

1,069,325.

K. L. ELSNER.
FIRE-ESCAPE APPARATUS.
APPLICATION FILED APR. 26, 1912.

Patented Aug. 5, 1913.

2 SHEETS-SHEET 1.

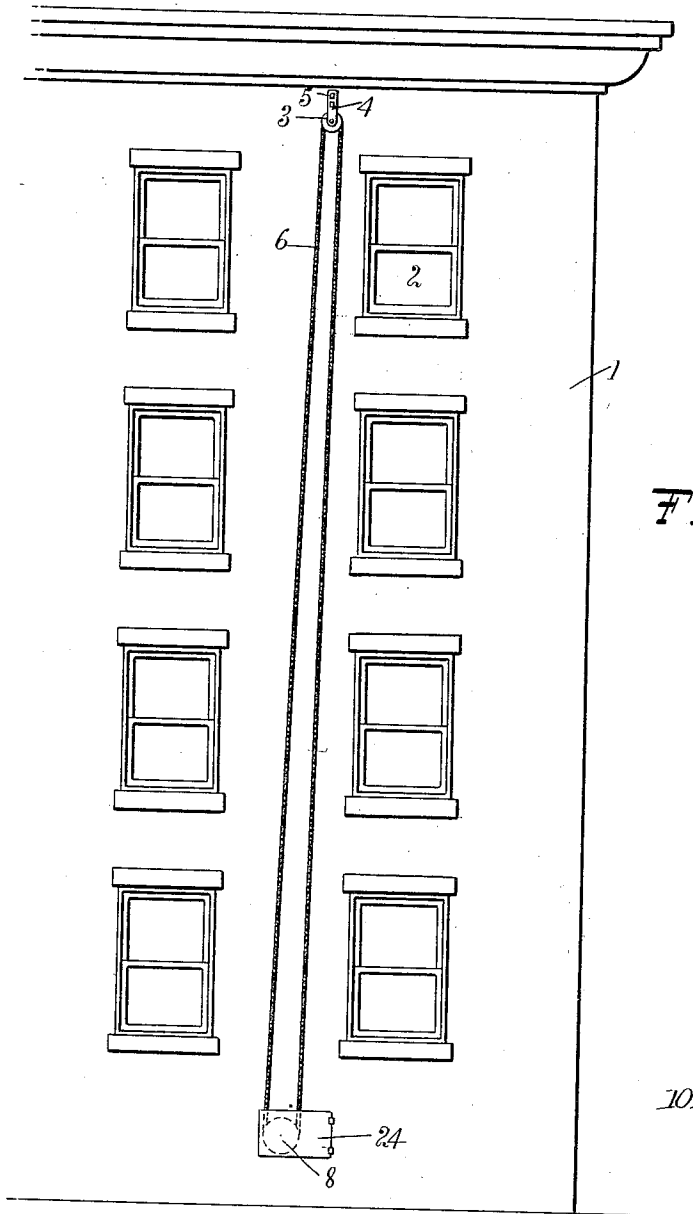


Fig. 1.

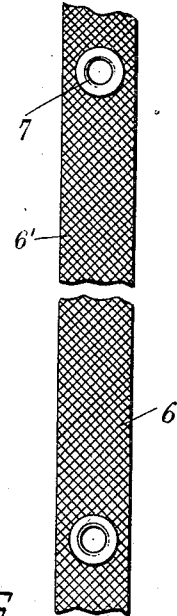


Fig. 6.

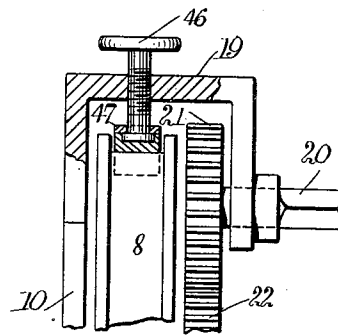


Fig. 7.

WITNESSES

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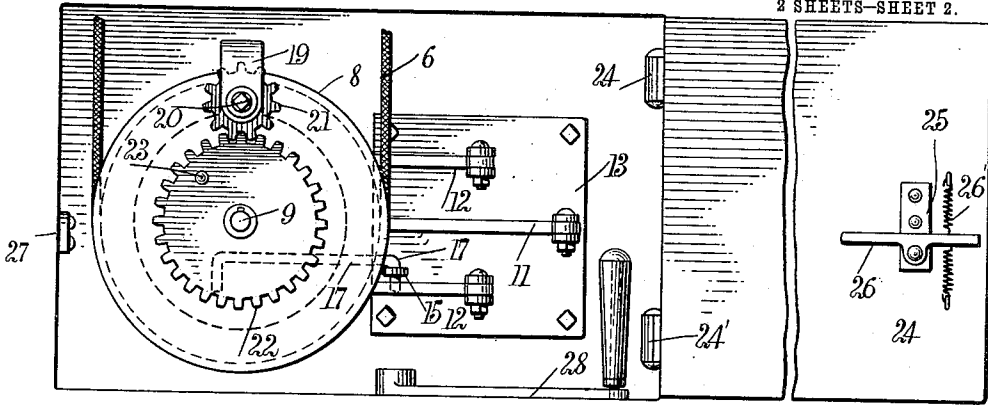


Fig. 2.

Fig. 3.

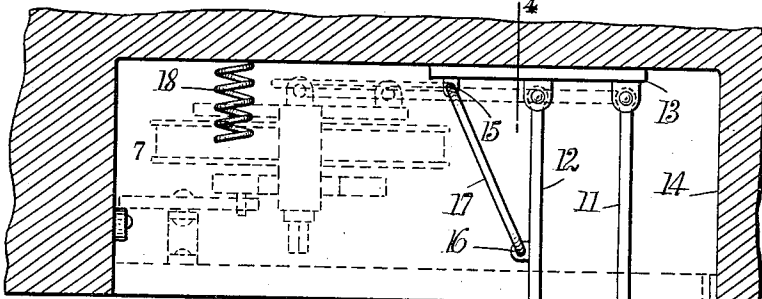


Fig. 4.

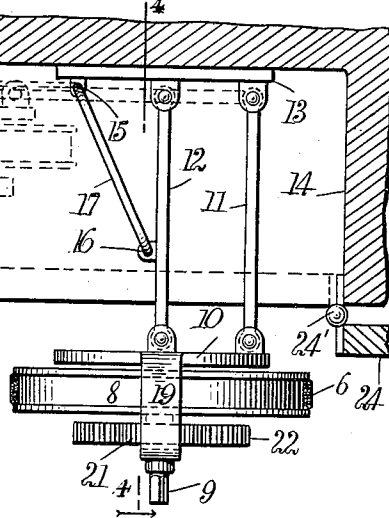
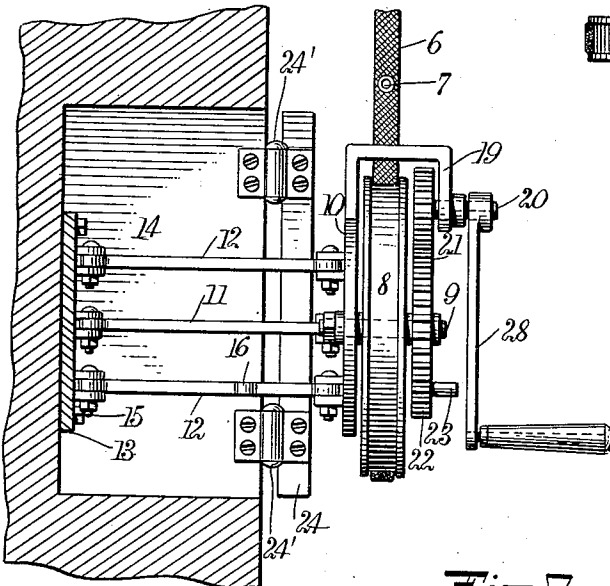
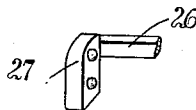


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

KURT L. ELSNER, OF NEW YORK, N. Y.

FIRE-ESCAPE APPARATUS.

1,069,325.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed April 26, 1912. Serial No. 693,398.

To all whom it may concern:

Be it known that I, KURT L. ELSNER, 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 Apparatus, of which the following is a full, clear, and exact description.

My invention relates to an improvement in fire escape apparatus, and it comprises a simple and novel combination of elements which can be easily and cheaply installed and which can be operated by any one for the purpose of escaping or assisting others to escape from the building to which it is applied, on the outbreak of a fire.

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

Figure 1 represents a front elevation of a building showing my improved fire escape apparatus in position; Fig. 2 is a front elevation of the operating mechanism which is normally housed in a recess formed in the wall of the building; Fig. 3 is a horizontal section taken through the top of the recess, showing the operating mechanism in projecting position; Fig. 4 is a vertical section on the line 4-4 of Fig. 3; Fig. 5 is a horizontal sectional view, showing the position which the operating parts assume when they are housed in the recess; Fig. 6 is a view of an endless belt which travels up and down along the wall of the house, preferably on the outside of the same, to enable a person using the sling shown in Figs. 9 and 10 to be conveyed to the ground; Fig. 7 is a detail view showing some of the operating parts and the brake therefor to prevent the conveyer belt from moving too rapidly when in use; and Fig. 8 is a detail view showing part of the locking mechanism for my fire escape apparatus.

On the drawings, the numeral 1 represents a building having a number of windows 2. Secured to the wall of this building near the top thereof and preferably on the outside of the same is a guide pulley 3, mounted in a bracket 4, which is fastened by means of bolts 5. Over this guide pulley passes a conveyer belt 6, which may be made of a network of wires or rods 6', so as to be fireproof; or which may be made of some

other material and covered with asbestos if preferred. The chain has a number of eye-lets 7 for a purpose which will appear later, and it passes over a guide pulley 8 arranged at the bottom of the building so as to be normally secured at both ends in operative position. This chain is in the form of an endless loop, as shown in Fig. 1, so that the same may be moved continuously about the pulleys at the top and bottom.

The lower guide pulley 8 is mounted upon a spindle 9 carried by a plate or block 10. This plate or block 10 is secured to a link 11, and a pair of links 12 located at one side of the link 11 and spaced above and below the same, as shown in Figs. 2 and 4. I prefer to connect the link 11 to one edge of the plate or block 10, and the links 12 to the block 10 about on the vertical center line therewith, but obviously any other relative location thereof will do. The opposite ends of the links 11 and 12 are pivotally connected to a block 13, which is rigidly mounted inside of a recess 14 formed in the front wall of the building, as shown particularly in Figs. 3 and 4. The plate 10 carrying the pulley 8 is held in projecting position by means of an arm 17 having bent ends which fit into perforated lugs 15 and 16 carried by the plate 13, and the lower arm 12, respectively.

18 is a spring secured inside the recess 14 and engaging the back of the plate 10, this spring normally tending to move the parts into projecting position. When the operating parts are housed in the recess they occupy the broken-line position shown in Fig. 2, and the full-line position shown in Fig. 5.

From the top of the plate 10 projects a bracket 19, the outer end of which is bent downward and perforated to form a bearing for a shaft 20, to one end of which is given a polygonal shape to enable a crank or handle to be fitted thereto; and on the other end of which is mounted an operating pinion 21. This operating pinion 21 meshes with a gear 22, and this gear 22 may be rigidly secured in any convenient way to the guide pulley 8, so that when the handle is operated the gear 22 and the pulley 8 will be turned together, as shown in Fig. 4. I provide the pulley 8 with a hub which slips over the spindle 9, and one end of this hub projects from the face of the pulley to receive the gear 22. The gear 22 may be secured on the

end of the hub by means of a key, to prevent it from turning with respect to the pulley 8, or in any other way.

The numeral 24 represents a door for closing the recess 14, and on the inside of this door is a plate or bracket 25, upon which is pivotally mounted a locking bar or latch 26.

27 is a stop secured to the wall of the recess 14 on one side of the same, and 28 is a handle or crank which fits over the outer end of the spindle 20, and is normally put inside of the recess 14, so that whenever the door 24 is opened the crank can be immediately found for use.

The door 24 is mounted upon spring hinges 24', so that it always tends to move to open position. The latch lever 26 is held horizontal by means of springs 26', which pull up and down on the end adjacent the free edge of the door. The catch 27 has its upper edge curved, as shown in Fig. 14, the curved surface sloping upward from front to back. Consequently, when the door is closed, the end of the lever 26 to which the springs 26' are attached slides along the curved surface of the catch 27 and over the edge of the same. The springs 26' then return the end of the locking lever to horizontal position, so that when the door moves outward the edge of the lever 26 will engage behind the catch below the horizontal portion and be held against movement. Normally the spring 18 will push outward upon the mounting plate 10 and force the parts to swing outward as soon as the door is opened, and as soon as they assume the position shown in Fig. 3, the link 17 will be used to connect the lugs 15 and 16, to hold them against any further movement.

The gear 22 has a projection 23 which is carried in such a position that it will strike the opposite end of the locking lever 26 when the gear is turned. The effect will be to move the latch 26 up or down and free its engaging end from the catch 27, whereupon the springs in the hinges 24' and the spring 18 will throw the door and the operating parts to open position. The spring hinges on account of their tendency to open the door will hold the latch 26 against the catch 27, and the spring 18 will serve either to hold the face of the gear 22 against the end of the latch 26, or the end of the spindle 20 against the inner surface of the door, so that the moment the door is released the mounting plate 10 is moved to the position shown in Fig. 3, to make the fire escape apparatus ready for use. The belt 6 can be moved to transmit motion to the gear 22 to free the parts in this way by having recesses in the upper edge of the door 24, so that when the door is closed, it can be opened and the parts caused to swing into operating position by a person at any of the windows of the building.

The utility of my improved fire escape apparatus will now be apparent. Supposing there should be a fire in the building, the occupants of any floor can make their descent to the ground by means of the conveyer 6, each person using a suitable sling and connecting the sling to the belt by means of a hook and one of the eyelets 7. Before beginning the descent it is only necessary to give a slight pull on the nearest section of the conveyer 6 to rotate the gear 22 far enough to move the latch 26 out of engagement with the catch 27 and allow the spring hinges 24' to swing the door 24 to open position. As soon as this takes place the spring 18 will throw out the plate or block 10 and the operating parts carried thereby. The person or persons escaping can then swing themselves out, throwing their weight upon the conveyer 6, and be lowered to the earth.

In order to prevent the belt 6 from moving too rapidly when it is weighted by the bodies of the persons escaping, the occupants of the building while descending may lay hold of the portion of the belt which is traveling upward, and prevent the too rapid movement of the belt; or I may even locate a rope along side of the building parallel with the belt, so that persons may seize the same and arrest their too rapid descent in this way. I also may use a brake shoe shown at 47, bearing upon the upper side of the lower pulley 8, this brake being adjusted by means of a threaded bolt terminating in a handwheel 46 and engaging with a threaded aperture in the bracket 19. This brake may be set so as to retard the rotation of the pulley wheel 8 to a sufficient extent to prevent the too rapid descent of the first few persons escaping. After these have reached the ground they may utilize the crank 28, which will lie handy in the aperture 14, to retard the gear 21, and thus exert a braking action upon the gear 22 and the wheel 8, to facilitate the escape of other persons from the building in their turn.

The advantage of my improved fire escape will be apparent. It takes up little space and can be operated by any body in or out of the building. Even when unconscious, a person can be lowered down by means of the body slings and the conveyer belt, and it does not interfere with the operations of the firemen. The conveyer belt 6 is made of fireproof material, as stated above, and when an occupant of the building is once hooked to it he cannot release himself until the ground is reached. Hence, it makes no difference if the person faints away or remains conscious; and the people coming down by the belt or conveyer can even be drenched with water by the firemen, so as to protect them from flames that may be coming from the windows, a thing which could not be thought of if ladders be used.

The entire mechanism is so simple that any layman can easily understand and manage it. It is well known that a fire always attracts a crowd, and in the case of people being seen at any of the upper windows, any person on the street can, by pulling upon the cable, cause the operating parts to swing out of the recess, and then lend any further assistance that may be necessary when the inmates of the building begin to lower themselves to the ground.

Instead of the recess 14 I may of course use a casing, but the recess is to be preferred. The door or cover 24 will be painted the same color as the side of the building, and will be arranged to be flush with the outer wall of the building, so as to occupy the least possible amount of room.

The above description and the drawings are of course intended to be illustrative only, and I do not wish to be restricted to the details shown and described, but desire to reserve the right to incorporate any changes that fall within the scope and nature of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an improved fire escape apparatus designed to be used for a building having a recess in its wall near the lower floor thereof, a supporting plate secured to side of said recess, a mounting plate, a plurality of links connecting said plates together, means for holding said links against movement, a spindle projecting from said mounting plate, a guide pulley mounted upon said spindle, a pulley mounted upon the wall of said building near the top thereof, an endless belt passing over said pulleys, resilient means located in said recess for engaging the mounting plate and tending to swing the same upon said links, and means for closing the mouth of said recess, said means when swung to open position permitting the resilient means to move the mounting plate and the pulley carried thereby out of said recess to put the belt into operative position.

2. In an improved fire escape apparatus designed to be used on a building having a

recess in its wall adjacent the lower floor thereof, a supporting plate mounted in said recess, a pulley wheel, means for causing said pulley wheel to be movably supported by said supporting plate, whereby said pulley wheel can be swung into said recess or moved out of the same, a pulley wheel mounted on the wall of the building near the top thereof, an endless belt connecting said pulley wheels together, means for closing the mouth of said recess, means for locking said closing means, and means operated by the pulley in said recess when the belt is moved to actuate the locking means and release the closing means, whereby the lower pulley can be moved out of the recess to put the belt into operative position.

3. The combination of a pulley, means for mounting the same so as to be bodily movable, means for housing said pulley and said mounting means, a gate for closing one side of said housing, a catch for holding said gate in closed position, a belt for said pulley, and means actuated by the belt for releasing the catch to open the gate.

4. The combination of a pulley, means for mounting the same so as to be bodily movable, means for housing said pulley and said mounting means, a gate for closing one side of said housing, a catch for holding said gate in closed position, a belt for said pulley, and means geared to the pulley to release the catch when the belt is operated to open the gate.

5. The combination of means providing a housing, a gate for said housing, a spring-controlled lever for said gate, a catch having an inclined side to engage the lever when the gate is moved to closed position, a pulley in said housing, and means actuated by the pulley to move the lever to unlock the gate when the pulley is moved.

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

KURT L. ELSNER.

Witnesses:

WILLIAM F. NICKEL,
PHILIP D. ROLLHAUS.