(No Model.)

J. H. BOWLEY.

FIRE ESCAPE.

No. 311,805. Patented Feb. 3, 1885.

Fig. 1.

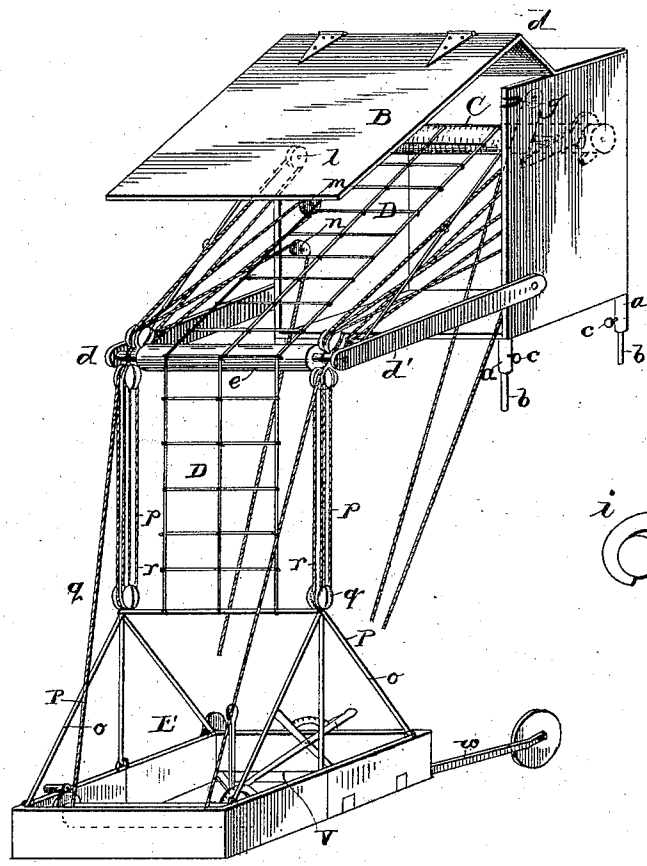


Fig. 3.

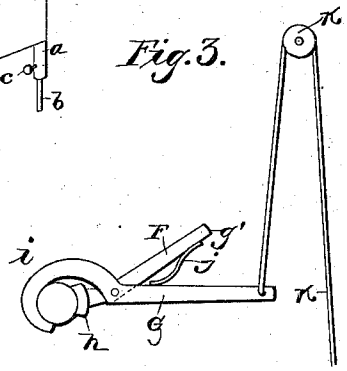
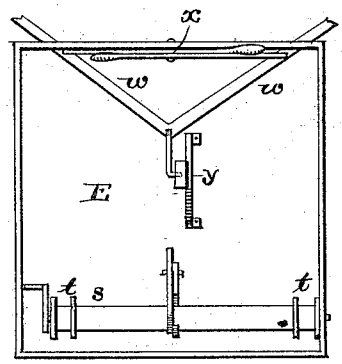


Fig. 2.



WITNESSES

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 311,805, dated February 3, 1885.

Application filed October 2, 1884. (No mode'.)

To all whom it may concern:

Be it known that I, JOSEPH H. BOWLEY, a citizen of the United States, residing at Marengo, in the county of McHenry and State of Illinois, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to fire-escapes; and it has for its object to provide improved means for controlling the descent of the car, to provide improved means for raising the car to clear any obstructions it might meet while descending, and to keep the car from striking the building while descending.

A further object of the invention is to provide a fire-escape which shall be cheap and simple in its construction, effective in its operation, and one that will be strong and durable.

With these ends in view the invention consists in the combination, with a suitable box or casing carrying a shaft, a ladder wound upon said shaft, and a car attached to said ladder, of a brake adapted to limit the speed of descent by acting directly on the shaft and operated by a rope within the car or cage.

The invention further consists in the combination, with a suitable casing having a drum or shaft mounted to turn therein, of pulleys on said shaft, and ropes connecting the pulleys and car in such manner that the car may be raised to clear any obstructions it may meet while descending.

The invention further consists in the improved construction and combination of parts, hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a view in perspective, showing my improved escape in position for a descent. Fig. 2 is a plan view of the car, and Fig. 3 is a detail view of my improved brake, showing the manner in which it clamps the shaft.

In the accompanying drawings, in which like letters of reference indicate corresponding parts in all the figures, A represents the box or casing, which has legs *a*, as shown. These legs or uprights are provided with openings in their ends, in which are seated sliding legs *b*, which are held in place at any desired adjustment by a set-screw, *c*, working in a hole or opening in the side of the leg *a*.

B represents the cover of the case, which is hinged to the upper side thereof, and is jointed, as shown at *d*. It will be observed by this arrangement the cover may be readily raised to withdraw the apparatus from the casing when desired, and at the same time when down it keeps the parts in place and prevents them from being tampered with.

Within the casing A is mounted a shaft or drum, C, upon which is wound a ladder, D; or, if desired, the ladder may be dispensed with and ropes employed. The lower end of this ladder is attached to a cage or car, E, the construction of which will be more fully explained hereinafter.

Extending outwardly from the sides of the box or casing A, near the lower end thereof, are provided arms *d'*, connected at their lower ends by means of a roller, *e*.

At each side of the roller *e*, and hinged to the shaft of the same, are two sets of double pulleys, so that they can swing or vibrate with the motion of the car. Over these pulleys pass the ropes *p p* in going from the car to the case. The object of this is to prevent any friction of the ropes against the roller, and at the same time to allow the roller to roll freely with the ladder. Jointed rods connect the ends of said arms with the casing, from which it will be seen that said arms are held in a horizontal position. Notches *g* are formed in the sides of the casing, near the upper end thereof, which serve as a seat for the roller when the arms are turned up, thus holding said arms in a vertical position. Such movement is allowed the arms, inasmuch as the rods connecting them with the casing are jointed, thus allowing them to be folded.

F represents the brake, which consists of a stationary arm, *g'*, having a shoe, *h*, at its inner end, said shoe *h* having a concave face. The other arm, G, is pivoted to the arm *g'*, and its end is provided with a semicircular portion, *i*, adapted to fit around the end of the shaft outside of the casing and, in connection with the shoe *h* of the arm *g'*, stop the car or limit the speed of its descent. A flat spring, *j*, is fitted between the two arms or levers, so that they will be held from the contact with the shaft when it is not desired to slacken the speed or stop the car. Each side of the casing is fitted with one of these brakes, and a rope or chain is secured to the ends of

the free or pivoted arms. There is a pulley depending from the top of the casing, and through this pulley passes a rope, *k*, the end or coil of which is located in the car. Said rope passes through the pulley, and is secured to the rope which connects the ends of the pivoted levers, so that when said rope is pulled downwardly it operates upon both of the pivoted levers at the same time and causes them to bear tightly against the shaft or drum and slacken the speed of the descending car or stop the same, as may be desired.

Within the casing A, upon the sides thereof, are mounted pulleys *l m n*, which are connected with the car or cage by means of ropes.

The car or cage E is constructed of boards or other material, hinged together as shown, in order that they may be folded to fit within the casing A when the apparatus is not in use.

Extending upwardly from the top of car or cage, and pivoted to the same, is a bail, *o*, which is braced or held in position by means of guy-ropes *p*, having hooks at their ends to engage eyes located in the upper corners of the said car.

Secured to each end of the bail is a double block, *q*. The ladder is secured to said bail, and the cage is connected with the pulleys *l m n* in the following manner: Ropes *r* are attached to the eyes formed at the upper ends of the double blocks. The ends of these ropes are then carried upwardly and passed through the pulleys *l*. The ropes then pass downwardly and engage one of the sheaves of the blocks. They are then carried upwardly and engage and pass through the pulley *m*. From thence they are carried downwardly and engage the other sheave of the blocks. From thence they engage the pulley *n*, and their other ends pass downwardly into the car or cage E. In the bottom of the casing, in the front thereof, is journaled a shaft, *s*, having at each end a pulley, *t*. The ropes just mentioned pass over pulleys arranged just in front of the shaft *s*, upon the sides of the casing, and are secured to the pulleys *t*. A handle or crank is fitted upon said shaft, so that it may be turned, and thus raise the car to clear any obstructions it may meet while making a descent or in going from the ground to the top of the building.

I have shown a brake, *u*, of the same construction as those already described, arranged to act upon the shaft *s*, from which it will be seen that should the ladder break or the brake that acts upon the ladder-shaft become out of order the apparatus may be controlled by the brake *u* acting on the shaft *s*.

In the rear side of the cage, near the bottom thereof, is a slot, *v*, and in order to prevent the car from striking the building while descending I have provided two arms, *w*, pivoted at their inner ends to the floor of the cage. The ends of these arms extend through the slot in the cage, and have each a roller journaled at its ends, said rollers being arranged obliquely, as shown, and fitted with a rubber rim or tire to prevent the rollers from marring or injuring the front of the building. These arms are operated by a toggle-lever, *x*, and they can be shoved out by the lever *y* against the building, thus pushing the car away to avoid any obstruction.

It will be seen from the above description that by the arrangement of the parts described there is no possible chance of the car becoming unmanageable, for should one of the brakes become disarranged or become out of order the other could be employed. Further, a fire-escape constructed in accordance with my invention is cheap and simple, its operation is effective, and it is strong and durable. It can also be used in painting, cleaning windows, repairing blinds, and all other work in reach of the car.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fire-escape, the combination, with a suitable box or casing having a drum or shaft mounted to turn therein, a ladder wound upon said shaft, and a car attached to said ladder, of a brake adapted to limit the speed of descent by acting directly on the drum and operated by a rope within the car or cage, substantially as set forth.

2. In a fire-escape, the combination, with a suitably-mounted shaft, of a ladder or ropes secured to said shaft, a car attached to said ladder or ropes, a series of pulleys arranged upon the inner sides of the casing, double blocks attached to the car, and ropes connecting the double blocks and pulleys, as set forth.

3. In a fire-escape, the combination, with a suitable box or casing, of arms pivoted to the same, a roller connecting the outer ends of said arms, and jointed rods connecting the outer ends of the arms with the casing, as set forth.

4. The combination, with a suitable casing having a shaft, of a brake consisting of a stationary and pivoted arm adapted to act upon the shaft of the casing and operated directly from the car, as set forth.

5. In a fire-escape, the combination, with a car having a slot in the rear end thereof, of pivoted arms carrying rollers, and a toggle-lever for operating said arms, as set forth.

6. In a fire-escape, the combination, with a suitable casing having pulleys arranged upon its inner sides, of a car, double blocks attached to said car, ropes connecting the pulleys and blocks, a shaft journaled in the sides of the car and having a pulley or drum at each end, pulleys journaled just in front of said shaft, and a brake, as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOSEPH HENRY BOWLEY.

Witnesses:

ASA CLARK WOOD,

MORELL A. WEBB.