

No. 627,173.

Patented June 20, 1899.

W. BENBOW.
FIRE ESCAPE.

(Application filed May 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.

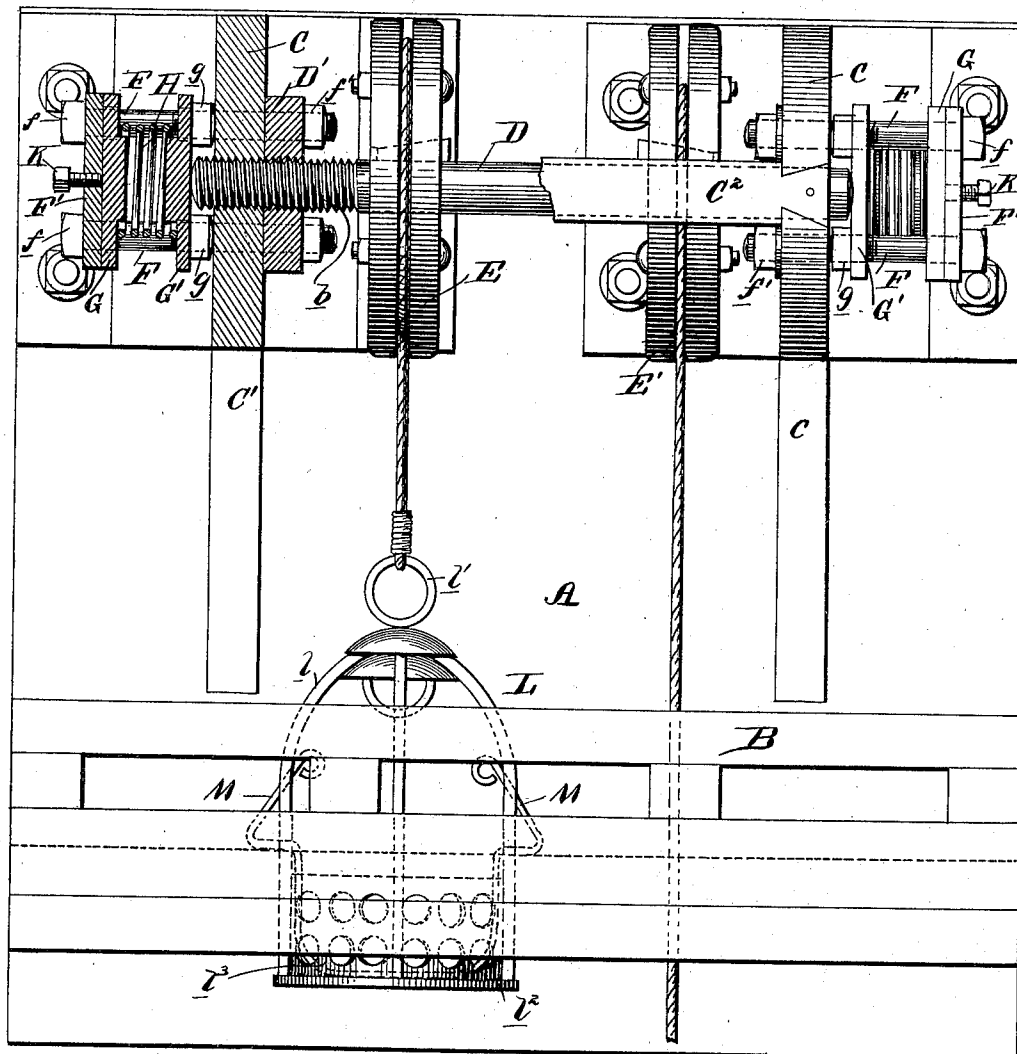
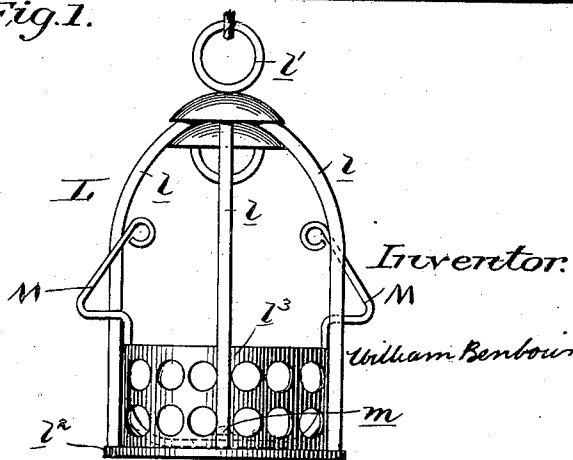


Fig. 1.



Witnesses.

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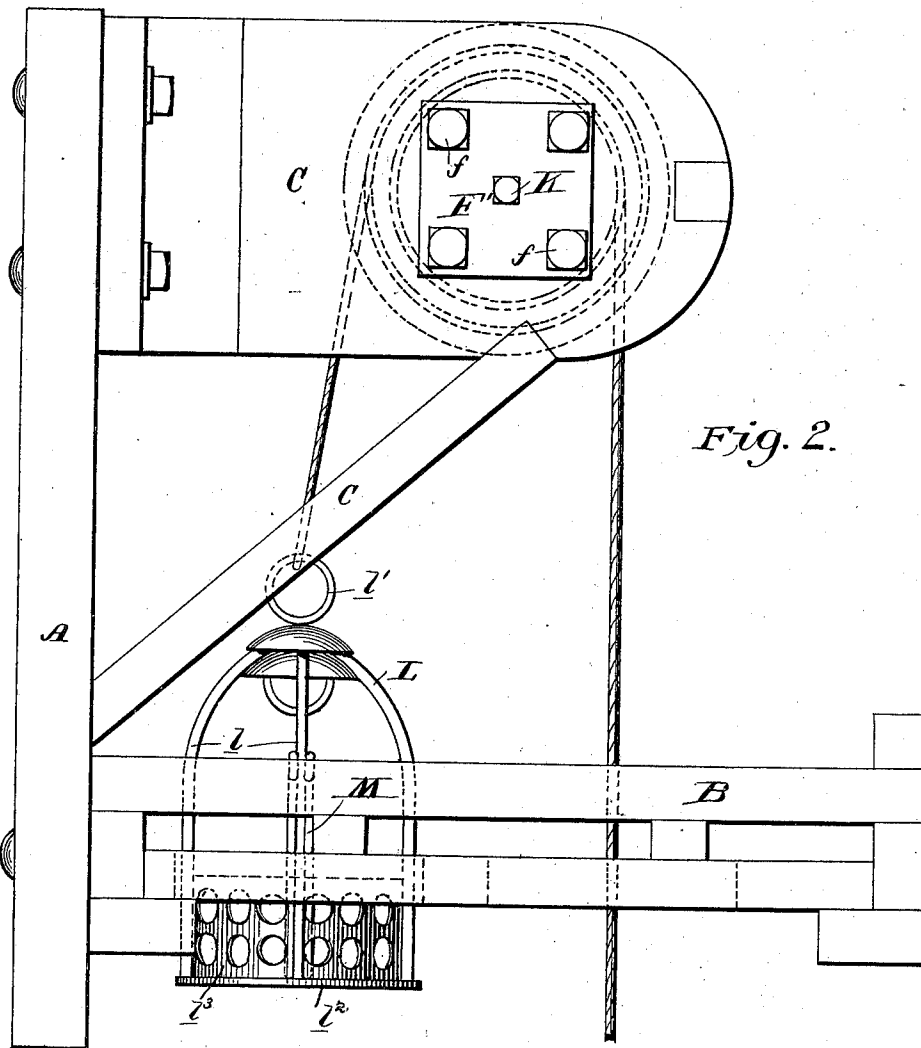


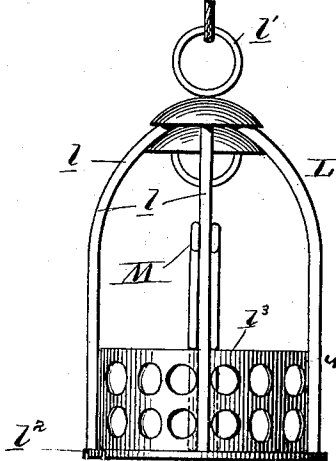
Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM BENBOW, OF CLEVELAND, OHIO.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 627,173, dated June 20, 1899.

Application filed May 9, 1899. Serial No. 716,187. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BENBOW, a subject of the Queen of Great Britain, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Fire-Escapes; 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 an improvement in fire-escapes, and it is embodied in the construction and arrangement of parts herein-after described, and definitely pointed out in the claims.

The objects of the invention are, first, to provide a fire-escape with suitable mechanism for retarding its downward movement gradually by employing a longitudinally-movable rotary shaft associated with a yielding resistance tending to resist the longitudinal movement with increasing effect; second, to provide a fire-escape of the character above indicated with suitable carrying devices, and, third, to provide a fire-escape which will be simple in its various features and combination and which will act promptly and safely when in use.

In the accompanying drawings I have shown an embodiment of the invention, but desire it understood that various modifications can be made without departing from the nature and principle of the invention.

Figure 1 is a front elevation, partly in section, and Fig. 2 is a side elevation.

In the drawings, A represents suitable uprights, which may be attached directly to the face of the building or in any other suitable manner secured in place and conveniently directly above a window. These uprights support a suitable framework B, extending out horizontally from the lower portion thereof, and also suitable brackets C, bolted or secured to their upper ends and braced by diagonal braces C'.

D represents a shaft carrying two or more pulleys E and E', which are fixedly keyed thereto. The ends of this shaft pass through the brackets C, and one end of the shaft is screw-threaded, as at b, which portion engages a nut D', fixed to the side of the bracket.

The opposite end of the shaft is plain or cylindrical and passes loosely through the bracket.

Secured to the outer faces of the brackets are the retarding means, which are of the following construction: Four bolts F are arranged equal distance apart, two being below the other two, and these bolts are provided with heads f at their outer ends, their inner ends passing through the brackets and on one side through the nut D', their protruding ends being provided with suitable nuts f'. The outer ends of the bolts carry the plates F', and between these plates and the protruding ends of the shaft are secured two follower-plates G G', loosely fitted on the bolts and perforated to permit the bolts to pass therethrough. The follower-plates have centrally-arranged projections, over which the end coils of the retarding-spring H are sleeved and by which means the springs, which are interposed between the plates, are held in position. Between the follower-plates G' and the brackets are placed suitable washers g, so that when the shaft is in its central normal position its end will be permitted to extend beyond the brackets, and thereby allowing an ample amount of longitudinal movement without escaping from the bearings. To adjust the tension of the springs H, I conveniently place set-screws K in the plates F', the ends impinging against the follower-plates G. The ends of the shaft D are in line with the center of the follower-plates, and as the shaft is turned it is by the screw connection with one of the brackets forced longitudinally, and by this movement the spring is compressed, gradually increasing the friction on the end of the shaft until the resistance is sufficiently great to practically stop the rotation of the shaft.

Mounted on the pulleys are the baskets L, the same being connected by a flexible cable attached to the pulleys, and, there being two pulleys, the cables are attached in reverse order, so that as the cable on one pulley unwinds that on the opposite or companion pulley will wind up. The baskets are constructed, preferably, of four steel arch-bars l, connected at their top, at which point a suitable attaching-ring l' is secured. The bars carry a bottom piece l² and a perforated guard l³.

M designates spring-holders having in-

elined upper faces and horizontal holding faces or shoulders. The springs are connected to the basket conveniently by being formed in a single piece and bolted, as at *m'*, to the bottom of the basket. The supporting-shoulders of the spring project laterally beyond the sides of the basket. This construction is intended to support the basket when not in use, the holding-shoulders of the springs projecting over beams on the part B, as shown in Fig. 1. When it is desired to release the basket, it is only necessary to draw the springs in until the shoulders escape the beams.

I have found it desirable to brace the outer ends of the brackets C by connection-bars C².

In operation it will be appreciated that as the loaded basket on one pulley descends the shaft will move longitudinally and be resisted in its movement by the springs. This movement carries the other basket up where it is ready for another occupant. It is to be understood that the pitch of the screw-threads on the shaft can be varied as circumstances demand and the extent of longitudinal movement likewise varied by increasing the length of the shaft. It is also to be understood that the relative positions between the resisting devices and the ends of the shaft can be varied by adjusting the bolts F.

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

1. In a fire-escape, the combination with supporting-brackets, of a shaft mounted in the brackets, a pulley carried by the shaft, a threaded engagement between one of the brackets and the shaft, a friction device secured to the bracket in line with the shaft comprising a spring-pressed follower-plate

with which the end of the shaft engages, a cage and a rope connection between the cage and pulley, substantially as described.

2. In a fire-escape, the combination with brackets, of a longitudinally-movable rotatable shaft mounted in the brackets, having a threaded engagement with one of the brackets, a series of bolts passing through the brackets, a plate carried by the outer ends of the bolts, follower-plates between said other plate and the bracket and carried by the bolts, a spring interposed between the plates, means for adjusting the tension of the spring, a pulley on the shaft, a cable connected with the pulley and a basket carried by the cable, substantially as described.

3. In a fire-escape, the combination with brackets, of a longitudinally-movable rotatable shaft mounted in the brackets having a threaded connection with one of the brackets, spring-pressed follower-plates supported on the outer face of the brackets, in line with the ends of the shafts, means for adjusting the plates, two pulleys on the shaft, cables connected with the pulleys respectively in reverse order and cages carried by the cables, substantially as described.

4. In a fire-escape the combination with lowering mechanism, a platform adjacent thereto, of baskets carried by the lowering mechanism provided with spring-catches arranged to engage with the said platform, substantially as described.

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

WILLIAM BENBOW.

Witnesses:

CATHERINE KAVANAGH,
JOHN A. BOMMARDT.