

J. A. TALPEY.
Fire-Escapes.

No. 139,484.

Patented June 3, 1873.

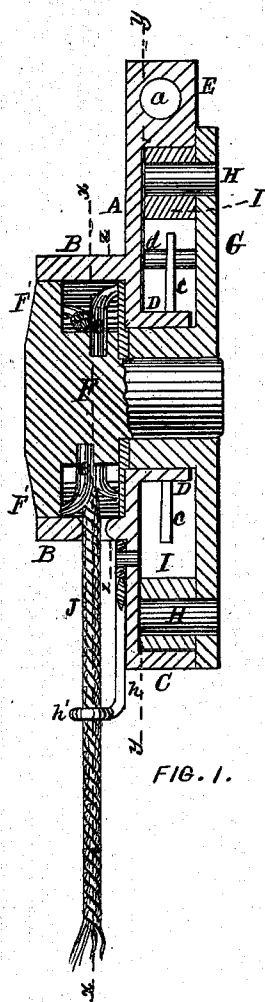


FIG. 1.

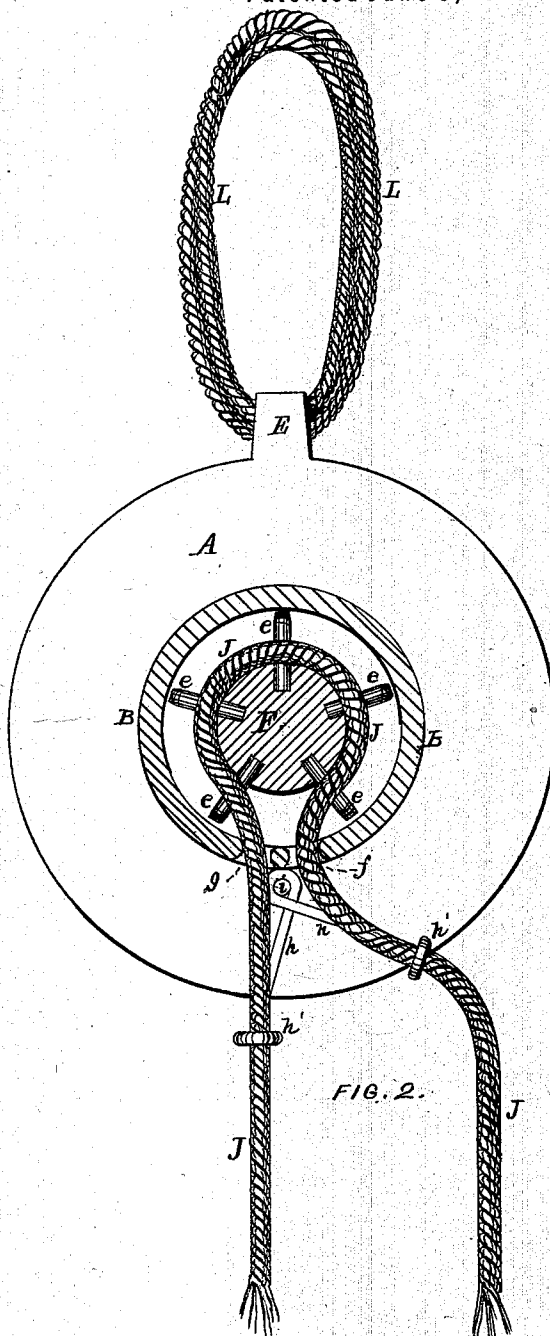


FIG. 2.

WITNESSES.

E. A. Broad.
G. E. Whitney

INVENTOR.

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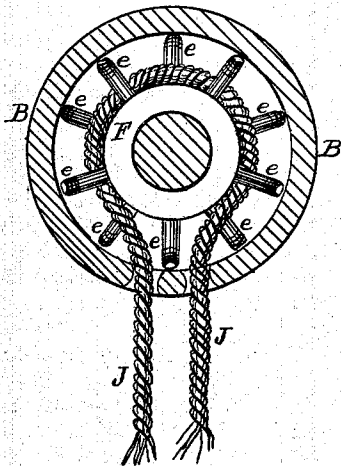


FIG. 4.

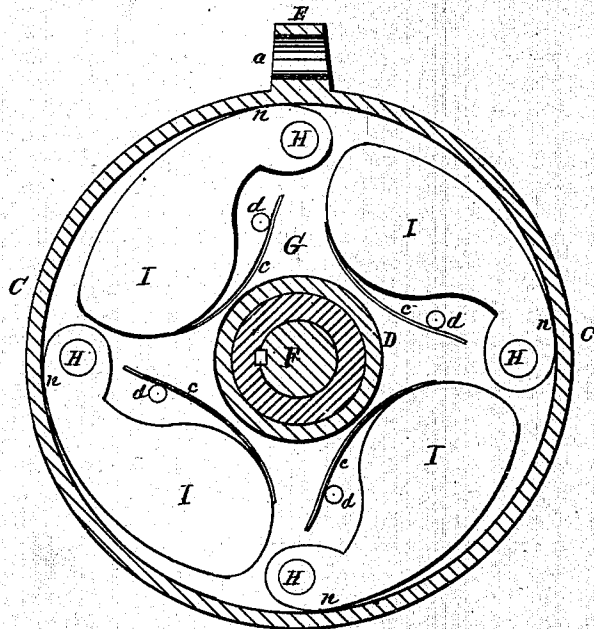


FIG. 3.

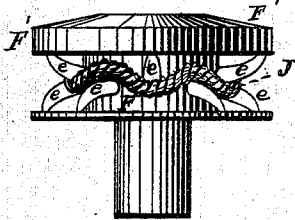


FIG. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH A. TALPEY, OF SOMERVILLE, ASSIGNOR TO JOHN HITCHCOCK, TRUSTEE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **139,484**, dated June 3, 1873; application filed April 23, 1873.

To all whom it may concern:

Be it known that I, JOSEPH A. TALPEY, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Fire-Escapes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of machines used in descending from the upper stories of buildings when the usual means of descent is cut off by fire or other causes; and it consists, first, in the use of a rope, of a length somewhat more than equal to the greatest height at which the apparatus is to be used, arranged to run over a small drum provided with radiating arms set in the periphery thereof, alternately upon either side of a plane at right angles to the axis of said drum, the outer end of said arms being curved alternately in opposite directions in a line parallel to the axis, said rope being made to lie upon the periphery of said drum, with one-half of said arms upon either side of said rope, each alternate arm being upon the opposite side of the rope from the next arm in either direction, and causing the rope to bend alternately from side to side, creating a series of successive bites of said rope, which effectually prevents it from slipping upon said drum, so that said rope will not move faster than the drum revolves. The drum is inclosed in a casing, and the two ends of the rope are passed through openings in the side of said casing. My invention also consists in the application to said rope of a vibrating guide, pivoted to the drum-casing at or near the point where the rope passes out of said casing, said guide being in the form of an elbow-lever, and provided with eyes at the extremity of each of the arms of said lever, through each of which one of the ropes is made to pass, for the purpose of spreading the ropes apart, after they leave the drum, so that the portion of the rope not in use will not be in the way of the party descending on the other rope. My invention further consists in the attachment to the shaft of said drum of a disk or circular plate, of a diameter some three or four times greater than the drum with which it revolves, and having sev-

eral pins set in its inner side near its periphery, projecting inward therefrom, parallel to the axis of the drum, upon which are mounted pear-shaped weights, the pins passing through the small end of said weights, and said weights being so shaped that a point near the pins on which they are hung is very nearly in contact with the inner periphery of the inclosing casing; and when the drum and disk are revolved the centrifugal force tending to throw the weights off at a tangent, causes said point near the pins, but between them and the bulk of the weight, to be pressed hard against the inner periphery of the inclosing casing which is stationary, thereby causing great friction at a point having a great advantage of leverage over the drum, thereby preventing any great acceleration of speed when a party is descending upon the rope.

In the drawings, Figure 1 is a vertical section through the axis of the drum. Fig. 2 is a section on line *xx*, on Fig. 1, looking toward the main casing. Fig. 3 is a section on line *yy*, on Fig. 1, and showing the friction-weights. Fig. 4 is a section on line *zz*, on Fig. 1, and Fig. 5 is a plan of the drum and its shaft or journal, removed from its casing, and illustrating how the rope lies between the radial arms of the hub.

The drawings represent the apparatus on a scale of about one-half the actual size for an ordinary fire-escape.

I propose to manufacture one somewhat larger, to be used for lowering heavy goods from lofts to the ground floor.

A is a metallic disk, having cast upon one side thereof the circular projecting rib B, and upon the opposite side a corresponding circular rib C of about twice the internal diameter of B. The disk A is also provided with the ear E, through which the hole *a* is made, by means of which the apparatus may be secured to the window-sill, or to the furniture of a room or any other suitable fixture, so as to suspend it on the outside of the building. F is a drum, or shaft, of small diameter, provided with the flange F', of a diameter equal to the internal diameter of the ring B, into which it fits and forms one of the bearings for the drum. G is a circular disk or plate of metal, having a diame-

ter equal to the external diameter of the rib C, against which it bears; said disk being firmly secured to the drum or shaft F, so as to revolve therewith. H H are pins or journals secured in the disk G, and projecting from its inner face into the chamber formed between the disks G and A. I I are friction-weights made somewhat pear-shaped, and mounted by their small ends upon the pins H H, so as to be free to vibrate thereon, and having secured thereto the light springs *c c*, which, bearing against the pins *d d*, serve to draw the heavy ends of said weights toward the hub D, and retain them in that position when the disk G is in a state of rest. The drum F is provided with a series of curved radiating arms, *c*, set therein, or otherwise secured thereto, upon either side of a line around said drum in a plane at right angles to the axis of motion of said drum, each alternate arm being upon the opposite side of said line from the next arm in either direction. A portion of the length of said arms about equal to the diameter of the rope J is straight, and perpendicular to the axis of the drum, and the outer end portions of said arms are curved alternately in opposite directions parallel to the axis of the drum, and extend nearly to the inner periphery of the rib B. The rope J, made of a length somewhat greater than the height of the building in which it is to be used, passes through the opening *f* in the rib or casing B and around the drum F, passing in a serpentine line between the arms *e e* in such a manner that alternate arms are placed upon opposite sides of the rope, so as to create a series of successive bites of said rope to prevent its slipping on the drum, and to insure a revolution of the drum by a draft upon the rope. The rope J is carried nearly around the drum F and passes through the casing B at *g*, and may be made of iron, copper or brass wire, hemp, or any other suitable flexible material, and may be made of a length somewhat greater than twice the height of building where it is to be used, and the two ends may be united so as to form an endless belt. An elbow-lever, *h*, is pivoted at *i* to the disk A, and is provided with an eye, *h'* at the extremity of each arm thereof, through each of which one part of the rope J passes as shown. The object of this elbow lever-guide *h* is to throw the ascending portion of the rope J away from the descending portion, and also to cause the ascending portion to enter the casing B and come in contact with the drum F in such a direction as to insure the ropes coming to a bearing on the drum, and also to increase the resistance to the slipping of the rope over the drum F. L is a loop of rope passing through the ear E as a means of securing the apparatus to any suitable fixture about the building, which being done, and the apparatus suspended outside of the building, or in other suitable location where there is a clear descent to the ground, and the rope so adjusted that one end is on the ground and the other end hangs a

few feet below the pulley, the mode of operation in the use of my apparatus is as follows:

The person wishing to escape to the ground seizes the end of the rope which is up, takes a turn around one of his feet, and grasping the end of the rope, together with that part of the rope between his foot and the pulley, lets himself down from the window, his weight causing the drum F to revolve, carrying with it the disk G, and the friction-weights I I. The descent at the start will be somewhat rapid, but the revolution of the disk G and weights I I brings into action the centrifugal force which tends to cause the friction-weights I I to fly out, and by virtue of their peculiar shape causes them to come in contact with the inner periphery of the casing-ring C, the bearing point of said weights being at *n*, and through the leverage with which they act, and the difference of diameter between the point of applying the friction to the casing C and the diameter of the drum to which the force is applied to revolve the same, the rapid descent is checked, and any material acceleration of the speed is effectually prevented, and the party descending strikes the ground after a descent of fifty or sixty feet with but little more force than he would in jumping from a chair. When the first party reaches the ground the other end of the rope is up, and the second party seizes it and proceeds as the first, the elbow lever *h* being thrown to the opposite limit of its throw. The apparatus works equally well revolving in either direction.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for lowering goods, or to be used as a fire-escape, the drum F, provided with the arms *e*, arranged as and for the purposes set forth, the flange F' and the disk G, in combination with a single rope J passing over said drum and held between said arms when the flange F' and the disk G are of considerably larger diameter than the drum F, for the purpose of increasing the resistance to the revolution of the drum substantially as described.

2. In combination with the drum F, provided with the arms *e*, and the rope J passing over said drum, and arranged to impart motion thereto in either direction, the friction-weights I I, mounted upon the inner face of the disk G, and arranged to operate in conjunction with the casing C, to prevent accelerated motion in the descending object, substantially as described.

3. In combination with the drum F and the rope J, the elbow-lever *h*, arranged and operating substantially as described, for the purposes specified.

Executed at Boston this 19th day of April, 1873.

JOSEPH A. TALPEY.

Witnesses:

S. A. WOOD,

G. E. WHITNEY.