

No. 737,106.

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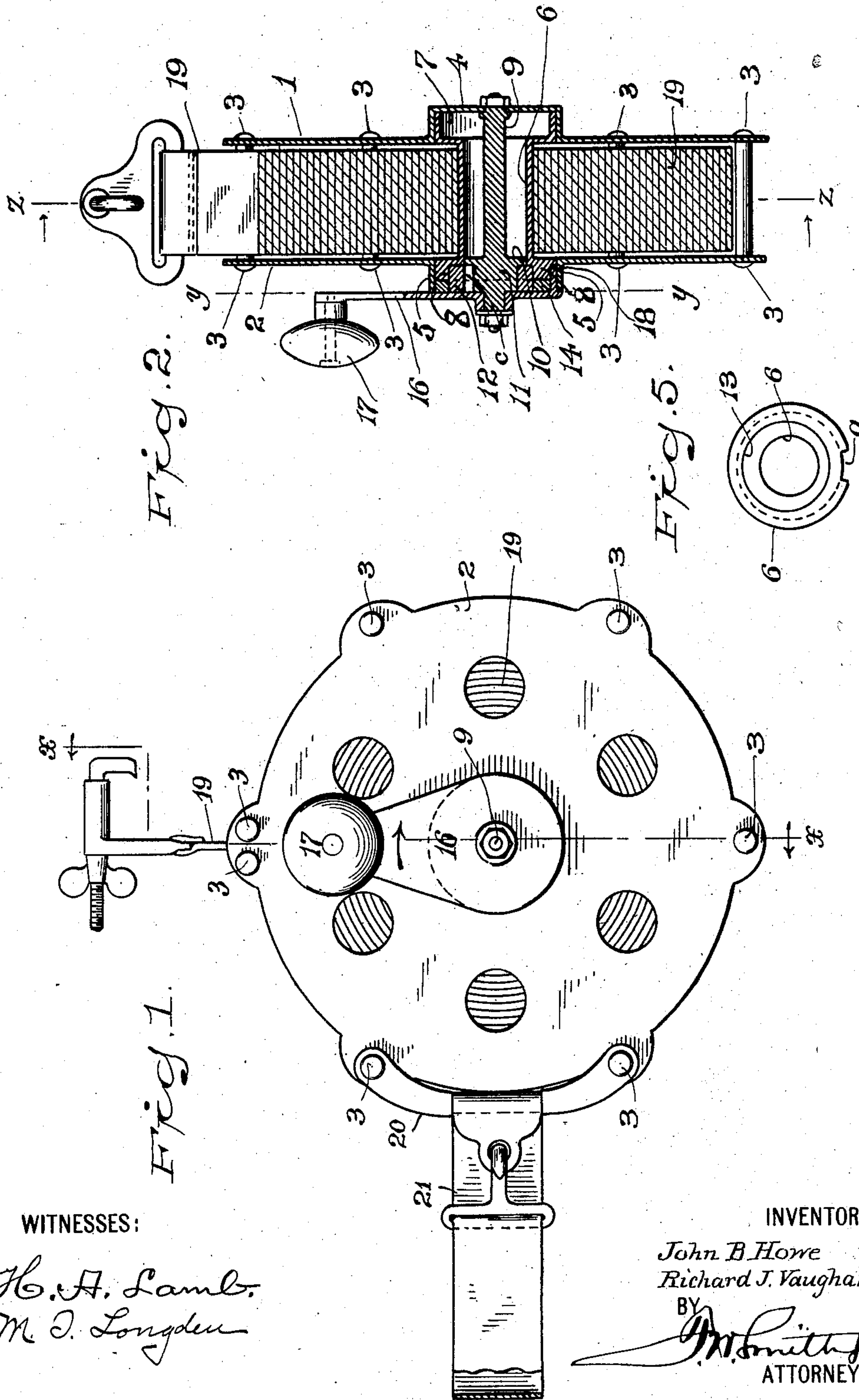
J. B. HOWE & R. J. VAUGHAN.

FIRE ESCAPE.

APPLICATION FILED DEC. 1, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

H. A. Lamb.  
M. J. Longden

INVENTORS

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BY

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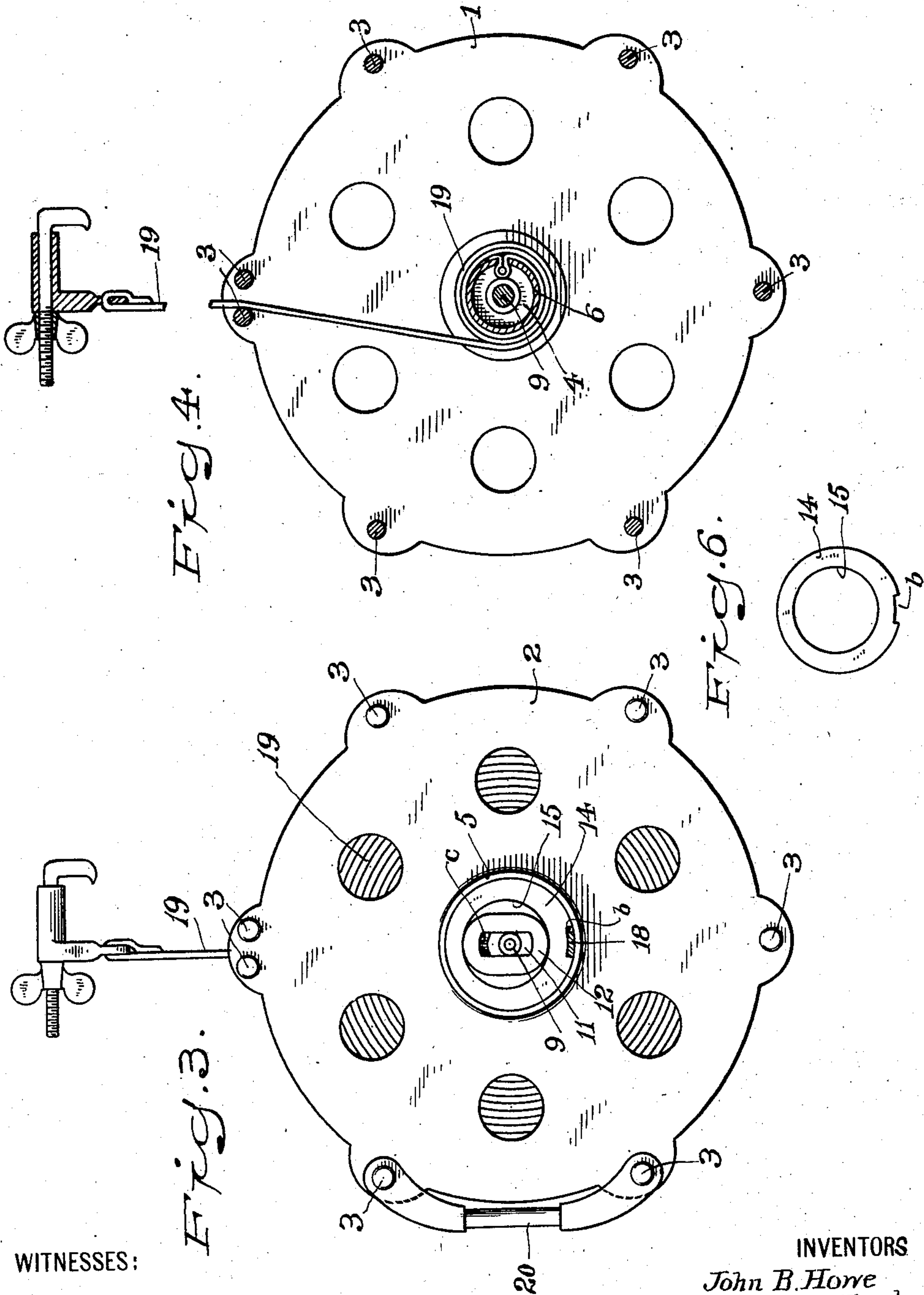
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# UNITED STATES PATENT OFFICE.

JOHN B. HOWE AND RICHARD J. VAUGHAN, OF DANBURY, CONNECTICUT.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 737,106, dated August 25, 1903.

Application filed December 1, 1902. Serial No. 133,399. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN B. HOWE and RICHARD J. VAUGHAN, citizens of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire-Escapes; and we 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.

Our invention relates to fire-escapes, but more particularly has reference to devices of this character which comprise a tape or suitable rope wound upon a drum or reel, the free end of the rope adapted to be secured to a stationary part of a building, while the device itself is carried by the person in peril, who controls the operation of lowering.

The object of our invention is to provide a device of this description which shall be simple in construction, easy of operation, and very efficient in action; and with these ends in view our invention consists in certain details of construction and combination of parts, such as will be hereinafter fully set forth and then specifically be designated by the claims.

In the accompanying drawings, which form a part of this application, Figure 1 is a side elevation of our improvement; Fig. 2, a section at the line *xx* of Fig. 1; Fig. 3, a section at the line *yy* of Fig. 2; Fig. 4, a section at the line *zz* of Fig. 2; Fig. 5, an end view of the rotary drum, and Fig. 6 a detail elevation of the cam-ring.

Similar characters of reference denote like parts in the several figures of the drawings.

1 2 are side pieces, which are secured together at a suitable distance apart by means of ordinary bolts 3, the side piece 1 having formed integral therewith a closed hollow circular hub 4, while the side piece 2 has formed therewith a hub 5, which is open.

6 is a hollow drum terminating at its ends in enlargements 7 8, which are journaled within and supported by the hubs 4 5, respectively, so that said drum will be capable of a free rotary movement. 9 is a shaft which extends freely through this drum, one end of said shaft being immovably secured to the hub 4, while a collar 10 is formed on the shaft at the other end and is supported within the

drum. Adjacent to this collar and outside the same is a block 11, integral with the shaft and having vertical parallel sides, as shown at Fig. 3, and around this block is a link 12, having therein a vertically-disposed elongated opening *c*, the sides of which embrace the sides of the block, while the length of the opening is slightly greater than the length of said block, the arrangement of these parts with respect to each other being such that the link is capable of a free vertical movement upon said block. The end of the drum which is journaled within the hub 5 is provided with a circular opening 13, as shown at Fig. 5, which is eccentric with respect to the axis of the shaft 9, and the length of the link 12 is exactly equal to the diameter of this opening, the upper and lower portions of said link being round, so as to afford no opposition to the rotation of the drum.

14 is a cam-ring which fits closely within the hub 5 immediately outside the end of the drum, said ring having therein a circular opening 15, which coincides and registers with the opening 13 in the end of the drum, and the thickness of the link 12 is such that it projects within this opening 15, so that the parts which contain these openings 13 15 embrace said link at points above and below. The end of the drum itself within its periphery has an elongated notch *a*, while within the periphery of the ring 14 is a similar notch *b*.

16 is a crank, which is swiveled at a point between its extremities to the extreme end of the shaft 9 immediately beyond the hub 5, one end of said crank being provided with any suitable handle 17, while the other end is formed with an inwardly-projecting lip 18, which extends within both of the notches *a b*, the width of said lip being slightly less than the width of these notches, for the purpose presently to be explained.

From the foregoing description it will be clear that when the crank is turned around the drum will be rotated, owing to the engagement of this lip 18 with the notches *a b*, and it will also be clear that the side pieces 1 2, with their respective hubs 4 5, constitute a sort of casing for inclosing the parts of our improvement.

Wound around the drum inside the pieces 1 2 is any suitable webbing or tape 19, the



inner end of which is firmly secured to the drum itself, while the upper extremity of this tape is provided with any suitable hook or device for attaching to a stationary object in a building. We do not consider that it is necessary to describe this hook device which we have shown, since any suitable contrivance will answer for this purpose, and, in fact, the tape might be tied in a knot to any stationary object.

At one side of the casing we have shown a bracket 20, to which is attached any suitable belt 21 to be passed around the person of the wearer; but we do not wish to be limited in this respect, since it will be clear that the casing itself may be tightly grasped by one arm, while the other arm is free to work the crank.

The operation of our improvement is as follows: The upper or free end of the tape 19 having been firmly secured to any stationary object in a building, the operator secures the casing to his person and turns the crank 16 in the direction indicated by the arrow at Fig. 1, thus causing the tape to unwind, and thereby lowering himself. Since the crank is connected with the notches in the drum and the cam-ring, it will be clear that when said crank is turned the drum and cam-ring will be revolved in harmony, thereby causing the block 11 to be reciprocated in a vertical plane owing to the eccentricity of the openings 13 15 with respect to the axis of the shaft 9. It will be readily understood that there will always be a strain upon the tape, which will have a tendency to rotate the drum, so as to unwind said tape, and therefore should the operator cease to revolve the crank or release his hold of the latter the drum will not revolve and the operator will remain suspended, since the wall of the opening 13 will bind firmly against the ends of the block 11. The continued revolution of the crank will release this binding and will cause the simultaneous revolution of the drum and cam-ring and the consequent continued unwinding of the tape.

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

1. In a fire-escape the combination with a suitable casing of a drum rotating therein and tape carried by said drum, means for turning the drum engaging the hub of the drum, a member for turning with the drum when the drum is unwound, a locking or binding member coöperating with the said parts for preventing the rotation of the drum when the drum-actuating means is not actuated, substantially as described.

2. In a fire-escape, the combination of a suitable casing, a stationary shaft secured within the sides of said casing and provided near one end with an integral block having vertical parallel sides, the rotatory drum journaled within said casing and around said

shaft and provided at one end with a circular opening eccentric with respect to the axis of said shaft and provided in its periphery with an elongated notch, the rotatory cam-ring journaled within said casing immediately beyond said drum and also provided with a circular opening eccentric with respect to the axis of said shaft and coinciding with the eccentric opening in said drum and provided with an elongated notch in its periphery which corresponds and registers with the notch in the drum, the link having a vertically-disposed elongated opening the sides of which embrace the vertical sides of said block, the length of said opening being slightly greater than the length of the block while the ends of said link are slightly rounded and bear against the walls of both of said circular openings, the crank swiveled to one end of the shaft and provided with a loop which extends within the notches and is of a width less than the length of said notches, and a suitable tape wound around the drum within the casing, the inner end of said tape being secured to the drum while the outer or free end is capable of being secured to any stationary part of the building, substantially as set forth.

3. A fire-escape mechanism comprising a casing, a drum mounted therein, a tape wound upon the drum, and an operating handle or crank connected with the hub of the drum, a binding-link engaging the hub of the said drum and an auxiliary binding-link interposed between the same and the handle or crank, the said auxiliary link being engaged by the crank when it is actuated so as to prevent any binding action between the parts but permitting of such binding action when the crank is not actuated, substantially as described.

4. A fire-escape mechanism comprising a casing, a drum mounted therein and carrying a suitable tape, one end of the hub being provided with an annular groove, a cam-ring applied to the end of the hub, a cam-link mounted within said ring engaging the annular recess of the hub, a handle engaging the said hub and the said cam-ring for turning them simultaneously, the said ring, however, being permitted to lag when the handle is not operated and causing a binding action upon the cam-link when pressure is put upon the tape of the drum to prevent the drum from being unwound, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN B. HOWE.  
RICHARD J. VAUGHAN.

Witnesses:

GEORGE WAKEMAN,  
L. LEGRAND HOPKINS.