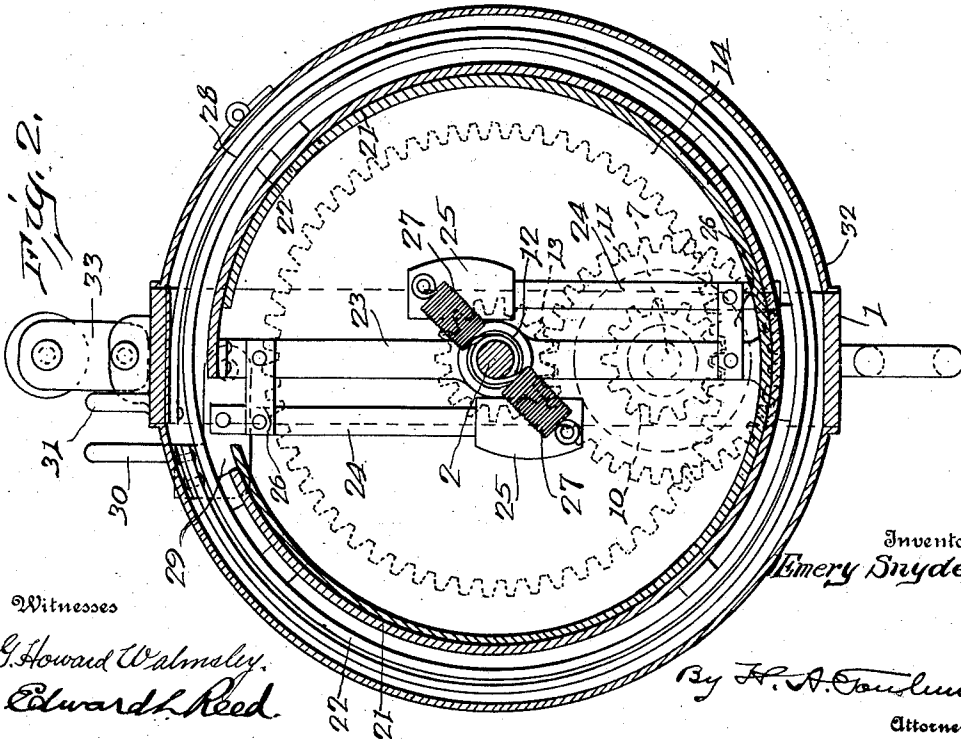
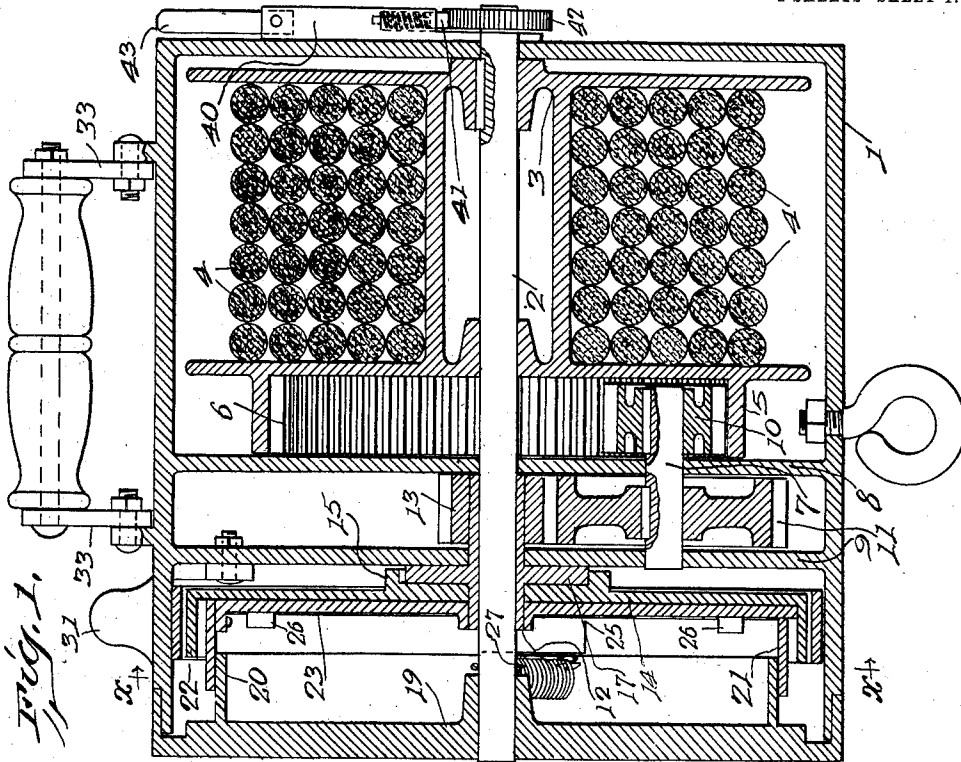


2 SHEETS—SHEET 1.



Witnesses

G. Howard Walmsey.
Edward L. Reed.

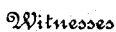
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APPLICATION FILED APR. 12, 1909.

Patented Feb. 6, 1912.

2 SHEETS—SHEET 2.



By A. A. Goulmond

Attorney

UNITED STATES PATENT OFFICE.

EMERY SNYDER, OF SPRINGFIELD, OHIO.

FIRE-ESCAPE.

1,016,299.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed April 12, 1909. Serial No. 489,299.

To all whom it may concern:

Be it known that I, EMERY SNYDER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to fire-escapes, and the object of the invention is to provide a portable fire escape, of the type comprising a drum having a cable wound thereon, with improved means for automatically controlling the unwinding of the cable from the drum; to provide an auxiliary, hand-controlled mechanism for further regulating the speed at which the cable may be unwound from the drum; to provide means for rewinding the cable on the drum; to provide means for disconnecting the controlling mechanism from the drum while the cable is being rewound thereon; to so construct and arrange the several parts of the device that they may be readily inclosed within a casing which can be easily transported from one point to another; and to provide said casing with an outlet for the cable, which outlet will be provided with a guide, which, in its inoperative position, will lie entirely within the casing and will be automatically moved into its operative position by the movement of the cable; and further, to provide such a fire-escape which may be secured to a fixed part of a building and the person descending secured to the free end of the cable, or in which the free end of the cable may be secured to a fixed part of the building and the person descending secured to the device itself.

With these objects in view my invention consists in certain novel features and in certain combinations and arrangements of parts hereinafter to be described, and then more particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a longitudinal section, taken vertically through the center of a fire-escape embodying my invention; Fig. 2 is a transverse sectional view, taken on the line *xx* of Fig. 1; Fig. 3 is an end elevation of the device embodying my invention; Fig. 4 is a detail view of the hinged closure for the cable passage in the casing; Fig. 5 is a detail view of the rope guide; and Fig. 6 is a detail

view of the clutch for connecting the controlling mechanism to the drum.

In these drawings I have illustrated one embodiment of my invention and have shown the same as comprising a main frame 1 having journaled therein a horizontal shaft 2. Rigidly secured to this shaft is a drum 3 upon which is wound a cable 4. The inner end of the drum is provided with a flange 5 having on its inner face gear teeth 6. A short shaft 7 is journaled in upright members 8 and 9 forming a part of the main frame 1 and has one end extending beyond the member 8. Upon this end of the shaft 7 is rigidly secured a pinion 10 which meshes with the teeth 6 of the flange 5. A gear 11 of considerably greater diameter than the pinion 10 is rigidly secured to the shaft 7 between the frame members 8 and 9. A sleeve 12 is journaled on the shaft 2, extends through the frame member 9 and has rigidly secured thereto a pinion 13 which meshes with the gear 11 mounted on the shaft 7. A disk 14 is mounted on the sleeve 12 and is connected thereto in such a manner as to rotate therewith when the sleeve is rotated forwardly. This connection preferably consists of a clutch comprising a flange 15 extending from the rear face of the disk 14 and provided with a series of teeth 16. A disk 17 is rigidly secured to the sleeve 12 and is provided with a spring-pressed pawl 18 which is adapted to engage the teeth 16 when the sleeve is rotated in a forward direction and thus cause the disk 14 to rotate in unison with the sleeve when the same is moved forwardly, but permitting the disk 14 to remain stationary when the sleeve is moved rearwardly.

Rigidly secured to the main frame 1 is a second disk or plate 19 provided with an inwardly extending flange 20 arranged some distance from the outer edge thereof and terminating a short distance from the disk 14 carried by the sleeve 12. A brake band 21 extends about the flange 20 of the fixed disk 19 and has one end rigidly secured to the movable disk 14, preferably by riveting the same to a flange 22 carried by said movable disk. The opposite end of the brake band 21 is secured to one end of a lever 23 which extends transversely to the disk 14 and is pivotally mounted near the center of the disk, preferably by mounting the same upon the sleeve 12. An arm 24

is pivotally mounted on the disk 14 near each end of the lever 23 and extends inwardly for some distance beyond the center of the disk. These arms are arranged on opposite sides of the lever 23, are provided at their inner ends with weights 25, and are connected, at points removed from their pivotal centers, to the adjacent ends of the lever 23, preferably by means of links 26. Springs 27 connect the inner ends of the arms 24 to a fixed point, such as the shaft 2, and tend to resist the outward movement of the weights 25 and to retain the same normally in their innermost positions. It will be apparent therefore that, when the cable 4 is unwound from the drum 3, the drum will be rotated, thereby imparting movement, through the train of gearing above described, to the sleeve 12, and, when this movement is in a forward direction, to the disk 14. The ratio of the gears comprising the train of gearing is such as to greatly accelerate the speed of the movable disk 14, thereby causing the same to rotate at a high rate of speed and tending to throw the weighted arms 24 outwardly against the tension of the springs 27. This movement of the arms 24 moves the lever 23 about its pivotal center in such a direction as to tighten the brake band 21 about the flange 20, thus offering a resistance to the rotation of the disk 14, and, consequently, to the unwinding of the cable from the drum 3. In order to further regulate the speed at which the cable may be unwound from the drum and to enable the rotation of the drum to be stopped at any desired point I have provided an auxiliary controlling device which may be operated by the person using the fire escape at any time during the descent. This auxiliary controlling device preferably consists of a second brake band 28 which encircles the flange 22 on the movable disk 14. One end of the brake band 28 is rigidly secured to the main frame 1, preferably to the upper portion of that frame, and the opposite end is secured to an arm 29 which is pivotally mounted on the main frame and is provided at its outer end with a thumb piece 30. A second thumb piece 31 is mounted on the main frame near the thumb piece 30, and, by gripping these two thumb pieces with the hand and moving the movable thumb piece toward the fixed thumb piece, the brake band 28 will be tightened about the flange 22 and a frictional resistance offered to the movement of the disk 14, and, consequently, to the movement of the drum 3. The amount of resistance thus offered may be regulated at will and may be sufficient to entirely stop the rotation of the drum or it may be such as to only slightly reduce the speed over the reduction made by the automatic controlling mechanism.

The entire mechanism is preferably inclosed in a casing 32 which may be of sheet metal or any other suitable material and is secured to the edges of the main frame 1. A handle 33 is secured to the upper portion of the main frame to enable the device to be readily handled and to be carried from one point to another. The casing 32 is provided in that portion located above the drum with an opening forming a passage for the cable 4, which opening is normally closed by a closure 34 which is hinged to the main casing and is provided with a spring 35 to retain the same normally in its closed position. One corner of the closure 34 is cut away, as shown at 36, to permit the cable 4 to extend through the same when the closure is in its closed position. Mounted within the casing is a suitable rope guide which preferably consists of arms 37 pivotally mounted on lugs 38 which are rigidly secured to the main frame 1. These arms 37 have the lower corners of their inner ends rounded to permit the same to move downwardly about their pivotal centers, and have their upper corners square to form stops to limit the upward movement of the arms. These arms form a support for a guide roller 39 which is journaled in the outer ends thereof and is so arranged that when the device is in use and the cable is lax the arms 37 carrying the roller 39 will move downwardly about their pivotal center and the roller 39 will lie entirely within the casing, allowing the closure 34 to assume its closed position. As soon, however, as a pull is exerted on the cable 4 the roller 39 will be moved outwardly into its operative position and the closure 34 moved outwardly against the tension of the spring 35 a distance sufficient to accommodate the roller 39.

It will be obvious that the fire escape herein described may be used either by fastening the free end of the cable to a fixed part of the building and permitting the device itself to descend with the person using the same, or the device itself may be secured to a fixed part of the building, or, indeed, it may be built within the walls of the building and made a permanent part thereof. When the device itself is secured to a fixed part of the building the person using the same descends at the end of the cable and it is possible for the cable to be rewound and for the device to be used any number of times. In order that the cable may be readily rewound upon the drum I have provided an arm or plate 40 which is loosely mounted on the shaft 2 and is provided with a spring-pressed pawl 41 adapted to engage the teeth of a ratchet 42 which is rigidly secured to the shaft 2. The arm or plate 40 has pivotally secured to the outer end thereof a handle 43 which may be turned outward at right angles to the arm

40 to enable the same to be rotated, or may be folded against the end of the frame when not in use. It will be apparent that by the interposition of the clutch mechanism between the movable disk 14 and the sleeve 12 the rewinding of the drum may be accomplished without rotating the disk 14, and, consequently, the controlling mechanism will not operate and the drum may be rewound at as great a speed as desired.

The operation of the device will be readily understood from the foregoing description and it will be apparent that I have combined with the drum and cable an automatic controlling mechanism which is of a simple construction and is of such a character as to be efficient in its operation; that I have provided means for releasing the controlling mechanism from the drum when the same is to be rewound; that I have provided means for rewinding the drum from the outside of the casing; that I have provided an auxiliary hand-operated controlling mechanism by means of which the speed at which the cable is unwound from the drum may be further regulated or that the drum may be stopped at will; and also that I have so arranged the rope guide and the closure for the rope passage in the casing that this closure will be normally in its closed position; and that the device as a whole is of a very compact arrangement and can be readily transported from one point to another.

While I have shown and described one construction of fire escape embodying my invention it will be readily apparent that many features of the invention could be applied in other ways than that in which they are here applied. For instance, the disks forming parts of the automatic controlling mechanism need not be circular, as here shown, but may have the flanges and brake

band supported therefrom in any suitable manner and I, therefore, wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

In a fire escape, a main frame comprising end members, a shaft journaled in said end members, a drum rigidly secured to said shaft, a line secured at one end to said drum and wrapped about the same, an annular flange rigidly secured to one of said members and extending inwardly therefrom, a sleeve loosely mounted on said shaft, a geared connection between said sleeve and said drum, a disk mounted on said sleeve, a clutch connecting said disk with said sleeve to cause said disk to rotate in unison with said drum in one direction, a lever loosely supported on said shaft and extending on the opposite sides thereof, a brake-band extending about said flange and rigidly secured at one end to said disk and secured at its other end to one end of said lever, arms pivotally mounted at their outer ends on said disk at points removed from the center thereof, extending substantially parallel to said lever on opposite sides thereof and terminating near said shaft, weights secured to the inner ends of the respective arms, and links connecting said arms at points between their ends with the adjacent portions of said lever.

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

EMERY SNYDER.

Witnesses:

ELIZA F. MCKEE,
EDWARD S. REED.