

No. 897,870.

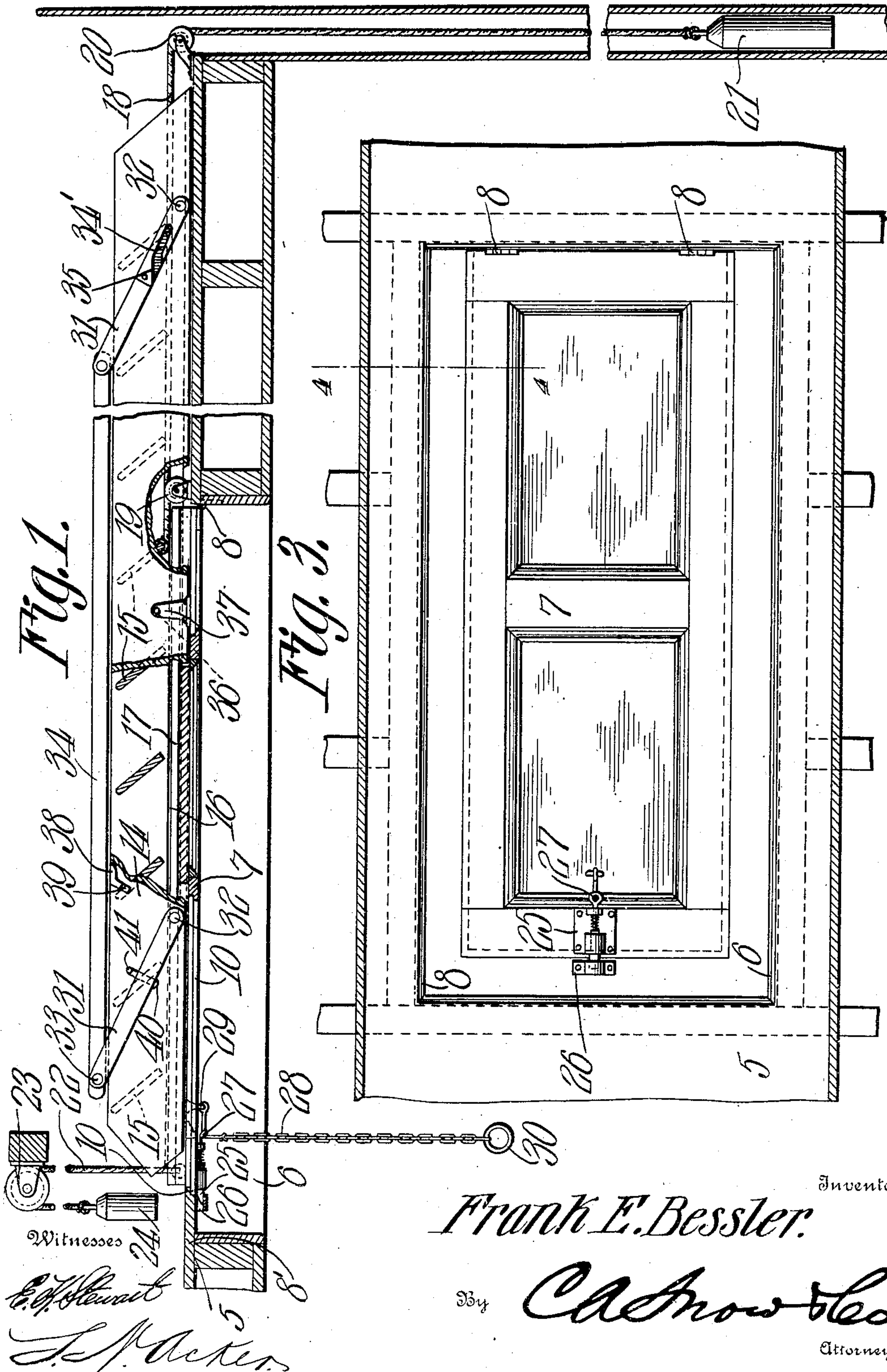
PATENTED SEPT. 8, 1908.

F. E. BESSLER.

MOVABLE STAIRWAY.

APPLICATION FILED SEPT. 27, 1907.

2 SHEETS—SHEET 1.



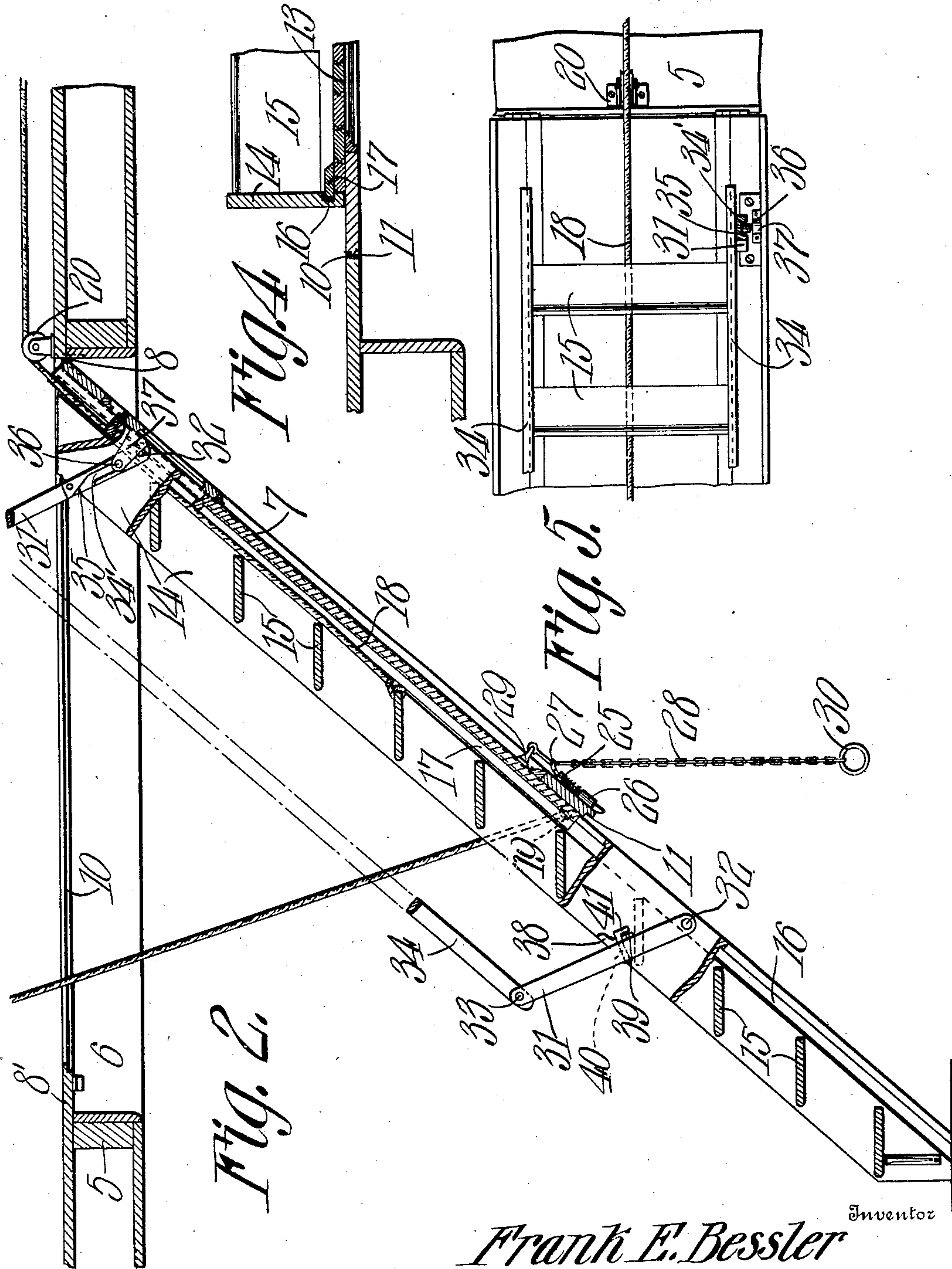
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Witnesses

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UNITED STATES PATENT OFFICE.

FRANK E. BESSLER, OF AKRON, OHIO.

MOVABLE STAIRWAY.

No. 897,870.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed September 27, 1907. Serial No. 394,901.

To all whom it may concern:

Be it known that I, FRANK E. BESSLER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a new and useful Movable Stairway, of which the following is a specification.

This invention relates to movable stairways for dwelling houses and other buildings and has for its object to provide a stairway or ladder which is normally housed within the attic of the house and which may be lowered to operative position to permit access to said attic.

A further object of the invention is to mount the stairway or ladder on the pivoted closure of the hatch way or scuttle opening of the attic so that when the closure is moved to open position the stairway may be readily lowered into the adjacent room.

A further object is to provide a stairway having a folding guard rail associated therewith, said guard rail being movable automatically to open position when the stair way is lowered and adapted to be folded laterally to inoperative position when the stair way is elevated.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a longitudinal sectional view of a portion of an attic floor provided with a movable stair way constructed in accordance with my invention, the stair way being shown in elevated or inoperative position. Fig. 2 is a similar view showing the stair way in lowered or operative position. Fig. 3 is a top plan view of the scuttle opening or hatch way. Fig. 4 is a detail transverse sectional view taken on the line 4—4 of Fig. 3. Fig. 5 is a top plan view of a portion of the pivoted closure and the adjacent end of the stair way or ladder.

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

The improved stair way forming the subject matter of the present invention is prin-

cipally designed for use in dwelling houses and similar structures to afford convenient access from a lower room or compartment to an over-head compartment or attic and by way of illustration is shown housed within an attic of the ordinary construction in which 5 designates the floor of the attic and 6 the hatch way or scuttle opening normally closed by a pivoted trap or door 7. The closure 7 is pivotally mounted at 8 on one wall of the opening 6, there being a flange 8' extending laterally from three walls of the opening and having its free edge rabbeted at 10 for engagement with the correspondingly rabbeted edge 11 of the door or closure. The door or closure 7 is reinforced and strengthened by tongue and groove boards constituting an auxiliary floor or platform 13, and slidably mounted on the opposite edges of the floor or platform 13 is a movable ladder or stairway.

The ladder or stair-way comprises spaced longitudinal side members 14 connected by transverse strips 15 constituting steps, the inner faces of the side members 14 being provided with longitudinal grooves 16 for the reception of guide strips 17, which latter are secured to the platform 13 and serve to guide the ladder or stair-way when the same is moved to lowered or elevated position.

Secured in any suitable manner to one of the steps 15 of the ladder or stair way is one end of a flexible cord or cable 18, the opposite end of which passes over a sheave or pulley 19 preferably disposed at the hinge 8 and thence over a similar pulley or sheave 20 the end of the rope or cable 18 being provided with a weight or counter-balance 21. Secured to the free end of the pivoted door or closure 7 is a similar cord or cable 22 which passes over a sheave or pulley 23 secured to one of the overhead rafters of the attic and terminates in a weight 24 to assist in moving said door to closed position when the stair way is not in use.

As a means for locking the door way or closure 7 in closed position there is provided a spring actuated bolt 25 adapted to engage a suitable keeper 26 secured to the laterally extending flange of the opening 6, said bolt being provided with a terminal eye 27 through which passes the intermediate portion of a cord or chain 28. One end of the cord or chain 28 is secured to an eye or staple 29 fastened to the bottom of the door or closure 7 while the opposite end thereof terminates in a

finger piece or ring 30 so that an initial downward pull exerted on the finger piece 20 will release the bolt from its keeper and a further movement thereof cause the pivoted door or closure to swing downwardly to the position shown in Fig. 2 of the drawings and in which position the stair-way or ladder will move by gravity to lowered or operative position.

Associated with the stair-way or ladder is a folding guard rail consisting of standards 31 having their lower ends pivoted at 32 to the adjacent side rail of the stair-way and their upper ends pivoted at 33 to a longitudinal connecting rail 34. One of the standards 31 is provided with a slot 34' opening through the adjacent longitudinal edge of the standard and having its walls at the mouth of the slot inclined or beveled to form a cam face 35 adapted to bear against an actuating pin or lug 36 carried by a bracket 37. The bracket 37 is secured to the pivoted door or closure 7 and extends in the path of movement of the rear or upper rail supporting standard 31 so that when the stairway or ladder is moved to lowered or operative position the pin or lug 36 will enter the slot 34' and elevate the guard rail so that the same will form a support for persons ascending or descending said stairway.

Secured to one of the side members 14 of the stairway at a point in advance of the lower rail supporting standard is a bracket 38 having an integral extension 39 adapted to bear against the adjacent standard 31 when the guard rail is moved to operative position.

Rotatably mounted in the lower standard 31 is a locking member or bolt 40 one end of which is bent to form a terminal hook 41 adapted to engage the extension 39 and thus lock the guard rail against folding movement.

In order to lower the stairway a slight longitudinal pull is exerted on the finger piece 30 which releases the locking member or bolt 35 and permits the pivoted door or closure 7 to be tilted downwardly at an angle to the attic floor. As the door or closure 7 moves downwardly the stairway or ladder will slide over the upper face of the platform 13 of said closure until the lower end of the stairway bears against the floor of the room beneath the attic. As the stairway or ladder travels over the platform 13 of the pivoted closure the pin 36 will enter the slot 34' in the rear standard 31 and automatically move the guard rail to operative position, said rail being locked in said position by rotating the locking member 40 in the manner before described. In order to elevate the stairway it is merely necessary to shove upwardly on the lower end thereof, the weights or counter-balances 31 and 24 serving to assist in moving said stairway to inoperative position within the attic. As the stairway or ladder is forced upwardly the pin 36 will ride against

the adjacent wall of the slot 34' and move the guard rail to the folded position shown in Fig. 1 of the drawing so as to permit the stairway or ladder to readily pass beneath any overhead rafters or braces in the attic.

It will of course be understood that when the stairway is partially elevated the weights 21 and 24 will automatically complete the elevating operation.

When the pivoted door or closure is moved to closed position the bolt 25 will engage the keeper and automatically lock the door, as will be readily understood.

Having thus described the invention what is claimed is:

1. The combination with a support having an opening, of a closure for said opening, a stairway slidably mounted on the closure and movable through the opening in the support to operative position, a foldable guard rail pivotally mounted on the stairway, and means carried by the closure and extending in the path of movement of the stairway and adapted to engage the guard rail for automatically moving the latter to operative position when the stairway is lowered and moving the guard rail to folded position when the stairway is elevated.

2. The combination with a support having an opening, of a closure for said opening, a stairway slidably mounted on the closure, counter-balances secured to the closure and stairway, respectively, a guard rail pivotally mounted on the stairway, and means carried by the closure and adapted to engage the guard rail for moving the latter to operative position when the stairway is lowered.

3. The combination with a support having an opening, of a closure for said opening, a stairway slidably mounted on the closure and movable through said opening to operative position, a folding guard rail pivotally mounted on the stairway, means carried by the closure and adapted to engage the guard rail for moving the latter to operative position when the stairway is lowered, and means for locking the guard rail in operative position.

4. The combination with a support having an opening, of a closure, a stairway slidably mounted on the closure and including spaced side members disposed in contact with the adjacent longitudinal edges of the platform and connected by transverse strips constituting steps, there being longitudinal grooves formed in the inner faces of the side members, guide strips secured to the upper surface of the platform and extending within the longitudinal grooves, counter balances connected with the closure and stairway, respectively, and means for automatically locking the closure in closed position.

5. The combination with a support having an opening, of a closure for said opening, a stairway slidably mounted on the closure, a

guard rail pivotally mounted on the stairway and provided with a slot, and an actuating member secured to the closure and adapted to engage the walls of the slot for moving the guard rail to operative position when the stair-way is lowered.

6. The combination with a support having an opening, a closure for said opening, a stairway slidably mounted on the closure, counter-balances connected with the stairway and closure, respectively, spaced standards pivotally mounted on the stair-way and connected by a longitudinal strip constituting a guard rail, there being a longitudinal slot formed in one of the standards and having an inclined wall forming a cam face, and an actuating member secured to the closure and adapted to engage the walls of the slot for effecting the opening movement of the guard rail when the stair-way is moved to lowered position.

7. The combination with a support having an opening, a closure for said opening, a stairway slidably mounted on the closure, spaced standards pivotally mounted on the stairway and connected by a longitudinal strip constituting a guard rail, one of said standards being provided with a longitudinal slot, an actuating member secured to the closure and provided with a laterally extend-

ing pin adapted to engage the walls of the slot for moving the guard rail to operative position when the stairway is lowered, a bracket secured to the stairway, and a locking member mounted for rotation on one of the standards and adapted to engage the bracket for preventing folding movement of the guard rail.

8. The combination with a support having an opening, of a closure for said opening, a stairway slidably mounted on the closure, spaced pulleys secured to the support, a cable secured to the stairway and having its intermediate portion passing over the pulleys and provided with a counter-balance, a cable connected with the free end of the closure and provided with a similar counter-balance, a guard rail pivotally mounted on the stairway, and means secured to the closure and extended in the path of movement of the guard rail for moving the guard rail to operative position when the stairway is lowered.

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

FRANK E. BESSLER.

Witnesses:

JOHN S. MOLOY,
JOHN BIERMANN.