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FIRE SAFETY DEVICE

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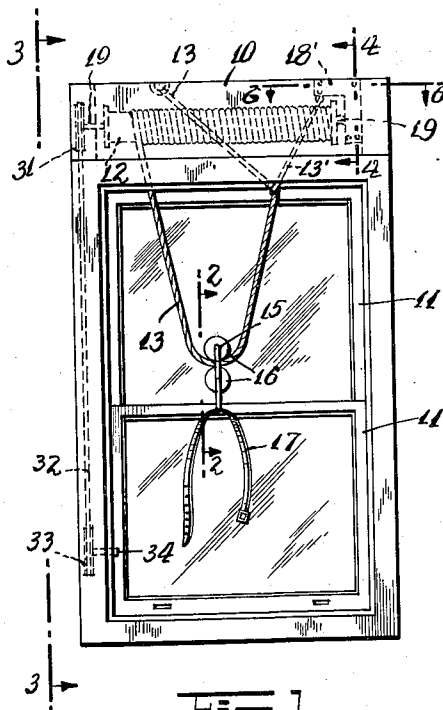
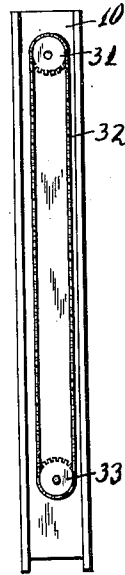
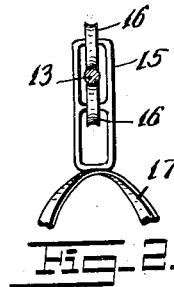
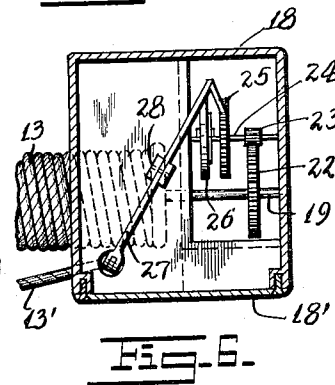
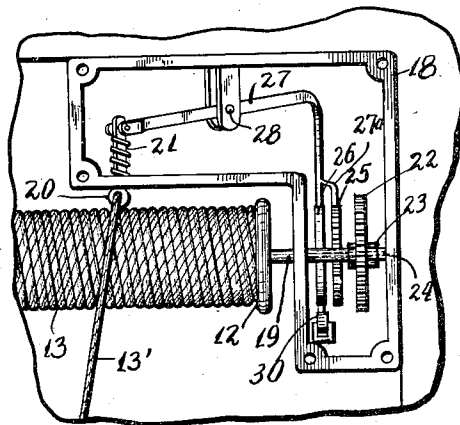


Fig. 5.

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FIRE SAFETY DEVICE

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4 Claims. (Cl. 227-22)

This invention relates to new and useful improvements in a fire safety device.

The invention has for an object the construction of a device as mentioned which is adapted to be mounted upon the upper portion of a window frame and is capable of safely lowering persons from the window.

Still further the invention proposes an arrangement wherein a drum with a cable wound thereon is mounted in the window frame and the cable is attached upon the frame, and the parts are so arranged that the cable may be utilized to lower a person from the window.

Still further the invention contemplates the provision of a friction mechanism arranged to function so as to restrain the lowering of the person from taking place too rapidly.

Still further the invention proposes the construction of a device as mentioned which is simple and durable and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a front elevational view of a window frame with a fire safety device constructed according to this invention.

Fig. 2 is a fragmentary sectional view taken on the line 2-2 of Fig. 1 illustrating a carriage and harness used in conjunction with the cable of the device.

Fig. 3 is an edge elevational view of the window frame illustrated in Fig. 1 seen as though looking in the direction of line 3-3 of Fig. 1.

Fig. 4 is a fragmentary enlarged sectional view taken on the line 4-4 of Fig. 3.

Fig. 5 is a fragmentary enlarged detailed view of a portion of Fig. 1 but illustrated with a casing cover removed.

Fig. 6 is a fragmentary horizontal sectional view as though taken on the line 6-6 of Fig. 1.

The safety fire device, according to this invention, is used in conjunction with a window frame 10 having outer and inner sashes 11, or other types of windows. The device comprises a drum 12 with a cable 13 wound thereon and terminating in branches 13' and attached to substantially stationary parts so that the cable may be unwound from the drum and utilized to

lower a person from the window. Preferably, a carriage and harness should be used in conjunction with the cable so that a person need not be strong enough to slide down upon the cable. More particularly, the carriage comprises a frame 15 supporting a pair of pulleys 16 working in intimate contact upon the sides of the cable and associated with a harness 17 adapted to be attached around the body or other part of a person.

The device includes a casing 18 which is attached upon one of the upper corners of the window frame. A spindle 19 for the drum 12 is rotatively mounted at one end upon the window frame and at the other end on the casing. The casing has a cover 18'. A bolt 20 extends through a horizontal portion of the cover 18' and is associated with resilient means normally urging it inwards. This resilient means comprises a spring 21 arranged coaxially upon the bolt and acting between the cover and the bolt. One of the projections 13' of the cable is attached on the extended end of the bolt 20 and the other branch of the cable is attached on the window frame.

A speed increase unit is associated with the spindle 19 and is arranged within the casing. This speed increase unit comprises a gear 22 fixed upon the spindle 19 and meshing with a pinion 23 fixed on a spindle 24 rotative in the casing 18. A ratchet wheel 25 is fixed upon the spindle 24. A smooth periphery wheel 26 is also fixed on the spindle 24. The arrangement is such that the ratchet wheel 25 and the wheel 26 are rotated at an increased speed to the drum so that a frictioning element may serve to reduce the speed of unwinding of the drum.

A means is provided for holding the speed increase unit from operating, and is automatically releasable on the extension of the bolt 20. This means comprises a lever 27 pivotally mounted intermediately at 28 upon a bracket mounted within the casing 18. One end of the lever 27 is pivotally connected with the inner end of the bolt 20. The other end of the lever 27 is formed with a downward extending portion terminating an upper branch 27^a and a lower branch 27^b. The upper branch 27^a is adapted to engage the ratchet wheel 25 for holding the increased speed unit from operating. A friction device is provided for retarding the operation of the speed increase unit and is automatically operable upon the extension of bolt 20. This friction device comprises a friction wheel 30 mounted upon the portion 27^b of the lever and adapted to engage against the

periphery of the wheel 26 when the lever 27 is pivoted.

A means is provided for turning the drum 12 to rewind drawn off cable. This means consists of a sprocket wheel 31 mounted upon the spindle 19 and connected with a chain 32 engaging over a second sprocket wheel 33 mounted upon the window frame. The sprocket 33 connects with a shaft terminating in a squared end 34 to receive a turning tool.

The operation of the device may be understood by first considering Fig. 1. A person may lower himself from the window by engaging the harness 17 upon his body and then throwing his weight out of the window. The weight of the person will pull upon the cable which will draw the bolt 20 outwards pivoting the lever 27 so that the lever portion 27^a disengages from the ratchet 25 freeing the drum 12 to rotate. Simultaneous with the freeing of the drum the friction wheel 30 engages the wheel 26 so as to restrain rapid turning of the drum. In this manner the cable will slowly unwind and leave the person down.

The cable may be rewound when desired by a person engaging a turning tool upon the square end 34 of the shaft connected with the sprocket wheel 33, and then gently drawing upon one of the branches 13' of the cable to free the portion 27^a of the lever from the ratchet wheel. The turning tool may be operated for rotating the drum 12 to wind the cable thereon.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. In conjunction with a window frame, a drum with a cable wound thereon terminating in a pair of branches, a casing attached upon the upper corner of said frame, a spindle for said drum rotative at one end of said frame and at the other end on said casing, a bolt extending from said casing and resiliently urged inwards, one of said cable portions being attached on the top of said frame and the other on said bolt, a carriage on said cable and equipped with a harness, a speed increase unit within said casing and connected with said spindle, means for holding said speed increase unit from operating releasable upon extension of said bolt, a means for turning said drum to rewind drawn off cable.

2. In conjunction with a window frame, a drum with a cable wound thereon terminating in a pair of branches, a casing attached upon the upper corner of said frame, a spindle for said drum rotative at one end on said frame and at the other end on said casing, a bolt extending from said casing and resiliently urged inwards, one

of said cable portions being attached on the top of said frame and the other on said bolt, a speed increase unit within said casing and connected with said spindle, means for holding said speed increase unit from operating releasable upon extension of said bolt, a means for turning said drum to rewind drawn off cable, said speed increase unit comprising a train of gears connected with the spindle and arranged so that the last spindle of the train of gears rotates at an increased speed.

3. In conjunction with a window frame, a drum with a cable wound thereon terminating in a pair of branches, a casing attached upon the upper corner of said frame, a spindle for said drum rotative at one end on said frame and at the other end on said casing, a bolt extending from said casing and resiliently urged inwards, one of said cable portions being attached on the top of said frame and the other on said bolt, a speed increase unit within said casing and connected with said spindle, means for holding said speed increase unit from operating releasable upon extension of said bolt, a means for turning said drum to rewind drawn off cable, said speed increase unit comprising a train of gears connected with the spindle and arranged so that the last spindle of the train of gears rotates at an increased speed, said means for holding the speed increase unit from operating automatically releasable upon extension of said bolt comprises linkage connected with said bolt and including a member engageable with a ratchet fixed on the last spindle of the speed increase unit.

4. In conjunction with a window frame, a drum with a cable wound thereon terminating in a pair of branches, a casing attached upon the upper corner of said frame, a spindle for said drum rotative at one end on said frame and at the other end on said casing, a bolt extending from said casing and resiliently urged inwards, one of said cable portions being attached on the top of said frame and the other on said bolt, a speed increase unit within said casing and connected with said spindle, means for holding said speed increase unit from operating releasable upon extension of said bolt, a means for turning said drum to rewind drawn off cable, said speed increase unit comprising a train of gears connected with the spindle and arranged so that the last spindle of the train of gears rotates at an increased speed, said means for holding the speed increase unit from operating automatically releasable upon extension of said bolt comprises linkage connected with said bolt and including a member engageable with a ratchet fixed on the last spindle of the speed increase unit, and said friction device comprising a friction wheel associated with said linkage and engageable against the periphery of a plain wheel mounted upon the last spindle of said speed increase unit.

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