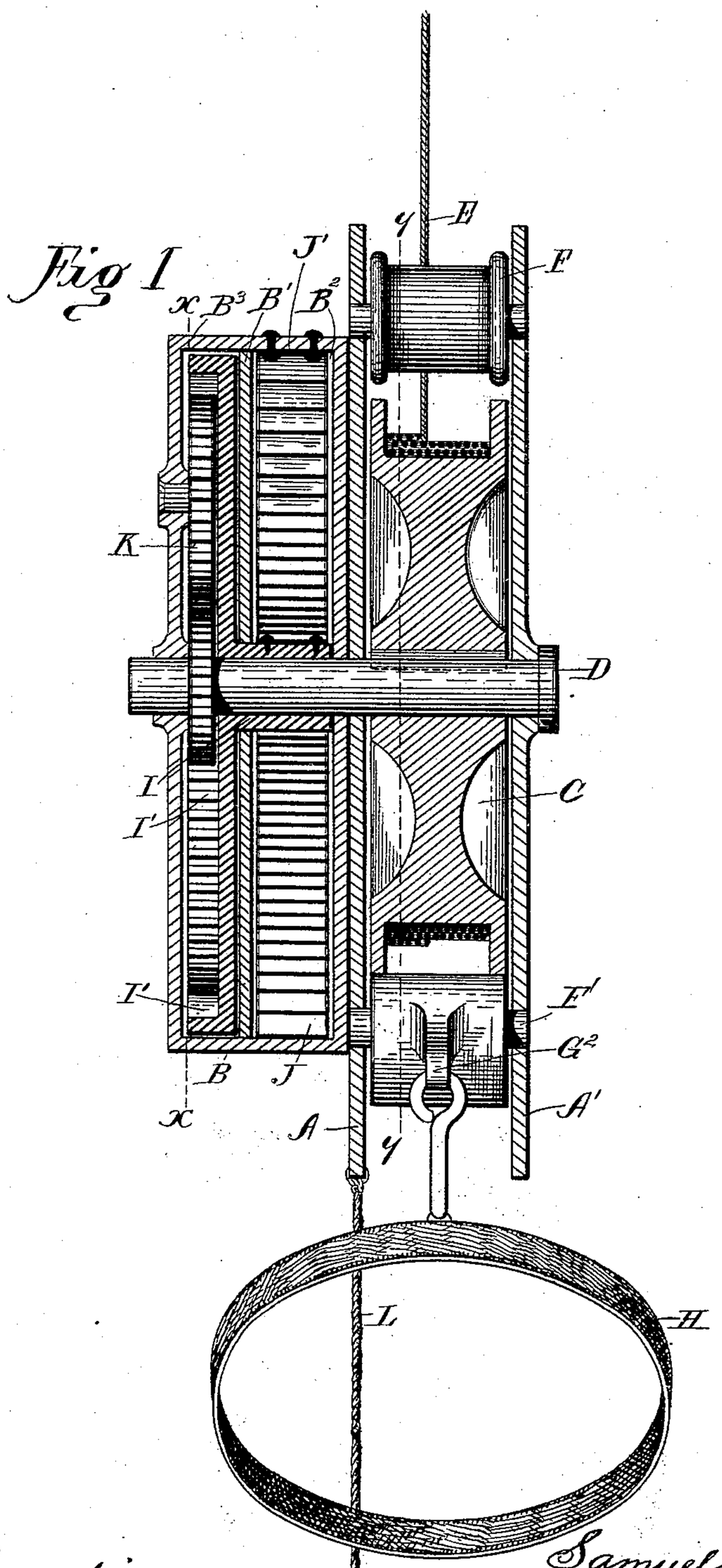
(No Model.) 2 Sheets—Sheet 1.

S. KAYE.

FIRE ESCAPE.

No. 489,483. Patented Jan. 10, 1893.

Fig 1



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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Fig 2

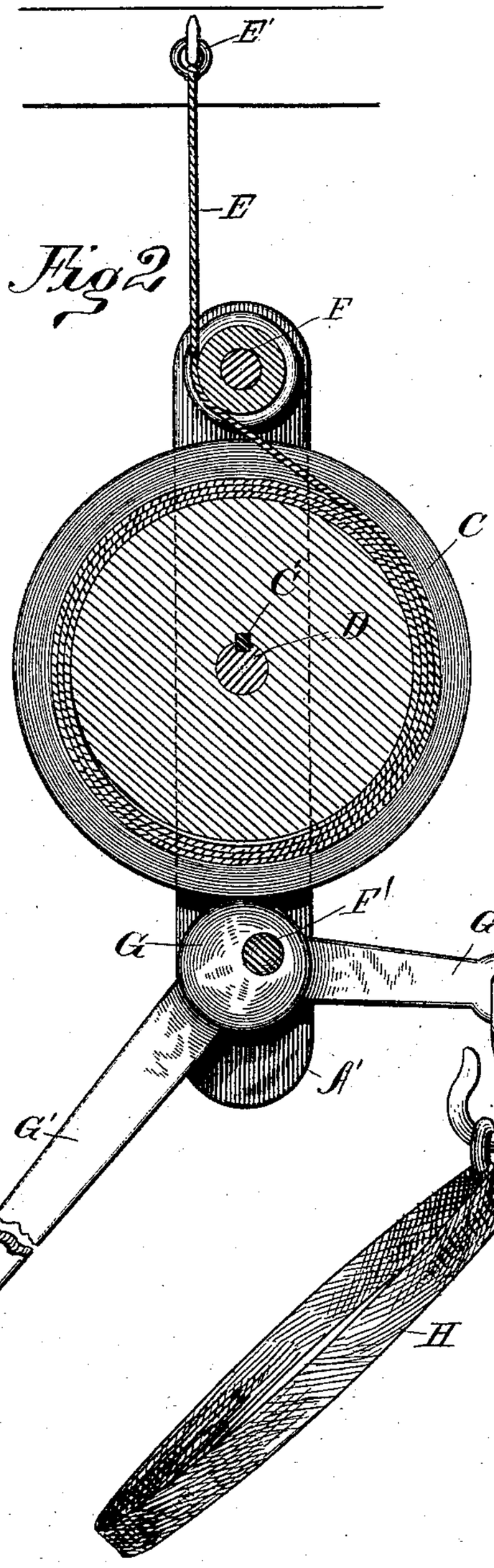
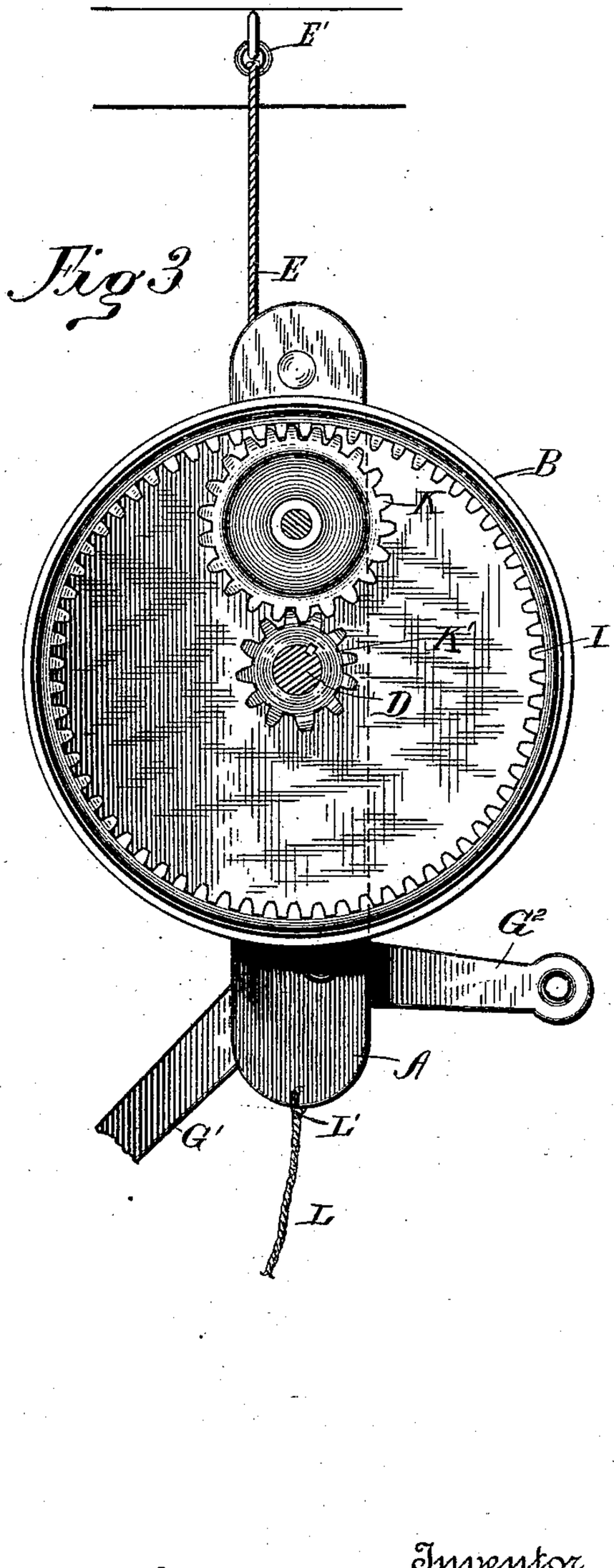


Fig 3



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UNITED STATES PATENT OFFICE.

SAMUEL KAYE, OF YAZOO CITY, MISSISSIPPI.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 489,483, dated January 10, 1893.

Application filed March 31, 1892. Serial No. 427,259. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL KAYE, a citizen of the United States, residing at Yazoo City, in the county of Yazoo and State of Mississippi, 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 letters of reference marked thereon, which form a part of this specification.

My invention relates more particularly to that class of friction fire escapes designed, on the down trip to wind a spring motor or operate a retractile device to be used to bring the escape automatically back to the starting point, where it is used again, and it consists of certain novel features and combinations of parts to be fully described hereinafter and pointed out in the claims.

My aim in designing this device is to produce a more reliable and effective escape, than has heretofore been in use; one that may be used by any one and that does not require great strength and nerve to operate.

Referring to the accompanying drawings for a complete disclosure of my invention: Figure 1 represents a vertical section thereof on the broken line of Fig. 3. Fig. 2 a section on line *y—y*, Fig. 1, and Fig. 3 a vertical section on line *x—x* of Fig. 1.

The reference letters A and A′ represent two metallic plates, the former, A, being secured on one side of the circular box or body B, while the strip A′ is fastened to it through the medium of the several spindles or shafts which are journaled between the two. Journaled between the two strips is a flanged drum C. This drum is fixed to the central shaft D by means of a feather or key C′. Over this drum a wire rope or other suitable cord or cable E is normally wound, one end of which is securely fastened to the drum and on the other end is formed a loop E′ by which the entire device is hung from the building. An idler or friction roller F is journaled in the upper extremity of the strips A and A′ over which the cord E passes. Journaled in the lower extremity of the two metallic sections A and A′ is a third shaft F′ on which an eccentric G is mounted. This eccentric has two arms G′ and G^2, by means of the former its engagement with the flanges on the drum C is regulated as will be more fully described hereinafter. To the arm G^2 is attached a strap H which supports the person using the escape.

The circular body portion B is divided into substantially two compartments B^2 and B^3 by means of the partition B′, which has an opening in its center affording a bearing for the shaft D, extending through the whole device as will be seen by reference to Fig. 3. Located in the compartment B^2 around the shaft D is a sleeve I one end of which extends into the compartment B^3 and has formed on such end integral therewith, the internal gear wheel I′. This sleeve is loosely mounted on its shaft and has secured to it one end of a coil spring J, the other end of which is fastened to the inside of the body at J′. The internal gear I′ meshes with a gear wheel K which in turn meshes with the pinion K′ fixed to shaft D. The gear wheel K is mounted on a shaft journaled in outer side of body B.

A wire rope L by means of ring L′ is fixed to the lower end of the plate A by means of which the escape when descending may be guided out of the way of the fire by some one on the ground.

By reference to the drawings, particularly Fig. 1, the operation of my invention may be traced as follows. Assuming that the escape is hung from a window of a building and that an inmate thereof desires to escape; all that will be necessary for such person to do is to get into the loop in the strap H, whereupon by reason of his weight the escape will begin to descend. The weight of the person escaping pulling on the arm G^2 brings the eccentric G into engagement with the flanges of the drum C, thereby acting as an automatic safety brake which is normally applied but may be released by pulling down the operating levers G′. As the escape descends it follows that the rope E unwinds from the drum and in so doing makes the drum rotate. As it rotates the shaft D follows and through the medium of the gears K′, K and I′ imparts a

rotary motion to the sleeve I to which is fixed one end of the coil spring J. Thus it will readily appear that on the downward trip of the escape the coil spring J is wound up and when the weight of the person escaping is removed the escape by means of such spring is drawn back to the starting point for a second trip. This automatic return is effected when the retraction of the spring J imparts a rotary motion to sleeve I which through the medium of the three gears I', K and K' imparts a like motion to shaft D and drum C. When the drum C rotates the rope E is wound around it and the escape necessarily ascends.

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

1. A fire escape having a body portion, a shaft extending through the same, a sleeve fitting loosely on the shaft and having a gear wheel fixed thereto, a spring connected to the sleeve a train of gears for connecting the spring and the shaft, a drum mounted on the shaft and a rope running over the drum, substantially as described.

2. The combination of a body portion having two compartments a shaft extending through the same, a sleeve located in one compartment fitting loosely on the shaft, an internal gear wheel located in the other compartment and formed integral with the sleeve, a spring for reversely rotating the sleeve and its gear an intermediate gear meshing with the internal gear, a pinion and a drum on the shaft, and a rope working over the drum, substantially as described.

3. In a fire escape, the combination of a circular body, a shaft extending through and beyond the same, a drum mounted on the shaft outside of the body, a sleeve located in the body and fitting loosely on the shaft, a train of gearing connecting the shaft and sleeve, a helical spring located within the body and attached to the sleeve and an eccentric operating with the drum, substantially as and for purpose specified.

4. In a fire escape, the combination of a circular body, a shaft extending through and beyond the same, a drum mounted on the shaft outside of the body, a rope working over the drum, a sleeve located within the body and mounted loosely on the shaft, an internal gear wheel formed integral with the sleeve and meshing with a train of gearing which connects the said sleeve and shaft, and a helical spring having one end attached to the sleeve, all arranged and operating substantially as described.

5. In a fire escape, the combination of a circular body portion, a shaft extending through and beyond the same, a drum mounted thereon outside of the body, a partition formed in the body, a sleeve located on one side of said partition and mounted loosely on the shaft, an internal gear wheel formed integral with the sleeve and extending on the opposite side of the partition, a train of gearing meshing with the said internal gear and connecting the sleeve with the shaft, a helical spring located in the body on the same side of the partition as the sleeve and having one end attached thereto, a cam or eccentric journal contiguous with the drum and having a pair of arms formed integral therewith, and a loop or strap connected to one arm, substantially as described.

6. In a fire escape, the combination of a drum, a supporting rope working over the same, an eccentric journaled adjacent to the drum, a pair of arms formed on the said eccentric, a loop or strap attached to one arm whereby from the weight of the passenger the eccentric is made to engage the drum, the other arm being used to disengage it, substantially as described.

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

SAML. KAYE.

Witnesses:
A. M. DOTY,
GEO. P. BLUNDELL.