

No. 724,745.

PATENTED APR. 7, 1903.

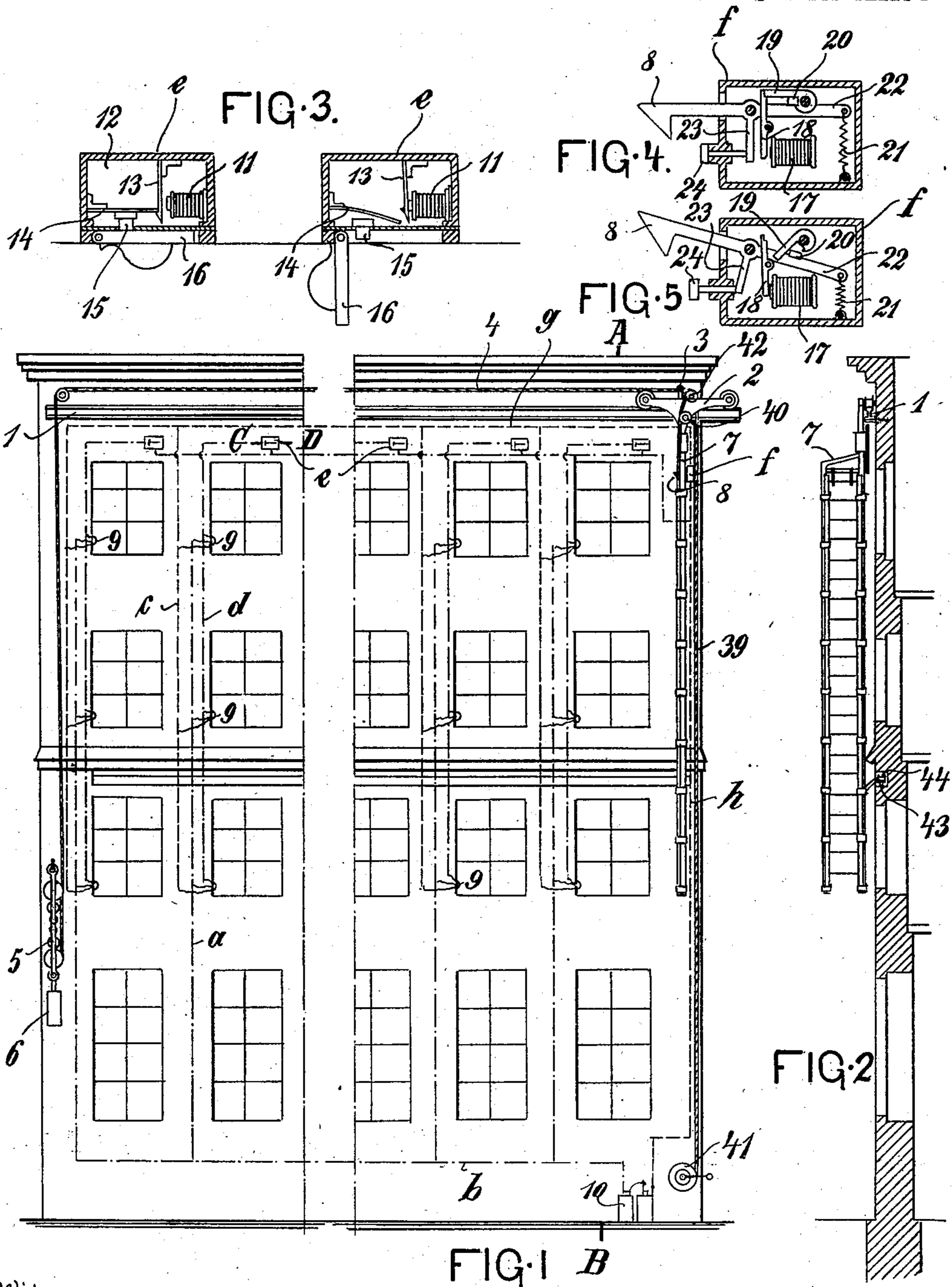
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APPARATUS FOR RESCUING PERSONS FROM BUILDINGS IN CASE OF FIRE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
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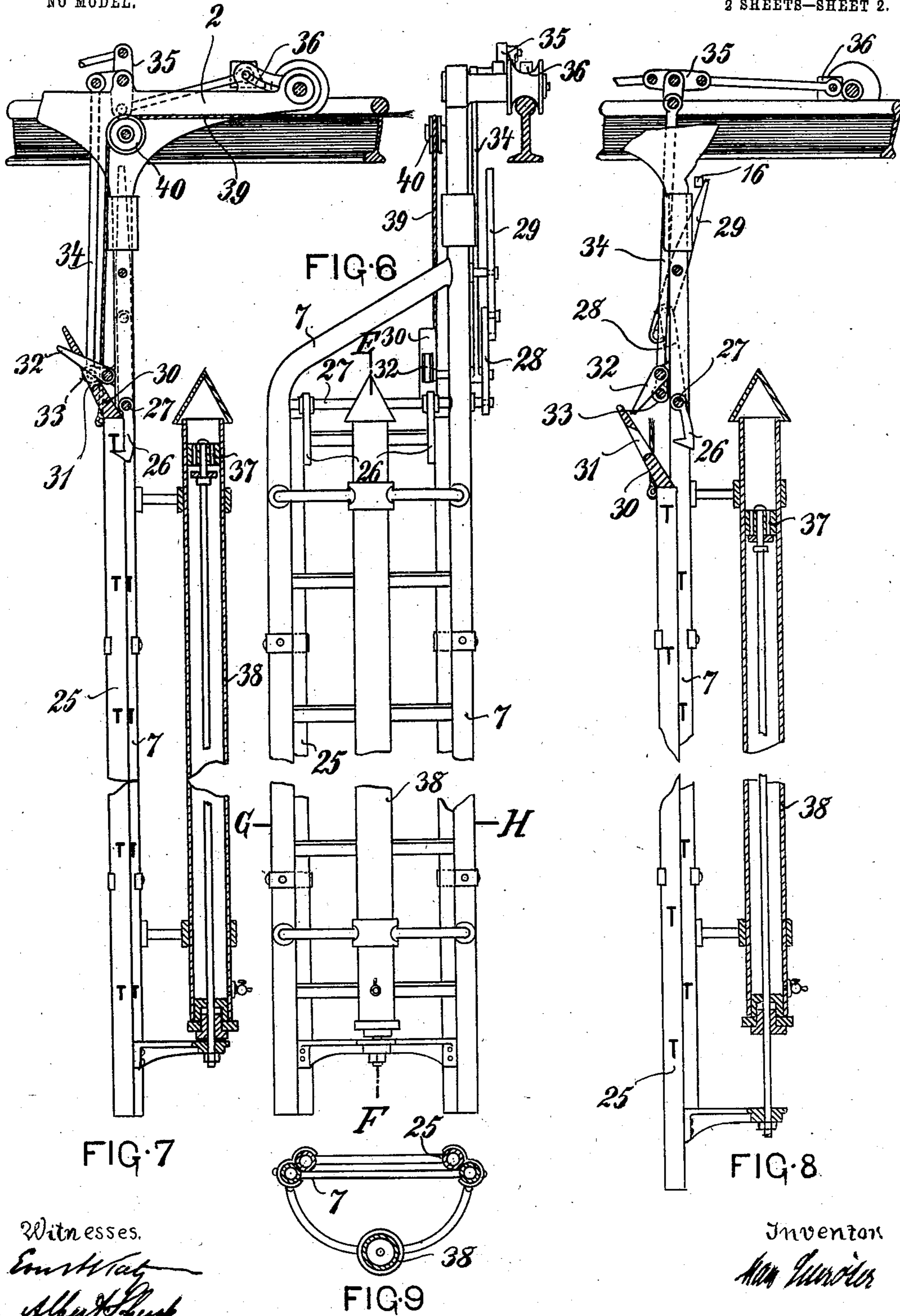
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# UNITED STATES PATENT OFFICE.

MAX SCHRÖTER, OF BRESLAU, GERMANY.

APPARATUS FOR RESCUING PERSONS FROM BUILDINGS IN CASE OF FIRE.

SPECIFICATION forming part of Letters Patent No. 724,745, dated April 7, 1903.

Application filed November 13, 1902. Serial No. 131,218. (No model.)

*To all whom it may concern:*

Be it known that I, MAX SCHRÖTER, a subject of the Emperor of Germany, residing at 131 Berliner Chaussee, Breslau, Germany, have invented certain new and useful Improvements in Apparatus for Rescuing Persons from Buildings in Case of Fire; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for rescuing persons from buildings in case of fire in which a safety-ladder applied to the building is capable of being moved backward and forward on a rail or guide running along the building, and has for its object to provide means for automatically conveying the ladder to the window or the like from which a person wishes to escape.

According to this invention the ladder, which tends to move along the rail under the action of a suitable traversing device, is normally locked in the position of rest and when traversed along the rail after the locking device has been released the ladder is stopped automatically at the spot where it is required. The ladder is so formed that the sliding or telescopic parts thereof when the ladder is at rest and while it is being pushed together are held by a locking device capable of being automatically released at the desired spot to free the lower parts of the ladder, which are then lowered by their own weight. The immediate fixing of the ladder at the desired spot is effected by the action of the lower part of the ladder, which on running down after the releasing of the locking device operates a self-acting brake which prevents any further traversing of the ladder and is released again when the lower part of the ladder is drawn up.

For the above-named purpose the combination illustrated in the drawings and hereinafter explained is employed.

Figure 1 is a front view of a building furnished with the life-saving apparatus; Fig. 2, a section along the line A B in Fig. 1; Fig. 3, a section along the line C D in Fig. 1; Fig. 4, a separate illustration of the apparatus for locking the ladder in the po-

sition of rest. Fig. 5 illustrates the same apparatus as in Fig. 4 in the unlocked position. Fig. 6 is a separate illustration of the ladder with the brake device drawn to a larger scale; Fig. 7, a section along the line E F in Fig. 6 with the brake device in the position of rest; Fig. 8, a section along the line E F in Fig. 6 with the brake device in the working position, some of the parts being omitted; Fig. 9, a section along the line G H in Fig. 6.

Below the edge of the roof along the line of the windows a rail 1 is arranged, on which a trolley 2, Fig. 1, is mounted to run and is operated by a rope 4, fixed to an extension 3 of the trolley through the medium of a weight 6, which acts on a pulley-block 5. The trolley 2 carries a slide or telescopic ladder, the upper part of which is firmly held in the position of rest by a pawl 8. To each window of the building a pressing-button 9 is attached, which is conductively connected with a source of electric current 10 by means of wires *a b*. The pressing-buttons of each vertically-running row of windows are connected with one another by a wire *c* and with the winding of an electromagnet 11, Fig. 3, by a wire *d*, which forms a part of a device 12, arranged in a casing *e* above the top window of each row and employed for locking the ladder in the working position. The armature 13 of the electromagnet locks a spring 14 in the position of rest, which spring when released actuates a stop 16, that is hinged to the building, so that it comes into the path of the life-saving ladder.

The pawl 8, which locks the upper part 7 of the ladder in the position of rest, forms part of a locking device arranged in a casing *f*, Figs. 4 and 5, this device being released by means of an electromagnet 17 when any particular pressing-button is compressed, the winding of the magnet being connected with the source of current 10 by the wires *g h b c*. The armature 18 of the electromagnet 17 acts against a catch 19, which in the locking position, Fig. 4, engages under a nose 20 on the arm 22 of the pawl 8, that coöperates with the spring 21 and when the electromagnet is excited is released. The pawl 8 carries an arm 23, which acts against a pin 24, carried outward through the casing *f*.

The lower part 25, Figs. 6 to 9, of the ladder is arranged so as to be moved against the upper part 7. The two parts 7 and 25 of the ladder when pushed together are held in that position by pawls 26, Figs. 6 and 7, which are fixed on a shaft 27, pivoted in the sides of the upper part of the ladder, this shaft carrying a disengaging-lever 28, the arm 29 of which projects into the path of the stop 16, Figs. 3 and 8, arranged on the building. The side of the lower movable part 25 of the ladder carries a slotted arm 30, in the slot 31 of which a turning-bolt 32 engages, which is mounted on the upper part 7 of the ladder and is connected with the self-locking brake 33 34 35 36, Figs. 7 and 8. With the movable part 25 of the ladder the rod 37 of a brake-cylinder 38 is connected.

The action of the apparatus is as follows: When any pressing-button 9 is operated, the electromagnet 17 is excited, as is also the electromagnet 11 of the locking device 12 which corresponds to the pressing-button. Upon the electromagnet 17 being excited the catch 19, Fig. 5, is released and the pawl 8 put into the disengaging position by the spring 21, whereupon it displaces the pin 24 through the medium of the arm 23, so that when the ladder is moved back into the starting position the pin 24 comes into contact with it. The electromagnet 11, which becomes effective when a pressing-button 9 is compressed, attracts its armature 13, whereby the spring 14 is released, which then forces out the stop 16 by means of the pressing-pin 15, so that the stop projects into the path of the ladder. After the pawl 8 has been released the ladder is traversed along the rail automatically by the weight acting on the pulley-block 5 until it meets the stop 16, which projects into its path and is thereby retained at the spot where some person is to be rescued. In connection herewith the arm 29 meets the stop 16, Fig. 8, and is thereby actuated to disengage the pawls 26 and release the movable part 25 of the ladder, which then descends by its own weight. When the part 25 of the ladder descends, the bolt 32 is turned by the arm 30, whereby the brake-blocks 36 are applied by the levers 33 34 35. The bolt 32, with the link 33, forms a crank-lever, which when the bolt 32 is turned swings out over its dead-center, and thereby locks the brake. After sliding from the stop 16 the arm 29 is immediately returned to the starting position by spring action or the like and catches behind the stop 16, which upon the return of the ladder is carried back from the working position into the position of rest by the arm 29. By means of the brake-cylinder 38 the freely-descending part of the ladder is put under brake action shortly before its descent is terminated.

In order that the ladder may be conveniently returned to the starting position, a rope 39 is fixed to the top of the lower part 25 of the ladder. This rope runs over a roller 40, be-

longing to the trolley 2, and a pulley 42 on the building to a winding-drum 41, Fig. 1. When the rope is wound on, the part 25 of the ladder is first drawn upward, whereby the arm 30 returns the block 32 to the starting position, and the brake is thereby released. The part 25 of the ladder is caught at the end of its upward course by the pawl 26. Upon the rope 39 being further wound the ladder returns to the starting position, the pin 24 again putting the pawl 8 into engagement. For the purpose of securely guiding the ladder a second guide-rail 43 is arranged on the building, and on this the guide-roller 44, Fig. 2, mounted on the part 7 of the ladder, runs.

What I claim, and desire to secure by Letters Patent, is—

1. In an apparatus for saving life in case of fire, the combination of a guide extending along the building and a life-saving ladder movable thereon, with a locking device for firmly holding the ladder in the position of rest, an apparatus for releasing this locking device, means for automatically traversing the ladder after release of the locking device and means for limiting the traverse of the ladder, in the manner described and for the object stated.

2. In an apparatus for saving life in case of fire, the combination of a life-saving ladder movable along the building, with a locking device for locking the ladder in the position of rest, means for releasing this locking device, a pulley-block, a weight engaging with said pulley-block for displacing the ladder after the release of the locking device, stops pivoted in the building and means for automatically moving these stops into the path of the ladder after the locking device has been released, in the manner described and for the purpose explained.

3. In an apparatus for saving life in case of fire, a safety-ladder traversed along the building and means for traversing the ladder, in combination with pawls which lock the ladder in the position of rest, locking devices released by electromagnets, for holding the pawls in the position of rest, stops pivoted in the building, which can be turned into the path of the ladder by spring action, locking devices for holding the stops in the position of rest, a source of current connected with the electromagnet and circuit-closers lying in the circuit of the electromagnet, as described and for the purpose stated.

4. In an apparatus for saving life in case of fire, the combination of a life-saving ladder consisting of several parts and movable along the building, these parts being movable against one another, with a locking device which retains the parts of the ladder in the position of rest, as well as when the ladder is being pushed together, stops pivoted in the building and capable of being turned into the path of the ladder and a disengaging device for releasing the locking device and coöper-

ating with the stops, in the manner described and for the purpose stated.

5 In an apparatus for saving life in case of fire, the combination of a life-saving ladder consisting of several parts and movable  
10 along the building, the parts of which can be pushed one against the other and pawls for detachably coupling the said parts together, with stops pivoted in the building, which can be  
turned into the path of the ladder, a disengaging device for releasing the pawls and which coöperates with the stops, an automat-

ically-locking brake and means of applying the brake automatically when the lower part of the ladder descends and automatically releasing it again when the lower part of the ladder is drawn up. 15

In testimony whereof I have affixed my signature in presence of two witnesses.

MAX SCHRÖTER.

Witnesses:

LOUIS KATZ,  
ALBER A. SCHENK.