Sept. 11, 1951 C. U. FINOCCHIARO 2,567,278

FIRE ESCAPE MECHANISM

Filed May 26, 1947 4 Sheets-Sheet 1

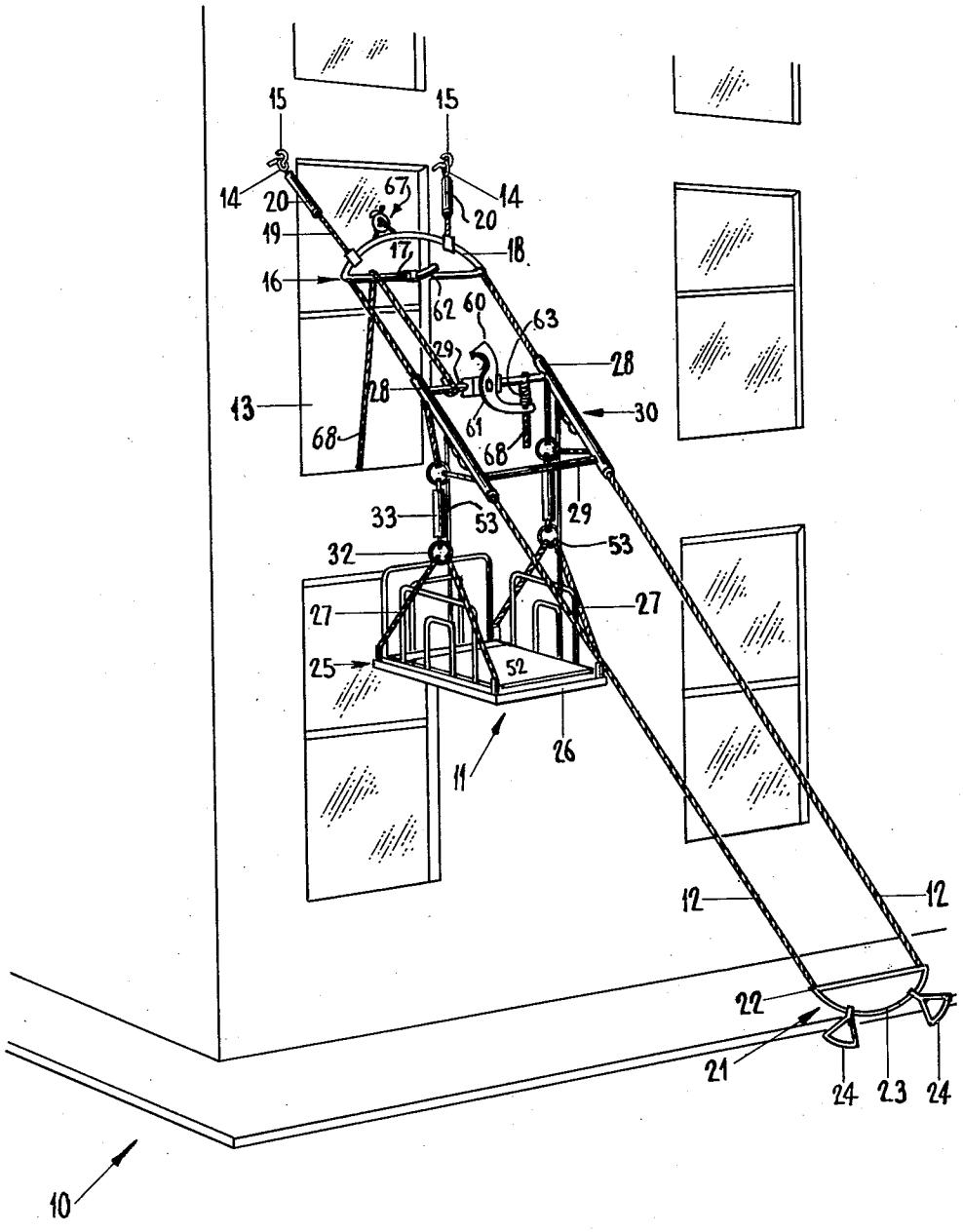


FIG. 1

CARLO U. FINOCCHIARO
INVENTOR

BY Joseph Blacker

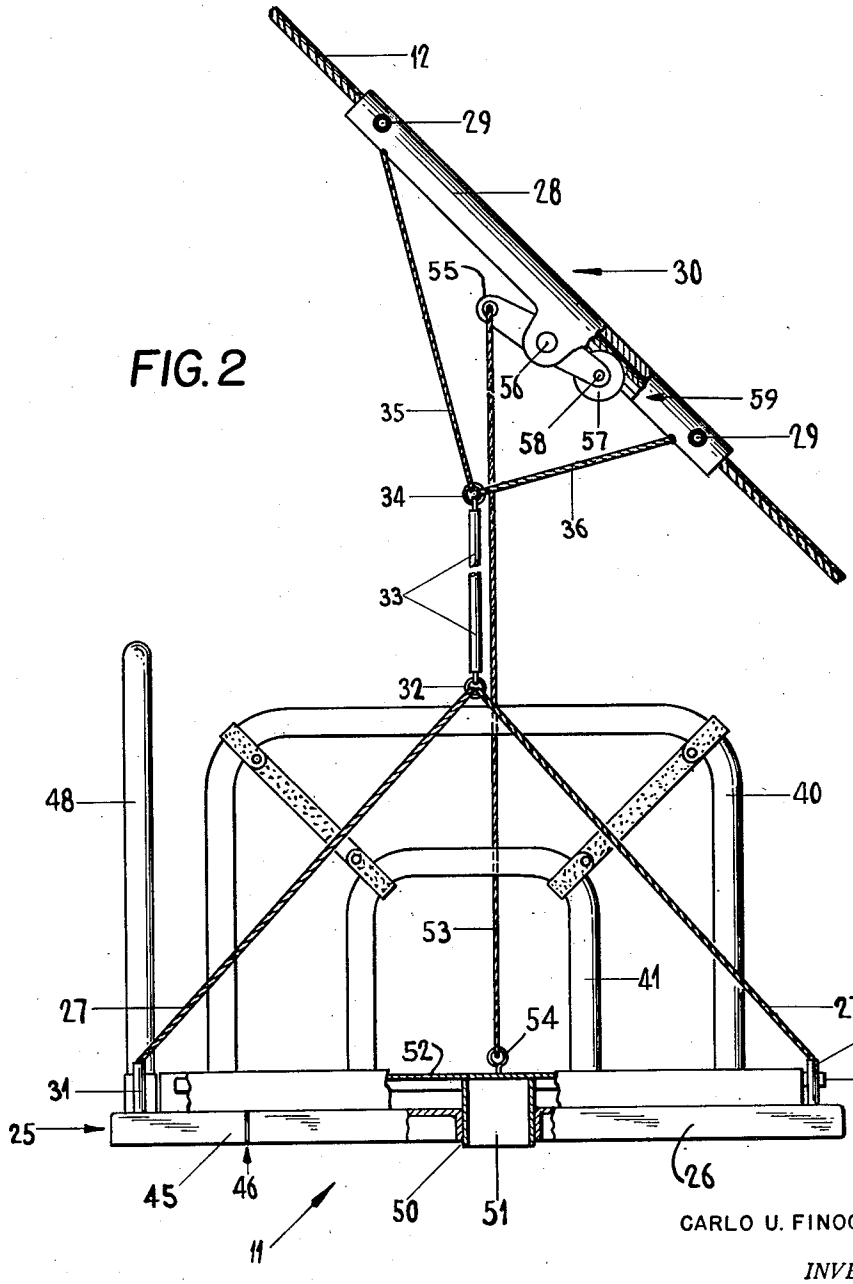
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FIRE ESCAPE MECHANISM

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FIG. 2



CARLO U. FINOCCHIARO

INVENTOR.

BY Joseph Blacker

ATTORNEY

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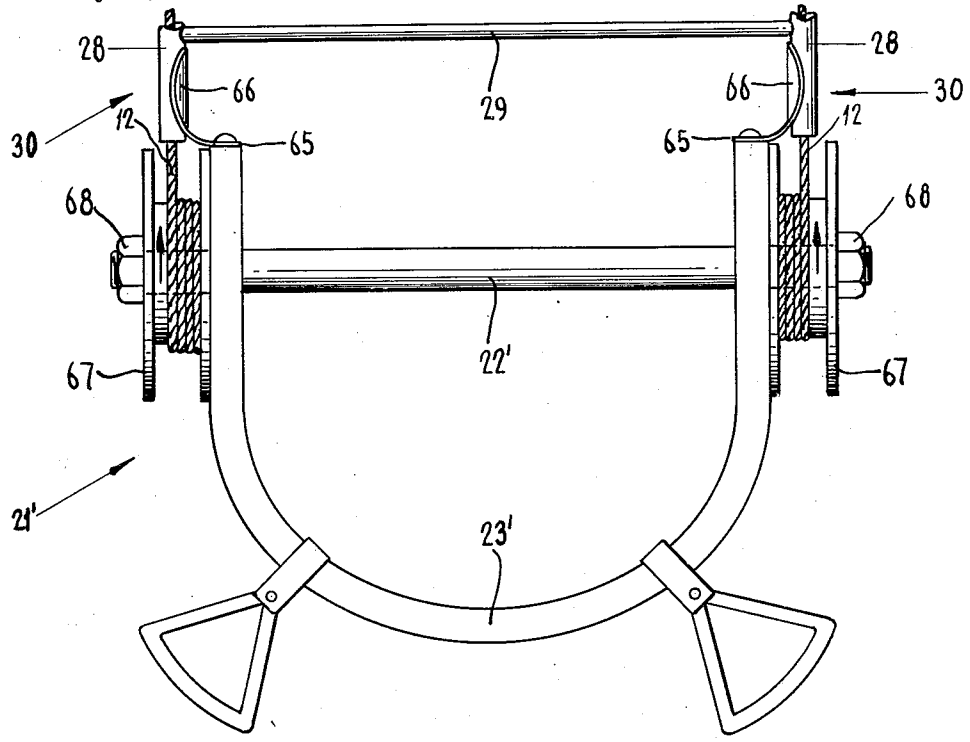
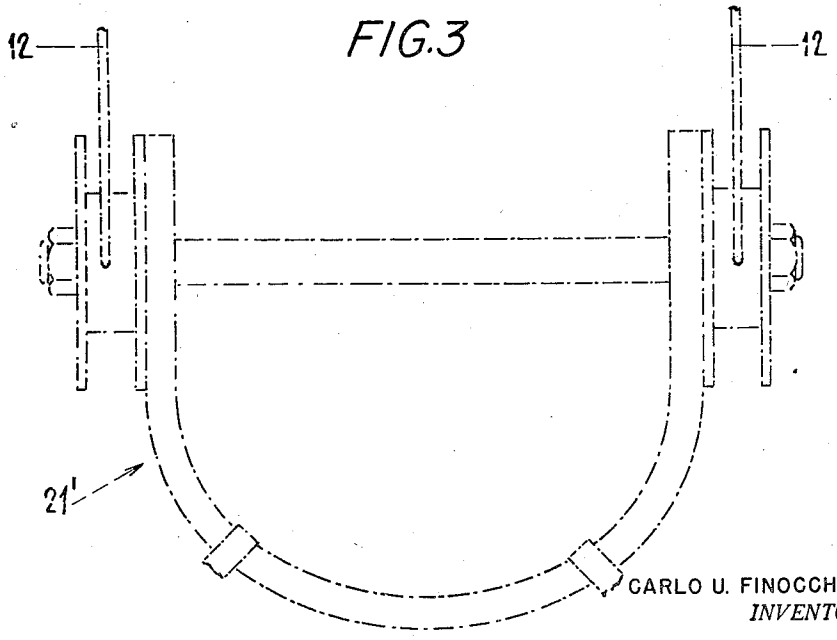


FIG.3



CARLO U. FINOCCHIARO
INVENTOR.

BY *Joseph Blaeker*

ATTORNEY

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FIRE ESCAPE MECHANISM

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FIG. 4

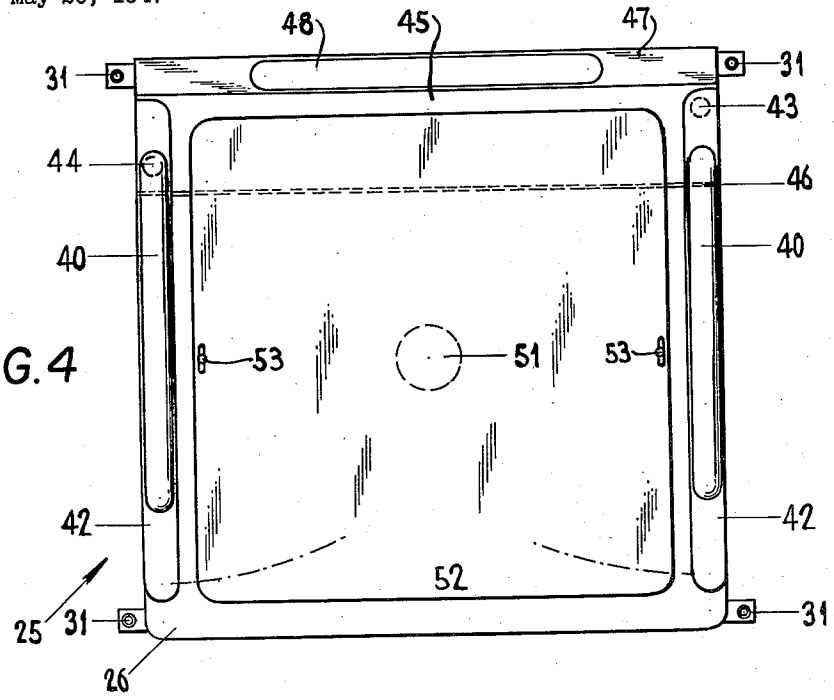
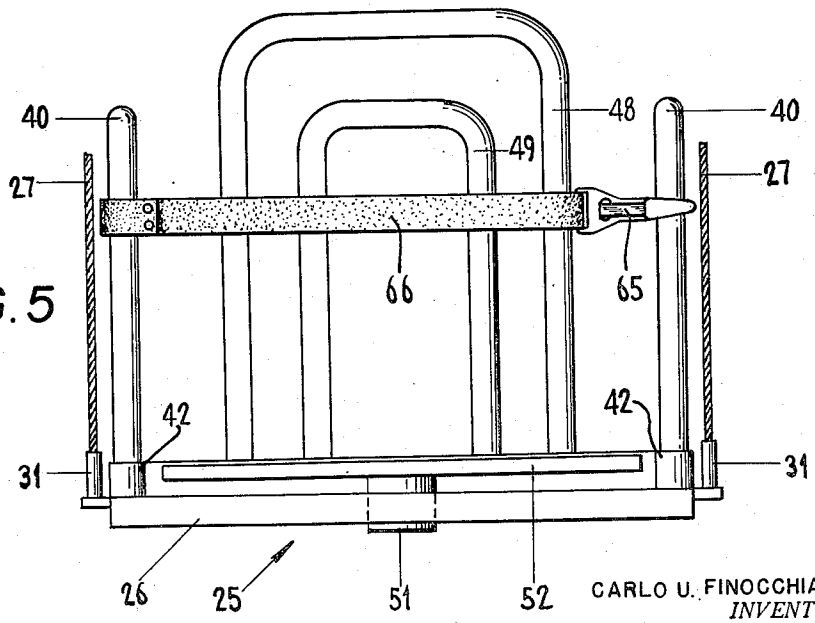


FIG. 5



CARLO U. FINOCCHIARO
INVENTOR.

BY Joseph Blaeker

ATTORNEY

Patented Sept. 11, 1951

2,567,278

UNITED STATES PATENT OFFICE

2,567,278

FIRE ESCAPE MECHANISM

Carlo U. Finocchiaro, New York, N. Y.

Application May 26, 1947, Serial No. 750,503

1 Claim. (Cl. 227—33)

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This invention relates to a portable fire escape mechanism comprising automatic frictional brake control permitting persons to escape from a building with safety.

An object of this invention is to provide a cable supporting frame comprising two rings at the upper ends of cables for attachment to two hooks previously fixed to the wall of the building, and having a windable alarm which is preferably automatically set in operation.

Another object of this invention is to provide improvements in fire escape mechanism of the type wherein two cables are secured to a building wall at a high elevation and above a window, and whereby the lower ends of the cables may be suitably attachable to a curbstone or held in the hands of a person, at a point considerably spaced from the building.

Another object of this invention is to provide a tubular chair supporting frame which is slidably mounted on the cables, the supporting frame having a chair releasing mechanism at its upper elevation, the release mechanism being automatically disengageable when a person steps on the chair seat.

Another object of this invention is to provide automatic brake control mechanism whereby the weight of the user will cause a frictional drag or brake effect on the cables to check sudden downward motion of the chair to the ground.

Another object of this invention is to provide two cable winding pulleys at opposite sides of an anchoring frame and means for resiliently supporting the anchoring frame and the carrier cables in wound-up position to the chair supporting frame and so that when the user throws the anchoring frame towards the street, the wound up cables unwind with ease and without any chance of tangling up.

With the above and other objects in view, the invention will be hereinafter more particularly described, and the combination and arrangement of parts will be shown in the accompanying drawings and pointed out in the claim which forms part of this specification.

Reference will now be had to the drawings, wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a perspective view of a building to which the improved fire escape mechanism is applied.

Figure 2 is a view of the chair, showing brake control mechanism serving to check sudden downward motion of the chair to the ground.

Figure 3 is a view of an anchoring frame on an

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enlarged scale, showing two frictionally retarded winding pulleys at opposite sides of the chair for supporting an anchoring device.

Figure 4 is a top view of the chair.

Figure 5 is a front elevation of the chair.

In the illustrated embodiment of the invention, the numeral 20 indicates a building to which the fire escape mechanism 11 is applied.

The mechanism 11 comprises two main carrier cables 12 which are secured at their upper ends to a wall near a window 13 by means of cable rings 14 which are mounted on hooks 15 fixed to the wall.

A cable supporting frame 16 is used to secure the cables 12 to the hooks 15. The frame 16 comprises a horizontal bar 17 and an integral curved upper bar 18. A short length of cable 19 suitably connects each end of the bar 18 with a ring 14. A piece of tubing 20 mounted on the cable 19 facilitates the mounting of the ring 14 on the hook 15.

The carrier cables 12 are secured at their lower ends by an anchoring frame 21 comprising a horizontal bar 22 and an integral curved bar 23. Triangularly shaped members 24 are suitably secured to the bar 23 and serve as means for attachment to a curbstone, etc., or as grip means to be held in the hands of a person.

The escape mechanism 11 also comprises a chair or carrier 25 having a platform 26 which is slidably suspended from the carrier cables 12 by triangularly disposed cables 27 secured to tubes 28 freely slidable on the carrier cables.

The tubes 28 are connected by cross rods 29 and jointly form a slidable chair supporting frame 30. Extending upwardly from the platform 26 are tubular members 31 which serve for securing the lower ends of the triangularly disposed cables 27. These cables are connected by rings 32. Tubular link members 33 are connected to the rings 32 and when in upright service position serve as hand grips for the user. At the upper ends of the members 33 are rings 34 to which are connected cables 35, 36 which are fixed to the slidable tubes 28 of the chair supporting frame 30.

The chair 25 comprises tubular frames 40 and 41 positioned at opposite sides of the chair and secured at their lower ends to arms 42 which are pivotally mounted respectively on pivots 43, 44. It is to be noted that at the rear of the platform 26 is a fixed platform extension 45. The platform 26 is pivoted to the extension 45 by an elongated hinge 46 extending across the width of the chair. It is to be noted that the distance from the pivot 43 to a connecting bar 47 fixed at the rear of the extension 45 is less than the distance

from the pivot 44 to the bar 47. This permits the arms 42 to be folded in parallel relation with the bar 47. This folding relation of the arms 42 also permits the platform 26 to be folded into parallel relation with rear frames 48, 49 so that the chair in folded position occupies a minimum of room.

Mounted for vertical motion in an aperture 50 in the platform 26 is a cylindrical member 51 to the upper portion of which a seat 52 is attached. As shown in Figure 2, it will be seen that the lower ends of two cables 53 are attached to the seat 52 by eye bolts 54. The upper ends of the cables 53 are attached to levers 55 which are pivotally mounted on pins 56 at the lower surface of the tubes 28.

At the opposite ends of the levers 55 pulleys or sheaves 57 are rotatably mounted on pins 58 and in suitable engagement with the carrier cables 12 through openings 59 in the tubes 28. It is to be noted that when the user steps on the seat 52, the seat moves downwardly on the cylindrical member 51 a distance sufficient to cause the pulley 57 to be forced into tensioned engagement with the carrier cables 12 whereby the cables frictionally wedge against the inner surfaces of the tubes 28 and cause a braking action which retards the speed of descent of the chair 25 and the user thereon.

As shown in Figure 2, it will be seen that the braking action is due to the arrangement whereby each cable 12 is frictionally slidable against the inner surface of the tube 28. The cable 12 is pressed against the tube by the rotatable sheave 57.

As best shown in Figure 1, a latch 60 is pivotally mounted on a pin 61 on the upper cross rod 29 of the chair supporting frame 30. A latch bolt 62 extends transversely of the horizontal bar 17 of the cable supporting frame 16. A spring 63 connects one end of the latch 60 to the upper cross rod 29 of the chair supporting frame 30.

It is to be noted that the position of the upper portion of the latch 60 is such that when the frame 30 is raised to the latch bolt 62 these parts will come into locking engagement and support the chair 25 with the seat 52 at a convenient level below the sill of the window so that the user may easily step on the seat.

Figure 3 shows a fragmentary end portion of the cable supporting frame 30 and a modified anchoring frame 21'. The frame 21' is resiliently secured to the tubes 28 by leaf springs 65 having arcuate upper ends 66 which may be forced in pressure contacting relation with the tubes.

The frame 21' comprises cable winding pulleys 67 rotatably mounted on the horizontal rod 22'. Threaded nuts 68 on the ends of the rod 22' serve to maintain the pulleys 67 in adjusted frictionally contacting relation with vertical end portions of the rod 23'.

Each carrier cable or chain 12 is attached at one end to a pulley 67 and when wound upon the pulley causes the anchoring frame 21' to be brought close to the frame 30.

The frame 21' may then be secured to the frame 30 due to the grip resulting from the resilient engagement of the spring ends 66 with the tubes 28.

In use, the frame 21' is secured to the frame 30, and when the frame 21' is thrown to the street, the wound up cables 12 unwind with ease and without any tangling up.

Figure 3 also shows in dot-and-dash lines the anchoring frame 21' in detached position from the frame 30 and with the cables 12 in unwound position.

It is to be noted that the chair and seat are supported from both cables and positioned entirely below the cables.

In operation, the user attaches the two cable rings 14 to the two hooks 15 fixed to the wall of the building, the two metal tubes 20 being used to facilitate the mounting of the rings on the hooks. The cable supporting frame 16 is then mounted outside the building with portions of the cables 12. The user then places the chair supporting frame 30 outside the window, being sure that the latch 60 is hooked on the latch bolt 62.

The user then places the chair 16 outside the window while supported by the locked latch 60 with the platform 26 at a convenient level below the window sill.

The user then throws the cable anchoring frame 21 to the ground, the two hand grips 24 to be grasped by a passer-by for anchoring the cables 12 to the sidewalk or to be held by the passerby to secure the carrier cables 12 in inclined position away from the building. The user then steps upon the movable seat 52 in the chair or carrier 25 and attaches the buckle 65 of a belt 66 so as to close the space between the tubular frames 40.

It is to be noted that the automatic friction brake controls on the chair supporting frame 30 functions so that the weight of the user on the seat will exert a frictional braking action on the carrier cables 12 and thereby automatically limit the speed of descent of the chair to the ground after the user releases the latch by pulling on a cable 68 attached to the latch.

It is to be noted that a windable alarm bell 67 is secured to the upper bar 18 of the frame 16 and is pre-wound and set to ring automatically the moment the mechanism is placed outside the window, the alarm mechanism being of the well known alarm clock variety.

It is also to be noted that a rope or cable 68 is passed over the bar 17 and has one end attached to the cross-rod 29 of the chair supporting frame 30. The free end of the rope remains inside the room. When one person has used the fire escape mechanism and has reached the ground, another person inside the room may pull on the rope and thereby raise the chair 25 until the latch 60 is again hooked to the latch bolt 62. The fire escape mechanism is then ready for reuse by another person.

In accordance with the patent statutes I have described and illustrated the preferred embodiment of my invention, but it will be understood that various changes and modifications can be made therein within departing from the spirit of the invention as defined by the appended claim.

I claim:

In a fire escape mechanism comprising two carrier cables, a chair, a chair supporting frame mounted on said carrier cables, said chair supporting frame having brake mechanism comprising tubes slidable on said carrier cables, said tubes having sheave carrying levers pivotally mounted thereon, said tubes having openings permitting said sheaves to wedge said carrier cables against said tubes for exerting a frictional braking action on each of said cables, said chair having a platform slidably suspended from said carrier cables and a seat vertically movable to and from said platform, said chair and seat being supported from both said cables and entirely below said

cables, said seat being connected with said brake mechanism, whereby when a person sits on said movable seat, said seat is moved downwardly solely due to the weight of the person and said mechanism is automatically set into frictional wedging engagement with said cables to check sudden downward motion of said chair to the ground.

CARLO U. FINOCCHIARO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
193,176	Palatini	July 17, 1877
259,279	Rose et al.	June 6, 1882
288,122	Savitz	Nov. 6, 1883
300,248	Greene	June 10, 1884
430,225	Cameron	June 17, 1890
443,388	Bowman	Dec. 23, 1890
748,526	Petersen	Dec. 29, 1903
767,166	Noll	Aug. 9, 1904
1,684,251	Thomas	Sept. 11, 1928
1,766,566	Tucker	June 24, 1930