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J. A. REYNOLDS.

FIRE ESCAPE.

APPLICATION FILED DEC. 9, 1905.

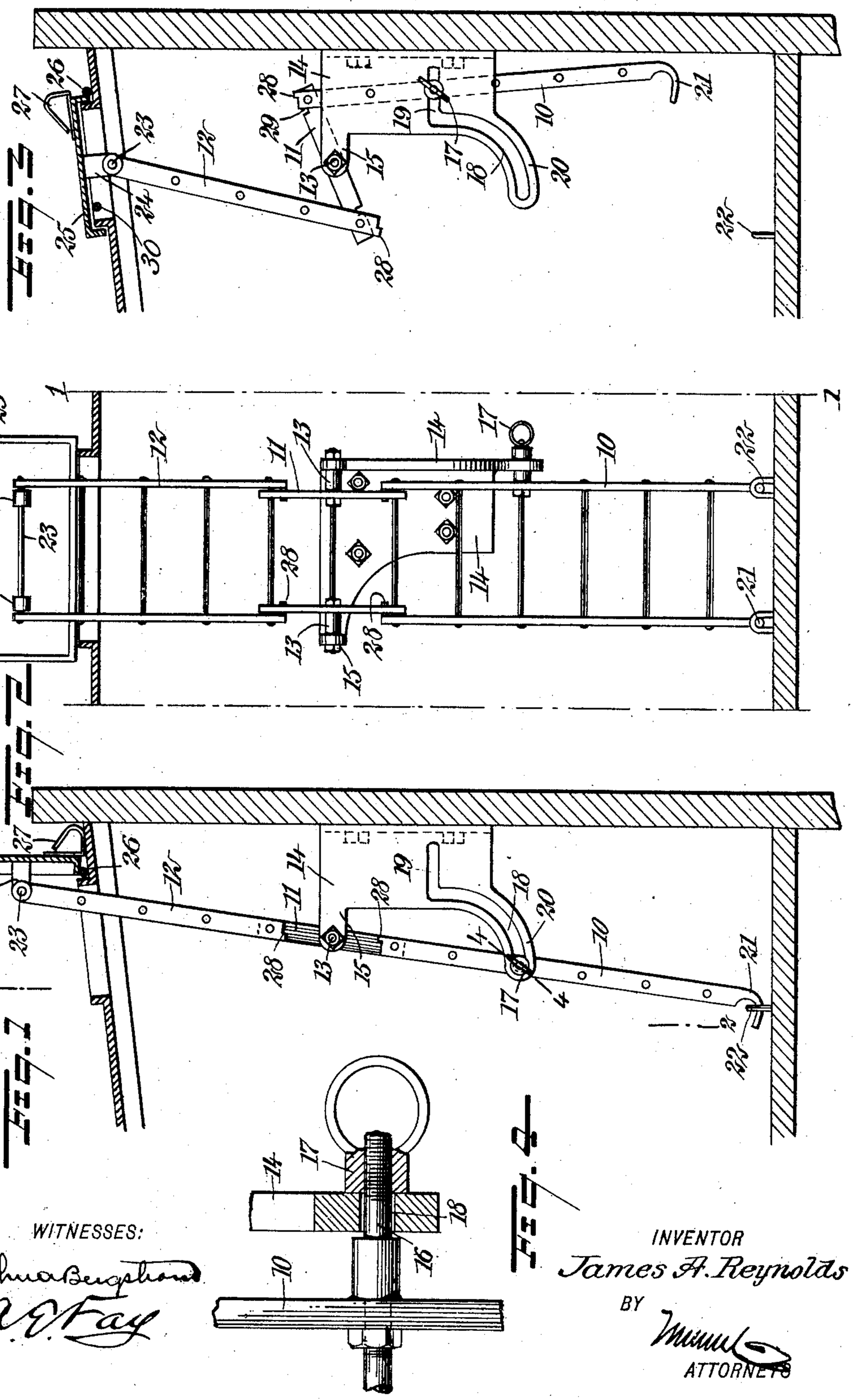

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

WITNESSES:

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FIRE-ESCAPE.

No. 826,884. Specification of Letters Patent. Patented July 24, 1906.

Application filed December 9, 1905. Serial No. 291,095.

To all whom it may concern:

Be it known that I, JAMES A. REYNOLDS, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

My invention relates to a fire-escape or combined fire-escape and scuttle, the principal objects being to so construct a fire-escape in the shape of a ladder or stairway that it can be partially folded up out of the way and to connect it with a scuttle in such a manner that the placing of the fire-escape or stairway in a proper position will automatically open the scuttle, while the folding of it will close it. Further objects and features of the invention will appear below.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional view on the line 1 1 of Fig. 2, showing one form in which my invention may be constructed. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1 with the parts in a different position; and Fig. 4 is a sectional view, on an enlarged scale, on the line 4 4 of Fig. 1.

The details of the invention are capable of application to various kinds of stairways and ladders when used for fire-escapes. I have illustrated it as being applied to a runged ladder. The ladder is shown as comprising three sections 10, 11, and 12. The section 11 is provided with pivots 13, which may be in the form of a continuation of the step of the ladder or otherwise, and by means of these pivots said section is supported on a frame 14, mounted in a stationary position upon a wall or any other kind of a support, said frame 14 being provided in the present instance with a projection 15 for supporting the trunnions 13. Said section 11 is pivotally connected with the lower section 10, and the latter is provided with a projecting bolt 16, with which a hand-nut 17 is adapted to engage. The frame 14 is also provided with a slot 18, through which the bolt 16 passes, and this slot has a horizontal portion 19, forming a continuation of the main portion of the slot, which latter portion is curved. The frame also has a projection 20, in which the curved portion of the slot is formed.

It will be understood that the bolt 16 works in the slot, and when the parts are in the position shown in Fig. 3 the bolt is supported in the horizontal portion of the slot; but when the parts are straightened out to place the ladder in a position suitable for use the bolt moves down the curved portion of the slot into the position shown in Fig. 1 and the end of the slot forms a stop for the bolt. The nut 17 can be tightened at any position in the slot; but ordinarily in practice it is only tightened at or near the two ends thereof. The lower end of the section 10 is provided with hooks 21, adapted to enter eyes 22 in the floor for assisting in holding the ladder in its straightened position.

The upper section 12 of the ladder is pivotally connected with the section 11, either by passing a spoke through both sections or in any other convenient manner, and it is pivotally connected in a similar manner by a rod 23 or the like with lugs 24 on a scuttle 25. This scuttle is pivoted, by means of hinges 26, to the roof of the building, and it is provided with springs 27, extending rearwardly therefrom to afford stops to prevent the scuttle from moving past a dead-center when the latter is straightened out and the scuttle is opened.

It will be seen that the straightening of the ladder will automatically open the scuttle, while the folding of it into the position shown in Fig. 3 will automatically close it. It will be obvious, of course, that the same principle may be applied to any kind of a ladder, whether using either single spokes, double spokes, steps, or any equivalent thereof.

It will be observed that the sections 10 and 12 are provided with projections 28, adapted to engage in notches 29 on the section 11 for affording additional stops when the fire-escape is straightened out and preventing it from moving beyond the position shown in Fig. 1.

It will also be observed that the portion of the scuttle between the hinges 26 and the pivot 23 constitutes a link moving substantially parallel with the section 11 and preferably of substantially the same length as the distance between the pivot 13 and the pivots connecting the sections 11 and 12, so as to insure a parallel motion of the section 12, which in itself constitutes a link for connect-

ing the section 11, which constitutes a lever, with the scuttle. Therefore the scuttle and the slot 18 serve as guides for causing the parts of the fire-escape to move in predetermined paths and the former causing the section 12 to have a parallel motion. Considered in this way the section 10, combined with the bolt 16 and hand-nut 17, operates as a handle for manipulating the scuttle.

I prefer to place a hand-rail 30 on the under side of the scuttle to act practically as a continuation of the ladder and assist in the use thereof.

Having thus described my invention, I claim—

1. The combination with a movable scuttle, of a movable ladder or stairway comprising a plurality of pivotally-connected sections, and means whereby the straightening of the ladder will move the scuttle.

2. The combination with a movable scuttle having a spring-stop on the rear thereof, of a foldable fire-escape, and means connected with the fire-escape for opening and closing the scuttle.

3. The combination with a pivoted scuttle having a stop at the end at which it is pivoted, said stop being adapted to prevent the scuttle from opening beyond a vertical position, the scuttle also being provided with a lug, of a fire-escape pivotally connected with said lug, and means for moving the fire-escape into a folded and unfolded position and thereby closing and opening the scuttle.

4. The combination with a movable scuttle, of a fire-escape comprising a plurality of sections connected together, one of said sections being connected with the scuttle, and means whereby the alinement of the sections will move the scuttle.

5. A fire-escape comprising a frame, a ladder-section pivotally mounted thereon, a second section pivotally connected with the first section, and a member pivoted on a stationary object and pivotally connected with the said second section, whereby the operation of the first-named section will move the second section in a predetermined path.

6. A fire-escape comprising a frame, a ladder-section pivotally mounted thereon, a second section pivoted to the first section, and a third section pivoted to the first section.

7. A fire-escape comprising a frame, a ladder-section pivotally mounted thereon, a second section pivoted to the first section, a third section pivoted to the first section, and means connected with said frame for holding said sections in folded and unfolded positions.

8. In a fire-escape, the combination of three sections pivotally connected together, a frame upon which one of said sections is pivoted, said frame having a curved slot, a bolt connected with another section and passing through said slot, and a hand-nut connected with said bolt.

9. In a fire-escape, the combination of a ladder consisting of a plurality of sections pivoted together, one of said sections being pivotally mounted upon a stationary object, means for guiding the movement of said sections, and an eye for receiving a portion of one of said sections and assisting in holding the ladder in a fixed position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. REYNOLDS.

Witnesses:

JNO. M. RITTER,

ALBERT E. FAY.