

J. J. KALIVODA.
 LOCKING DEVICE FOR FOLDING DOORS.
 APPLICATION FILED DEC. 26, 1911.

1,039,952.

Patented Oct. 1, 1912.

Fig. 1.

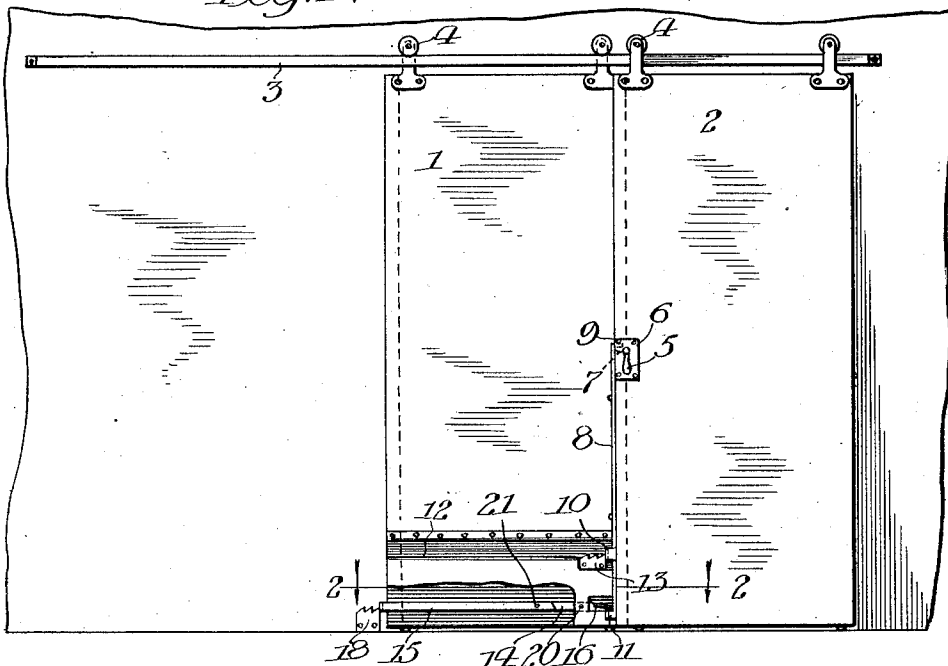


Fig. 2.

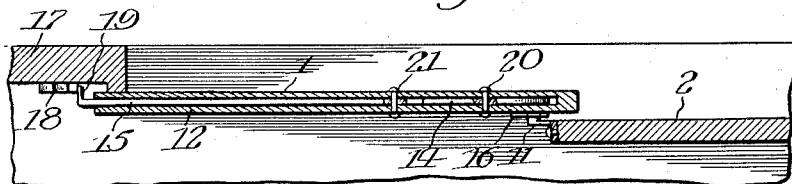
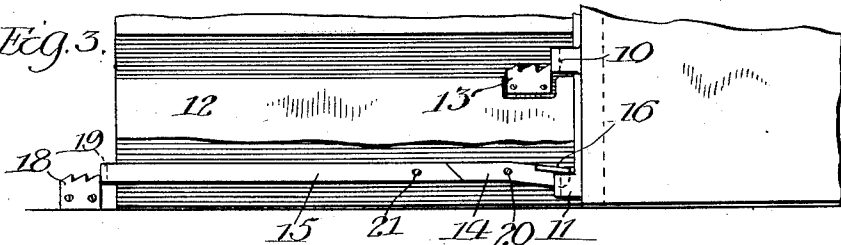


Fig. 3.



Witnesses
 Chas. Wernick
 A. L. Jones.

Inventor
 Josef J. Kalivoda
 by A. Miller Belford, atty.

UNITED STATES PATENT OFFICE.

JOSEF J. KALIVODA, OF CHICAGO, ILLINOIS.

LOCKING DEVICE FOR FOLDING DOORS.

1,039,952.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed December 26, 1911. Serial No. 667,916.

To all whom it may concern:

Be it known that I, JOSEF J. KALIVODA, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Locking Devices for Folding Doors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in folding doors, and has as its principal object the provision of simplified means for operating and locking such doors.

A further object resides in the particular arrangement and combination of parts hereinafter described.

Referring to the accompanying drawings, Figure 1 is an elevational view of a three-quarters door with my improved locking attachment applied thereto, part being broken away; Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1; Fig. 3 is a view of the lower part of Fig. 1 drawn to a larger scale.

Throughout the separate views the same part is designated by the same reference numeral.

Referring more particularly to the drawings, 1 is the outer leaf of what is known in the trade as a three-quarters door. 2 is the inner leaf of such door. Similar doors are commonly used as closures for openings in elevator shafts. As shown, the door is suspended from a suitable runway or track 3 by means of rollers 4—4. As appears in Fig. 2, the leaf 2 is further offset from the supports than the leaf 1, so that as the door is opened leaf 2 may travel faster than leaf 1 and be superimposed thereon when the door is fully open. As usually installed this result is obtained by means of a connecting lever pivoted above the leaves of the door and having a lost motion connection with leaf 1. Such lever and connection, however, forms no part of my invention and is not shown or described herein.

5 is a handle carried on the leaf 2 for controlling the latching and unlatching of the door. The handle 5 is pivoted on a plate 6 fastened on the inside of leaf 2 and has a lug 7. A rod 8 is also carried on the leaf 2 and at its upper end is provided with a lug or projection 9 which overlies the lug 7 of the handle. From the lower part of the rod 8 but intermediate of its ends, is

a second lug or projection 10, and at the lower end of the rod is a third projection 11. Carried on the inner face of the leaf 1 is a plate 12 shown broken away in Figs. 1 and 3. Set into and flush with the face of the plate 12 is a ratchet plate 13 having teeth for cooperating with the member 10. Mounted between the leaf 1 and the plate 12 are two levers 14 and 15 pivoted at 20 and 21 respectively. Lever 14 has a projection 16 which protrudes through an opening in the plate 12 and contacts with the upper face of the member 11.

17 is a side post of the doorway and mounted on the post 17 is a ratchet plate 18 which cooperates with a projection or lug 19 carried on the end of the lever 15.

The operation of my improved device is as follows: The elevator operator in order to open the door pulls the handle 5 toward the left. This raises the lug 7 and consequently lifts the rod 8 by means of the lug 9. The lugs 10 and 11 are consequently raised, the lug 10 being directly disengaged from the ratchet plate 13. The lug 11 operates the lever 14 by means of the projecting piece 16 and the lever 14 in turn operates the lever 15 in order to disengage the projection 19 from the ratchet plate 18.

It will be understood that while I have described my improved device in connection with an elevator door, it may be applied to any door having two leaves, in which one leaf moves over the face of the other. It will be seen moreover that, in my arrangement both the leaves of the door are positively locked, the leaf 1 being locked to the side post of the door, while leaf 2 is locked to the leaf 1. It will be noticed that the ratchet plates 13 and 18 are provided with a plurality of teeth so that in case the door is not fully closed it will, nevertheless, lock on account of the lugs 10 and 19 engaging one of the ratchet teeth.

While I have shown and described the preferred form of my invention, it will be understood that various changes and modifications may be made therein without departing from the spirit of my invention and that I contemplate all such modifications as are embraced within the scope of the appended claims.

What I claim is:

1. The combination of a folding door having a plurality of leaves, a stop mounted exteriorly of said door, a locking device co-

operating with said stop carried entirely on the outer one of said leaves, a hand operated member carried on the inner one of said leaves, and mechanism for transmitting motion from said member to said device.

2. In a folding door in combination, a plurality of leaves adapted to move one over the other, a side post in the frame of said door, a ratchet plate having a plurality of teeth fastened to said post, and means carried by one of said leaves for engaging said plate.

3. In a folding door in combination, two leaves constructed to move one over the face of the other, means for locking the outer of said leaves to an exterior support, and a device carried on the inner of said leaves for releasing said locking means.

4. In a folding door in combination, two leaves constructed to move one over the face of the other mounted upon an exterior support, one of said leaves having a cover plate thereon, a ratchet plate mounted on said support, a pivoted lever provided with a lug for engaging said ratchet plate mounted beneath said cover plate, a second lever pivotally mounted beneath said cover plate for operating said first mentioned lever, a ratchet plate carried on the exterior of said cover plate, a reciprocating rod mounted upon the second of said leaves provided with three projections, one of said projections engaging said second mentioned lever, a second projection engaging said second mentioned ratchet plate, and means carried upon said second leaf for operating said rod by means of said third projection.

5. In a folding door in combination, a plurality of leaves constructed to move one across the face of the other, a handle carried by one of said leaves, a rod provided with a plurality of projections mounted upon the same leaf as the handle, and a ratchet plate mounted upon another of said leaves, one of said projections engaging said handle and another of said projections engaging said plate.

6. In a sliding door in combination, a pivoted lever provided with a latching projection at one end and having a beveled face at the other end, a second pivoted lever

end engaging the corresponding end of said first mentioned lever and having an operating projection at its other end.

7. In a folding door in combination, two leaves mounted to move one over the face of the other, a stop mounted exteriorly of said leaves, locking means carried entirely by the outer of said leaves for cooperating with said stop, a second stop carried by the outer of said leaves, a locking device mounted on the inner of said leaves for cooperating with the second of said stops, and mechanism mounted on the inner of said leaves for operating said locking means and said locking device.

8. In a folding door in combination, two leaves mounted to move one over the face of the other, a stop mounted exteriorly of said leaves, a lever mounted on the outer one of said leaves having a projection for engaging said stop, a second stop mounted on said outer leaf, a vertical rod mounted on the inner one of said rods having a projection for engaging said second mentioned stop, a handle mounted on said inner leaf for operating said vertical rod, and means for operating said lever from said rod.

9. In a folding door in combination, two leaves mounted to move one over the face of the other, a stop mounted exteriorly of said leaves, a lever mounted on the outer of said leaves having a projection for engaging said stop, a second lever also mounted on said outer leaf engaging said first mentioned lever, a second stop mounted on said outer leaf, a vertical rod mounted on the inner of said leaves having two projections, one of said projections cooperating with said second mentioned stop and the other projection cooperating with said second mentioned lever, and a handle for operating said rod.

In witness whereof, I hereunto subscribe my name this 14th day of December, A. D., 1911.

JOSEF J. KALIVODA.

Witnesses:

A. LYDA JONES,
A. S. DENNISON.