No. 654,780. Patented July 31, 1900.

R. D. BURCHILL.

FIRE ESCAPE.

(Application filed Oct. 24, 1899.)

(No Model.) 2 Sheets—Sheet 1.

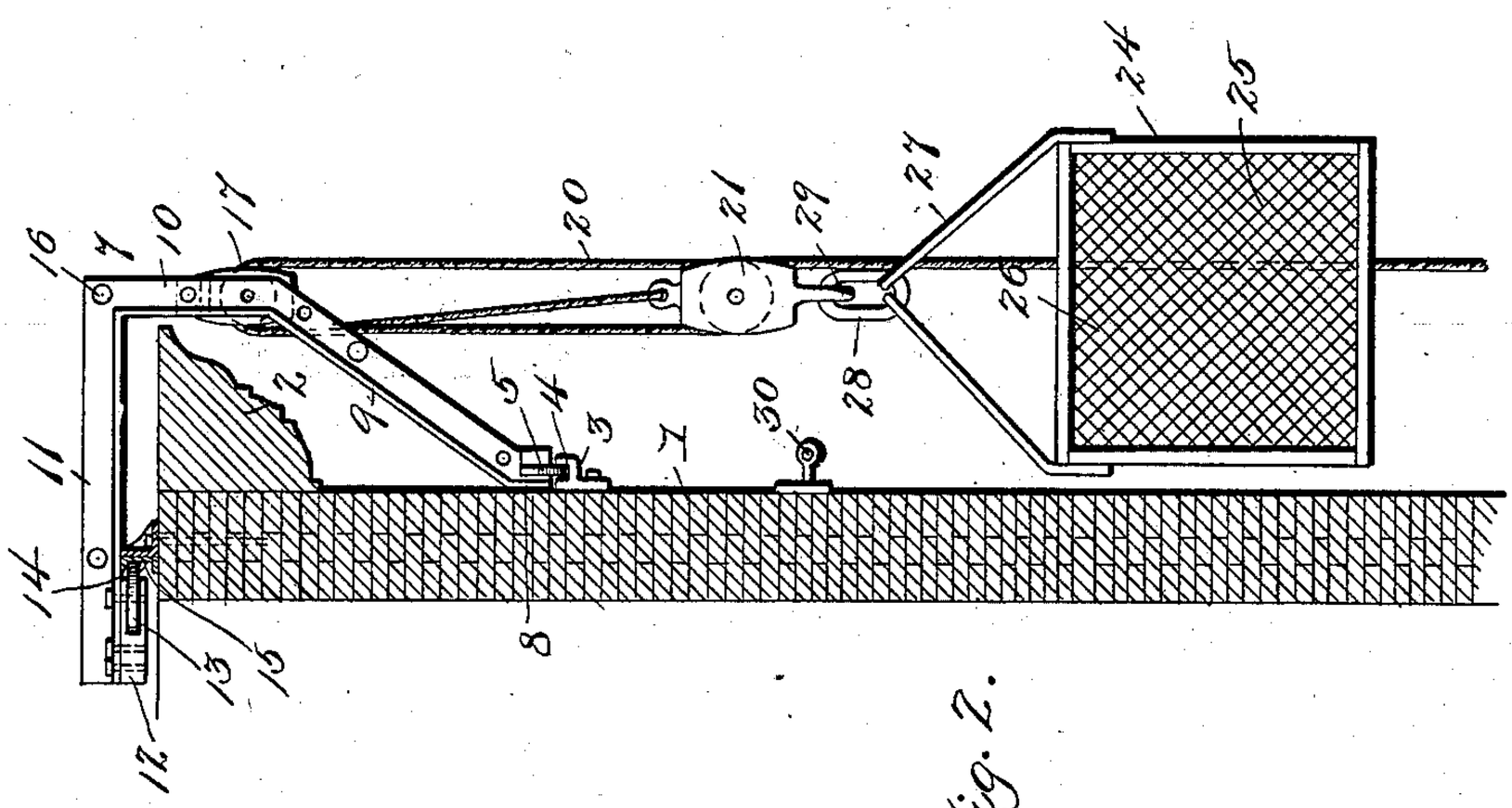

Fig. 2.

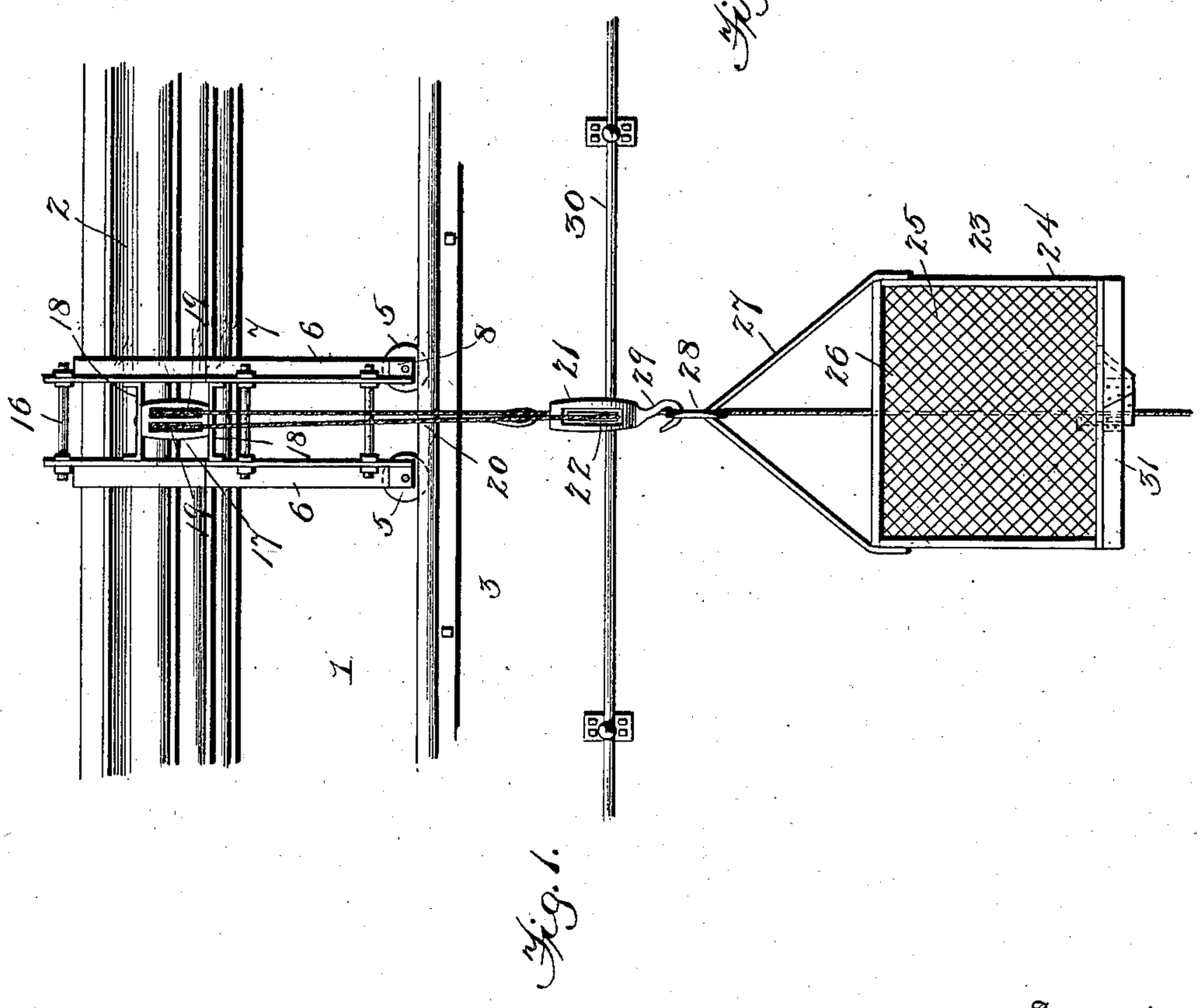

Fig. 1.

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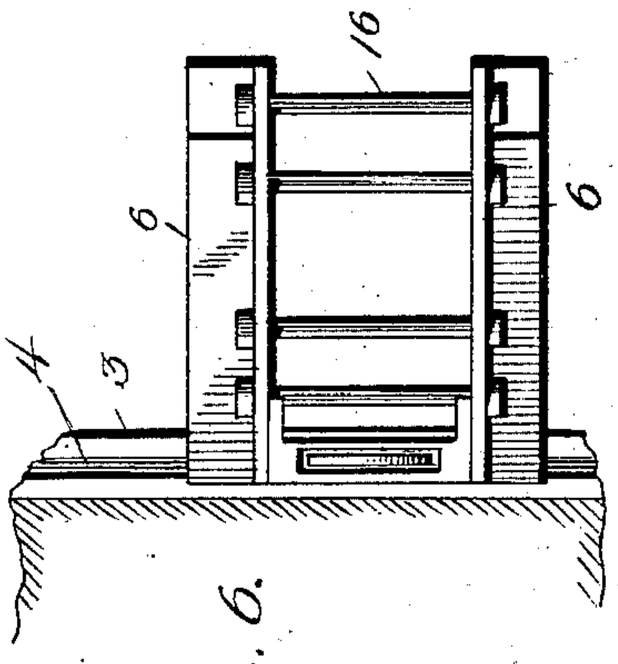

Fig. 6.

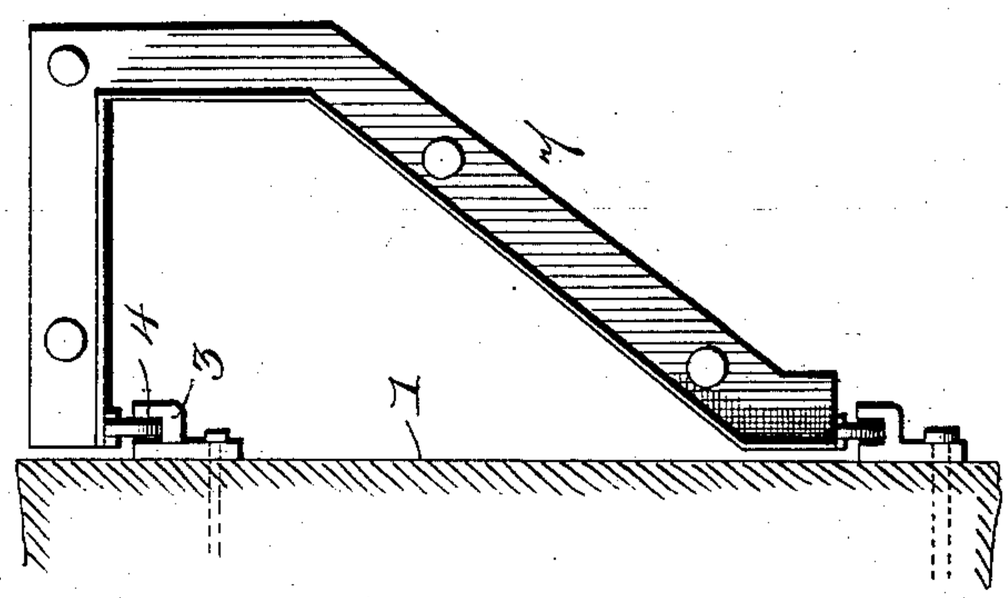

Fig. 5.

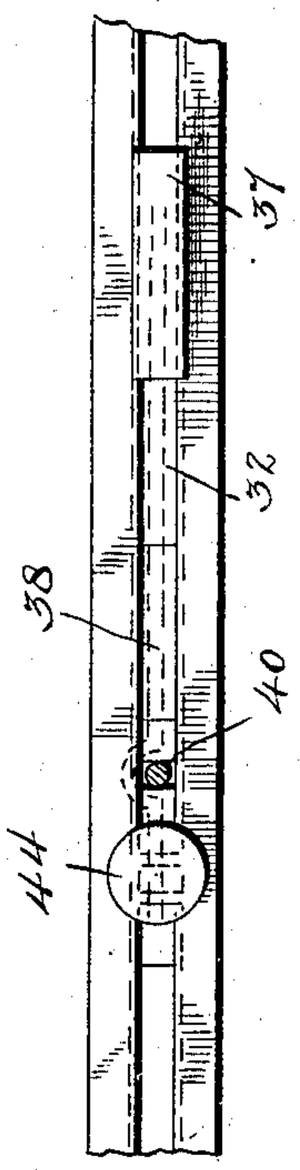

Fig. 4.

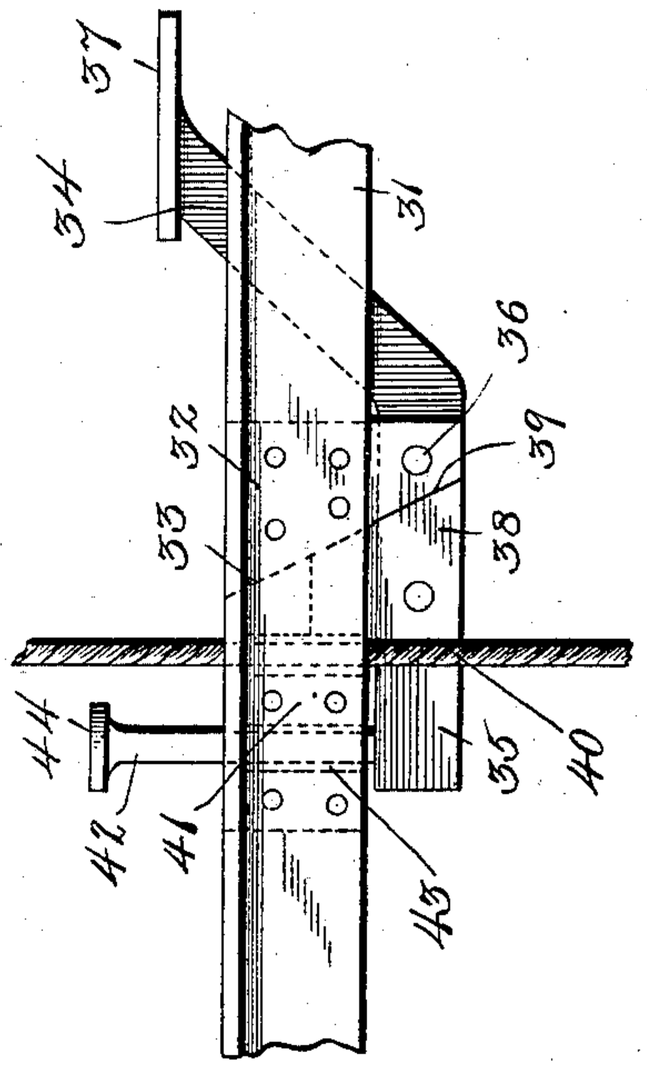

Fig. 3.

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UNITED STATES PATENT OFFICE.

RICHARD D. BURCHILL, OF GRAND LEDGE, MICHIGAN.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 654,780, dated July 31, 1900.

Application filed October 24, 1899. Serial No. 734,692. (No model.)

To all whom it may concern:

Be it known that I, RICHARD D. BURCHILL, a citizen of the United States, residing at Grand Ledge, in the county of Eaton and State of Michigan, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in fire-escapes; and its object is the production of a simple and inexpensive apparatus intended to be permanently carried upon a building in an unobtrusive position and to be capable of manipulation by persons escaping from a conflagration or by persons standing in the street below.

Further and subordinate objects will appear more fully hereinafter.

Referring to the drawings, Figure 1 is a front elevation of a building equipped with my improved fire-escape. Fig. 2 is a sectional view through the front wall of the building with my escape in position for use. Fig. 3 is a detail view illustrating the construction and operation of the brake. Fig. 4 is a detail plan view of the subject-matter of Fig. 3, and Figs. 5 and 6 are detail views of a modified form of the traveling hanger.

Referring to the numerals on the drawings, 1 indicates the front wall of a building provided at its top, as usual, with a cornice 2.

3 indicates a rail or track extending horizontally across the face of the building a short distance below the cornice 2 and provided in its upper surface with a groove 4, within which is designed to travel vertically-disposed rollers 5 at the lower extremity of the side frame-pieces 6 of what may be termed a "traveling carrier" 7. These side frame-pieces are constructed of angle-iron and are bent, respectively, to form a vertical foot 8, in which the roller 5 is journaled, and have an upwardly and outwardly inclined portion 9, extending to the front of the molding 2 and terminating in a vertical block-frame 10, surmounted by an inwardly or rearwardly extending horizontal part 11, located above the roof of the building and carrying in suitable roller-boxes 12, bolted to its under side adjacent to its rear end, horizontal rollers 13, engaging a roof rail or track 14, having a groove 15 opening rearwardly for the reception of the rollers 13. These side frame-pieces 6 of the hanger 7 are secured in parallel relation by transverse bolts 16, passing through the parallel flanges of the side pieces and secured as by heads and nuts, as usual.

17 indicates a tackle-block secured between the block-bars 18, bolted between the flanges of the side frame-pieces 6 just above the upper extremities of the inclined portions 9 thereof. This block is provided with a pair of pulleys 19, over which is designed to pass a flexible piece or cable 20, one end of which is secured to the ring of the swinging block 21, the cable being passed thence over one of the pulleys 19 back to the block around its pulley 22, thence upwardly to the block 17, around the second pulley 19, and down into the life-saving cage or carriage 23 and through its bottom. The cage 23 is preferably constructed with an angle-iron frame 24 and metallic wicker-walls 25, which may or may not be reinforced with an asbestos lining. Any suitable means may be employed for suspending the cage from the block 21; but I prefer to provide a pair of angular bails 27, connected by a link 28, which may readily be slipped over the hook 29 of the block 21.

30 indicates a hand-rail extending across the face of the building, which is designed to be grasped by an occupant of the cage for the purpose of moving the hanger across the face of the building to any desired position, it being obvious that by means of the device constructed as illustrated the cage may be raised and lowered by the manipulation of the cable 20 or may be moved by the shifting of the hanger to any desired transverse position, thereby presenting the cage before any or all of the openings through which escaping persons may find an exit. In order, however, to facilitate the manipulation of the cage by an occupant and to prevent the accidental precipitation of the cage as soon as any considerable weight is placed therein, I have devised a simple and ingenious brake designed to automatically grip the cable and prevent the lowering of the cage and to be manually released to any desired extent to permit the lowering of the cage at any speed desired. At the same

time the brake is so constructed that it will oppose no resistance to the raising of the cage by the application of power to the free end of the cable 20.

At a suitable point in the bottom of the cage I provide a pair of angle-bars 31, between which the cable 20 passes. To one side of the cable, between the bars 31, I provide a stationary block 32, extending downwardly from the upper edges of the blocks 31 and depending below their lower edges and having its face 33 adjacent to the cable inclined, as illustrated.

34 indicates what may be termed a "brake-lever," having a horizontal portion 35 located below the bars 31, fulcrumed at 36 within a bifurcation of the block 32 and extending thence upwardly between the bars 31, where it terminates in a flat footpiece 37.

38 indicates a braking-wedge carried by the brake-lever 34 and having an inclined face 39, movable upon the inclined face 33 of the block 32, and a friction or braking face 40, designed when the footpiece 37 is depressed to be wedged against the cable 20 and firmly grip it against a stationary brake-block 41, secured between the bars 31.

The numeral 42 indicates a release-rod extending downwardly through an opening 43 in the block 41 and bearing at its lower end against the extremity of the brake-lever 34, its opposite end being provided with a footpiece 44, by means of which the rod 42 may be depressed to cause the depression of the lower end of the brake-lever and the consequent release of the cable by the depression of the movable brake-block 38. Thus it will be seen that a weight within the cage will tend to cause it to descend; but the frictional contact between the cable 20 and the block 38 will cause the block to be drawn upward slightly against the face 33, and the resistance to the lowering of the cage will be automatically increased in proportion to the weight. If, however, the braking action is not sufficient, slight pressure upon the footpiece 37 of the brake-lever 34 will augment the automatic action of the brake until the desired action is attained. It is equally obvious that if it is desired to permit the descent of the cage it is simply necessary to depress the release-bar 42 to cause the desired diminution of the frictional resistance opposed by the brake to such descent.

In Figs. 5 and 6 I have illustrated a modified form of the hanger and its mountings, said modification consisting in providing both tracks or channels upon the front wall of the building; but the construction illustrated in the preceding figures is believed to be preferable, inasmuch as the strains are at right angles to each other, the greater part of the weight of the apparatus being sustained by the channel or track 3 and the forward strain under the weight of an occupied cage being resisted by the roof track or channel, which being located back of the building-front may be braced much more effectively than would be possible were the track or channel mounted upon the front wall.

While the present embodiment of my invention appears at this time to be preferable, I do not desire to limit myself to the structural details illustrated and described, but reserve the right to change, modify, or vary them at will within the scope of the protection prayed.

What I claim, and desire to secure by Letters Patent, is—

1. In a fire-escape, the combination with a horizontally-movable hanger, of a cage, pulley-blocks connected with the hanger and cage respectively, a cable passing around the pulleys of said blocks and serving to suspend the cage, a braking device carried by the cage and engaging the cable, a footpiece connected with and designed to effect the operation of the braking device, and a release-rod likewise operatively connected with the brake and designed to effect the release of the cable, substantially as specified.

2. In a fire-escape, the combination with a cage, and support, of a cable suspending the cage from the support, a stationary brake-block and a movable brake-block designed to grip the cable, a brake-lever supporting the brake-block, and independent mechanism for operating the lever in opposite directions to effect the gripping or release of the cable, substantially as specified.

3. The combination with a support and cage, of a cable serving to suspend the cage from the support and passing through the bottom of the cage, one of said blocks having an inclined face, a movable brake-block provided with an inclined face in operative proximity to the inclined face of one of the stationary blocks, a pivoted lever carrying said movable brake-block and means projecting above the floor of the cage for operating the brake-lever in opposite directions to effect the engagement or release of the cable, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD D. BURCHILL.

Witnesses:
VOLNEY N. PEARSALL,
FRED E. NELSON.