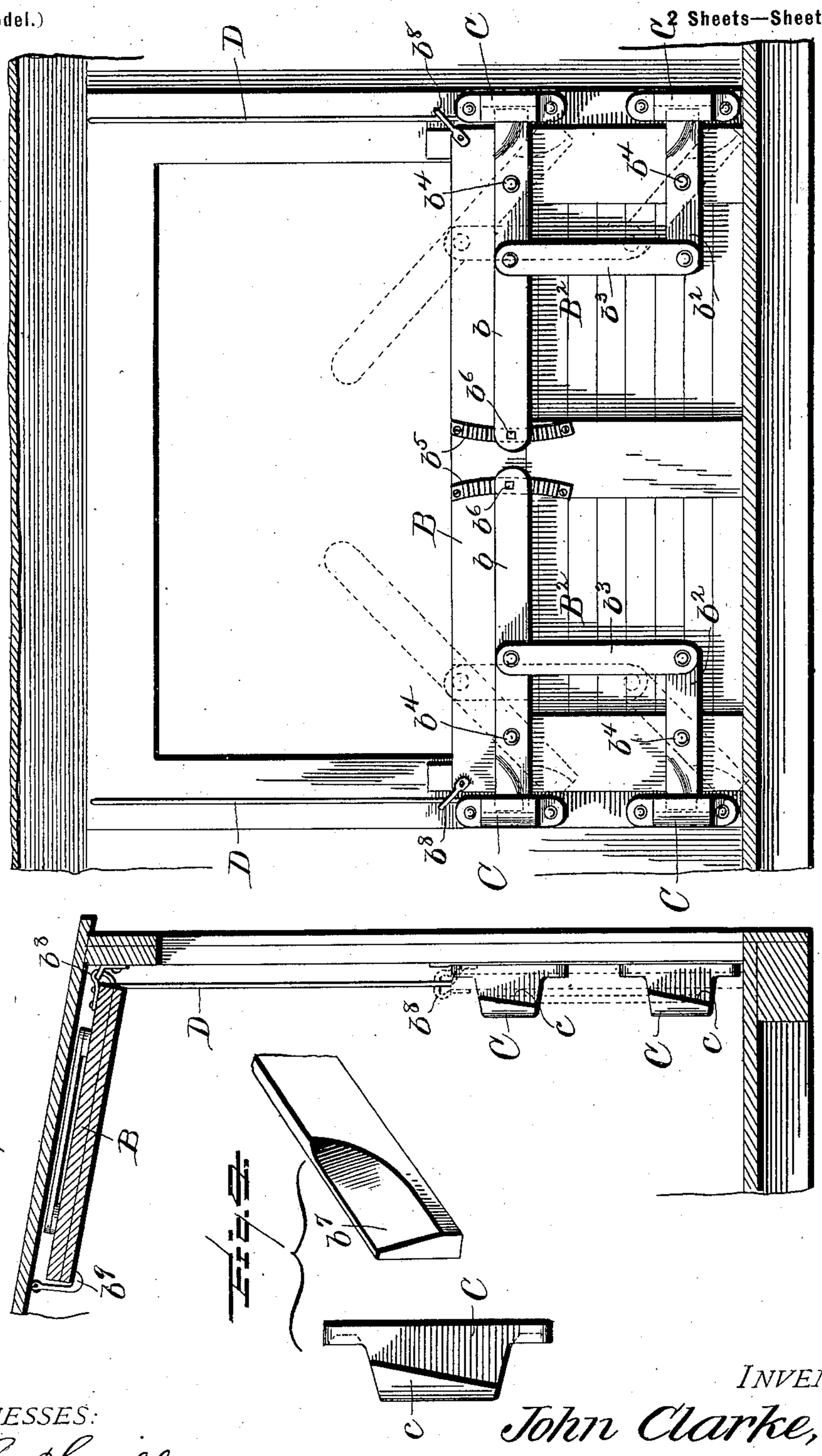

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN CLARKE, OF ORANGEVILLE, CANADA.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 660,949, dated October 30, 1900.

Application filed June 23, 1900. Serial No. 21,337. (No model.)

To all whom it may concern:

Be it known that I, JOHN CLARKE, a subject of the Queen of Great Britain, residing at Orangeville, in the county of Dufferin, Province of Ontario, Canada, have invented certain new and useful Improvements in Grain-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.

The object is without any change in the structural arrangement of a grain-car and in a simple, effective, and comparatively inexpensive manner to effect locking of a door and at the same time to take up any lost motion due to wear and tear, thereby to prevent loss of grain and any damage thereto while in transit, as from moisture and the like; furthermore, to obviate the employment of nails or other temporary fastening means for holding the door in place.

The invention consists in the novel construction and combination of parts of a grain-door-fastening device, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have exhibited my device as applied to a grain-car door, it being understood that the same may be applied to any other opening to be closed—as, for instance, to gangways for steamboats and the like—without departing from the spirit of my invention, and in the drawings—

Figure 1 is a view in front elevation, exhibiting a portion of a grain-car, the usual door employed being moved to one side to display the supplemental door forming part of this invention. Fig. 2 is a view in elevation, partly in section, displaying the opposite side of the car from that shown in Fig. 1, with the fastening device shown as in locked position in full lines and in unlocked position in dotted lines. Fig. 3 is a view in transverse section showing a portion of one-half of a grain-car, exhibiting the means by which the grain-door may be held suspended while the grain is being discharged. Fig. 4 is a collective detail view exhibiting the contact parts of the locking device.

Referring to the drawings, A designates generally the body of a grain-car, and A^2 the door, which, as usual, is hung for lateral sliding motion. As the car and the door may be of any preferred construction, a detailed description thereof is deemed unnecessary.

Arranged on the interior of the car and covering about one-half, more or less, of the car-door opening is a second door B, constituting the grain-door proper. This door may be constructed in any desired manner and may be provided along its bottom edge and its inner sides adjacent to the door-jamb with strips of rubber or other material whereby a close union between the door and the parts of the car named may be effected.

At each end of the door B is pivoted a three-part lever, (designated generally by B^2,) each lever comprising a locking and releasing arm *b*, a second locking-arm b^2, and a connecting-link b^3. The connection between the link and the two arms *b* b^2 is on the same side of the pivotal points b^4 thereof, so that upon movement being imparted to the arm *b* a like motion will be imparted to the arm b^2, thus to effect locking or unlocking of these arms, as the case may be. To hold the arms *b* in their locked position, the door B is provided with two rack-plates b^5, the same to be engaged by pawls or pins (designated generally by b^6) near the ends of the arms *b*.

Secured in vertical alinement on each side of the inner surface of the door-jamb are two keepers C, each keeper being formed with an inward-projecting undercut lip *c*, the direction of incline of both lips of the keepers on each side of the door being the same. These lips are engaged by the ends of the levers *b* b^2, respectively, and in order to effect the requisite clamping action whereby the door B may be secured in position in such manner as to effect a tight juncture between the parts of the car with which it contacts the contacting ends of these levers are beveled, as shown at b^7, Fig. 4, whereby upon downward pressure being applied to the levers *b* the inner ends of these levers and of the levers b^2 will be caused to ride up the incline of the lips *c*, and thus effect the locking described, the pawls b^6 by engagement with the rack-plates b^5 serving to hold the levers at the requisite adjustment. By the employment of the

pawls and rack-plates the levers may be held at any point desired, either above or below a horizontal line, so that under all conditions the door may be firmly locked in place and all lost motion due to wear and the like will be taken up.

As will be seen by reference to Fig. 2, the door B is adapted to be folded up against the inner surface of the roof of the car, thus to permit the requisite discharge of the grain contained in the car. To effect this, at each end of the door B and secured to the car proper is a guide D, the same to be engaged by runners b^8, carried by the door B, the runners, as shown in Fig. 2, being disposed at an angle to the length of the door to permit the door being turned up, as shown in Fig. 3. When in this position, a hook or catch b^9 is employed for holding the door raised.

When the door B is to be raised, the levers b are moved to the position indicated by dotted lines in Fig. 2, and the door is then partly raised to bring the ends of the levers out of the plane of the keepers. The levers are then pushed back to the position shown in full lines in Fig. 1, thus to prevent any interference between them and the roof of the car when the door is suspended, as shown in Fig. 3. To secure the door in place, an operation the reverse of that just described is observed.

As stated at the beginning of the specification, it is to be understood that this invention is not to be limited to use in connection with a grain car, as it may be applied to any door-opening to be closed—as, for instance, to the gangways of steamboats and the like.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a grain-car door, the combination with the door-opening having a pair of keepers secured on each stile thereof, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the ends of the levers to engage the keepers, substantially as described.

2. In a grain-car door, the combination with the door-opening, having a pair of keepers secured on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers having beveled free ends, the levers being adapted for movement in arcs of alined circles, the beveled ends of the levers to engage the keepers, substantially as described.

3. In a grain-car door, the combination with the door-opening having a pair of keepers arranged on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the levers having beveled ends to engage the inclined lips of the keepers, and means for holding the levers at the desired adjustment, substantially as described.

4. In a grain-car door, the combination with the door-opening having a pair of keepers arranged on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the levers having beveled ends for engaging the inclined lips of the keepers, means for holding the levers at the desired adjustment, guides secured to the car adjacent to the door-opening, and runners carried by the door and engaging the guides, substantially as described.

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

JOHN CLARKE.

Witnesses:
R. M. ELLIOTT,
E. T. BRANDENBURG.