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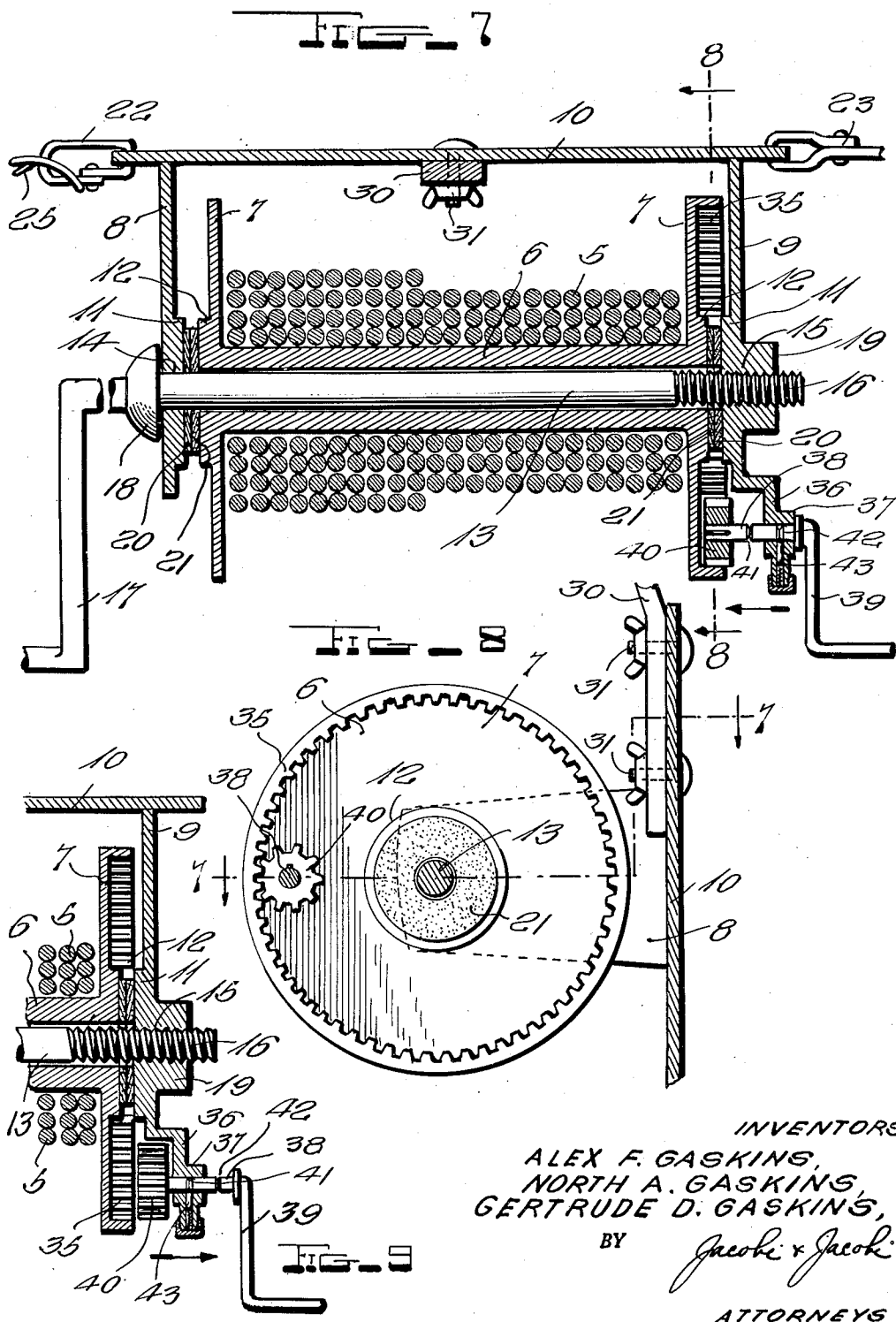
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FIRE ESCAPE LIFE REEL

Filed March 3, 1947

3 Sheets-Sheet 3



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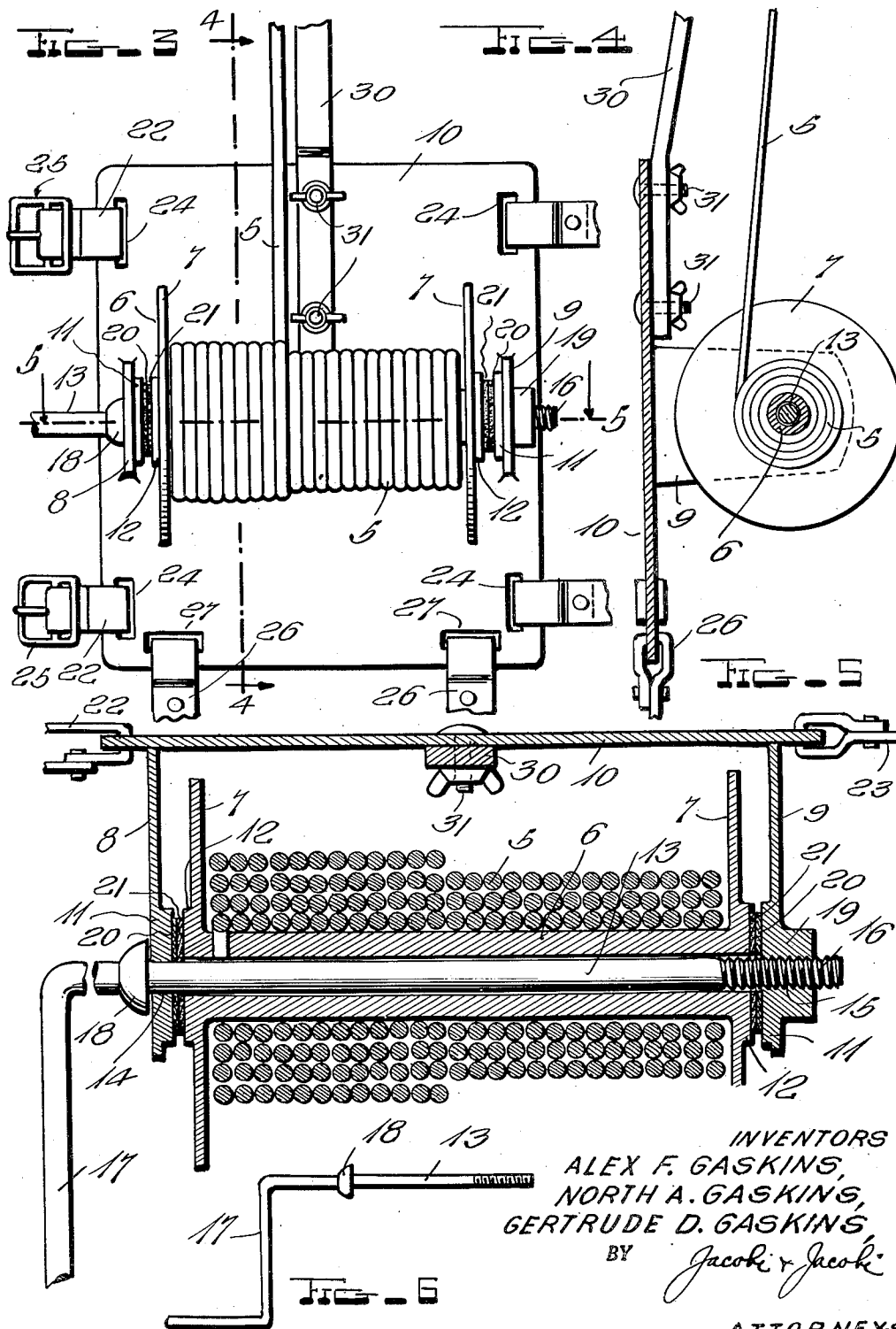
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FIRE ESCAPE LIFE REEL

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3 Sheets-Sheet 2



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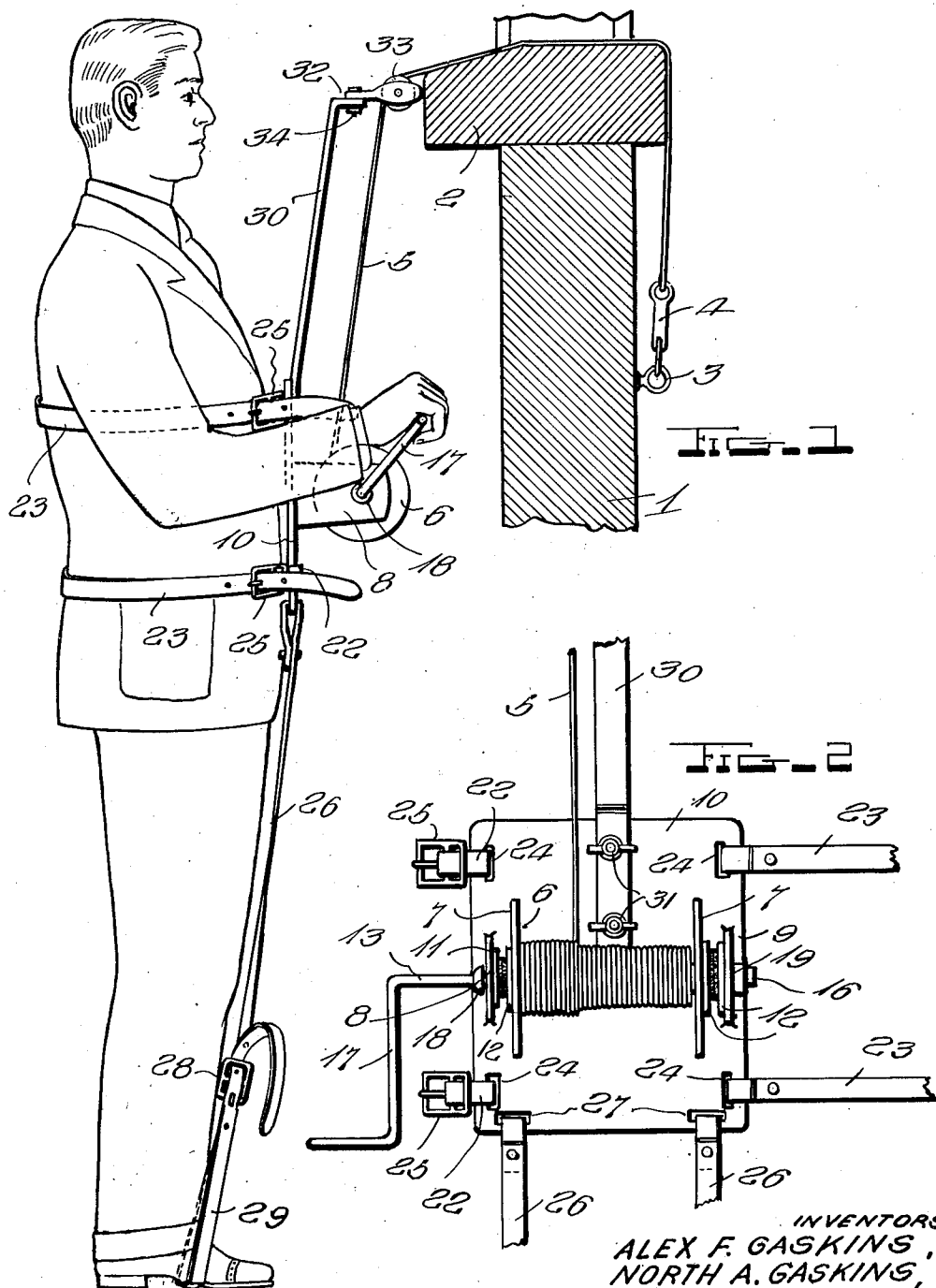
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FIRE ESCAPE LIFE REEL

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3 Sheets-Sheet 1



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FIRE ESCAPE LIFE REEL

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This invention relates to a fire escape, and it is one object of the invention to provide an apparatus by use of which a person trapped in a room of a burning building may safely lower himself to the ground after climbing out of a window of the building.

Another object of the invention is to provide a fire escape, including a harness adapted to be strapped to the person who is to use the apparatus and a wire cable wound about a spool or drum and having a portion extending from the spool and adapted for connection with an anchor fixed to a wall, window sill, or the like, so that the cable will be secured to a support at one end and the spool may be turned to unwind the cable and thus allow the person to lower himself to the ground.

Another object of the invention is to provide the improved fire escape with a spool or drum so mounted that the speed at which the spool turns may be controlled by the person using the fire escape and the person thus prevented from descending too rapidly and being injured by striking the ground or a pavement upon reaching the bottom of the building.

Another object of the invention is to provide a fire escape wherein the shaft for the spool has one end threaded through an arm projecting from a plate and near its other end carries an abutment collar for engaging a second arm and causing the arms to be sprung towards each other to compress friction washers which serve very effectively to control rotation of the spool.

Another object of the invention is to provide a fire escape wherein the cable passes about a pulley mounted at the upper end of a bar rising from the plate and serving as means for preventing injury to a person's hands by striking or rubbing against the surface of a building as a descent is made from a window of a room.

Another object of the invention is to provide a fire escape of such construction that if so desired a person descending from a window may halt downward movement and then rotate the drum or spool in a direction for winding the cable thereon and causing the person to be drawn upwardly to a position in which he may enter a room below a floor which is on fire and then walk downstairs to the ground floor of the building.

Another object of the invention is to provide a fire escape which is simple in construction, capable of being quickly applied when needed, and of such construction that it may be controlled by the person using the same and a safe descent made from a burning building.

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Another object of the invention is to provide a fire escape which will occupy a minimum amount of space in a room and at all times be in position for use when needed.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is a side view showing the improved fire escape in use;

Figure 2 is a front view of the drum and the plate carrying arms between which the spool is rotatably mounted;

Figure 3 is a similar view to Figure 2 on an enlarged scale;

Figure 4 is a sectional view, taken vertically through Figure 3, along the line 4—4;

Figure 5 is a sectional view taken horizontally, along the line 5—5 of Figure 3;

Figure 6 is a view showing the shaft for the spool in elevation;

Figure 7 is a horizontal sectional view of a modified embodiment of the invention, the view being taken along the line 7—7 of Figure 8;

Figure 8 is a sectional view, taken vertically through Figure 7, along the line 8—8; and

Figure 9 is a fragmentary sectional view showing the rewind shaft of Figure 7 shifted to an inoperative position.

This improved fire escape is intended for use by persons trapped in a room of a building and unable to escape from the room due to fire in a hall from which the room leads. A portion of such a room is shown in Figure 1, the wall of the room being indicated by the numeral 1 and the window sill by the numeral 2. An eye-bolt 3 is mounted in the wall 1 under the window sill and when the fire escape is installed, the hook 4, or equivalent attaching member, at the end of the cable 5 is connected with the eye-bolt. The cable is formed of twisted steel wire, or the like, and is wound upon a drum or spool 6 between the heads or end disks 7 of the spool. When the spool turns in a direction to unwind the cable from it, a person using the fire escape will be lowered and travel downwardly externally of the building and eventually will come to rest upon the ground or a pavement at the base of the building.

The spool or drum 6 fits between arms 8 and 9 which are carried by and projecting forwardly from a plate 10 and having inwardly thickened portions 11. The arms are welded or otherwise rigidly fixed to the plate, but are sufficiently flexible to permit them to be sprung towards ends of the spool which have their central portions externally thickened, as shown at 12.

A shaft 13 passes through the spool and

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through openings 14 and 15 formed through outer ends of the arms 8 and 9 centrally of the thickened portions 11, the opening 14 having smooth walls and the opening 15 having threaded walls for engagement with the threaded end portion 16 of the shaft. The other end portion of the shaft is bent to form a crank handle 17 by means of which the shaft is turned and adjacent this handle the shaft carries a collar 18 for engaging the outer side face of the arm 8 and causing the arms to be sprung towards each other as the threaded end portion 16 moved through the threaded opening 15.

An outwardly projecting boss 19 projects from the arm 9 opposite to and concentric with its inwardly thickened portion and the threaded opening 15 passes entirely through this boss so that the threaded opening is of sufficient length to cause good pulling action to take place when the shaft is turned in a direction to urge the free ends of the arms towards each other. Disks 20 and 21 which are formed of material adapted for frictional gripping engagement with each other are mounted against the thickened portions 11 and 12 of the arms and the spool and when the shaft is turned in a direction to move the arms towards each other, the disks will be brought into gripping engagement with each other and rotation of the spool retarded or entirely stopped, according to the amount of pressure applied. Therefore, unwinding of the cable from the spool may be controlled by the person using the fire escape and downward movement from the window be at rapid or slow speed or downward movement may be entirely stopped, if so desired, and the person using the fire escape may then enter a room upon a lower floor of the burning building and continue his escape therefrom by walking down a flight of steps.

When the fire escape is in use the plate 10 is disposed against his body at the front thereof. In order to hold the plate in this position, shown in Figure 1, there have been provided straps 22 and 23, which are secured through slots 24 formed near side edges of the plate. The straps 22 are quite short and carry buckles 25, but the straps 23 are of such length that they may be passed about a person's body and through the buckles, so that when the straps 23 are tightened, they may be secured and the plate held firmly against the front of the person applying the fire escape to himself. Straps 26 which extend downwardly from the plate have their upper ends secured through slots 27 formed near the lower edge of the plate adjacent opposite side edges thereof, and these straps have their lower end portions looped and secured through buckles 28 to form stirrups 29 through which a person's feet are to be passed, so that the person using the fire escape will be supported in a standing position.

A strip or bar 30 of stiff metal is disposed vertically and secured to the upper portion of the plate 10 by bolts 31 midway the width of the plate and this bar projects upwardly from the plate and at its upper end is bent to form a forwardly projecting ear 32 carrying a pulley 33 which projects forwardly from the ear and is secured to the same by a bolt or rivet 34. The pulley serves as a guide for the cable 5 and also as an abutment for bearing against the window sill or outer surface of the wall 1 of the building and preventing a person scraping his hands against the wall or window sills as he lowers himself downwardly to the ground or side walk in

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escaping from a room of a burning building. After a person has reached the ground the shaft may be turned to force the arms towards each other and prevent turning of the spool so that another person who wishes to escape may draw the apparatus upwardly, after a person who has just escaped has released the straps 23 and stepped out of the stirrups 29, and apply the apparatus to himself following rewinding of the cable upon the spool.

In some cases, it is desirable to allow a person lowering himself towards the ground to rewind the cable upon the spool and thus move upwardly to a position in which he may climb inwardly through a window which has been passed during downward movement. This is accomplished by forming the fire escape in the manner shown in Figures 7, 8 and 9. In this embodiment of the invention most of the parts are formed as previously described and these parts are indicated by the same reference numbers. It will be noted, however, that the disk 7 adjacent the arm 9 is formed with a marginal flange having internal teeth and constituting an internally toothed gear 25. The front end of the arm 9 has an outwardly offset portion and is formed with an extension or auxiliary arm 36 having a portion externally thickened to form a bearing 37, through which a shaft 38 passes.

This shaft is formed with a crank handle 39 by means of which it is to be turned and also shifted longitudinally through the bearing, and at its inner end the shaft carries a gear or pinion 40 for meshing with the teeth of the gear 25. Grooves 41 and 42 are formed about the shaft 38 to receive a spring pressed latch 43 mounted in an opening leading from the front end of the auxiliary arm, and from a comparison of Figures 7 and 9, it will be seen that when the shaft 38 is drawn outwardly the latch will engage in the groove 41 and hold the gear 40 out of mesh with the gear 25, whereas when the shaft is thrust inwardly the latch will engage in the groove 42 and hold the gear 40 in mesh with gear 25. Ordinarily, the gear 40 will be out of mesh with the gear 25, but when a person using the fire escape wishes to be moved upwardly, the shaft 38 will be shifted inwardly until the gear 40 meshes with gear 25 and the shaft then turned in a direction to turn the spool and wind the cable thereon.

If the person using the fire escape become tired while turning the shaft 38 to wind the cable upon the drum, it is merely necessary to turn the shaft 13 in a direction to apply grip to the spool and prevent rotation in a direction to unwind the cable while the person is resting. Since the crank handle 17 is grasped with one hand and the crank handle 39 with the other hand, this can be conveniently done.

Having thus described the invention, what is claimed is:

1. A fire escape comprising a plate, means for securing said plate against the front of a person, resilient arms extending forwardly from said plate and spaced from each other transversely of the plate, openings being formed through front end portions of said arms, the opening in one arm being threaded and the other opening unthreaded, a spool between said arms formed with an axially extending bore aligned with the openings in the arms, a shaft passing through the unthreaded opening and the bore of said spool and having a threaded end portion passing through the threaded opening and engaged with

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the threads thereof, a collar about said shaft engaging the outer side face of the other arm and applying compressing pressure to cause gripping of the spool between the arms when the shaft is turned in a tightening direction, a bar of stiff metal secured to said plate midway the width thereof and extending upwardly from the plate and bent adjacent its upper end to form a forwardly projecting finger, a pulley carried by and extending forwardly from said finger, and a cable wound about said drum extending upwardly therefrom and forwardly about said pulley and carrying a hook at its outer end.

2. A fire escape comprising a plate, means for securing said plate against the front of a person, arms extending forwardly from said plate and spaced from each other transversely thereof, a spool rotatably mounted between said arms, means for controlling rotation of said spool, an elongated bar of stiff metal carried by said plate and extending upwardly therefrom midway the width thereof and having a forwardly

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projecting finger at its upper end, a pulley carried by and projecting forwardly from said finger, and a cable wound upon said spool and extending upwardly therefrom in front of said bar and forwardly about said pulley and having a securing member at its outer end.

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