

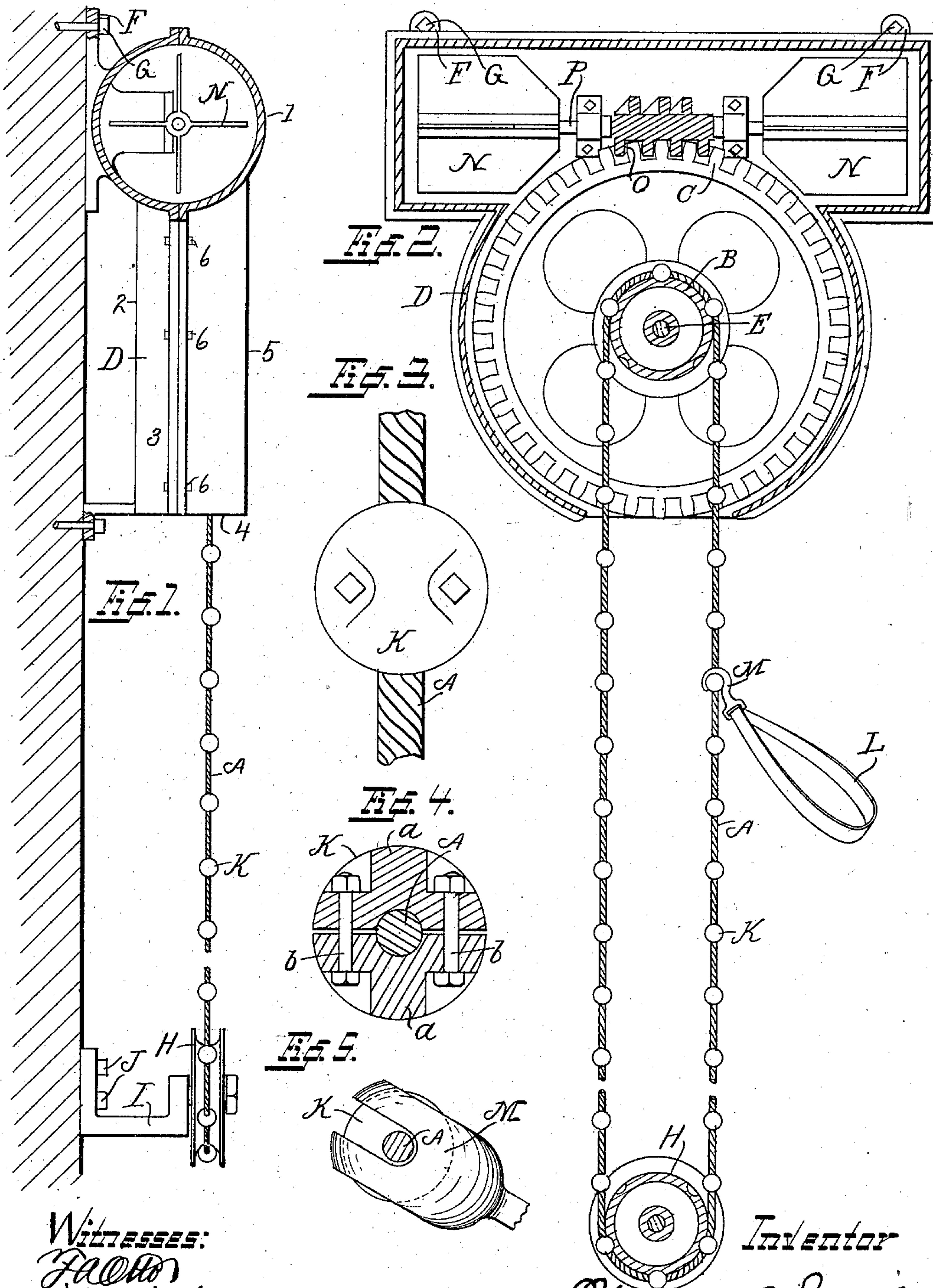
No. 748,114.

PATENTED DEC. 29, 1903.

W. R. SMITH.
FIRE ESCAPE.

APPLICATION FILED AUG. 12, 1901.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILSON R. SMITH, OF BELOIT, WISCONSIN.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 748,114, dated December 29, 1903.

Application filed August 12, 1901. Serial No. 71,685. (No model.)

To all whom it may concern:

Be it known that I, WILSON R. SMITH, a citizen of the United States, residing at Beloit, county of Rock, and State of Wisconsin, have
 5 invented new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to that class of fire-escapes by which the supporting mechanism
 10 upon which a person descends from a building is actuated by the gravity of such person while descending, and my improvements pertain more especially, first, to the peculiar automatic mechanism employed for retarding and regu-
 15 lating the speed of the device, whereby the danger of dropping too rapidly is avoided; second, to the construction of the device for supporting a person from a single cable, and, third, to the combination and arrangement with
 20 the operating mechanism of an inclosing case, which case serves the twofold function of a shield to protect the operating mechanism from the elements and as journal-bearings for such mechanism, whereby the greatest
 25 simplicity and economy are attained both as to cost of construction and space occupied.

My invention is further explained by reference to the accompanying drawings, in which—

30 Figure 1 represents a side view thereof supported from the wall of a building. Fig. 2 is a front view. Fig. 3 is a detail showing the manner of attaching the knobs to the supporting-cable. Fig. 4 is a sectional view of
 35 one of the knobs drawn transversely of the cable and showing the clamping-bolts. Fig. 5 is a top view of the belt-hook, by which a person is supported from the knobs of the cable.

40 Like parts are identified by the same reference characters throughout the several views.

The cable A upon which a person descends from a building is suspended at its upper end from the pulley B. The pulley B is secured
 45 to or cast integral with the face of the worm-gear C, and said pulley and gear are both supported from the inclosing case D upon the trunnion E. The case D is provided with suitable brackets or bearings F and bolts G,
 50 by which it is secured to the exterior walls of a building. The lower end of the cable A is provided with a pulley H, around which it

revolves as a person descends upon the cable. The pulley H is supported from the wall of the building by the bracket I and bolts J. The
 55 cable A is also provided at short intervals with knobs K, which knobs may be secured to the cable in any well known or convenient manner, the preferred form of attachment, however, being shown in Figs. 3 and 4, by
 60 which the knobs are formed in two separable pieces *aa*, which are clamped together around the cable A by the bolts *b b*.

The pulleys B and H are respectively provided with an annular series of sockets S for
 65 the reception of the knobs K, whereby said knobs perform the twofold function of preventing the cable A from slipping on the pulleys and supporting a person from the cable.

When descending, a person is supported
 70 from the cable by the belt L and belt-hook M, which hook M is adapted to engage around the knob K upon the respective sides of the cable A, as shown in Figs. 2 and 5. The downward movement of a person on the cable
 75 is retarded and governed by the fan N and the friction of the intermediate worm-gear O and the worm-shaft P. It will be obvious that by this arrangement the speed of the descent of a person of a given weight will be
 80 greater or less, according to the size of the fan employed. The size of the fan should in all cases, however, be large enough to make the descent of the heaviest person perfectly
 85 safe.

For convenience of construction the inclosing case D is made of cast metal or other substantial material, and the several shafts and journals are supported direct from the walls, whereby the necessity of providing a separate
 90 frame for supporting such parts is avoided. All that part of the inclosing case D comprising the cylindrical wall 1, vertical wall 2, side wall 3, and end wall 4, together with the brackets F, may be cast in a single piece, when the
 95 front wall 5 of the case may be formed of a separate piece, when said parts may be secured together after the gears have been put in place by the bolts 6, as indicated. By thus
 100 connecting the fan directly with the shaft of the worm-gear, as shown, a comparatively high speed of the fan is attained by a slow movement of the cable, whereby the speed of a person descending upon the cable is most

effectually retarded in a direct and simple manner. It is obvious that by this construction the inclosing case not only serves to support the journals of the operating mechanism, but also to shield such mechanism from the elements.

I am aware of the fact that an endless-rope carrier has heretofore been employed to enable persons to descend from the upper stories of a building, and that such a rope has been provided with a knot above which a hook could be engaged for the purpose of supporting persons descending by means of said rope, also that fan mechanisms have been used to control the speed of the descent; but I believe I am the first to provide a carrier which can be engaged at any point by a person seeking to descend thereby or by means of which several persons may simultaneously descend. To accomplish this object, it is very important that the hook-engaging projections of the carrier should be of such a character as to permit an instant disengagement of the hook without difficulty when the descent is completed. For this reason a knot or other flexible hook-engaging device is not adapted for the purpose, as it is liable to be wedged in the hook and prevent the disengagement of the latter. I have therefore provided my carrier with a series of inflexible projections, and a hook is formed to fit these projections, from which it may be easily released when the descent is completed and, in fact, will in most cases be automatically released when the movement of the carrier brings the hook into engagement with the lower pulley.

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

1. In a fire-escape, the combination of an endless flexible cable; a series of inflexible knobs secured thereto; a bifurcated hook adapted to straddle the cable and engage said knobs interchangeably on opposite sides thereof; pulleys for supporting and guiding said cable and means for retarding the movement of said pulleys and cable.

2. In a fire-escape, the combination of an endless flexible cable; a series of inflexible knobs secured thereto; a bifurcated hook adapted to straddle the cable and engage said knobs interchangeably on opposite sides thereof; pulleys for supporting and guiding said cable and means for retarding the movement of said pulleys and cable, together with a belt connected with said hook and adapted to support the person of the user from the knob engaged by the hook.

3. In a fire-escape; the combination of an endless flexible cable; a series of knobs secured thereto; a hook adapted to straddle the cable and engage said knobs; pulleys for supporting and guiding said cable and a resistance-fan and worm-gear for retarding the movement of said pulleys and cable, all substantially as, and for the purpose specified.

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

WILSON R. SMITH.

Witnesses:

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F. H. KEMP.