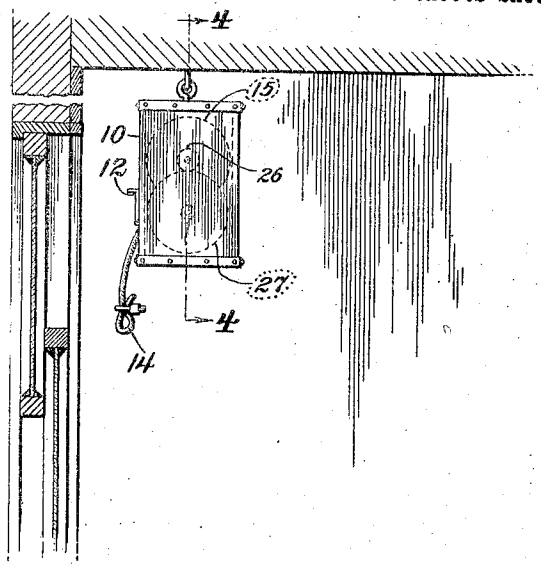
April 19, 1927. 1,625,221

G. NYKOLYSHAK

AUTOMATIC FIRE ESCAPE

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Fig. 1.



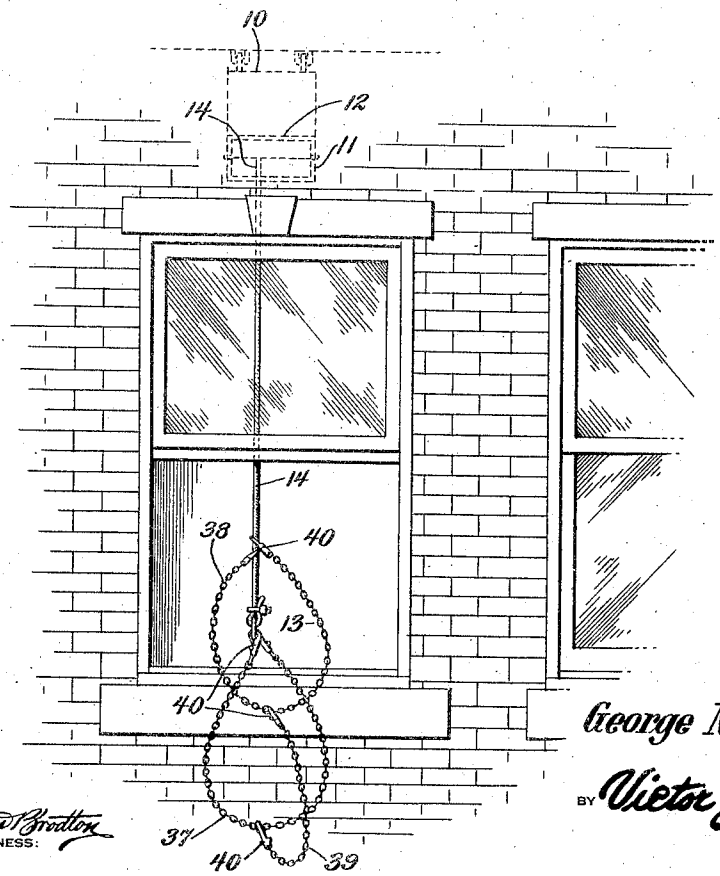


Fig. 2.

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Fig. 3.

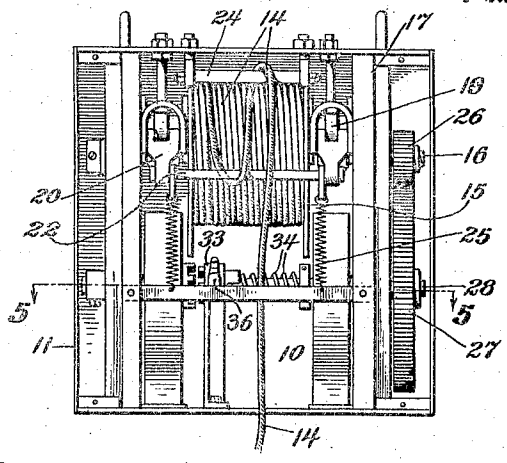
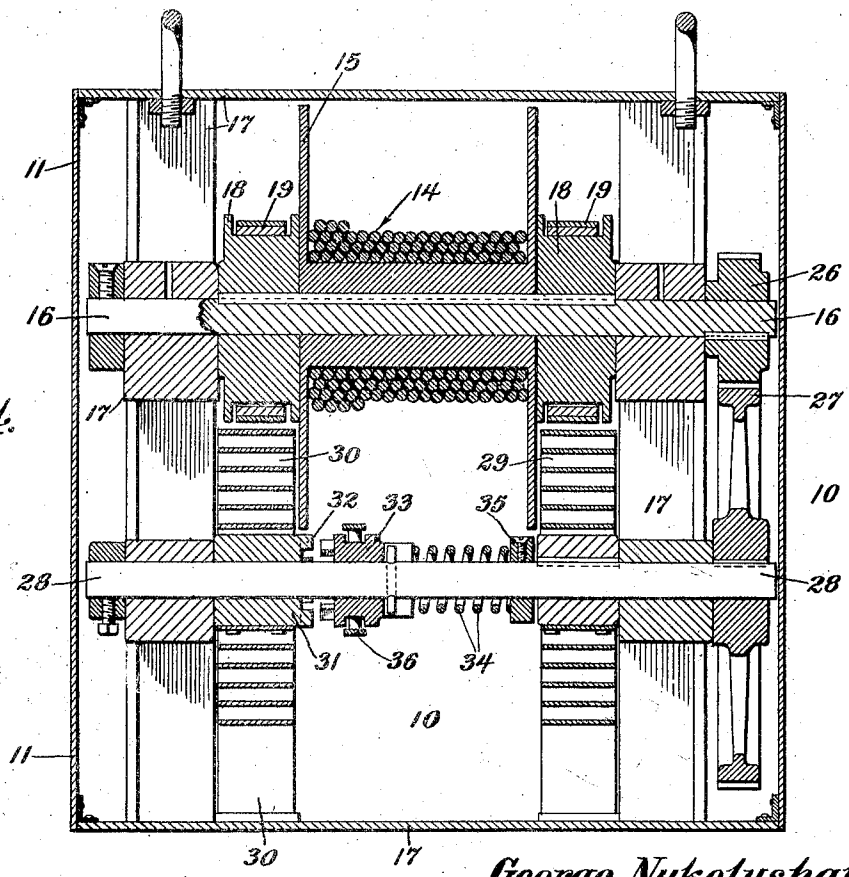


Fig. 4.



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AUTOMATIC FIRE ESCAPE

Filed May 22, 1925 3 Sheets-Sheet 3

Fig. 5.

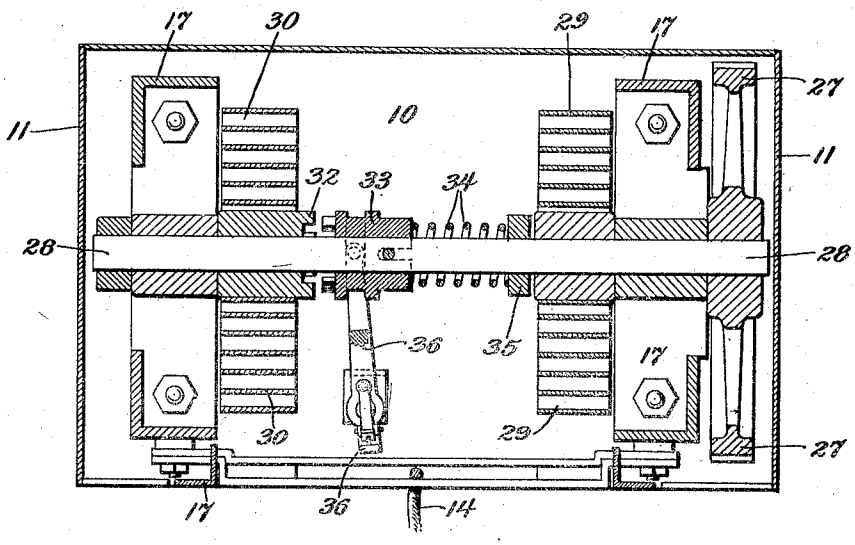


Fig. 6.

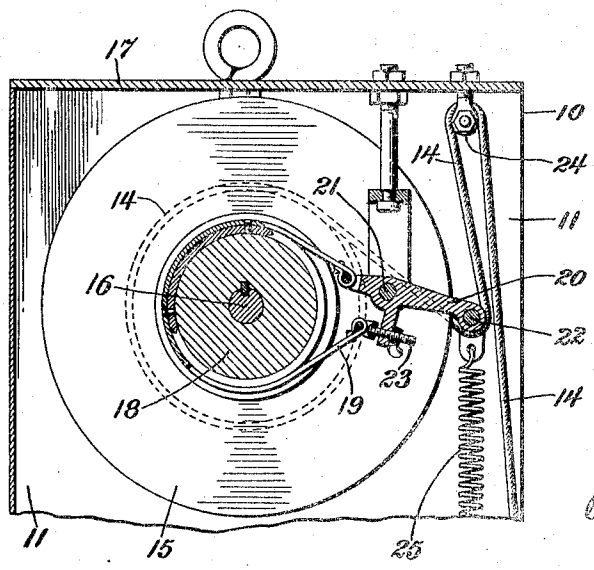
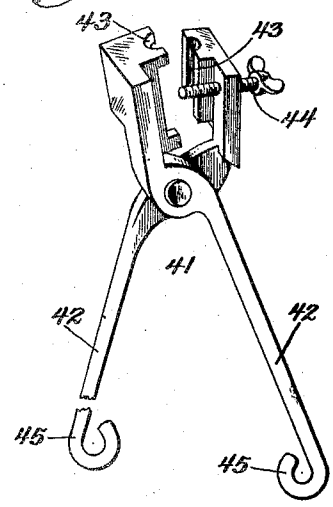


Fig. 7.



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WITNESS:

Patented Apr. 19, 1927. 1,625,221

UNITED STATES PATENT OFFICE.

GEORGE NYKOLYSHAK, OF JERSEY CITY, NEW JERSEY.

AUTOMATIC FIRE ESCAPE.

Application filed May 22, 1925. Serial No. 32,156.

This invention relates to improvements in automatic fire escapes for emergency use in effecting the escape of a person or persons trapped in a building by fire.

The principal object of the invention resides in a device adapted to be installed in the interior of a building adjacent the top of a window for instant use, and which includes a harness adapted to be applied to the body of the user and which is secured to the free end of a cable normally wound about a spring actuated reel, whereby the cable will automatically rewind after a person is lowered to the ground in order to permit other persons to likewise escape.

A further object resides in an automatic fire escape which includes a cable, a brake means for controlling the paying out of the cable as the user is lowered to the ground, spring mechanism for rewinding the cable, and a secondary or emergency spring means adapted to be brought into operation in the event of the breaking of the first spring mechanism.

With these and other objects in view, the invention resides in certain novel construction and combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawings, in which:—

Figure 1 is a view of my invention installed in the interior of a room.

Figure 2 is a view of the outside of a building showing my invention in use.

Figure 3 is a front elevation of the working mechanism with the casing removed.

Figure 4 is an enlarged vertical sectional view on the line 4—4 of Figure 1.

Figure 5 is a horizontal sectional view on the line 5—5 of Figure 3.

Figure 6 is an enlarged detail sectional view through the brake mechanism.

Figure 7 is a perspective view of an emergency device.

Referring more particularly to the drawings, the reference numeral 10 designates my improved apparatus in its entirety which is adapted to be mounted on the inside of a building adjacent the top of a window as clearly shown in Figure 1 of the drawings, for ready access in an emergency for facilitating the escape of persons trapped in a burning building.

My device 10 includes a casing 11 having a hingedly mounted door 12 in the front wall thereof whereby access may be had to the harness 13 attached to the free end of a cable 14. The cable is normally wound about a reel 15 keyed to a shaft 16 having its bearings in a frame 17. Mounted on the shaft 16 for rotation therewith and disposed on opposite sides of the reel are brake drums 18 which co-act with the respective brake bands 19. Secured to one end of each of the brake bands is an arm 20, pivotally mounted as at 21 and which arms are connected by a cross rod 22. A thumb screw 23 is adjustably mounted in a lug which depends from each of the arms and has a swivel connection with the other end of the respective brake band. The said screw is adapted to control the action of the brake band which depends upon the amount of braking action desired. The cable 14 passes from the reel under the cross rod 22 and over a roller 24 stationarily mounted above the rod 22. It will be seen that a pull exerted on the free end of the cable will cause the arms 20 to move about their pivots thereby contracting the band about the drums for setting up a braking action whereby a person is permitted to lower himself from the window to the ground at a predetermined rate of speed. The said screw 23 is adapted to control the speed by limiting the contraction of the brake band whereby to accommodate the lowering of persons of different weights. Springs 25 are connected with the rod 22 and with the frame for normally holding the brake bands out of engagement with the brake drums, but the action of the springs is overcome by the weight on the end of the cable. One end of the shaft 16 extends beyond the side of the frame and has keyed thereto a relatively small gear 26 which meshes with a larger gear 27 keyed to the end of a shaft 28 for transmitting motion from one shaft to the other. A flat coil spring 29 has one end secured to the shaft 28 and its other end secured to a portion of the frame 17. The spring 29 is normally unwound when the cable is entirely wound about the reel, but it will be seen that as the cable unwinds, the motion of the shaft 16 is transmitted to the shaft 28 through the gears 26 and 27 thereby winding the coil spring and placing the same under tension. By the time a person has been lowered to the ground, the spring will be sufficiently wound to cause the reel to automatically rewind the

cable to permit other persons to be lowered. The device is quick in its action to permit numerous persons to escape in a minimum period of time.

In order to eliminate any possibility of the device from being rendered inoperative by reason of the spring 29 breaking, I have provided a secondary or emergency spring 30 which is similar in construction to the spring 29, but instead of being secured to the shaft 28, the end of the same is attached to a sleeve 31 loosely mounted on the shaft 28. The other end of the spring is attached to a portion of the frame 17 in a similar manner as the spring 29. The inner face of the sleeve is provided with a clutch or surface teeth 32 for co-action with similar teeth formed on a sliding clutch collar 33 mounted for rotation with the shaft 28. An expansion spring 34 surrounds the shaft and is interposed between a collar 35 fixed to the shaft and the clutch collar 33 and tends to normally force the clutch collar into co-action with the teeth 32. The clutch collar is provided with a reduced portion which receives the yoke end of a pivoted lever 36. The lever is normally held in a position against the action of the spring 34 but may be readily actuated or released to permit the clutch parts to engage thus bringing the spring 30 into use. The spring 30 will have the same effect upon the reel as the spring 29 and assures a positive working of the device in the event that the spring 29 should become damaged.

The harness 13 above referred to may be of any suitable construction, but I have shown a sling portion 37 for the user to sit upon, a waist encircling portion 38 and a connecting strap 39. All of the harness is constructed of chain and is removably attached to the end of the cable by suitable snap fasteners 40 whereby persons may be easily released from the harness as they reach the ground.

In Figure 7 of the drawing, I have shown a device which is adapted to be used in the event that both of the springs become damaged whereby the cable will not rewind about the reel. The device is shown in its entirety as at 41 and includes a pair of pivoted levers 42 having co-acting jaws 43 formed on one end thereof. The jaws are formed with co-acting recesses for gripping engagement with the cable and the same are adjustable by means of a set screw 44 carried by one of the jaws and co-acting with the other jaw. The lower ends of the levers are formed with eyes 45 whereby the harness may be attached thereto for permitting a person to slide down the cable. By insertion of the adjusting screw, the rate of speed may be varied according to the weight of the person being lowered.

While I have described what I deem to be the most desirable embodiment of my invention, it is obvious that many of the details may be varied without in any way departing from the spirit of my invention, and I therefore do not limit myself to the exact details of construction herein set forth nor to anything less than the whole of my invention limited only by the appended claims.

What is claimed as new is:—

1. A fire escape comprising a frame, a shaft journalled therein, a reel fixedly mounted on said shaft, a cable normally wound about said reel, brake means operable by said cable for controlling the rotation of said shaft upon the paying out of said cable, a second shaft, means for transmitting motion between said shafts, and a spring means adapted to be placed under tension by the rotation of said last mentioned shaft upon the paying out of said cable when a pull is applied to the free end of the same whereby to automatically rewind said cable about said reel upon the release of said pull.

2. A fire escape comprising a frame, a shaft journalled therein, a reel fixedly mounted on said shaft, a cable normally wound about said reel, brake means operable by said cable for controlling the rotation of said shaft upon the paying out of said cable, means for regulating the action of said brake means, a second shaft, means for transmitting motion between said shafts, and a spring means adapted to be placed under tension by the rotation of said last mentioned shaft upon the paying out of said cable when a pull is applied to the free end of the same whereby to automatically rewind said cable about said reel upon the release of said pull.

3. A safety apparatus comprising a casing, a shaft journalled for rotation therein, a reel keyed to said shaft, a cable normally wound about said reel, brake drums rotatable with said shaft, brake bands for co-action with said brake drums, and operable by said cable upon the paying out of the same, a second shaft journalled in said frame, means for transmitting motion between said shafts, and a spring means adapted to be put under tension upon the roation of said second shaft in one direction.

4. A safety apparatus comprising a casing, a shaft journalled for rotation therein, a reel keyed to said shaft, a cable normally wound about said reel, brake drums rotatable with said shaft, brake bands for co-action with said brake drums, a rocker member to which the ends of said brake bands are connected, tension means for holding said rocker member normally in a non-braking position, said cable being operatively associated with said rocker member for actuating the same against the action of

said tension means to cause the tightening of said brake bands about said drums when a pull is exerted upon the free end of said cable.

5. A safety apparatus comprising a casing, a shaft journalled for rotation therein, a reel keyed to said shaft, a cable normally wound about said reel, brake drums rotatable with said shaft, brake bands for coaction with said brake drums, a rocker member including a pair of spaced turnably mounted arms to which the respective ends of the brake bands are connected, a cross rod supported by said arms, tension means for holding said rocker member in a non-braking position, said cable passing beneath said cross rod and over a roller mounted above said cross rod whereby a pull exerted on the free end of said cable will actuate said rocker member against the action of said tension means to cause said brake bands to tighten about said drums.

6. A safety apparatus comprising a casing, a shaft journalled for rotation therein, a reel keyed to said shaft, a cable normally wound about said reel, brake drums rotatable with said shaft, brake bands for coaction with said brake drums, a rocker member including a pair of spaced turnably mounted arms to which the respective ends of the brake bands are connected, a cross rod supported by said arms, tension means for holding said rocker member in a non-braking position, said cable passing beneath said cross rod and over a roller mounted above said cross rod whereby a pull exerted on the free end of said cable will actuate said rocker member against the action of said tension means to cause said brake bands to tighten about said drums, a second shaft journalled in said casing, means for transmitting motion between said shafts, and spring means adapted to be placed under tension by the rotation of said last mentioned shaft upon the paying out of said cable when a pull is exerted on the same whereby to automatically rewind said cable about said reel upon the release of the pull.

In testimony whereof I have affixed my signature.

GEORGE NYKOLYSHAK.