A. W. BUTTERFIELD.

SPIRAL GUIDE FIRE ESCAPE.

APPLICATION FILED SEPT. 30, 1920.

1,382,341. Patented June 21, 1921.

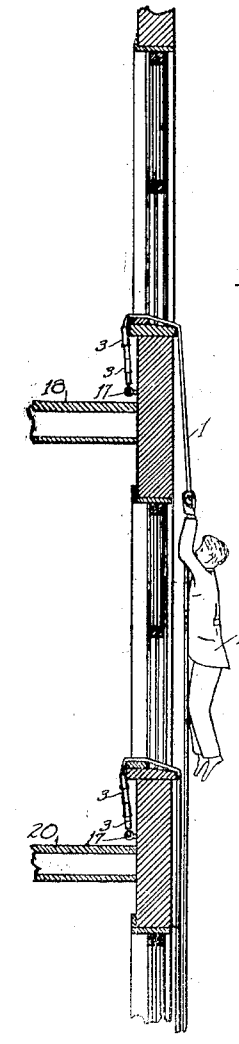


FIG. 5.

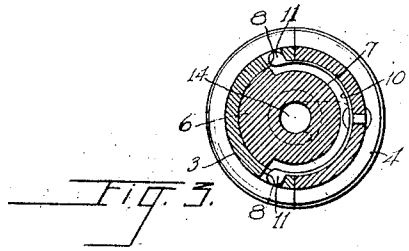


FIG. 3.

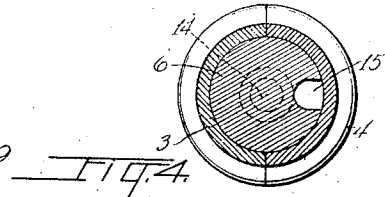


FIG. 4.

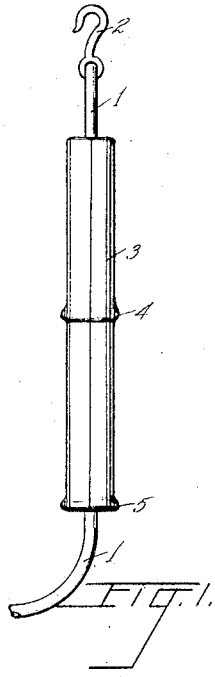


FIG. 1.

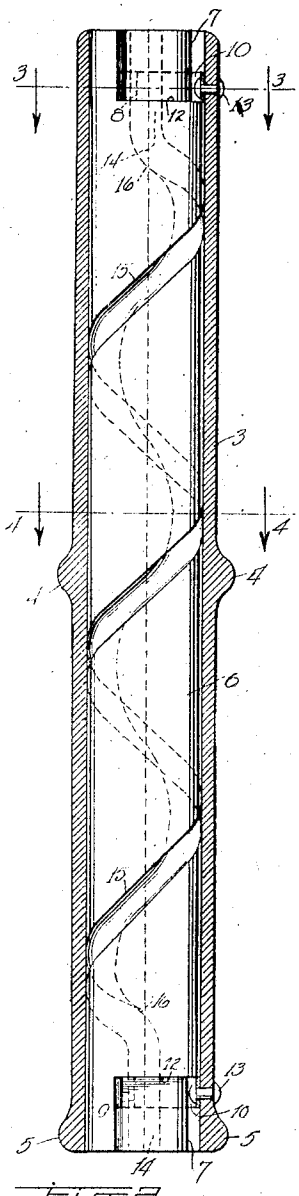


FIG. 2.

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SPIRAL-GUIDE FIRE-ESCAPE.

1,382,341. Specification of Letters Patent. Patented June 21, 1921.

Application filed September 30, 1920. Serial No. 413,826.

To all whom it may concern:

Be it known that I, ALFRED WOOD BUTTERFIELD, a citizen of the United States, and a resident of Portland, in the county of Multnomah, State of Oregon, have invented a new and useful Improvement in Spiral-Guide Fire-Escapes, of which the following is a full, clear, and exact description.

My invention relates to improvements in spiral guide fire escapes, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a portable fire escape comprising a cable adapted to be secured to anchoring means in an elevated position to depend therefrom and means adapted to be grasped by the hand and slidably disposed on the cable to engage therewith in such a manner that such means moves slowly downwardly along the cable when a load is suspended therefrom as under the impetus of the weight of an operator.

A further object of my invention is to provide a device of the type described that can be folded to occupy a very small space when not in use, and that is light in weight, wherefore the device may be carried about from place to place, as in a traveling bag or the like.

A further object of my invention is to provide a device of the type described that can be instantly operatively applied to anchoring means, as for instance to a casement sash or the like within a room located on an upper floor, wherefore the device is immediately available for use.

A further object of my invention is to provide in a device of the type described a hand grip provided with a spiral groove adapted to receive a cable or the like in such a manner that the rate of movement of the hand grip along the cable is retarded by the engagement of the walls of the groove with the cable.

A further object of my invention is to provide a device of the type described that can be produced in large quantities at a small cost and which is thoroughly practical commercially.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a reduced side elevation of the device,

Fig. 2 is a central longitudinal section through a full-sized portion of the device, a portion thereof being shown in elevation.

Fig. 3 is a section along the line 3—3 of Fig. 2,

Fig. 4 is a section along the line 4—4 of Fig. 2,

Fig. 5 is a view showing the use and application of the device.

In carrying out my invention, I provide a suitable length of cable or rope 1 which may be formed of any suitable material, such as Manila hemp or the like, it only being essential to my invention that a relatively strong and flexible cable be provided. One end of the cable 1 is provided with a hook 2 for engaging with any conveniently located anchoring means. Slidably disposed on the cable or rope 1 is a hand grip comprising an outer substantially cylindrical casing 3 open at each end and formed with a boss or rounded bead 4 intermediate its length and with a similar boss or bead 5 at one end thereof. Consequently, the hand grip may be grasped by both hands of an operator, one hand being positioned above the other and each being prevented from slipping from the hand grip by the bosses or beads. The hand grip may also be fluted, knurled, or finished in any other well known manner to prevent the slipping thereof from the hands of the operator.

Referring now particularly to Figs. 2, 3, and 4, it will be noted that I show the hand grip casing 3 as comprising two semi-cylindrical portions. Obviously, the casing 3 may be formed of one cylindrical member.

Within the casing 3 is disposed a cylindrical core or body portion 6 having a length equal to that of the casing. The core 6 has arcuate similar recesses 7—7 adjacent each end thereof. One of the half portions of the casing 3 has spaced apart slots 8—8 and 9—9 extending obliquely through the wall of that portion of the casing at the ends thereof. The other side walls of the slots 8—8 are alined with the end walls of the arcuate recesses 7—7 while the corresponding side walls of the slots 9—9 are alined with the end walls of the other of the arcuate recesses 7—7. Spring clips 10—10 that

closely engage the inner wall of the unslotted portion of the casing 3 at each end thereof have enlarged outwardly turned ends 11—11 arranged to enter the slots 8—8 and 9—9, whereby the half portions of the casing 3 are secured together. The inner ends of the spring clips 10—10 rest upon shoulders 12—12 defined by the arcuate recesses 7—7 in opposite ends of the core 6 and are so secured by means of rivets 13—13, or the like, extending through the wall of the unslotted portion of the casing 3 to prevent movement of the core 6 relative to the casing. A continuous guideway extending the entire length of the core 6 and adapted to slidably receive the cable 1 comprises central bores 14—14 in the ends of the core 6, having their ends spirally directed at 16—16 to the exterior of the core to provide a plurality of convolutions of a spirally directed slot 15 in the outer wall of the core 6. The number of convolutions may vary but in the form of the device now preferred by me is three.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The hook 2 is secured to any fixed member, such as the screw eye 17, within the interior of a room indicated generally at 18. One or more of the slidable hand grips is normally positioned on the cable 1 adjacent the hook 2. The other end of the cable is then lowered from a window or other opening of the room 18. An operator 19 occupying the room 18 may then descend to the ground or other place of safety by firmly grasping the hand grip in both hands to suspend his body therefrom in the manner shown. The weight of his body occasions the movement of the hand grip downwardly. The rate of travel downwardly of the hand grip is sufficiently retarded by the passage of the cable through the spiral guideway in the hand grip to permit the descent to the ground to be made conveniently and without injury to the operator's person.

In Fig. 5, two additional hand grips are shown in reserve on the cable 1 and may be used successively by two persons occupying the room 18 in addition to the operator 19. It is of course obvious that any desired number of the hand grips may be positioned on one cable. In Fig. 5, a second room indicated generally at 20 and positioned directly beneath the room 18 is also shown as being equipped with my improved spiral guide fire escape.

The device is simple in construction, effective for the purpose intended, and may be carried about from place to place as an article of hand baggage. Consequently, the device has the advantage of being available instantly for use at any time and at any place when needed.

An operator, when using the device, may safely descend a cable without burning or chafing his hands as might otherwise occur. Should the rope 1 be held firmly at its lower end, the rate of movement of the hand grip will be decelerated to a stop. Consequently, the rate of movement of the hand grip can be in a measure regulated by a person on the ground.

I claim:

In a device of the character described a flexible cable and a hand grip, said hand grip having an outer casing consisting of a pair of semi-cylindrical members, one of said semi-cylindrical members being formed with spaced apart obliquely extending slots in its walls at each end thereof, a core having a length equal to that of the casing and being formed with an arcuate recess at each end thereof and being fashioned to provide a spiral guideway extending the length thereof and adapted to receive the flexible cable, the end walls of said recesses being respectively alined with the side walls of the corresponding slots, and a spring member intermediately secured to the inner wall of the second of said semi-cylindrical members at each end thereof and having its ends arranged to enter said slots to re-act against the walls thereof to releasably and firmly clamp said semi-cylindrical members to one another, said spring members being positioned to abut against the end walls of said recesses to maintain said casing in adjusted position relative to said core.

ALFRED WOOD BUTTERFIELD.