F. SCHERRER.

APPARATUS FOR LIFE SAVING IN CASE OF FIRE.

APPLICATION FILED MAY 6, 1910.

987,494.

Patented Mar. 21, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

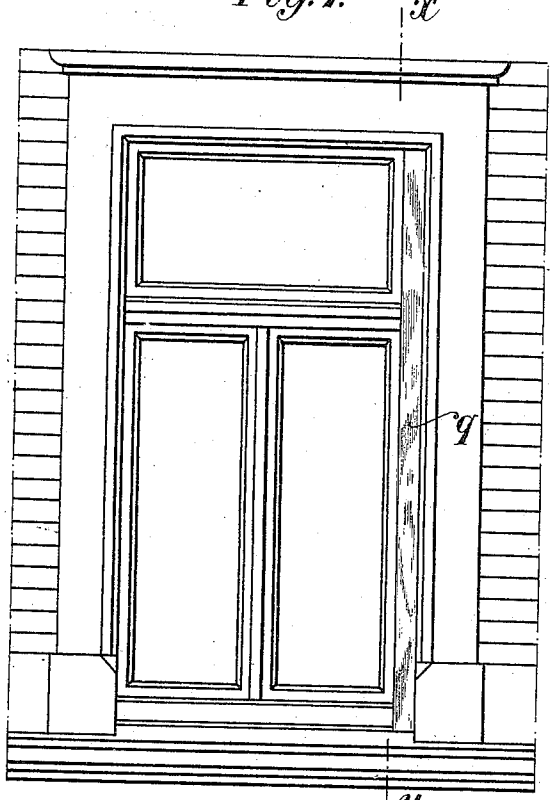


Fig. 2.

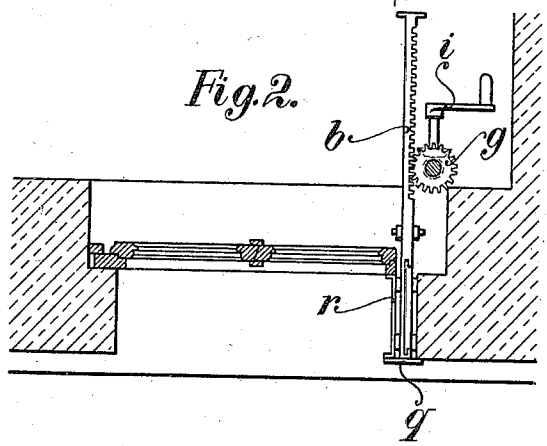
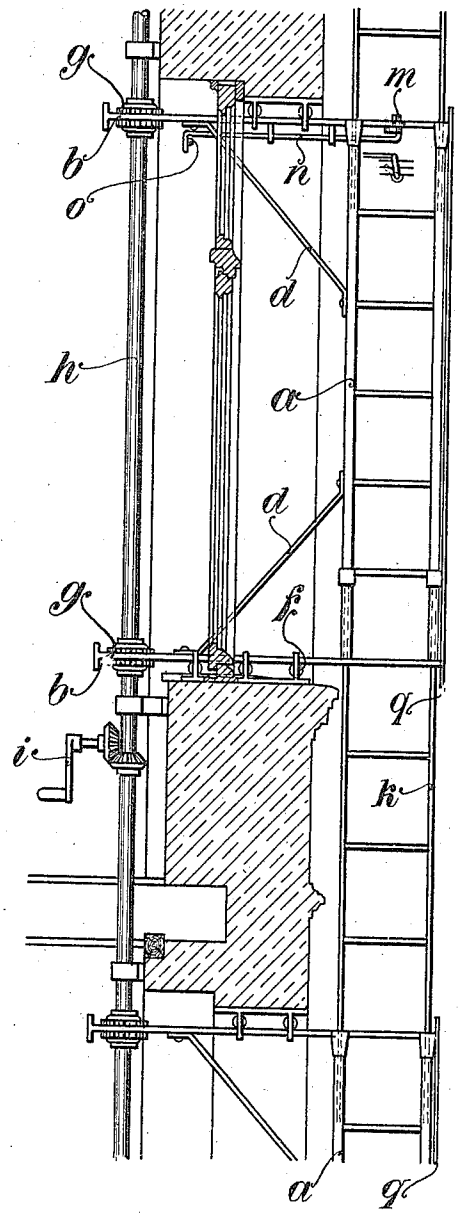


Fig. 3.



Witnesses:

E. W. Moore.

L. C. Barkley.

Inventor

Franz Scherrer

per

Frank A. Ackerman.

Attorney.

F. SCHERRER.

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2 SHEETS—SHEET 2.

Fig. 4.

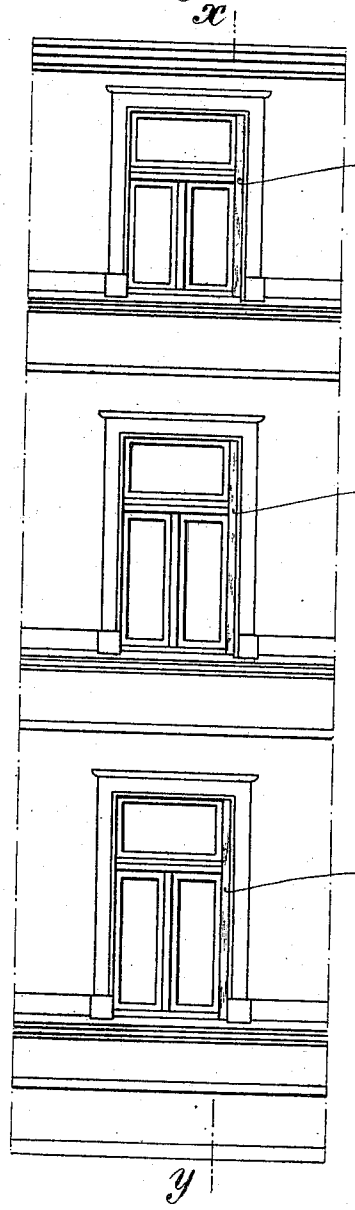
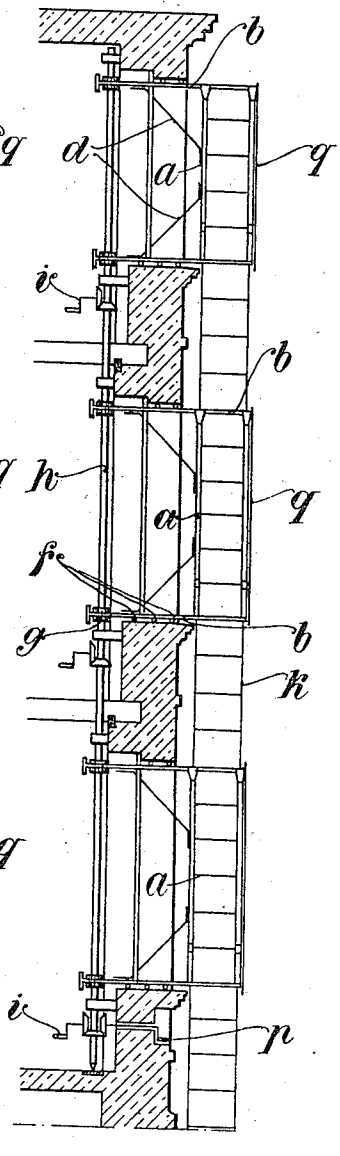


Fig. 5.



Witnesses:
E. W. Moore
P. C. Barkley

Inventor
Franz Scherrer
per
Frank Ansleman.
Attorney.

UNITED STATES PATENT OFFICE.

FRANZ SCHERRER, OF BERLIN, GERMANY.

APPARATUS FOR LIFE-SAVING IN CASE OF FIRE.

987,494. Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed May 6, 1910. Serial No. 559,810.

To all whom it may concern:

Be it known that I, FRANZ SCHERRER, a subject of the King of Prussia, German Emperor, residing at Berlin, German Empire, have invented an Apparatus for Life-Saving in Case of Fire, of which the following is a specification.

This invention relates to an apparatus for life saving in case of fire. It is usual to provide buildings with safety ladders which rest flat against the wall when not in use, but which in case of need can be so turned about a vertical axis that they project at a right angle to the wall. This construction is moreover so arranged that the separate ladders when in the condition of rest cover the separate windows of a vertical line of windows, and that after swinging them out, connecting ladders which are pushed up against the main ladder in the position of rest, fall down in order in this manner to form a continuous ladder extending from the ground to the roof at right angles to the wall. This construction, which has in general proved serviceable, has nevertheless various drawbacks. Firstly, the ladders in the position of rest project over the window on the outside, whereby the opening of the windows is interfered with, and also the entrance of the light is hindered. Such construction moreover is practically excluded from application to buildings of architectural importance. Further, the ladders are constantly exposed to the weather, which is particularly injurious to the mechanism which although simple, is nevertheless indispensable. Further, by manipulation it is not always possible to secure an exactly corresponding position for the several ladders so that sometimes a continuous series of ladders extending from below to the roof is interrupted. Further, the pivoting shaft which passes through all the stories must be supported by the building which, especially in the case of constructions applied to already existing buildings, is troublesome and costly. Finally, it is a drawback that the pivot shaft in the case in which it is not desired to make special provision for it, (which again leads to further inconveniences), must carry the weight of all the ladders, whereby it is subject to excessive strain and the swinging out is rendered more difficult. All these drawbacks are avoided by the present invention so that safety ladders on this principle can now be constructed without the above mentioned objections.

The present invention comprises the improvement that the separate ladders in the position of rest are placed, not parallel to the wall, but at right angles thereto, and can in case of need be extended at right angles to the wall. In the position of rest the ladders are drawn inward so far that only their outer rails or preferably the special covering plates hereinafter described, are visible.

The extension of the ladders can be effected by means of suitable gearing and by a vertical shaft, which however, is not fixed in the brickwork but is placed inside the building so that it can be built in without trouble.

The entire mechanism of the device remains covered when out of use so that it is not only protected against the influence of weather but it is not in the way. As the separate ladders are extended exactly at right angles to the wall and the amount of the projection is exactly limited by a catch, the ladders will exactly correspond one with another in position. The separate ladders no longer overweight the vertical shaft because they are each separately and independently supported by their own horizontal shafts so that the vertical shaft is no longer unfavorably influenced and the handling of the device is rendered easier.

In the accompanying drawing a device of this kind is illustrated as follows:

Figure 1 shows the front elevation of a window with the covering plate which is alone visible. Fig. 2 shows a horizontal section of Fig. 1 on the line *x*—*y*. Fig. 3 shows a vertical section through the wall when the ladders are extended. Fig. 4 shows an elevation of the entire wall on a reduced scale. Fig. 5 shows a corresponding vertical section with the ladders extended.

The separate ladders *a* are fixed between bars *b b* and are connected with these latter by the rods *d d* into a rigid combination. The bars *b b* can move at right angles to the wall, guided by the rollers *f* attached to the top and the bottom respectively of the window openings. The bars *b b* are provided at their inner ends with a rack, which engages with corresponding gear wheels *g* of the vertical shaft *h*. By turning the handles *i* one of which is placed on each floor, the entire set of ladders *a* can thereby be

extended, whereupon the connecting ladders *k* attached to the principal ladders in the well known manner will fall down, and fill up the gaps. The bars *b* are so constructed at their inner ends that their projection is strictly limited by these ends encountering the wheels *g* or other suitable stops. Moreover the device may also be actuated from the outside by means of the auxiliary handle *p* (Fig. 5). After use, the connecting ladders *k* are again caused to telescope into the principal ladders in the manner already known, by hand or otherwise and are retained by the catches *m*. By the turning backward of one of the crank handles *i* or *p*, all the ladders *a* are drawn back together with the connecting ladders, so that outside only the covering plates *q* which are attached to the outer side rail of the ladder remain visible. At the side the space in which the ladders are placed is closed by means of a partition *r* of sheet iron, wood, or other like material.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In combination in a device for life-saving from fire, a series of vertical ladders retractable within the window embrasures and normally concealed therein, side plates fixed to said embrasures and adapted to conceal one side of said ladders, covering plates fixed to the outer rail of said ladders and adapted to close the space between each side plate and the corresponding window jamb, a pair of horizontal bars attached to the top and bottom respectively of each ladder section, means for supporting said bars and ladder sections, a vertical rotatable shaft entirely located within the building, and mechanism whereby the rotation of the shaft projects the entire set of ladders beyond the window embrasures and at a right angle thereto.

2. In a safety ladder composed of rigid vertical sections adapted to be retracted and entirely inclosed within vertically superposed window embrasures and connected together in the position of use by telescoping connecting ladders; fixed side casings attached to the windows, front plates attached to the outer rail of each ladder, a pair of horizontal extension rods attached to each vertical ladder section, supporting rollers for said extension rods on the window embrasures, a rack on each pair of extension rods, a vertical rotatable shaft located within the building parallel to said ladder sections, sets of gearing on said shaft so disposed that by rotating the vertical shaft all the racks will be extended or retracted, and limiting stops on said extension rods preventing the overwinding of the mechanism in either direction.

3. In combination in extensible and retractable safety ladders for escape from fire permanently attached to a building a plurality of rigid vertical ladders mounted to move in straight horizontal lines at a right angle to the wall of said building and substantially vertical to the ground, connecting ladders movably attached to said rigid ladders, and mechanism located within the building and adapted to extend and retract the rigid ladders.

FRANZ SCHERRER.

In presence of—
LOUIS VANDORY,
BESSIE F. DUNLAP.