

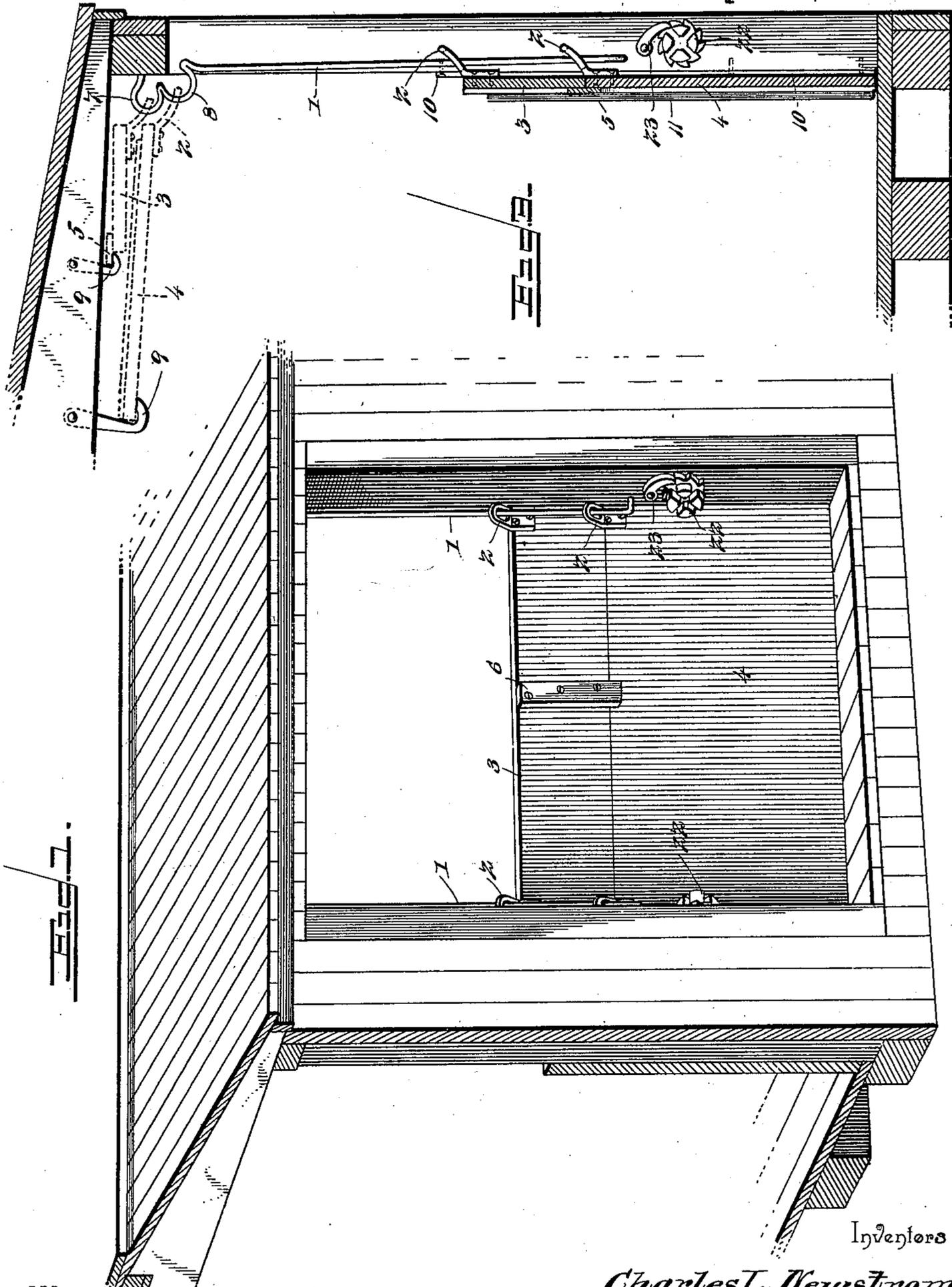
(No Model.)

2 Sheets—Sheet 1.

C. L. NEWSTROM & T. H. MILLER.
GRAIN CAR DOOR.

No. 602,167.

Patented Apr. 12, 1898.



Witnesses
E. Stewart
W. E. Hoyle

By their Attorneys,

Inventors
Charles L. Newstrom
Thomas H. Miller

C. Snowles.

(No Model.)

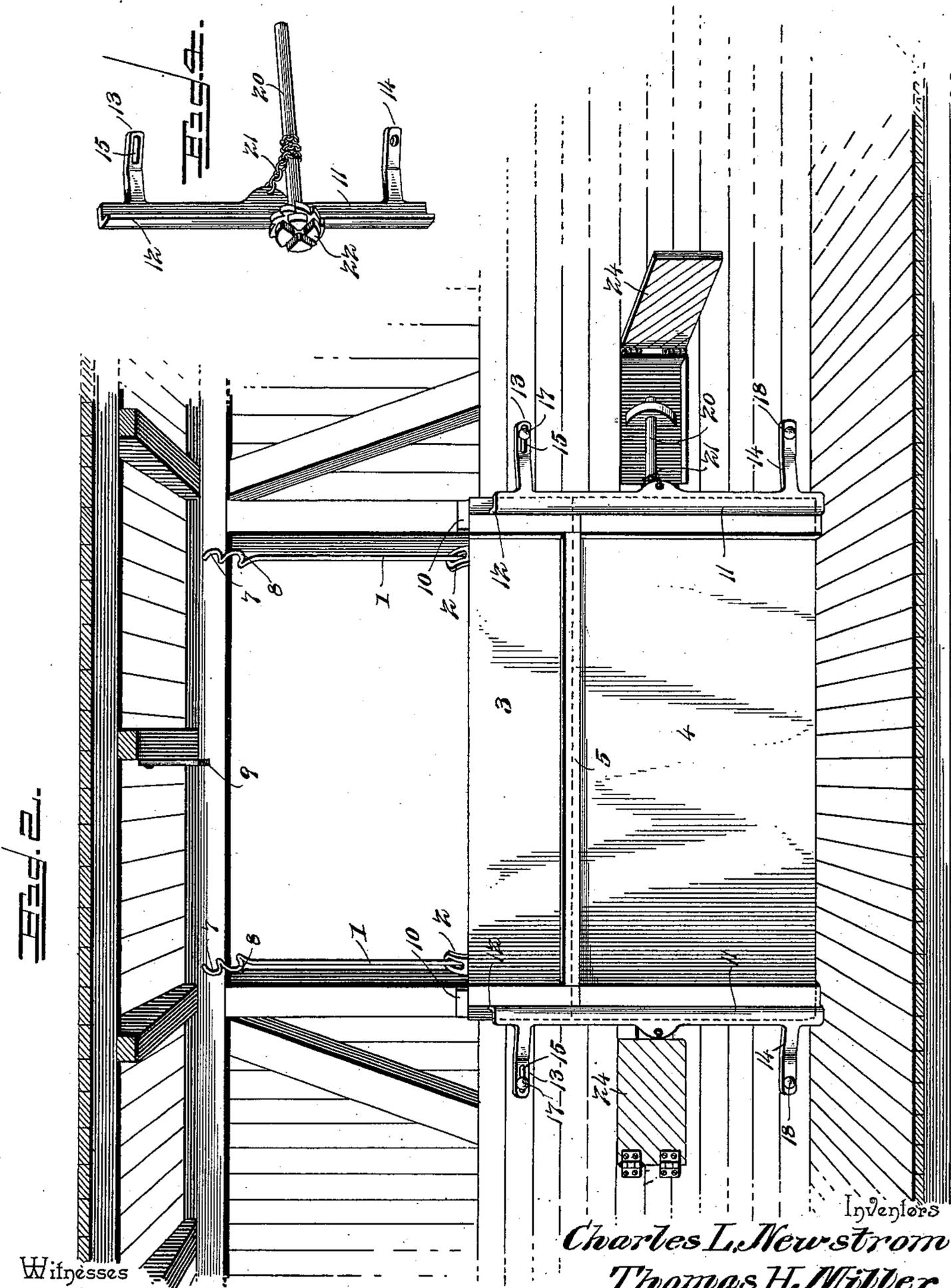
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[Signature]

By their Attorneys,

Charles L. Newstrom
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C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

CHARLES L. NEWSTROM AND THOMAS H. MILLER, OF MAIDEN ROCK,
WISCONSIN.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 602,167, dated April 12, 1898.

Application filed September 15, 1897. Serial No. 651,765. (No model.)

To all whom it may concern:

Be it known that we, CHARLES L. NEWSTROM and THOMAS H. MILLER, citizens of the United States, residing at Maiden Rock, in the county of Pierce and State of Wisconsin, have invented a new and useful Grain-Car Door, of which the following is a specification.

Our invention relates to doors for grain-cars, and particularly to fastening devices therefor, the function of such fastening devices being to prevent the escape of grain from the car to which the door is applied; and the object in view is to provide grain-door-supporting devices arranged to occupy the minimum space within the car, to avoid interference with the cargo of a different class from grain, and to insure the efficient fastening of the door when in its operative position, while allowing the displacement thereof to be accomplished with facility.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a portion of a car provided with a grain-door constructed in accordance with our invention. Fig. 2 is a similar view showing the door from the inside and illustrating the contiguous portions of the car. Fig. 3 is a vertical section showing in dotted lines the positions occupied by the door-sections when not in use. Fig. 4 is a detail view in perspective of one of the door-clamps.

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

The parallel guides 1, upon which the door is mounted to slide by means of eyes 2, are arranged contiguous to the facing sides of the door-frame timbers, and hence outside of the plane of the inner surface of the car, whereby the guide-eyes are arranged at intermediate points of the upper edge of the door. In the construction illustrated the door is of sectional construction, as shown at 3 and 4, the upper or narrow section 3 having a rabbeted lower edge 5 to receive the upper edge of the main or lower section 4,

and said upper or auxiliary section also having a cleat 6, extending terminally beyond the edge of the body portion of said auxiliary section and overhanging the rabbet therein to bear against the exterior surface of the main door-section, whereby in practice the door-sections are mutually supporting, one being incapable of bowing or bulging without the other. The guide-eyes with which these door-sections are respectively provided are deflected outwardly to traverse the guide-rods, and the latter are provided at their upper extremities with offset upper and lower seats 7 and 8 to receive said guide-eyes when the door-sections are in their folded or inoperative positions. (Indicated in dotted lines in Fig. 3.) Said door-sections are held in their folded positions by means of swinging latches 9, suspended from the roof-timbers of the car.

Secured to the inner surfaces of the side timbers of the door-frame are wear-plates 10, against which the exterior surfaces of the door-sections are adapted to bear when in their normal positions, and arranged parallel with said wear-plates are clamp-bars 11, having rabbeted inner sides to form longitudinal biting edges 12 to bear against the inner surfaces of the door-sections parallel with their end edges. These clamp-bars are provided at their upper and lower extremities, respectively, with arms 13 and 14, the former of which are longitudinally slotted, as shown at 15, to operate in connection with fixed guide-pins 17, and the latter of which are provided with perforations mounted upon pivot-pins 18. The slotted arms of the clamp-bars are arranged contiguous to the upper ends thereof to allow lateral displacement of said upper ends of the bars to disengage the lower edge of the main-door-section when the latter has been raised in the door-frame preparatory to folding parallel with the roof-timbers of the car.

Various means may be employed for drawing the clamp-bars outwardly into firm contact with the terminal edges of the door-sections and holding said door-sections in such close contact with the door-frame as to prevent grain from escaping; but a simple and preferred form of construction is illustrated

in the drawings, wherein drums 20 are mounted in the car-frame preferably between the exterior sheathing and the lining, as shown clearly in Fig. 2, and connected flexibly, as
 5 by chains 21, with intermediate points of the clamp-bars, whereby the rotation of the drums causes the tightening of the connections and the firm gripping of the door-sections by the clamp-bars. In order to facilitate the ma-
 10 nipulation of the clamp-actuating devices, we preferably extend the drum-spindles through the side beams of the door-frame and fit the same with heads 22, having key-seats or kerfs adapted to be engaged by a crowbar or pinch-
 15 bar or other equivalent tool. To prevent the unwinding of the drums, said heads are preferably provided with ratchet-teeth engaged by pawls 23. Access is given to the drums and flexible connections by means of doors 24
 20 let into the car-lining contiguous to the clamp-bars.

From the above description it will be seen that the door-sections may be drawn into contact with the frame with any desired force to
 25 secure the contents of the car against leakage, and the only portions of the device which project into the interior of the car are the clamp-bars, and these but slightly, whereby the car may be used for transporting cargoes
 30 of different classes, such as lumber, without material reduction of its capacity. Furthermore, it will be seen that the clamp-bar-operating devices are exteriorly exposed, whereby the manipulation thereof may be accom-
 35 plished without entering the car.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this
 40 invention.

Having described our invention, what we claim is—

1. The combination with parallel guide-rods, of a sectional car-door having its mem-
 45 bers provided with eyes mounted to slide upon said guide-rods, said members being of greater width than the car-door opening to bear against the inner surfaces of the sides of the frame, clamp-bars to engage and hold the
 50 edges of said car-door members in contact with the sides of the door-frame, and movable outwardly toward the same, and operating devices for moving the clamp-bars, substantially as specified.

55 2. The combination with guide-rods and a car-door mounted to slide upon said guide-rods and of greater width than the door-frame to bear against the inner surfaces of the sides thereof, clamp-bars cut away at their inner
 60 surfaces to form biting edges to bear against

the inner surface of the door, and movable outwardly to force the door against the frame, and means for securing said bars in operative contact with the door, substantially as speci-
 65 fied.

3. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage the car-door contiguous to its side edges, to hold the latter in contact with the inner surface of the car-door
 70 frame, said clamp-bars being pivotally mounted for lateral movement at their upper extremities, and means for operating the clamp-bars to engage the door, substantially as specified.
 75

4. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage a car-door and hold it in contact with the inner surface of the door-frame, said clamp-bars being provided
 80 with lateral arms respectively pivoted and having a slotted connection with the car-frame, and means for securing the clamp-bars in their adjusted positions, substantially as specified.
 85

5. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage and secure the car-door in contact with the inner surfaces of the door-frame, drums having flexible connec-
 90 tions respectively with said clamp-bars, and means for securing the drums at the desired adjustment, substantially as specified.

6. The combination with a car-door arranged to terminally overlap the inner sur-
 95 faces of a car-door frame, of clamp-bars for engaging and holding the car-door in contact with the frame, drums operatively connected with the clamp-bars and having exposed heads whereby they may be manipulated from
 100 without the car, and means for securing the drums at the desired adjustment, substantially as specified.

7. The combination with a car-door arranged to terminally overlap the inner sur-
 105 faces of the door-frame, of clamp-bars adapted to engage and secure the door in contact with said surfaces, drums flexibly connected with the clamp-bars and having exteriorly-exposed heads provided with tool-seats, and
 110 locking-pawls for engaging ratchet-teeth on said heads, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CHARLES L. NEWSTROM.
 THOS. H. MILLER.

Witnesses:
 J. MEALEY,
 F. M. WHITE.