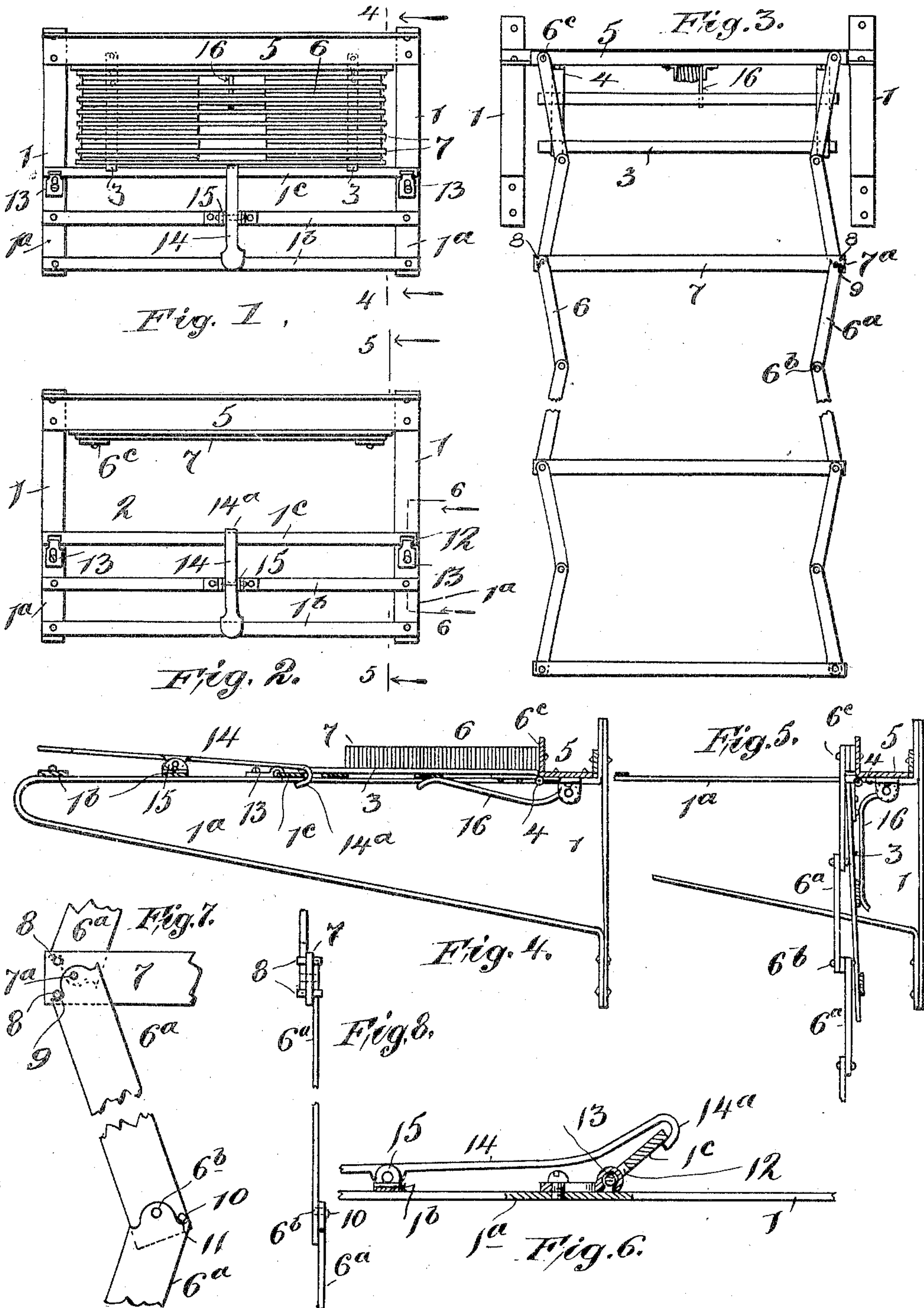


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I. NEWMAN.
FIRE ESCAPE.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 789,332, dated May 9, 1905.

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To all whom it may concern:

Be it known that I, ISIDORE NEWMAN, a citizen of the United States, residing in New York city, borough of Manhattan, New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to the class of fire-escapes used with balconies projecting from the side of a building and provided with a manhole; and the object of the invention is to provide the balcony with a ladder which will serve to close the manhole when not in use and may be caused to readily drop down through the manhole below the balcony to provide means for egress from the balcony.

The invention comprises the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a plan view of a balcony provided with my improvements shown in folded position out of use. Fig. 2 is a similar view, the ladder having been dropped down below the balcony. Fig. 3 is a face view showing the ladder in its hanging position. Fig. 4 is a sectional view, enlarged, on the line 4 4 in Fig. 1. Fig. 5 is a detail sectional view on the line 5 5 in Fig. 2. Fig. 6 is an enlarged detail section on the line 6 6 in Fig. 2. Fig. 7 is an enlarged detail of the ladder members, and Fig. 8 is an edge view thereof.

Similar numerals of reference indicate corresponding parts in the several views.

In the drawings the numeral 1 indicates generally a balcony adapted to be attached to the side of a building, and the same is shown provided with brackets 1^a, having cross-bars 1^b, forming a part of the floor, and at 1^c is a movable cross-bar, between which and the rear part of the balcony is a space 2, providing a manhole for egress from the balcony.

At 3 is a movable support, shown in the form of a trap-door, made of crossed bars secured together and hinged, as at 4, to the supporting-bar 5 of the balcony, the free end of the trap 3 when raised to the horizontal posi-

tion resting upon the movable bar 1^c. (See 50 Figs. 1 and 4.)

At 6 is indicated generally a folding ladder, shown as made in the form of toggle-arms 6^a, pivotally connected, as at 6^b, and also pivotally connected to tread-bars or rounds 7, as at 7^a, the uppermost toggle-arms being pivotally connected with the supporting-bar 5, as at 6^c. The arrangement is such that the ladder will fold into a compact form, so that its tread-bars 7 lie side by side and rest upon the trap-door 3, as indicated in Fig. 4, whereby the manhole 2 is closed by the ladder. When the trap-door 3 is released, the ladder will fall down through the manhole, assuming substantially the position shown in Fig. 3. In order to hold the members of the ladder rigidly when the ladder is hanging down, I provide stops adjacent to the pivots of the toggle-arms, against which portions of said arms bear, as indicated in Figs. 7 and 8. To the tread-bars 7 for this purpose are secured pins 8, adapted to be engaged by the arms 6^a, the latter being recessed at 9 to receive said pins, and at the joint between two of the toggle-arms is a pin 10 on one arm adapted to engage a recess part 11 on the other arm. The two toggle-arms 6^a on the same side of the ladders where they are pivotally connected with the tread-bar 7 are shown on opposite sides of the latter, the pins 8 being correspondingly arranged to engage the respective toggle-arms.

In order to release the trap-door 3 to allow the ladder to descend through the manhole, the bar 1^c is pivotally supported upon the brackets of the balcony and to this end is shown provided with slots 12, receiving hinge pieces or clips 13, secured on a bracket 1^a, and at 14 is a lever having one end at 14^a hooked under the edge of the bar 1^c and pivotally supported between its ends upon the cross-bars 1^b of the balcony, as upon a bracket 15, the free end of said lever being normally raised, as in Fig. 4, so that upon pressing said end of the lever its hooked end will rise and lift up the free edge of the bar 1^c, as indicated in Fig. 6. This will release the trap-door 3 and permit the same to descend through

the manhole of the balcony to allow the ladder to fall down through said manhole.

At 16 is indicated a coil-spring carried by the bar 5 of the balcony and having its free end bearing against a trap-door 3, so as to have a normal tendency to raise the door to assist in adjusting the parts when the ladder is being closed over the manhole.

When not in use, the ladder will be folded upwardly and rested upon the trap-door, as in Fig. 4, and in case of fire a person merely has to step upon the free end of the lever 14 to release the trap-door, and the ladder immediately falls down, as in Fig. 3, and by reason of the locking devices 8 9 10 11 of the ladder the same is rendered quite rigid, so as not to swing freely during the descent of a person. To replace the ladder, it is merely necessary to push it up through the manhole, its toggle-arms folding as required, and to then allow it to rest upon trap-door 3, which will be caused to rest at its free end upon the cross-bar 1°.

Modifications may be made in the details of construction without departing from the spirit of my invention, and the ladder can be arranged at an angle to the wall of the building, if desired, instead of parallel therewith, as shown in the drawings.

Having now described my invention, what I claim is—

1. A fire-escape comprising a balcony provided with a manhole, a ladder composed of pivotally-connected arms and tread-bars pivoted on opposed faces to said arms arranged to fold side by side to lie in line with the manhole and two of said arms being pivotally supported at the balcony, a movable support for said ladder extending across the manhole upon which the ladder rests when folded, and means for sustaining and releasing said support to hold up and release the ladder, substantially as described.

2. A fire-escape comprising a balcony provided with a manhole, a folding ladder pivotally supported at the manhole and composed of pivotally-connected toggle-arms and tread-bars, the toggle-arms that are pivoted together being pivoted to opposed sides of the corresponding tread-bars, so that the latter may fold side by side, two of said arms being piv-

otally supported at one side of the manhole, a movable support adapted to lie across the manhole under the ladder to support the same when folded, and means to sustain and release said support, substantially as described.

3. The combination of a balcony provided with a manhole and a trap-door pivotally connected therewith to extend across the manhole, with a folding ladder pivotally supported at the manhole, said ladder comprising tread-bars and toggle-arms, pairs of toggle-arms being pivoted together, two arms of one pair being pivoted to one side of a tread-bar and the other arms of such pair being pivoted to an opposed side of another tread-bar, so that the tread-bars may lie side by side, and a movable support for the trap-door, substantially as described.

4. The combination of a balcony provided with a manhole, a trap-door pivotally supported at the manhole to extend across the same, a folding ladder pivotally supported at the manhole and having tread-bars pivoted on opposed sides to pivotally-connected toggle-arms and adapted to have its tread-bars fold side by side across the manhole to rest upon said trap-door, and a movable bar connected with the balcony adapted to support the free end of the trap-door, said bar being pivotally supported at one edge to release the trap-door, substantially as described.

5. The combination of a balcony provided with a manhole, a trap-door pivotally supported at the manhole to extend across the same, a folding ladder pivotally supported at the manhole adapted to have its tread-bars fold side by side across the manhole to rest upon said trap-door, a movable bar connected with the balcony adapted to support the free end of the trap-door, and a lever pivotally supported by the balcony and having one end connected with said bar to move said bar to release the trap-door and ladder, the other end of the lever being above the balcony in position to be stepped upon, substantially as described.

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Witnesses:

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