Oct. 2, 1951 J. W. BAILEY, SR 2,569,597

FIRE ESCAPE DEVICE

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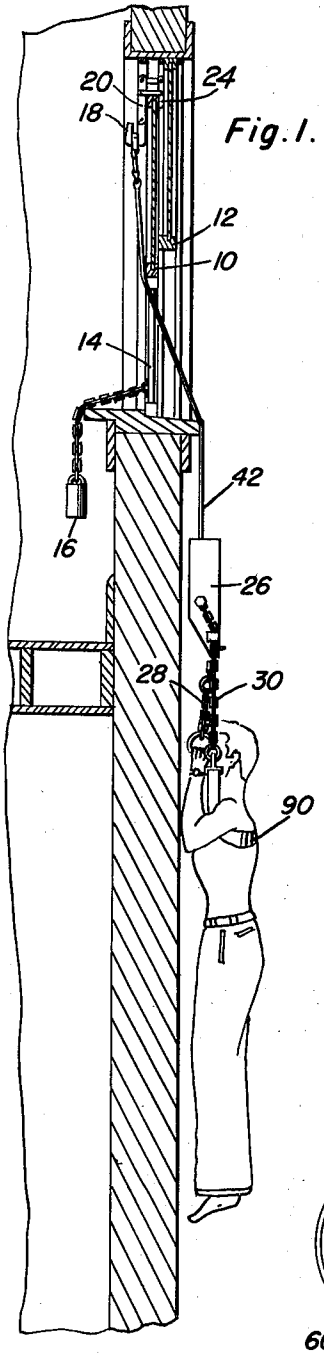


Fig. 1.

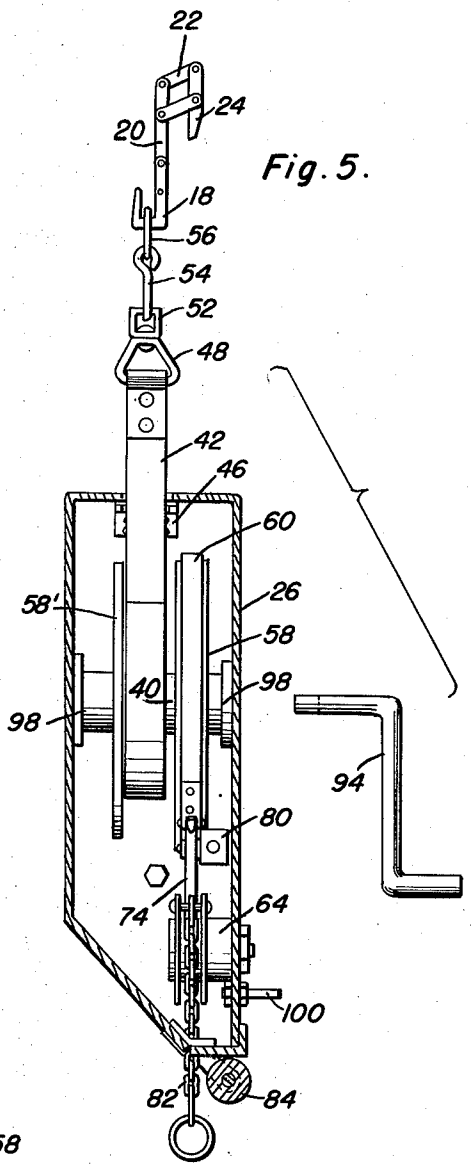


Fig. 5.

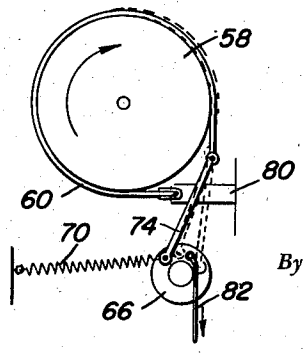


Fig. 10.

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FIRE ESCAPE DEVICE

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Fig. 2.

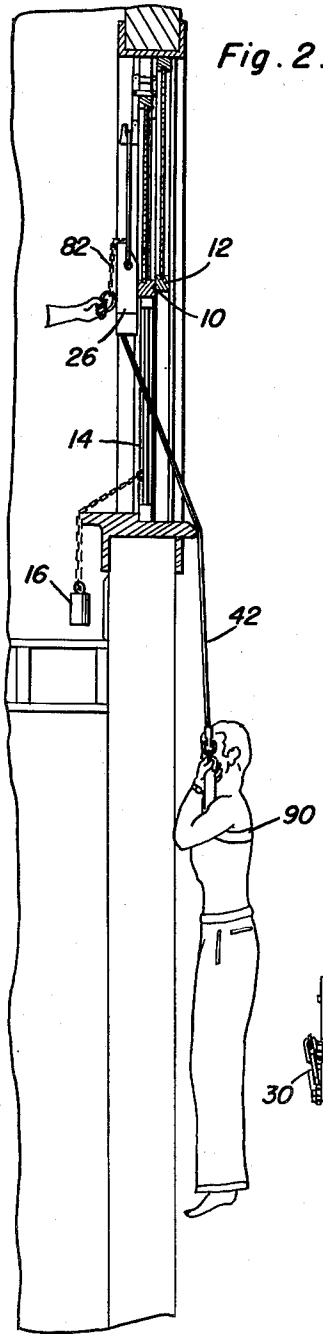


Fig. 8.

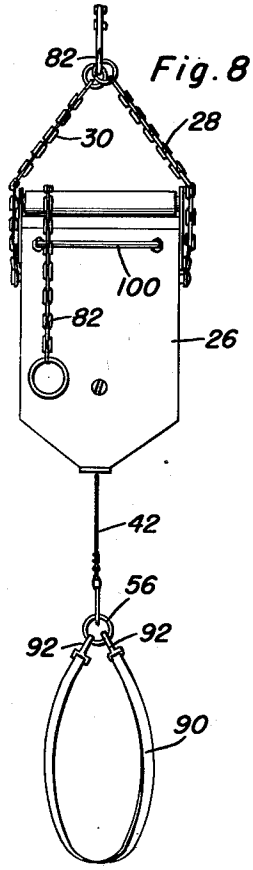
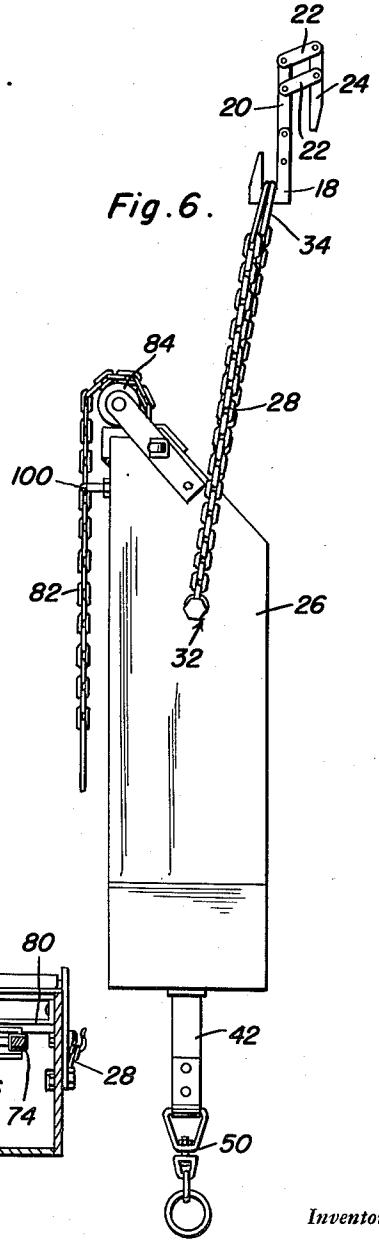


Fig. 6.



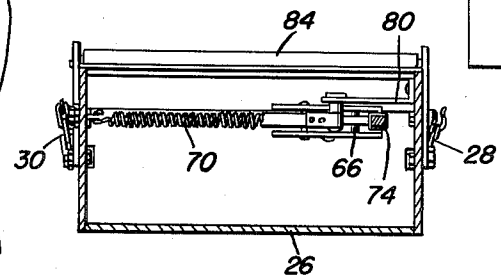


Fig. 7.

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Fig. 3.

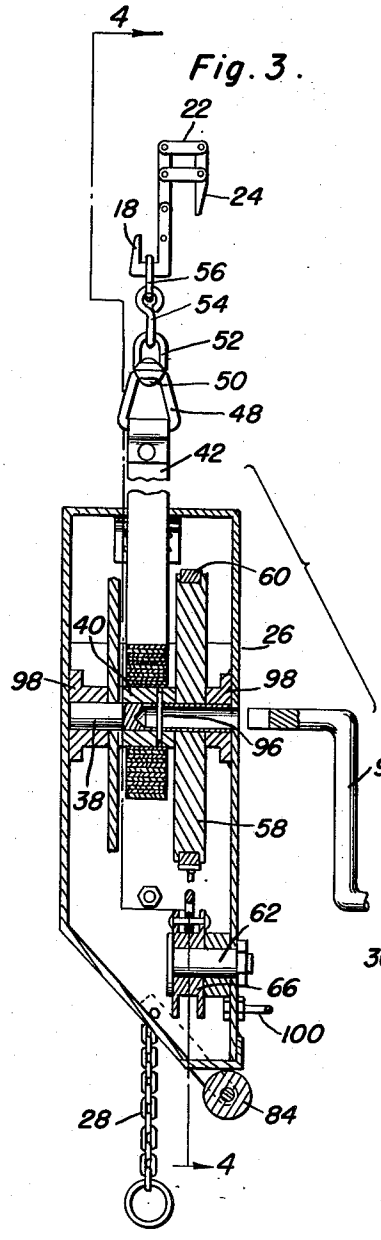


Fig. 4.

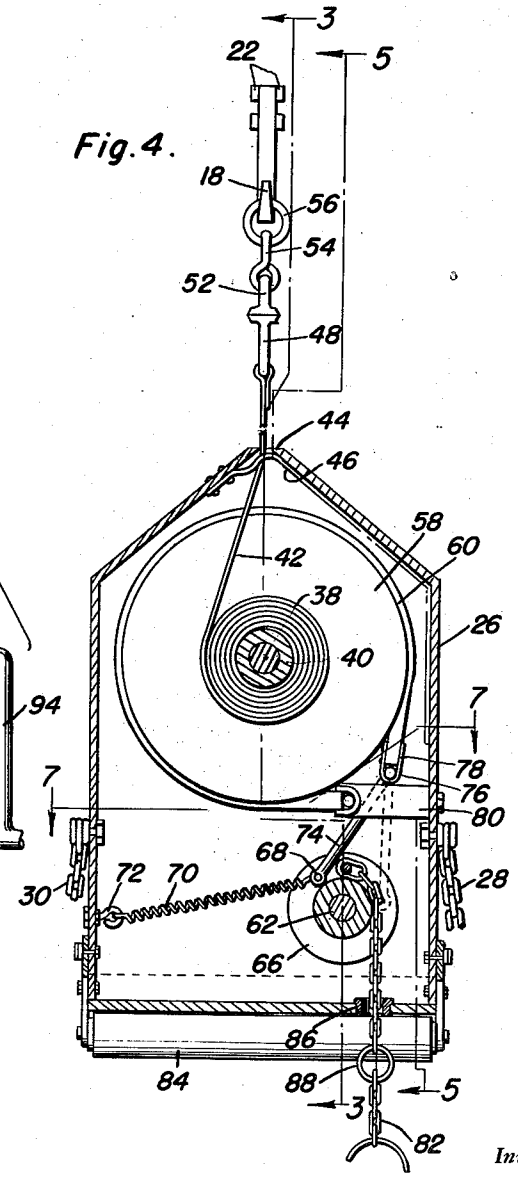
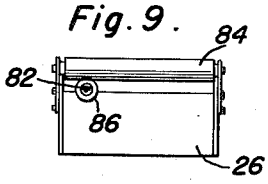


Fig. 9.



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FIRE ESCAPE DEVICE

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Application September 10, 1947, Serial No. 773,155

2 Claims. (Cl. 254—154)

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This invention appertains to novel and useful improvements in safety devices, particularly those adapted to be used in hasty exits from structures due to fires and the like.

The prime purpose of this invention is to lower an individual from an elevated position controllably.

Another purpose of this invention is to provide means for carrying out the above mentioned function.

Another purpose of this invention is to provide a portable, reversible safety device which may be utilized by an individual for lowering himself or if desired, may be utilized by said individual for lowering himself, as controlled by a second person.

Another purpose of this invention is to provide means for controlling the rate of descent of an individual.

A still further purpose of this invention is to provide improved means for fastening or anchoring purposes.

Another object of this invention is to provide an extremely simple, efficient and dependable device of the character described which is extremely easy to manipulate, being readily attachable to any existing structure.

A further object of this invention is to provide means, extensible in nature, retained in a housing which may be selectively and controllably extended relative to the said housing.

Another purpose of this invention is to provide means for conveniently winding the said extensible means within the housing.

Ancillary objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the present invention, illustrated in the accompanying drawings, wherein:

Figure 1 is an elevational side view of the present invention showing a single use thereof;

Figure 2 is an elevational side view of the invention disclosed in Figure 1, showing a second use thereof;

Figure 3 is a longitudinal sectional view of the invention taken substantially on the line 3—3 of Figure 4 and in the direction of the arrows;

Figure 4 is a longitudinal sectional view of the invention disclosed in Figure 3 and taken substantially on the line 4—4 thereof and in the direction of the arrows;

Figure 5 is a transverse sectional view of the invention disclosed in Figure 4 and taken substantially on the line 5—5 thereof and in the direction of the arrows;

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Figure 6 is an elevational side view of the invention;

Figure 7 is a transverse sectional view of the invention shown in Figure 4 and taken substantially on the line 7—7 thereof and in the direction of the arrows;

Figure 8 is an elevational front view of the preferred form of the present invention;

Figure 9 is a bottom view of the invention shown in Figure 5, and;

Figure 10 is a schematic view showing the position of and operation of the brake means.

Referring now in detail to the illustrated preferred embodiment of the present invention, like reference characters are used throughout to illustrate similar elements.

This invention has been conceived and developed to provide a device for controllably lowering an individual from a structure, particularly when the individual is on one of the higher floors. It is within the purview of the present invention to provide pertinent elements along with the actual lowering device which are utilized in conjunction with the lowering means.

The preferential embodiment of the invention is both reversible and portable, being of such dimensions as to conveniently and easily fit in a suitcase or overnight bag conventionally carried by traveling persons. The structure of the device has been specially designed in order that it may be attached to an existing window or other suitable anchor means very quickly and expeditiously, as is sometimes necessary due to fires and the like.

There is provided a special retarding means for use in conjunction with this invention. If there is but a single person to be lowered, the invention is so designed that the retarding means may be actuated by the said person during his descent. If, however, there are several individuals to be lowered the invention may be utilized over and over until all of the said individuals are removed to safety. In this last event, the invention is simply reversed as will be described in detail, and the persons remaining on the floor while a single person is being lowered, may regulate the descent of the person being lowered.

Means is provided for attaching the invention to a window sash. Of course, any other suitable anchor means may be utilized in this connection. If it is desired to adapt the invention as a permanent portion of a building structure, a suitable recess may be supplied in the walls thereof for the purpose of anchoring the selected element of the invention. This is, however, but a matter

of choice of application of the broad inventive concept.

Occasionally, fires sweep a building rather rapidly and it becomes necessary to depart from the said building in a hasty manner. In situations such as outlined, the invention illustrated herewith, functions to assist in the hasty exit. The invention has been developed with a view to very rapid attachment to a suitable anchor and the subsequent descent to the ground as rapidly as desired. Of course, this descent to the ground is limited by practical consideration.

Attention is directed primarily to Figure 1 in the consideration of the first use of the present invention. Here there is illustrated a portion of a building having a conventional window therein. Window sash members 10 and 12, respectively, are of the conventional slide type. A rod 14 has been developed of a size suitable for use in most conventional windows. This rod is to be placed beneath the inner sash 10 for the purpose of holding the said sash in the selected, desired, open position. Ballasts 16 may be secured to the said rod for the purpose of retaining the rod in the fixed position during the lowering operations and for preventing the rod from falling to the ground or out of reach until sufficient weight to hold the rod firmly has been imposed on the sash by attaching device to the sash by a special hook.

A specially adapted hook is provided for the purpose of rigidly and detachably engaging the upper portion of the said sash 10. This hook may be seen best in Figure 6 wherein there is disclosed a hook member 18 having an extension 20 rigidly secured thereto. Formed in parallelogram construction is a plurality of links. These links may be seen as pitman rods 22 connecting a final rod 24 and retaining the same in substantially parallel relation to the said extension 20 at all times. It is obvious from an inspection of Figure 1 that the said extensions 20 and 24 are adapted to engage both the inner and outer surfaces of the said window sash 10.

A housing 26 is supplied for the purpose of receiving the majority of the operative moving and working elements forming the instant invention. Attached exteriorly of the said housing is a pair of chain members 28 and 30 respectively, which may be fixed through utility of a conventional bolt and nut construction generally indicated at 32. In one phase of operation of the invention (when there is more than one person) the window sash engaging means may be secured to these chain members 28 and 30. Of course, suitable rings 34 may be associated with the terminal portions of the said chains for ease in attachment.

A shaft 38 extends transversely of the said housing and is journaled therein. Received on this shaft is a plurality of elements. The first element is a drum 40 which serves the purpose of a first drum. Received in extensible relation relative to the housing 26, around the first drum 40, is an extensible means, preferably a steel tape 42. This extensible means 42 (extensible relative to the housing 26) proceeds through an aperture 44 provided in the said housing 26. A bracket 46 having a slot therein in a bend adjacent said slot is secured within the said housing adjacent the aperture 44. The said tape 42 projects through the slotted bracket 46 for guiding purposes. The terminal portion of the said steel strap may be supplied with an annulus 48, through which a pivot pin 50 extends. Swivelly secured to the said pivot pin 50 is another annulus 52, which in turn has a double eye member 54 secured thereto. Then, a ring 56 is received through one of the eyes of the double eye member. This last mentioned ring 56 may be attached to the hook portion 18 of the said sash engaging means. This expedient is utilized when there is solely one person to be lowered.

Also secured to the said shaft 38 is a second drum 58 having a peripheral groove therein. This second drum 58 forms a portion of the means for regulating the rate of travel of the tape 42 from the said housing 26. The drum 40 also includes an annular flange 58' which cooperates with the second drum 58 to confine the tape 42 and limit longitudinal movement thereof on the drum 40.

Seated in the said peripheral groove in the second drum 58 is a brake shoe 60. This brake shoe is preferably of a type which conforms to the configuration of the groove. It is noted at this point that to insure even greater braking area, the said groove may be of a V-type commonly used in certain types of pulleys and the like.

Means for applying a predetermined amount of force to the said drum 58 through the medium of the brake shoe 60 is supplied. For this construction reference is made primarily to Figures 4 and 5. Here there is disclosed a stub shaft assembly 62 having a thrust bearing 64 associated therewith. An eccentric 66 is rotatably journaled on the stub shaft assembly 62. This eccentric is formed by placing a pin 68 a predetermined distance from the longitudinal axis of the said shaft 62.

Means for resiliently biasing the eccentric in a predetermined direction is provided. This means is preferably a spring 70 secured to a suitable eye member 72 anchored to one of the walls of the housing 26. The other end of the said spring is secured to the pin 68. Also secured to this pin is a pitman 74 having a ball type end or terminal portion 76. This ball type terminal portion is received in a suitable socket 78, attached to an end of the brake shoe 60. The other end of the said brake shoe 60 is fixed to a bracket 80. Of course, this said bracket 80 may be anchored to a suitable portion of the said housing 26.

Means for selectively regulating the force supplied between the drum 58 and brake shoe 60 may be seen as the chain means 82. Upon actuation of the said chain means, a force will be exerted against the biasing force of the spring 70 in applying a force opposite to that requisite for increasing friction between the drum 58 and brake shoe 60.

In operation of the invention as disclosed in Figure 2, it will be seen that the regulating chain 82 extends over a roller (see Figure 4) 84 for facility in operation. It will also be noted that a bushing 86 is supplied about the marginal edges of a hole or aperture in the housing 26 adapted to receive the chain means 82 therethrough. It will also be noted that the chain means 82 has an enlarged link or ring 88 therein thereby prohibiting undesired travel of the chain within the said housing 26.

In operation of the invention as disclosed in Figure 2, a strap 90 having clips 92 at the terminal portions thereof may be secured to the ring 56 which was described above as being secured in swivel relation with the steel tape or the like 42. Of course, this strap 90 is adapted to engage a selected portion of the anatomy of an individual as disclosed in Figure 2. It will be

noted that in this use of the present invention the housing **26** remains adjacent the window sash **10**. In operation of the invention as disclosed in Figure 1, the housing **26** descends with the individual and the chain means **28** and **30** respectively may be utilized for gripping purposes.

In order to wind the tape **42** back into the housing **26**, a crank **94** may be supplied. This crank is adapted to be received within a hollow portion of the shaft **38** and engage a suitable pin **96** positioned therein. It is further noted at this point that suitable thrust bearings **98** may be supplied for centering the drum within the said housing.

Noting Figures 5 and 6 it will be seen that a hook may be supplied to the said housing **26** for the purpose of guiding the chain means **82** in utility of the lowering means. If so desired, this hook may be in the form of a bracket as disclosed in Figure 8. While there has been described and illustrated preferred embodiments of the present invention it is apparent that various changes and departures may be made herein without departing from the spirit of the invention. Accordingly, limitation is sought only in accordance with the scope of the following claims.

Having thus described the invention, what is claimed as new is:

1. In a safety device adapted to be lowered with an individual and selectively anchored while an individual is being lowered therefrom, a housing having a shaft mounted for rotation therein, a drum fixed to said shaft and an elongated flexible member extending from said drum, a support for an individual, and means fixed to said member for selectively anchoring said housing and retaining said support, a brake element fixed to said shaft, a brake band engaging said brake element, an eccentric mounted in said housing for rotation, a link connecting said eccentric with one end of said brake band, the other end of said band being anchored to said housing, means extending from said housing for rotating said eccentric and operative selectively while said housing is being lowered to control the rate of descent of said housing by the individual being lowered and by another individual when said housing is anchored, a spring reacting on said

housing and said eccentric constantly urging said band against said brake element, and means fixed to said housing for selectively retaining said support and anchoring said housing.

2. In a safety device adapted to be lowered with an individual and selectively anchored while an individual is being lowered therefrom, a housing having a shaft mounted for rotation therein, a drum fixed to said shaft and an elongated flexible member extending from said drum, a support for an individual, and means fixed to said member for selectively anchoring said housing and retaining said support, a brake element fixed to said shaft, a brake band engaging said brake element, an eccentric mounted in said housing for rotation, a link connecting said eccentric with one end of said brake band, the other end of said band being anchored to said housing, means extending from said housing for rotating said eccentric and operative selectively while said housing is being lowered to control the rate of descent of said housing by the individual being lowered and by another individual when said housing is anchored, a spring reacting on said housing and said eccentric constantly urging said band against said brake element, and means fixed to said housing for selectively retaining said support and anchoring said housing, said eccentric actuation means including a flexible member, an opening in said housing having said flexible member passed therethrough, and a roller disposed adjacent said opening for guiding said last mentioned flexible member.

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