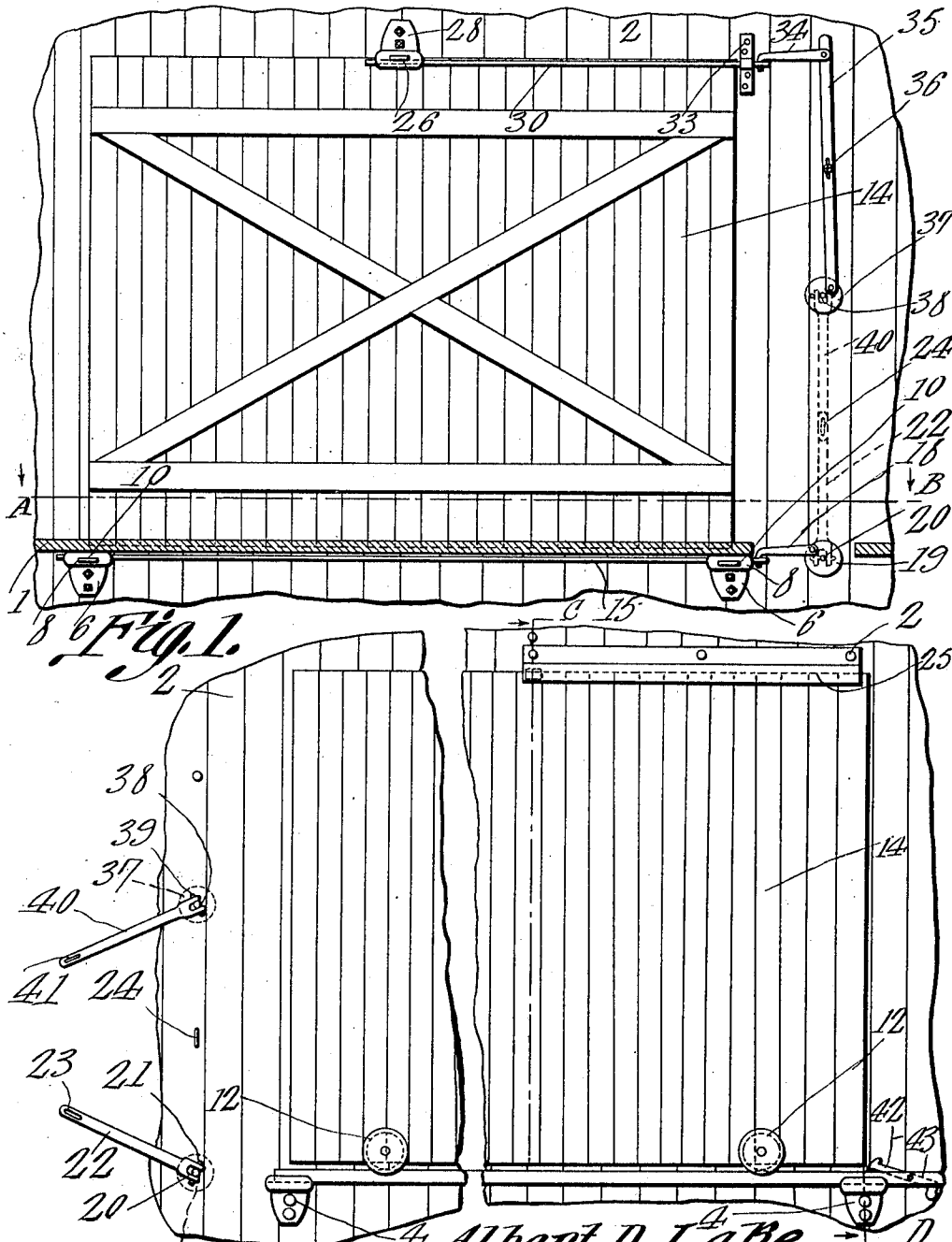


A. D. LAKE.
DOOR OPERATING MECHANISM,
APPLICATION FILED SEPT. 11, 1911.

1,026,170.

Patented May 14, 1912.

2 SHEETS-SHEET 1.



Witnesses
J. P. Taylor
L. H. Wilson

Fig. 2.

Albert D. Lake, Inventor

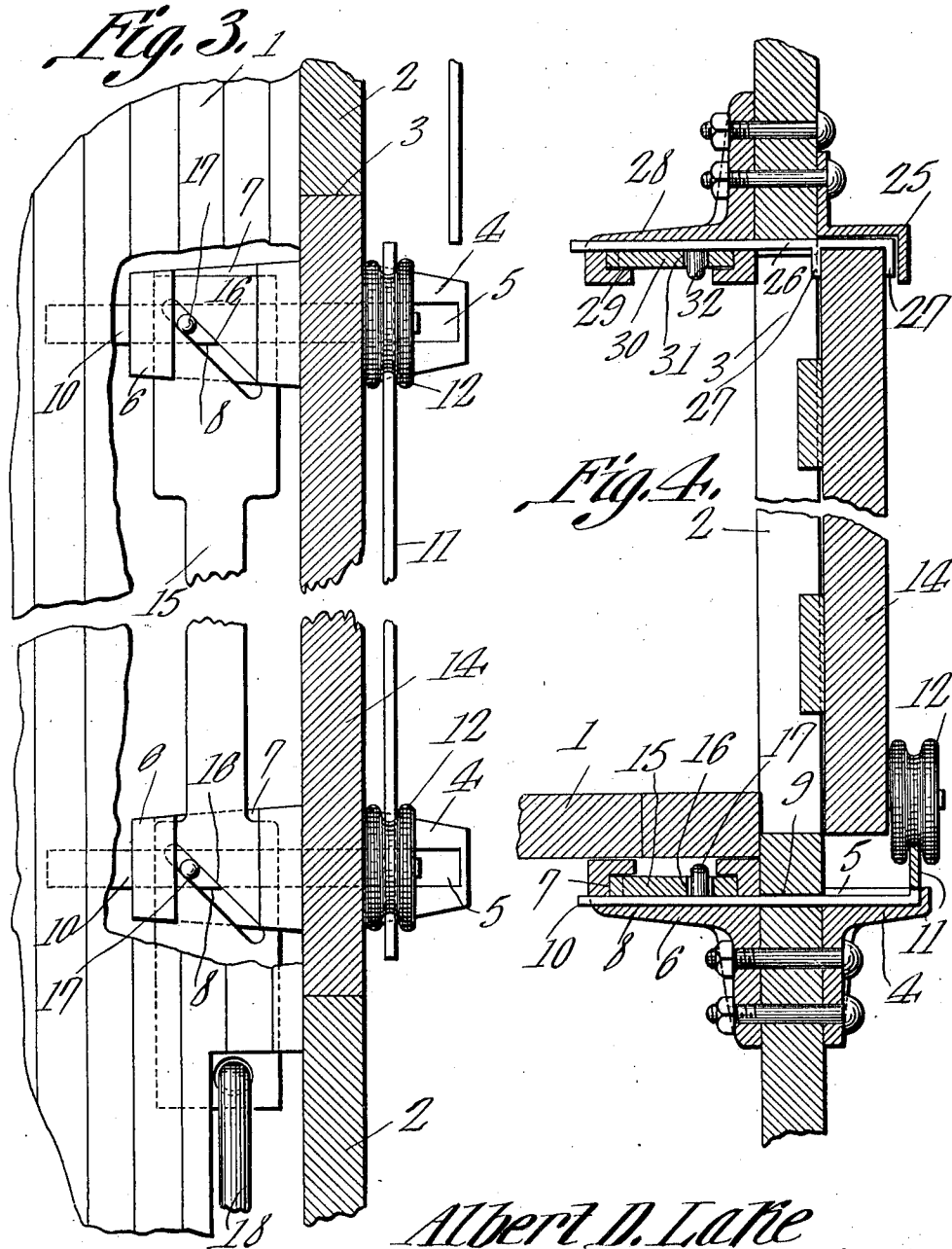
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Attorneys

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Witnesses

J. P. Cornein
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UNITED STATES PATENT OFFICE.

ALBERT D. LAKE, OF CRIPPLE CREEK, COLORADO, ASSIGNOR OF ONE-FOURTH TO CHARLES BOETTING AND ONE-FOURTH TO LOUIS SCHNUETTGEN, BOTH OF CRIPPLE CREEK, COLORADO.

DOOR-OPERATING MECHANISM.

1,026,170.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed September 11, 1911. Serial No. 648,614.

To all whom it may concern:

Be it known that I, ALBERT D. LAKE, a citizen of the United States, residing at Cripple Creek, in the county of Teller and State of Colorado, have invented a new and useful Door-Operating Mechanism, of which the following is a specification.

It is the object of the present invention to provide, in a structure having a sliding door, a means whereby the track upon which the door is mounted, may be moved, together with the door, transversely of the structure, to cause the door to fit closely in the doorway.

A further object of the invention is to provide novel means for operatively connecting the elements whereby the door is moved transversely, and to provide means for maintaining the door in the position to which it has been moved, transversely.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings,—Figure 1 shows in rear elevation, a portion of a structure equipped with the device of my invention; Fig. 2 is a fragmental front elevation of such a structure; Fig. 3 is a section on the line A—B of Fig. 1; and Fig. 4 is a section on the line C—D of Fig. 2.

In the accompanying drawings, the numeral 1 denotes a portion of the floor of the structure to which the present invention is applied, the numeral 2 indicating the side walls, and the numeral 3 a doorway. Secured to the outer face of the side wall 2, adjacent the lower corners of the door-way, are brackets 4, formed in their upper faces with guides 5. Secured to the inner face of the side wall 2, and alined with the brackets 4, are other brackets 6, having in their upper faces, guides 7, extended parallel to the side wall 2. The brackets 6 are equipped with transverse openings 8, located below and at right angles to the guides 5, the openings 8 being alined with openings 9 through

the side wall 2, and with the guides 5 in the brackets 4. Slidably mounted in the guides 5, and in the openings 8 and 9, are shifting bars 10. The shifting bars 10 carry, at their outer ends, an upstanding track 11, adapted to receive rollers 12, secured to a door 14, adapted to fit in the door-way 3.

The invention further includes a guide bar 15, movable in the guides 7 of the brackets 6. As seen to best advantage in Fig. 3, the guide bar 15 is provided, adjacent its ends, with slots 16 located diagonally with respect to the shifting bars 10. The shifting bars 10 are provided, adjacent their inner ends, with upstanding pins 17, adapted to register slidably in the slots 16 of the guide bars 15.

Located within the structure with which the device is assembled, is a connection 18, preferably of hooked configuration, the connection 18 being pivotally united with one end of the guide bar 15. One end of the connection 18 is eccentrically pivoted to a head 19, located within the structure, and carried by the inner end of a shaft 20. The shaft 20 protrudes through the side wall 2, and to the outer end of the shaft 20 is pivoted, as shown at 21 in Fig. 2, a lever 22, having adjacent its free end, a longitudinal slot 23, adapted, when the lever 22 is in vertical position, to receive a staple 24, carried by the side wall 2.

Located beneath an apron 25, secured to the side wall 2, adjacent the upper edge of the door-way 3, is a shifting bar 26, having depending fingers 27, between which the door 14 is adapted to slide. A bracket 28 is secured to the inner face of the side wall 2, adjacent the top of the door-way, the shifting bar 26 being slidably mounted in the bracket 28. The bracket 28 is provided with a guide 29 in its lower face, the guide extending at right angles to the shifting bar 26. A guide bar 30 slides in the guide 29, parallel to the door 14, the guide bar 30 having a slot 31, disposed diagonally with respect to the shifting bar 26, the shifting bar 26 having a pin 32, adapted to move in the slot 31, the construction being the same as that indicated in Fig. 3, and described hereinbefore, in connection with that portion of the mechanism which is located adjacent the lower edge of the door-way. The guide

bar 30 may also be supported in a bracket 33, shown in Fig. 1, and carried by the side wall 2.

A connection 34, of like form with the connection 18, is pivotally engaged with one end of the guide bar 30, one end of the connection 34 being pivotally connected with the upper end of an upright lever 35, fulcrumed, slidably, upon the side wall 2, through the instrumentality of a pin and slot connection 36. The lower end of the lever 35 is eccentrically pivoted to a head 37, carried by a shaft 38, protruding through the side wall 2. To the outer end of the shaft 38 is pivoted, as shown at 39, a lever 40, having a slot 41, adapted to receive the staple 24, as the lever 40 is vertically disposed. Adjacent one of the lower corners of the door-way, a pivotally mounted latch 42 may be placed, and adapted to engage with the door 14, to hold the same in open position.

The operation of the device is as follows. As will be clearly understood from an inspection of Fig. 4, the shifting bars 10 and 26 may be moved outwardly, so that the door 14 will be disposed beyond the side walls 2, the construction being such that the door may be trundled along the track 11, onto the fixed track 43, shown in Fig. 2. When it is desired to close the door, the door is rolled along the track 11, until it is opposite the door-way. The free ends of the levers 22 and 40 are then swung toward each other, and inwardly, until their openings 23 and 41, respectively, are engaged with the staple 24, a lock (not shown) being inserted through the staple 24, to hold the levers 40 and 22 in position. When the lever 23 is thus moved, the shaft 20 will be rotated. This rotation of the shaft 20 will cause a rotation of the head 19, the head 19 actuating the connecting member 18 and thereby moving the lower guide bar 15 longitudinally. When the lower guide bar 15 is moved longitudinally, the shifting bars 10 will be moved in the direction of their length, and inwardly, through the coöperation of the pins 17 and the slots 16. The door will therefore be moved inwardly, to register in the door-way 3, and to abut against the car structure, as shown in Fig. 3. When the lever 40 is operated in the manner hereinbefore described, the shaft 38 will be rotated, causing a rotation of the head 37, the head 37 tilting the lever 35, the lever 35 actuating the connection 34, the connection 34 sliding in the upper guide bar 30, the guide bar 30 actuating the shifting bar 26, in the manner hereinbefore set forth, the fingers 27 of the shifting bar 26 engaging the upper edge of the door, and serving to retract the upper portion of the door within the door-way 3.

The device is of wide application, and may be employed in connection with a structure of any sort having a sliding door which it is desirable to retract within a door-way.

Having thus described the invention, what is claimed is:—

1. A device of the class described comprising a supporting structure; a shifting bar and a guide bar, one of which is provided with a diagonally disposed slot, the other of which is provided with a projection adapted to ride in the slot, both bars being slidable in the supporting structure, at right angles to each other; means for connecting the shifting bar with a door, to move the same transversely; and means for operating the guide bar.

2. A device of the class described comprising a supporting structure; a guide bar and a shifting bar, one of which is provided with a diagonal slot, the other of which is provided with a projection adapted to ride in the slot, both bars being slidably mounted in the supporting structure, at right angles to each other; means for connecting the shifting bar with a door, to move the door transversely; a shaft journaled for rotation in the supporting structure; a connection pivotally united with the guide bar and eccentrically pivoted to the shaft; and a lever secured to the shaft, for the rotation of the shaft.

3. A device of the class described comprising a supporting structure provided with a door-way; a bracket secured to the inner face of the supporting structure, adjacent the door-way, the bracket having a guide-way and an opening at right angles to the guide-way; a guide bar slidable in the guide-way and provided with a diagonal slot; a shifting bar slidable in the opening and having a projection adapted to ride in the slot, the shifting bar being extended through the supporting structure; means upon the outer end of the shifting bar for engagement with a door; a shaft journaled for rotation in the supporting structure; a connection pivotally united with the guide bar and eccentrically connected with the shaft, the means for uniting the connection with the shaft consisting of a lever of the first order uniting the shaft with the connection; and an arm secured to the shaft and movable upon the outside of the supporting structure.

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

ALBERT D. LAKE.

Witnesses:

CHARLES BOETTING,
WM. I. BRYAN.