No. 692,684. Patented Feb. 4, 1902.

G. LOEWENSTEIN.

FIRE ESCAPE.

(Application filed June 10, 1901.)

(No Model.) 2 Sheets—Sheet 1.

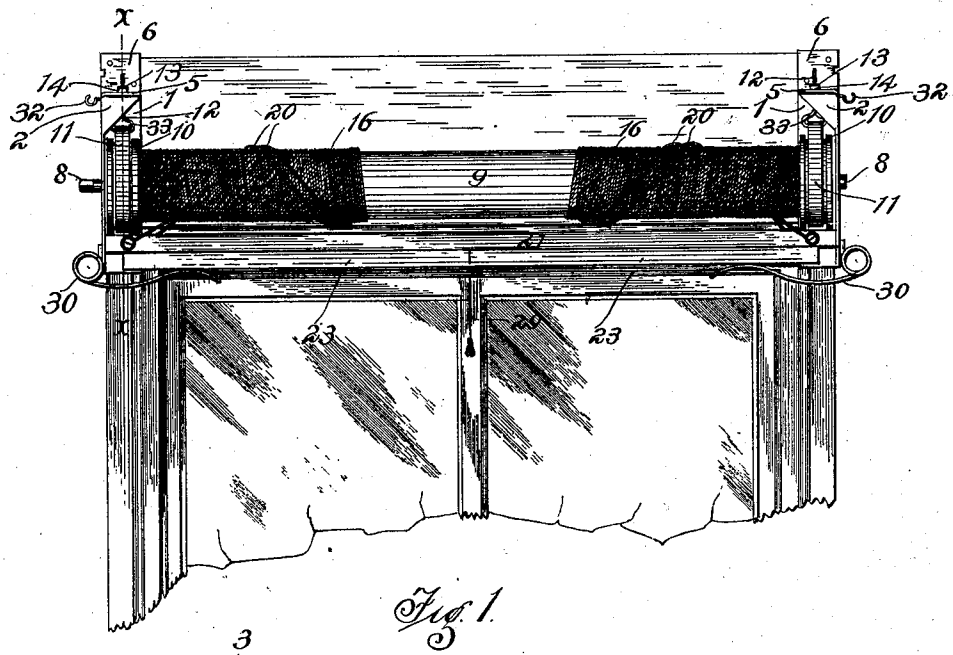


Fig. 1.

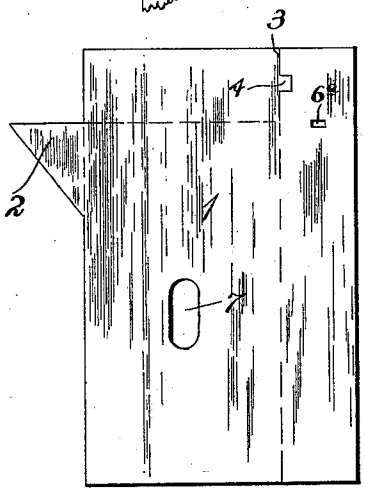


Fig. 2.

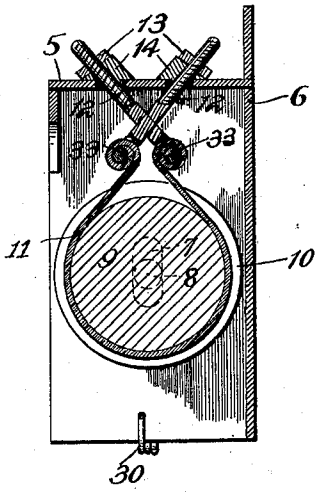


Fig. 3.

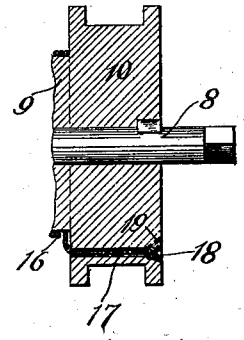


Fig. 4.

Witnesses
W. C. Schley
J. D. Klinger.

Inventor
Gottlieb Loewenstein
by K. Glennan.
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 692,684. Patented Feb. 4, 1902.

G. LOEWENSTEIN.

FIRE ESCAPE.

(Application filed June 10, 1901.)

(No Model.) 2 Sheets—Sheet 2.

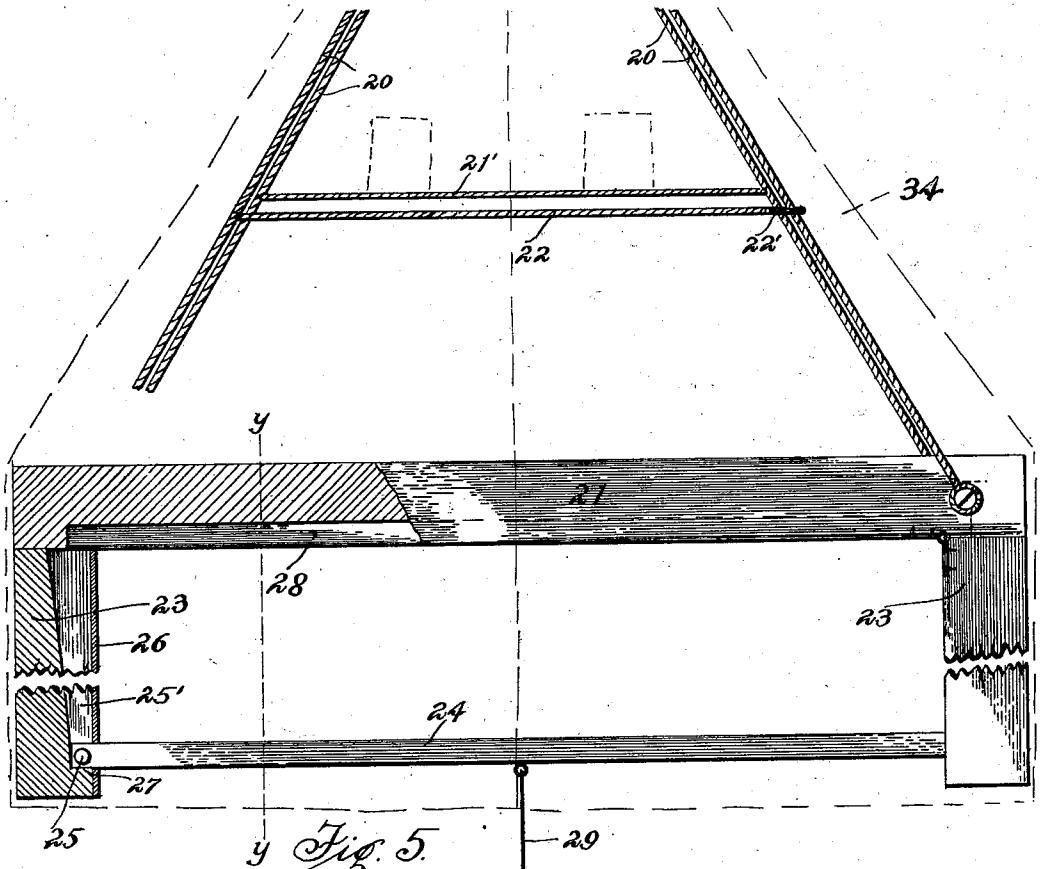


Fig. 5.

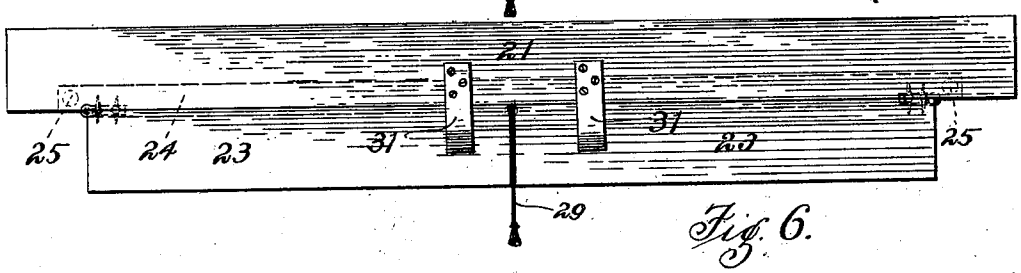
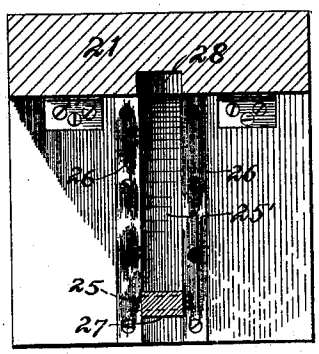


Fig. 6.

Fig. 7.



Witnesses
M. Sekley
J. D. Clinger

Inventor
Gottlieb Loewenstein
by W. G. Anderson
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GOTTLIEB LOEWENSTEIN, OF BRUNSWICK, GEORGIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 692,684, dated February 4, 1902.

Application filed June 10, 1901. Serial No. 63,985. (No model.)

To all whom it may concern:

Be it known that I, GOTTLIEB LOEWENSTEIN, a citizen of the United States, residing in Brunswick, in the county of Glynn and State of Georgia, have invented certain new and useful Improvements in Fire-Escapes; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to fire-escapes; and it has for its object to provide a simple and efficient construction of fire-escape of the type in which the weight of the person or persons descending by means of the paying-out cable will cause friction between two pulleys and a friction-brake strap proportionate to the weight of the person or persons descending, so that the cable will pay out at a substantially uniform speed, the pulleys under my invention being formed rigidly as a part of the shaft or drum which carries the cable, so that no matter in which direction the drum or shaft is turned in winding up the cable the cable will be in proper position to unwind from the shaft or drum in paying out or unwinding.

It has also for its object to provide an improved construction of brackets by which the friction-straps are suspended so as to support the shaft and its pulleys in proper position; and it has further for its object to provide an improved construction of basket or seat attached to the free ends of the cable, so that when the fire-escape is to be used the basket or seat will be released from its supporting means between the brackets, and at the same time two folding legs to the basket or seat will be thrown into position, so that the basket or seat may be supported in proper position upon a window-sill while the person or persons to use the escape are taking their position upon the basket or seat preparatory to descending by means of the cable.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a front view of a portion of a window with my device in place; Fig. 2, a side view of a plate from which the bracket is formed; Fig. 3, a vertical cross-section on line *x x* of Fig. 1; Fig. 4, a longitudinal section through one pulley and a portion of the drum; Fig. 5, an enlarged side view, partly in section, of the seat portion of the escape; Fig. 6, a side view of the seat with legs folded, and Fig. 7 a vertical section on line *y y* of Fig. 5.

In the drawings the numeral 1 designates two brackets, each being formed like the other and each formed of a single piece of metal cut or stamped from a single plate with an obliquely-shaped part 2, the metal then being cut vertically from the top downwardly near one end, as shown at 3, and with a tongue 4, so that the top portion may be turned horizontally to form an overhanging arm 5, and one end turned at right angles to the main body of the plate, so as to form a flange 6 and have the tongue 4 fit in an opening 6^a therein, the upper portion thereof extending above the overhanging arm 5, so that said flange will constitute the means through which screws may pass for the purpose of securing the bracket in position, the oblique portion 2 being turned inwardly at right angles to the main body of the plate, so that its top edge may lie underneath the overhanging part 5, and thus constitute an angle-piece to assist in sustaining the overhanging arm in its horizontal position. This construction enables each bracket to be formed at comparatively little cost and in a manner to impart a maximum of strength thereto.

In the lower part of each bracket 1 there will be formed a vertical slot 7, which slot will receive the axle 8 of a shaft or drum 9, which will have formed rigidly as a part thereof the two pulleys 10, one at each end of the shaft or drum. This drum and its pulleys will be supported between the two brackets by means of the friction-straps 11, which will pass around the drums and be suspended from the overhanging arms 5 by means of the rods 12, which will be connected at their lower ends to the opposite ends of the straps,

while their upper ends pass through openings formed in the overhanging arms 5 and be held therein by means of nuts 13, screwed onto the ends of the rods, and between which nuts and the overhanging arms will be placed washers 14, which will be beveled, so that the nuts may bear with their flat faces against the washers. The friction-bands 13 will be made of steel and are adapted to frictionally grip the pulleys more or less tightly, depending upon the weight which will be placed upon the drum or shaft carrying the pulleys, said shaft, as before stated, being capable of vertical movement in the slots formed in the brackets. It will thus be apparent that the greater the weight carried by the shaft the greater will be the friction between the straps and the pulley, so that the speed of rotation of the shaft will be practically the same under a heavy or a light load, and hence whatever be the weight of the person or persons descending by means of the cable wound around the drum the speed of descent will be practically the same. By making the two pulleys integral with their shaft or drum no care is needed to wind the cables in any particular direction around the drum, because whether wound in one direction or the other the cables will unwind from the drum.

The shaft or drum 9 carries two cables 16, each of which is passed through a hole 17, formed through the pulley parallel with the axis of the drum, the outer ends of the two cables being formed with a knot 18, which will lie within a conical or tapering recess 19, formed in the outer face of each drum, so that the knot will wedge itself in the recess, and thus prevent the cable from slipping through the opening formed for it in the drum and so also to cause the knot to lie in from the face of the pulley in order that it may not rub or abrade against the face of the bracket. The lower or free end of each cable is provided with diverging members 20, which at their lower ends will be suitably secured to a base-board 21, constituting part of a basket or seat for the persons using the fire-escape. A cable 21′ will connect the two members 20 at one side of the base-board, and a cable 22 will be connected to one of the members at the opposite side of the base-board and will be provided with a snap-hook 22′, which will grasp the other member 20, the snap-hook permitting disengagement, so as to permit easy access to the body of the base-board by the persons using the escape, and the two cross-cables, together with the diverging members, serve as means to keep persons from falling from the base-board during their descent from the upper floors of the building. The base-board is provided with two folding legs 23, which will be hinged or otherwise secured to the base-board, so that when not in use they may fold inwardly and lie against the bottom of the base-board, with their ends adjacent to each other. These legs will be hinged or otherwise secured to the base-board, so as to fold inwardly and so that when thrown outwardly they will stand in a vertical position, and thus enable the base-board, which constitutes the seat, to be supported above a window-sill, the two legs resting upon the window-sill, and under this construction persons can seat themselves in position while the seat is resting upon the window-sill and then by pushing the seat out from the sill the same will be free to descend, carrying the occupants of the seat safely to the ground, the friction between the pulleys and the friction-bands causing the descent to be at a moderate and safe speed. For the purpose of holding these folding legs in their open position a sliding bar 24 is employed, the opposite ends of the bar fitting in recesses 25′, formed in the inner faces of the legs, and being held therein by means of pintles 25, extending laterally from the ends of the bar and fitting behind slotted plates 26, which cover the recesses and prevent the bar from slipping out of place. The recesses are caused to taper from the upper to the lower ends, so that as the bar is drawn down it will have a wedging action against the legs, and thus securely hold the same in their open position, the bar in its lowest position resting upon shoulders 27, formed at the lower ends of the recesses. This bar when in its raised position lies within a groove 28, formed in the under face of the seat or base-board 21, so that the legs when folded may lie flat against the under side of the seat. The sliding bar 24, which serves as a spreader for the folding legs, will be drawn down by means of a wire cord 29, secured thereto. When the fire-escape is not in use, the seat 21 will fit between the brackets 1 and immediately under the drum or shaft around which the cables are wound and will be held in that position by suitable means—for instance, by means of springs 30, which will be attached to the brackets and adapted to project beneath the seat 21 when in its elevated position, said springs yielding so as to permit the seat to pass when the seat is drawn down. These springs may also be extended far enough to support the legs in their folded position beneath the seat; but, if desired, separate springs—for instance, such as the flat springs 31, attached to the side of the seat and made to bear against the folding legs—may be employed for sustaining the legs in their folded position. When the wire cord 29 is pulled on, it will lower the seat and at the same time pull down the sliding bar or spreader, so as to throw the folded legs into their vertical position for supporting the seat upon the window-sill.

The brackets 1 will be secured to the wall on the inside of the room directly above the top of the window-frame, so that the escape will be in position for use by an occupant of the room simply pulling down the seat and taking position thereon preparatory to leaving the room through the window by means of the fire-escape. It is obvious, however,

that in the erection of a building provision can be made for building the fire-escape in the wall immediately over the window-frame. The brackets 1 may also be provided with hooks 32 for the purpose of supporting a canopy over the fire-escape when not in use.

The friction-bands 11 are preferably secured to the rods 12 by curling the ends of the bands around the cross-bar of the looped portions 33 of the rods, so that when tension is placed upon the bands one layer of the curved portion will draw tightly against the under layer of the curl, and thus securely grip the band to the cross-bar of the rods. This is preferable to using rivets, because the band is not weakened under the construction specified.

While I prefer to construct the seat in its several parts in the manner hereinbefore described, yet it is to be understood that changes can be made therein and the folding feature of the construction be retained, and also it is to be understood that other means than that described for supporting the seat in its elevated position may be employed.

The fire-escape constructed as described is comparatively cheap as to cost of manufacture. It is not liable to get out of repair. It is easy to operate and requires no skill or previous experience on the part of the persons to use the same in order to bring it into active operation, and it will afford a safe and easy and expeditious means of escape from a burning building.

The seat portion 21 may be covered by a hood 34, which will cover the seat and extend up as far as the upper end of the diverging members 20 and will encircle the same, said hood being formed of any suitable fireproof material, and may be formed with openings for observation from within, said hood being indicated by dotted lines in the drawings. One end of the axle of the drum, projecting through the slotted bracket, will be made angular in cross-section, so that a crank may be attached for the purpose of winding up the cable after it has been in use.

Having described my invention and set forth its merits, what I claim is—

1. A fire-escape comprising supporting-brackets each having a slotted side and an overhanging portion formed with openings, a drum having pulleys connected to its opposite ends and secured to the drum so as to rotate therewith in both directions of rotation of the drum, said drum having its axle entering the slots in the brackets and having an up-and-down movement in relation to the brackets, friction-straps passing around the pulleys, rods crossing each other and having the ends of the straps connected to their lower ends, said rods extending through the openings in the overhanging portion of the brackets and supported from the brackets, a cable connected with the drum, a seat supported from the cable, and means for sustaining the seat between the brackets beneath the drum when in its raised position, substantially as described.

2. A fire-escape comprising a rotatable drum, a cable connected to the drum, a seat connected to the cable and provided with inwardly-folding legs, and a spreading-bar having a sliding connection with the folding legs and arranged to lie between the legs and seat when the legs are folded and to spread the legs apart when drawn down between the legs, substantially as described.

3. A fire-escape comprising supporting-brackets, each bracket having an overhanging arm, a flange extending along one edge, and a brace for the overhanging arm, said arm, flange and brace being formed by cutting and bending the material of which the bracket is formed, a drum having pulleys and slidably connected with the brackets, friction-straps passed around the pulleys, rods supported from the overhanging arms of the brackets and connected at their lower ends to the friction-straps for supporting the drum and its pulleys, a cable connected to the drum and a cage or seat supported from the cable, substantially as described.

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

GOTTLIEB LOEWENSTEIN.

Witnesses:

M. B. SCHLEY,

GEO. W. REA.