

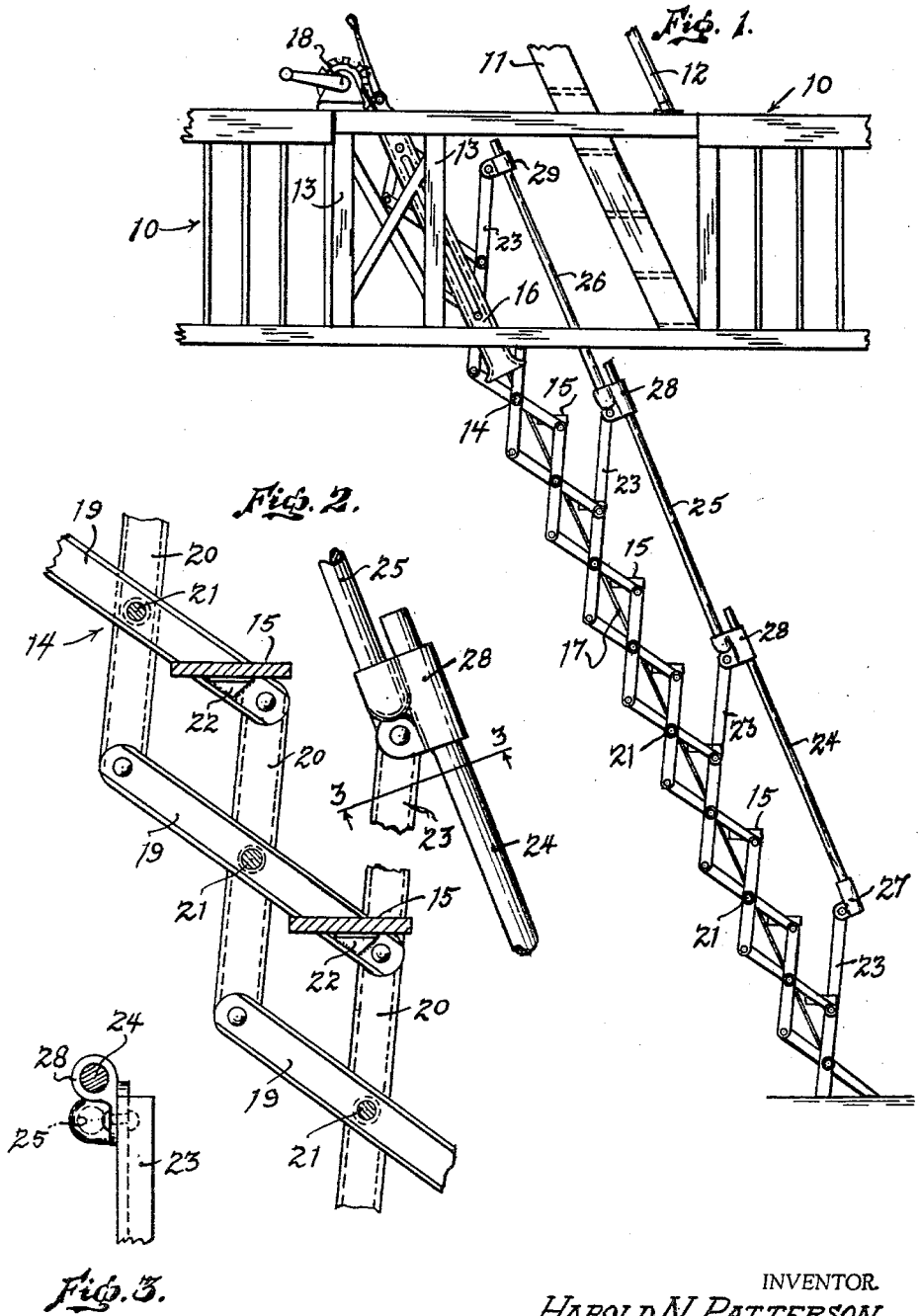
April 27, 1965

H. N. PATTERSON  
FIRE ESCAPE STAIRWAY

3,180,451

Filed Aug. 13, 1963

2 Sheets-Sheet 1



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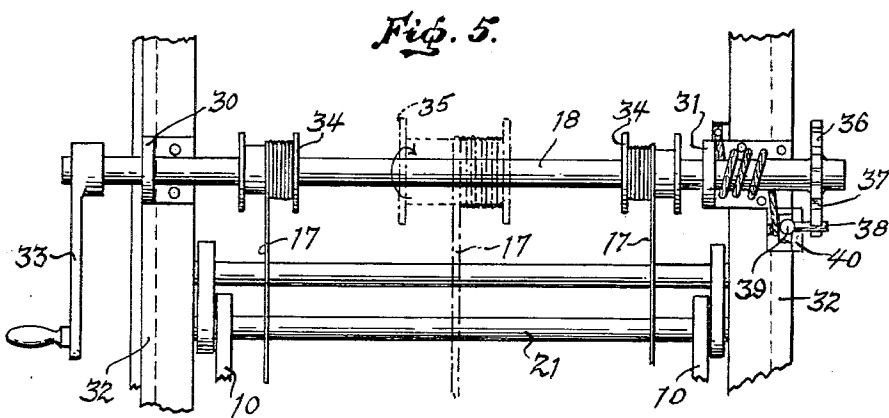
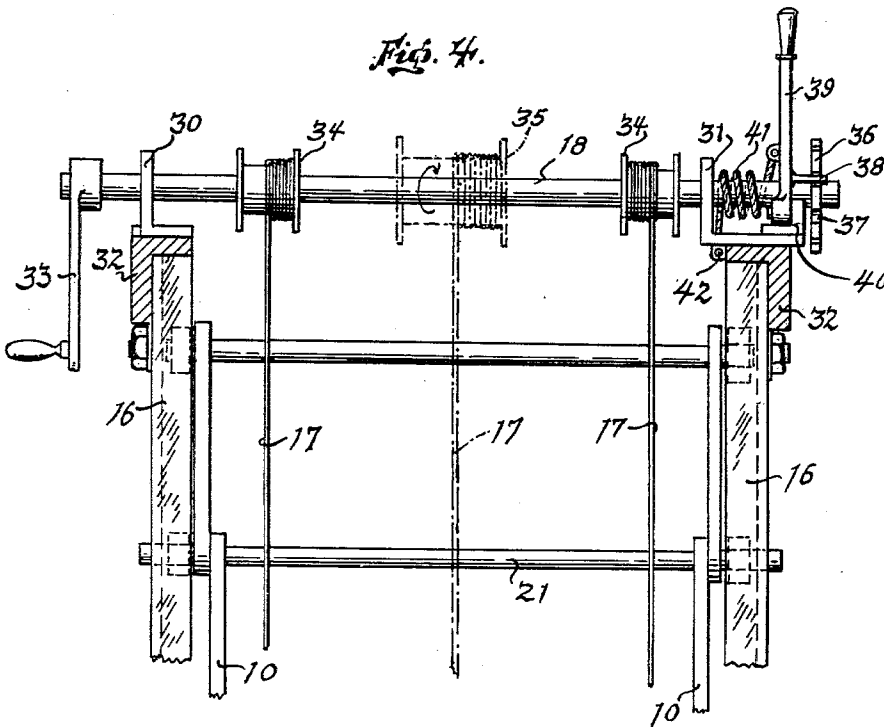
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3,180,451

**FIRE ESCAPE STAIRWAY**

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1 Claim. (Cl. 182-106)

My present invention relates to emergency fire escape ladders and the like and more particularly to a retractable ground approach ladder with stairway's steps for ground level approach.

Among the objects of the invention is to provide an emergency stairway having level treads that may be retracted and secured as a compact unit upon a fire escape balcony and automatically extended into an inclined fully operative position when released.

Another object is to provide a collapsible stairway with bannisters for use with installed fire escapes that may be extended to provide a ground approach and retracted in a novel manner to preclude unauthorized intrusion from ground level.

A further object of the invention is to provide an extendable emergency stairway in which, as distinguished from the ladder arrangement shown in my prior Patent No. 2,279,594, dated April 14, 1942, entitled Fire Escape, I have provided a lazytong assembly with run-like tie rods and stairway treads that insure greater rigidity when extended and a uniform and non-binding collapse of the ladder when not in use.

Another object of the invention is to provide a novel bannister arrangement for a lazytong type of stairway such as is proposed in my co-pending application Serial No. 236,030, filed March 5, 1963, and entitled Fire Escape Stairway.

A further object of the invention is to also provide a stairway latching means for holding the stairway in a collapsed condition in combination with a novel snubbing device that will be automatically brought into operation when the latching means is operated into its stairway releasing position.

In many communities, when not required by local ordinances it has been customary to rely upon the fire department to provide ladders for escape to the ground level from the lower balcony of a fire escape for the tenants of a burning building. This elemental procedure has the disadvantages that the fire department is often delayed in arriving and this leaves the tenants marooned on the balcony and also hinders the firemen in their primary fire fighting duties at a critical time. In addition to the delay thus incurred it is often difficult for women and children to descend a rung-type ladder and it is therefore a primary object of the present invention to provide a fire escape stairway with conventional steps and a bannister arrangement with a novel latch and release control means.

Other objects and advantages will be in part evident to those skilled in the art and in part pointed out hereinafter in connection with the accompanying drawing, wherein there is shown by way of illustration and not of limitation a preferred embodiment of the invention.

In the drawing, wherein like numerals refer to like parts throughout the several views:

FIGURE 1 is a side view of a stairway embodying my present invention,

FIGURE 2 is a fragmentary sectional view showing a portion of the stairway with bannister in its extended condition,

FIGURE 3 is a fragmentary view showing a detail and taken along line 3-3 of FIGURE 2 looking in direction of arrows,

FIGURE 4 is an enlarged fragmentary front view showing the cable release control means, and

FIGURE 5 is a view looking down on FIGURE 4.

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In FIGURE 1 of the accompanying drawings the numeral 10 designates generally the lower balcony of an installed fire escape having the usual approach ladder 11 with a bannister 12 for descent to the balcony. Mounted upon the balcony 10 by means of a supporting frame 13 there is a pair of extendable lazytong assemblies 14 having treadways or steps 15 that are supported between the two spaced lazytong assemblies 14. As here shown, the supporting frame 13 also includes inclined guideways 16 between which extending ends of the lazytong assemblies are retained when fully retracted. For retracting the lazytong assemblies 14 I employ one or two cables 17 that are secured at their lower ends to the lowermost of the lazytong forming links and at their upper ends to a cable recoiling drum (not here shown) that is mounted upon a crank operated shaft 18. The lazytong assemblies 14 consist of a series of crossed links 19 and 20 that are connected, as is more clearly shown in FIGURES 2 and 3 of the drawings, by horizontally extending tie rods 21, and at the outer ends of the links 19 I have provided brackets 22 by which the treadways 15 are secured at their points of connection with the links 20. As distinguished from a conventional lazytong assembly, I have shown a number of the links 20 as having upward bannister supporting extensions 23 upon which bannister forming elements 24, 25 and 26 are mounted. In these latter figures of the drawings, the upward extensions 23 are shown as carrying clevis like bannister supporting members 27, 28 and 29, between which the bannister forming members 24, 25 and 26 extend. In this instance the bannister supporting member 27 at the lower end of the stairway serves as a pivotal mounting for the bannister forming member 24 and the two bannister supporting members 28, operating together, serve as guides and supports for the bannister members 24, 25 and 26, and at its upper end the bannister forming member 26 is slidably mounted in a clevis 29 carried by the uppermost of the lazytong extensions 23.

With the above described arrangement, it will be seen that as the lazy tong assemblies 14 are retracted by a coiling of cable or cables 17 upon the drum or drums carried by the crank operated shaft 18, the bannister forming elements 24, 25 and 26 will be carried upwardly into overlapping nested relation within the limits of the inclined guideways 16, and while I have shown only three bannister forming elements 24, 25 and 26, it will be understood that a larger number of these elements might be employed by spacing the bannister supporting extensions 23 more closely together, as for example upon every alternate pair of the crossed links 19 and 20, rather than as shown wherein the extensions 23 are provided upon every fourth pair of crossed links.

As shown in FIGURES 4 and 5 of the drawings, the shaft 18 is mounted upon bearing brackets 30 and 31 carried by top rails 32 of the balcony 10. At its outer end the shaft 18 is provided with a hand crank 33 by which it is turned as in retracting the lazytong stairway by winding the cable or cables 17 upon recoiling drums 34 or 35. The drum 35, being an alternate arrangement, is herein indicated by dot and dash lines. In the event that the single cable 17 is used it will be connected to the center of the tie bar 21 at the lower end of the lazytong assembly and where two of the cables 17 are employed as here illustrated in full lines these cables will be connected to the lowermost tie bar 21 at points near the ends thereof. As a means for holding the lazytong stairway in its retracting position, as when the cables 17 are fully wound upon the drums 34, the shaft 18 carries a latching disc 36 that has peripheral notches 37 into which a disc engaging pin 38 carried by a latching lever 39 engages. As here shown, the latching lever 39 is pivotally mounted to one side of the shaft 18 upon a bearing bracket 40 and is so disposed that when the lever 39 is in a sub-

stantially vertical position the latching disc 36 will be engaged by the pin 38 carried thereby. With this arrangement it will be seen that as the latching lever 39 is moved toward the viewer the pin 38 carried thereby will become disengaged from the latching disc 36. This will release the shaft 18 and unless a restraining force is applied to the shaft 18 the lazytong stairway, due to its weight, will drop by gravity and out of control. Therefore, in order to provide against this possibility and avoid damage to the stairway, the latching lever 39 is shown as also connected with a length of cable 41 that is wrapped several turns around the shaft 18 and secured at its outer end to the top rail 32 of the balcony 10 as at the point 42. As shown, the cable 41 is wrapped around the shaft 18 in such a manner that by further movement of the latching lever 39 in a shaft releasing direction the cable 41 will become tightened about the shaft 18. This tightening of the cable 41 about the shaft 18 will apply snubbing or braking force on the shaft 18 substantially simultaneously with the release of the latching disc and thus prevent a damaging or a dangerous descent of the stairway. In this operation it will be understood that the amount of snubbing or braking thus produced by the cable 41 may be controlled by the operator through the latching lever 39 and the descent of the stairway can thus be regulated to any speed desired.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated a specific form and arrangement, I desire to have it understood that this invention is not limited to the specific form disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the

scope of the appended claim are to be considered as part of this invention.

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

A collapsible ground escape stairway comprising two spaced lazytong assemblies having step-forming treadways therebetween, each of said assemblies including a plurality of link members connected by joint means, selected ones of said plurality of link members having extensions projecting beyond the majority of said link members, supporting clevises pivotally carried by said extensions, each supporting clevis having a closed socket and an integral sleeve, a plurality of bannister forming members extending along each side of said treadways, each of said bannister forming members of each of said assemblies being positively secured at one end in the socket of an associated one of said clevises and slidably received at an opposite end in the sleeve of an adjacent one of said clevises, whereby said bannister forming members are brought into overlying nested relationship when the stairway is collapsed.

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