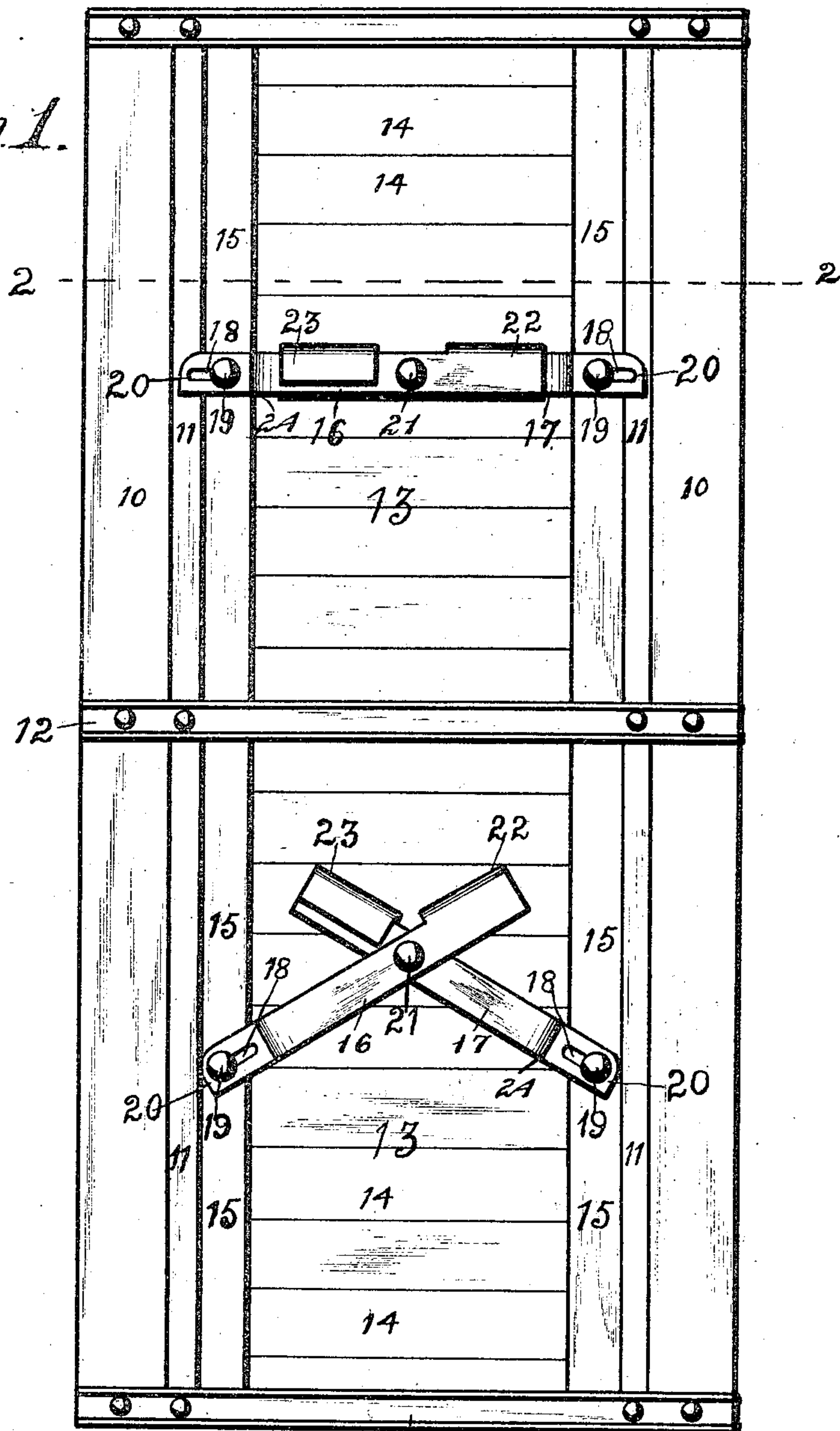


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DOOR LATCH FOR SILOS.  
APPLICATION FILED OCT. 15, 1910.

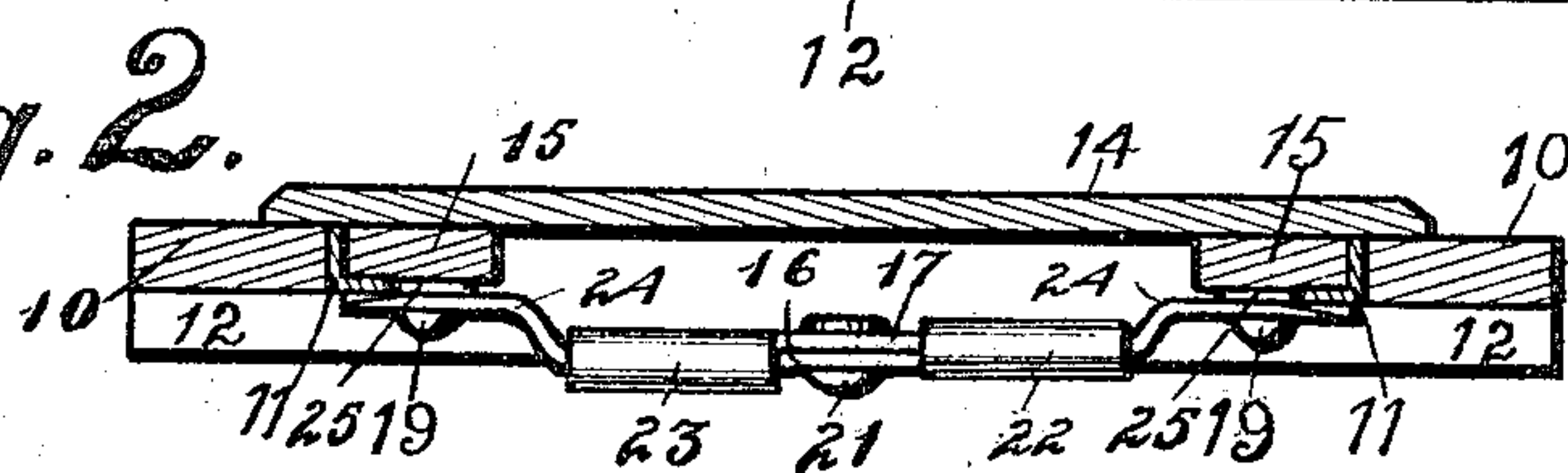
993,289.

Patented May 23, 1911.

*Fig. 1.*



*Fig. 2.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

KELLER J. BELL, OF DES MOINES, IOWA.

DOOR-LATCH FOR SILOS.

993,289.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed October 15, 1910. Serial No. 587,340.

*To all whom it may concern:*

Be it known that I, KELLER J. BELL, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Door-Latch for Silos, of which the following is a specification.

The object of my invention is to provide an improved means for clamping doors, such for instance as silo doors, firmly in position within a frame.

More specifically it is my object to provide a latch for silo doors of simple, durable and inexpensive construction, capable of being readily and easily operated; and further to provide a latch of this kind that may be used in combination with a silo door and frame to form a ladder whereby an operator may ascend to the top of the silo without danger of said latch slipping and thereby causing a person climbing thereon to fall.

My invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a front elevation of a silo door frame forming a continuous opening and two doors in position within the frame, the lower door having a latch mounted thereon in open position and the upper door having a latch mounted thereon in closed position, and Fig. 2 shows a horizontal, sectional view taken on the line 2—2 of Fig. 1.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the two upright pieces of the body portion of a silo adjacent the door frame. Said door frame consists of two angle irons 11 extending vertically adjacent to the inner edges of the upright pieces 10 and having one angle extending inwardly toward the center of the door. A series of cross pieces 12 formed of channel iron extend horizontally across the continuous opening and are spaced apart a distance equal to the length of one of the door members hereinafter described. Said channel irons are fastened at each end by means of bolts or other desirable means to both the angle irons 11 and the upright pieces 10, thereby serving to form braces for the door frame and at the same time alternating with the latches on the door members, hereinafter more fully de-

scribed, to form a ladder upon which an operator may safely and easily climb. A series of doors 13 for normally closing said continuous opening are constructed of cross slats 14 which extend horizontally across the opening. The ends of said slats 14 overlap the edges of the upright pieces 10 on the inner surface thereof, as clearly shown in Fig. 2. The upright door members 15 extend in a vertical direction parallel to and in engagement with the angle irons 11. The cross slats 14 are bolted or otherwise securely fastened to said upright door members 15.

For the purpose of holding the doors firmly in position in the frame, I provide the following means: Two latch members 16 and 17 having slots 18 extending longitudinally thereof are slidingly and pivotally mounted on the upright door members 15 by means of the bolts 19. Said bolts 19 extend through the slots 18 and are firmly fixed to the door members 15 so that the latch members 16 and 17 are free to move inwardly and upwardly for a limited distance relative to said bolts 19, as clearly shown in Fig. 1. The outer ends 20 of the latch members 16 and 17 normally overlap the inwardly extending portion of the angle irons 11 so that when the latch members 16 and 17 are in closed position the door 13 will be firmly clamped in position within the frame. The latch members 16 and 17 are pivotally connected with each other by means of the bolt 21.

In order to limit the downward movement of the latch members 16 and 17, I provide the lugs 22 and 23 formed on the upper edge of the latch members 16 and 17 adjacent to the inner ends of said latch members. The lug 22 extends inwardly and downwardly relative to the latch member 16 and the lug 23 extends outwardly and downwardly relative to the latch member 17 so that when the latch members 16 and 17 are in closed position the lugs 22 and 23 on said latch member will engage the upper edge of the other latch member and thereby hold said latch members rigidly in position extending horizontally across the door. The latch members 16 and 17 extend outwardly relative to the door at points indicated by the reference numeral 24 so that an operator may conveniently climb thereon. The ends 20 of the latch members 16 and 17 have their upper corners rounded so that when the latch is in open position said corners will be free



from engagement with the angle irons 11 and the door may be readily and easily removed from position within the frame. Washers 25 are mounted on the bolts 19 between the latch members and the door members 15 to hold the latch members spaced apart from the door members 15 and in position for readily engaging the outer surface of the angle irons 11. The under surface of the ends 20 of the latch members are beveled, as shown in Fig. 2, so that when the door is in position within the frame and the inner ends of the latch members are moved downwardly the beveled portion of the ends 20 will readily engage the angle irons 11 and draw the door 13 more firmly into position within the frame.

In practical operation and assuming that the operator wishes to adjust the door 14 to position within the casing, he adjusts the latch members 16 and 17 to position, as shown on the lower door member 14 in Fig. 1. The door is then placed in position within the frame and by manually pressing downwardly upon the upwardly extending ends of the latch members 16 and 17, said latch members will move downwardly and outwardly and the outer ends 20 of said latch members will overlap the inwardly extending angles of the angle irons 15 and thereby hold the door 14 firmly clamped within the frame as clearly shown in the upper portion of Fig. 1.

From the above description, it is obvious that the operator may easily and readily disengage the latch for the purpose of removing the door by simply pressing upwardly on the inwardly extending ends of the latch members 16 and 17 or at a point adjacent to the bolt 21.

I claim as my invention:

1. A device of the class described, comprising a silo having a door opening therein, a door member for normally closing said opening, and a latch for clamping said door within the opening comprising two latch members rotatably and slidingly mounted on the door member and having outwardly extending ends for detachably engaging the sides of said opening, substantially as described and for the purposes stated.

2. In a device of the class described, the combination of a frame, a door detachably mounted in the frame, a latch for clamping the door within the frame comprising two latch members rotatably and slidingly mounted on the door member and having outwardly extending ends for detachable engagement with the frame, said latch mem-

bers being pivotally connected with each other, and means on each of the latch members for engaging the opposite latch member to limit the downward movement thereof.

3. In a device of the class described, the combination of a silo door frame forming a continuous opening, a series of door members designed to be detachably mounted in said frame, one above the other, a series of latches mounted on said door members, each comprising two latch members rotatably and slidingly mounted on the door members and having outwardly extending ends for detachable engagement with the frame, said latch members being pivotally connected with each other, and means on each of the latch members for engaging the opposite latch member to limit the downward movement thereof, said parts being so arranged and constructed that the series of latches combine with the frame to form a ladder, substantially as described.

4. In a device of the class described, the combination of a frame, comprising two angle irons extending vertically adjacent to the opposite sides of a silo door to form a continuous opening, and having the angles extending inwardly toward the center of the opening, a series of channel irons extending horizontally across the opening uniformly spaced apart and having the ends thereof attached to the angle irons, a series of doors of uniform size designed to be detachably mounted in the frame, a series of latches mounted on said door members, each comprising two latch members having slots extending longitudinally thereof adjacent to the outwardly extending ends of said latch members, bolts extending through the slots and fixed to the door members, a bolt for pivotally connecting said latch members with each other, lugs on the outwardly extending ends of the latch members for detachable engagement with the frame, and lugs formed on the upper edges of said latch members for engaging the opposite latch member to limit the downward movement of the inner ends of the latch members, said parts being so arranged that the series of latches and the series of channel irons combine to form a ladder, substantially as described and for the purposes stated.

Des Moines, Iowa, Oct. 11, 1910.

KELLER J. BELL.

Witnesses:

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