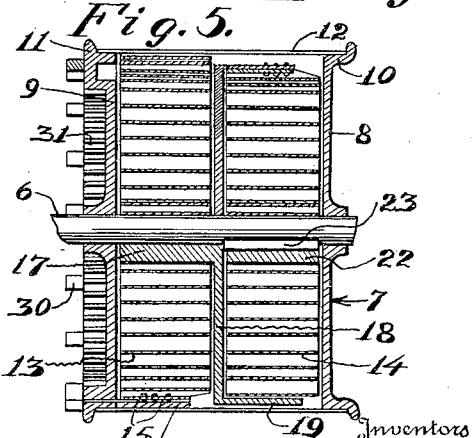
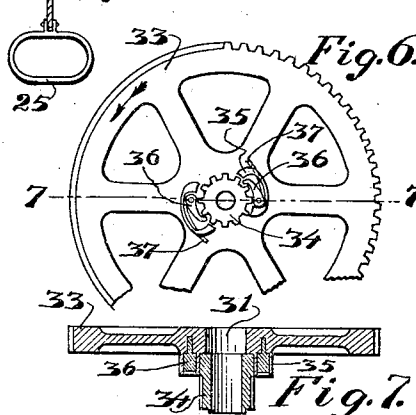
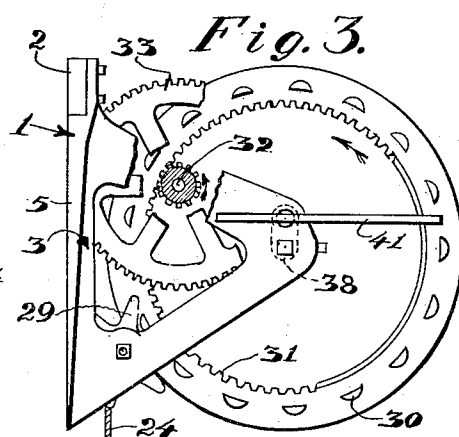
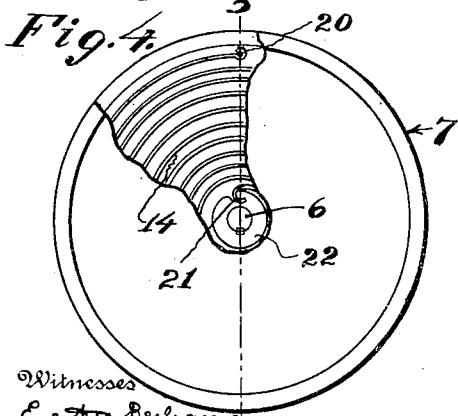
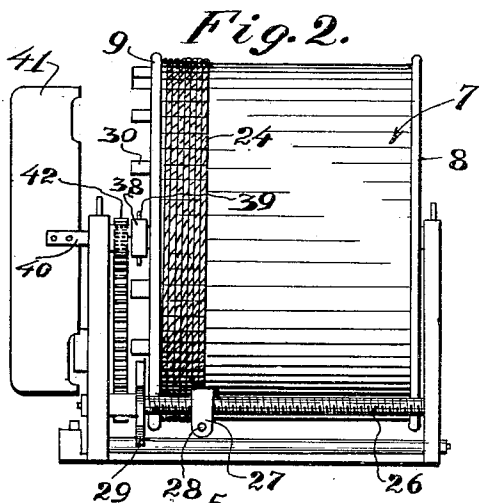
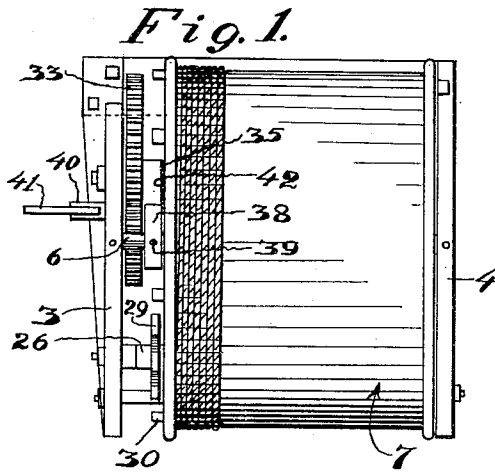


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 AUTOMATIC FIRE ESCAPE.
 APPLICATION FILED JUNE 17, 1914.

1,189,381.

Patented July 4, 1916.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC FIRE-ESCAPE.

1,189,381.

Specification of Letters Patent.

Patented July 4, 1916.

Application filed June 17, 1914. Serial No. 845,736.

To all whom it may concern:

Be it known that we, WILLIAM E. PAYNE and WALFRID S. EKLUND, citizens of the United States, residing at Donner, in the parish of Terrebonne and State of Louisiana, have invented certain new and useful Improvements in Automatic Fire-Escapes; and we do hereby declare the following to be a full, clear, and exact description of an improvement to be applied to our invention of an automatic fire-escape, the patent of which is now pending.

The improvement is such that will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in fire escapes of the portable type and resides in the provision of a device of this character which may be quickly and easily secured in position for operation and may be operated to provide for the safe descent of a person from a burning building.

Another object of this invention is to provide a fire escape of the character described which comprises a drum and a lowering cable, said drum being arranged to unwind against the action of springs mounted within the drum and arranged so as to automatically rewind the cable when the weight is released therefrom.

Another object of our invention is to generally improve and simplify the construction and operation of fire escapes of the character described so as to render them more practical, reliable and efficient in operation and inexpensive to manufacture.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claim.

With reference to the drawings, wherein we have illustrated the preferred embodiment of our invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts, Figure 1 is a front elevation of our improved fire escape, Fig. 2 is a bottom plan view of the device. Fig. 3 is a side elevation being broken away in part, Fig. 4 is a fragmentary detail front

elevation of the drum showing it broken away, Fig. 5 is a vertical sectional view taken on line 5—5 of Fig. 4, Fig. 6 is a fragmentary front elevation of one of the gear wheels of the device, and Fig. 7 is a horizontal sectional view taken on line 7—7 of Fig. 6.

Referring to the drawings by characters of reference, 1 designates generally a frame which comprises a horizontal bar 2 to the ends of which are secured bearings 3 and 4. The bearings 3 and 4 are substantially triangular and carry upon their rear vertical edges wall engaging flanges 5 that are disposed at right angles to the bearings 3 and 4 and arranged to abut the wall or surface upon which the device is attached.

Rotatably mounted upon a fixed shaft 6 that is secured between and to the bearings 3 and 4 is a cylindrical drum 7. This drum 7 is hollow and consists of circular head plates 8 and 9 which are of greater diameter than the body of the drum and provide for the flanges of the drum. The plates 8 and 9 are provided adjacent to their peripheries with annular flanges 10 and 11 which extend inwardly and engage the inner face of a band 12 forming the body of the drum. The band 12 is secured to and rests upon the flanges 10 and 11 in spaced relation to the peripheries of the plates 8 and 9 as shown clearly in Fig. 5.

Mounted within the hollow drum 7 are coil springs 13 and 14 which are arranged to retard the drum in the unwinding thereof and to automatically rewind the cable, to be later described, upon the drum. The outer end of the spring 13 is secured by suitable fastening elements 15 to a lateral projection 16 carried by the plate 9. The projection 16 is carried by the flange 11. Loosely mounted upon the shaft 6 is a collar or sleeve 17 which carries the circular disk 18 of a spring connecting member. The disk 18 is of less diameter than that of the drum and is interposed between the springs 13 and 14. An annular right angularly extending peripheral flange 19 is carried by the disk 18 and is arranged so as to partly house the spring 14. The inner end of the spring 13 is fixed to the collar 17 in any

suitable manner. The outer end of the spring 14 is fixed by suitable fastening elements 20 to the flange 19, while the inner end of said spring 14 is fixed as shown at 21 to a sleeve 22 which is held rigid with the shaft 6 by means of a key 23.

Fixed to the drum 7 in any suitable manner and arranged to be wound thereon is a lowering cable 24 which carries a ring 25 at its free end. This ring 25 provides means for a person to obtain a hold upon the cable.

Rotatably journaled between the bearings 3 and 4 adjacent to the lower ends of the bearings is a screw shaft 26 upon which is adjustably mounted a guide 27 which is formed with a rope or cable receiving aperture 28. The cable 24 is inserted through the aperture 28 and upon rotation of the screw 26 the guide 27 moves from one end of the shaft to the other and in so doing directs the cable evenly upon the drum. A star wheel 29 is fixed to the shaft 26 and is operated by a plurality of spaced lugs 30 carried on the outer face of the head plate 9 at a point adjacent to the periphery of said plate.

The plate 9 is provided in its outer face with an annular recess or concavity about the edges of which are formed gear teeth 31. Mounted on a stub shaft 32 which is carried by the bearing 3 is a cog gear 33. Loosely mounted upon the shaft 32 is a pinion 34 which meshes with the gear teeth 31 formed on the head plate 9. Carried on the hub of the gear 33 and on opposite sides of the shaft 32 are housings 35 in which are mounted pawls 36. Springs 37 hold the pawls in operative position and in engagement with the teeth on the pinion 34, said pinion being disposed between the housings 35 as shown clearly in Fig. 7 in the drawings. The pinion 34 is relatively long to provide for its cooperation with the pawls and its meshing with the gear teeth 31. The pawls 36 are so arranged as to lock with the teeth on the pinion 34 when the latter rotates upon winding of the cable 24. A bearing arm 38 is secured by means of a pin 39 to the shaft 6 and extends outwardly at right angles thereto. Secured to this bearing arm 38 and extending through the bearing is a shaft 40 to the outer end of which is secured a substantially rectangular governing vane 41. Fixed on the shaft 40 is a pinion 42 which meshes with the gear 33. It will be seen that upon the unwinding of the cable the gear 33 is rotated through the medium of the gear 34 and gear teeth 31 on the head 9 thus causing the vane 41 to rotate and retard the movement of the drum.

The operation of the device may be briefly described as follows: Assuming that a person has grasped the ring 25 on the cable 24 and the weight of the person is placed upon the cable, the drum 7 will unwind against

the action of the springs 13 and 14. Since the spring 13 is connected at its inner end to the collar 17 which is loose upon the fixed shaft 6, upon rotation of the drum, the spring 13 will rotate and not affect retarding action relative to the drum. However, the spring 14 in being fixed at its inner end relative to the shaft 6 will wind up and retard the movement of the drum. After the spring 14 is wound up completely, the collar 17 will be held fixed relative to the shaft and the spring 13 will begin to wind. After the weight of the person is released from the cable 24 the springs will rewind automatically and the guide 27 will operate to direct the cable evenly upon the drum.

The vane 41 is caused to rotate and the vane in combination with the springs retards the movement of the drum sufficiently to insure an even and safe descent. When the cable is rewound, the gears 33 and 42 remain idle in view of the arrangement of the pawls 36 relative to the gear 34, thus the governing vane is not operated. The springs 13 and 14 are arranged so that the maximum amount of spring action is provided and to economize space, thus enabling the construction of a fire escape which is comparatively small, light and capable of being readily and easily attached in position for operation.

In practice, we have found that the form of our invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of our device will necessarily vary, we desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of our invention, as claimed.

What is claimed is:—

A fire escape including a frame, a stationary shaft carried by the frame, a hollow drum composed of spaced heads having openings removably receiving the shaft and a connecting substantially cylindrical body portion presenting a continuous outer surface between the said heads for the reception of a cable, a disk located centrally within the drum and dividing the same into two compartments, a sleeve carried by and projecting from one side of the disk, said sleeve being loosely mounted on the shaft to support the disk for rotation with respect to the shaft and drum, a peripheral flange carried by and extending from the opposite side of the disk, a second sleeve keyed to the shaft and located on the opposite side of the disk from the loose rotary sleeve and provided with a projection, said sleeves extending from the disk to the heads of the drum and

spacing the disk from the said heads, a coiled spring mounted in one of the compartments and having its inner end secured to the rotary sleeve and its outer end attached to the drum, and a second coiled spring located in the other compartment and having its inner end secured to the projection of the fixed sleeve and its outer end attached to the said flange.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."