Jan. 15, 1946. S. CHIARELLO 2,393,087

FIRE ESCAPE

Filed Jan. 23, 1945 4 Sheets-Sheet 1

Fig. 1.

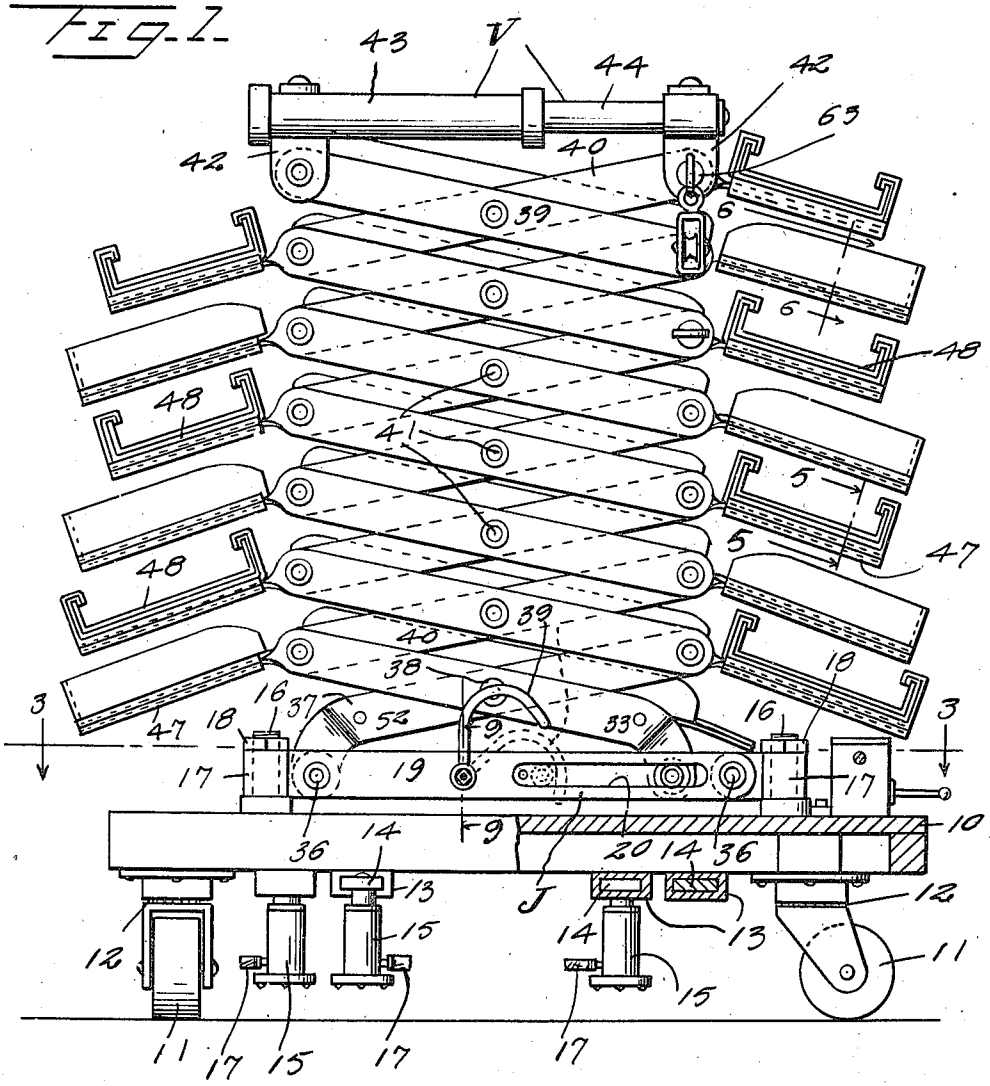


Fig. 5.

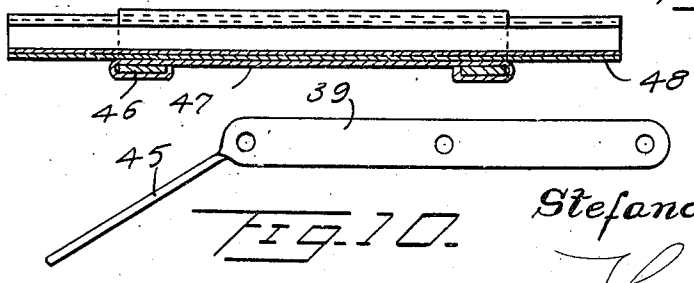


Fig. 10.

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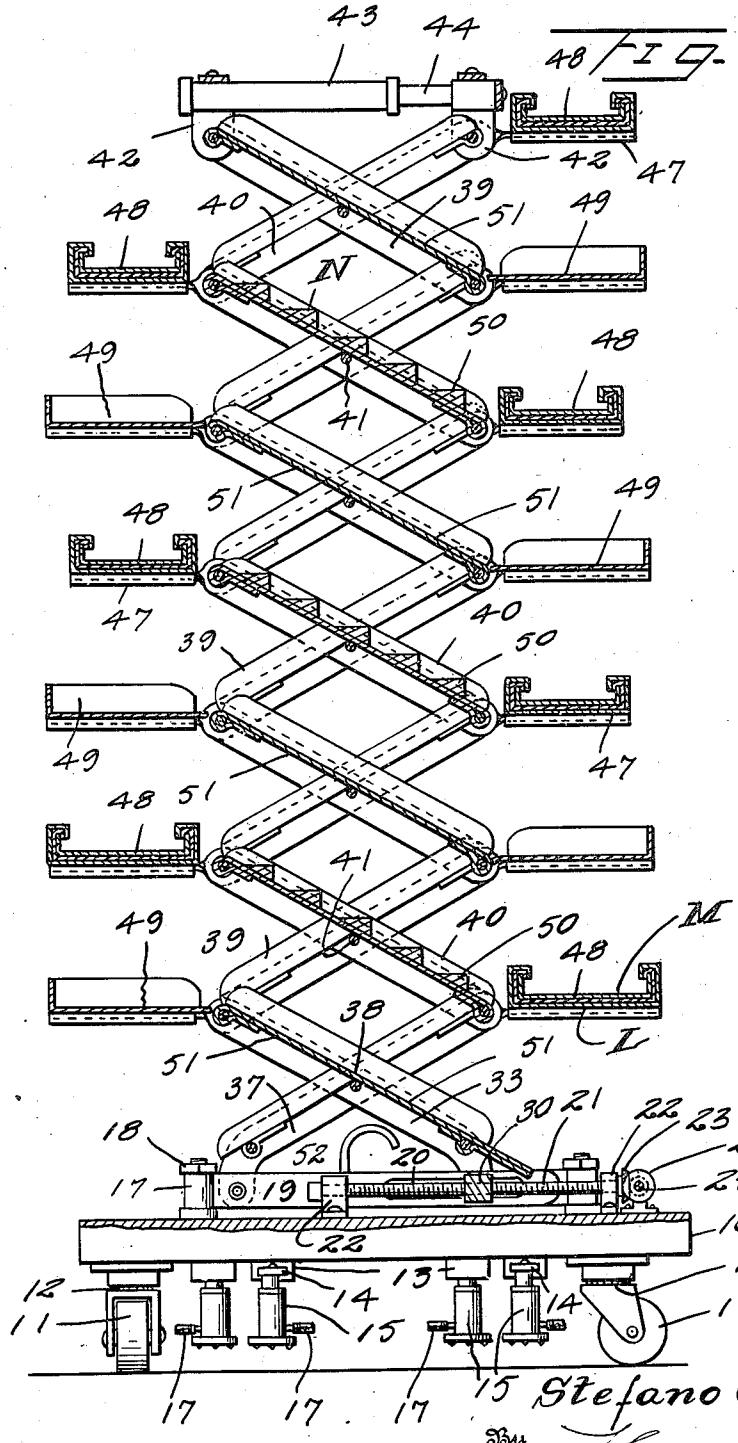
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Jan. 15, 1946. S. CHIARELLO 2,393,087

FIRE ESCAPE

Filed Jan. 23, 1945 4 Sheets-Sheet 2

Fig. 2.



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Jan. 15, 1946. S. CHIARELLO 2,393,087

FIRE ESCAPE

Filed Jan. 23, 1945 4 Sheets-Sheet 3

Fig. 3.

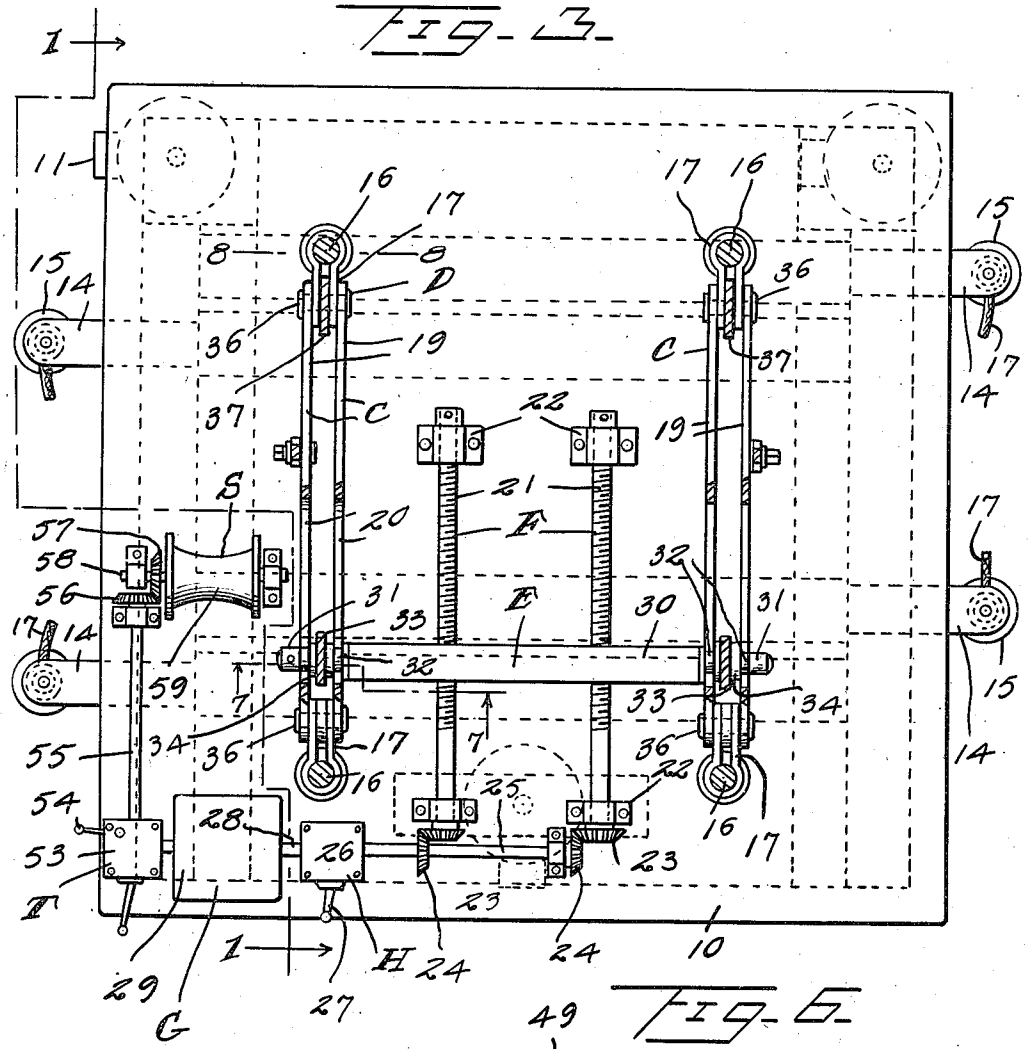


Fig. 6.

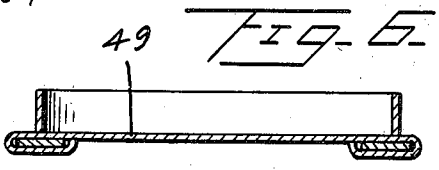


Fig. 7.

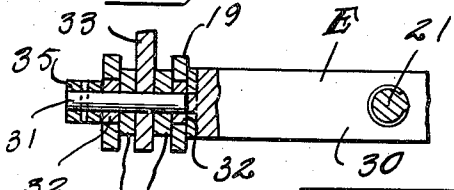


Fig. 5.

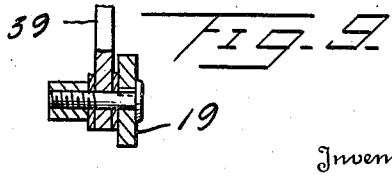
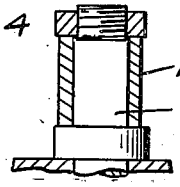


Fig. 4.



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Jan. 15, 1946. S. CHIARELLO 2,393,087

FIRE ESCAPE

Filed Jan. 23, 1945 4 Sheets-Sheet 4

Fig. 4.

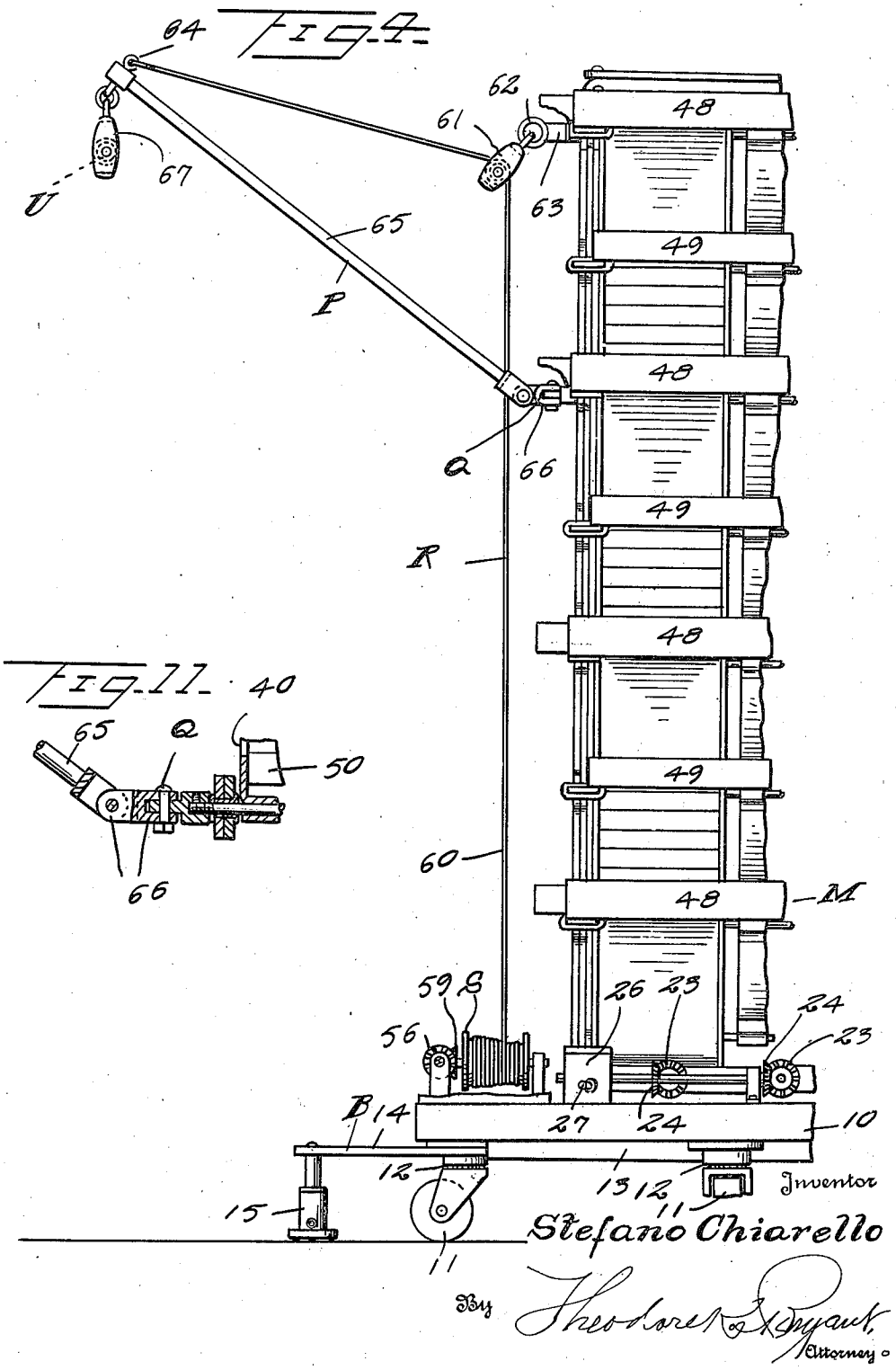


Fig. 11.

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Patented Jan. 15, 1946

2,393,087

UNITED STATES PATENT OFFICE

2,393,087

FIRE ESCAPE

Stefano Chiarello, Brooklyn, N. Y.

Application January 23, 1945, Serial No. 574,062

8 Claims. (Cl. 227—5)

This invention relates to fire escapes and has special reference to a portable fire escape which may be taken from place to place.

One important object of the invention is to provide a novel form of portable fire escape wherein the device, when in use, will be of substantially the same character as the fire escapes commonly fixed to houses.

A second important object of the invention is to provide a novel portable fire escape having a lazy tongs arrangement which carries stairs and platforms so that when expanding this arrangement may extend up the side of a house as does the usual fixed fire escape.

A third important object of the invention is to provide, in connection with a fire escape of this character, platforms having sliding sections for connection of the fire escape to a burning building at different floors thereof, the platforms being capable of extending from the fire escape to the windows on the different floors.

A fourth important object of the invention is to provide a device of this character wherein there is a combination of stair means and chute means so that not only may people descend the fire escape by way of the stairs but the contents of a building may be saved by sliding articles down these chutes.

A fifth important object of the invention is to provide a device of this character having hydraulic jack means to hold the device steady on and against movement along the ground or pavement.

A sixth important object of the invention is to provide, in connection with the fire escape, a crane for lowering heavy articles from a building or for raising or lowering such articles for various purposes.

With the above and other objects in view the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:

Figure 1 is a side elevation, partly in section on the line 1—1 of Figure 3 of the improved fire escape in position for being moved along a street or on a truck or the like.

Figure 2 is a side elevation, partly in section, showing the fire escape in expanded position ready for securing in place.

Figure 3 is a detail section on line 3—3 of Figure 1.

Figure 4 is a fragmentary side elevational view of the fire escape at right angles to Figure 2.

Figure 5 is a section on line 5—5 of Figure 1.

Figure 6 is a section on line 6—6 of Figure 1.

Figure 7 is a section on line 7—7 of Figure 3.

Figure 8 is a section on line 8—8 of Figure 3.

Figure 9 is a section on line 9—9 of Figure 1.

Figure 10 is a detail view showing one of the levers making up the lazy tongs arrangement.

Figure 11 is a detail sectional view of the universal joint of the crane jib.

In the embodiment of the invention as herein illustrated there is provided a platform or base 10 carried on wheels 11 swivelly mounted under the base by ball-bearings 12. Extending transversely of the base are guides 13 wherein are slidably mounted the heads 14 of hydraulic jacks 15 arranged to receive fluid under pressure through pipes 17. These jacks have their heads elongated as best seen in Figure 3 so that, in connection with the guides 13, they form telescopic supports. When in use the jacks are moved to protracted positions such as shown in Figure 3 and pressure applied until the bases of these jacks engage the ground or pavement sufficiently to take the weight off the wheels 11, thus fixing the platform in position for use. Toward each side of the platform there is provided a pair of posts 16 on which are fitted yokes 17 held on the posts by nuts 18. The yokes at each side of the device are connected by a pair of bars 19 having registering slots 20. Between the pairs of bars 19 is a pair of parallel screws 21 supported in bearings 22. These screws carry bevel gears 23 which mesh with bevel gears 24 fixed on a shaft 25. This shaft extends into a gear box 26 in which the gearing, not shown, is controlled by lever 27. The gearing in this gear box is driven through a shaft 28 by means of a motor 29. Extending between the pairs of bars 19 is a cross-bar 30 through which the screws 21 are threaded. This cross-bar has reduced ends 31 on each of which is mounted a pair of rollers 32 working in the slots 20. Between the bars 19 there is mounted on each end 31 one end of a lazy tongs lever 33 which is held in proper position on said end 31 by washers 34. A collar 35 is pinned on the outer end of reduced end 31 to hold parts properly adjusted. Also the yokes 17 are secured to the bars 19 by means of pins 36 and on each pin 36 remote from the slots 20 is pivoted one end of a second lazy tongs lever 37. The levers 33 and 37 intersect each other and are pivotally connected at their centers by pivots 38. To the free ends of the levers 33 and 37 are con-

nected other lazy tongs levers 39 and 40 and these, of course, are held by pivots 41. This connection of other levers to the ends of those below is repeated until the required number of levers has been assembled in accordance with the height to which the fire escape is intended to extend.

At the uppermost pair of levers such as 39 and 40 the free ends of these levers carry yokes 42 which support telescopic guide members 43 and 44. This guide arrangement prevents swaying laterally of the lazy tongs when and during elevation. Each of the levers 39 and 40 carries an angularly disposed tongue 45 shown in Figure 10 that is adapted to fit in a guide 46 carried by a platform 47. As shown in Figure 5 this platform supports one or more sliding sections 48 so that the sections may be extended transversely of the platform or base 10. In some instances this telescopic guide may be replaced by such platforms as are shown at 49 and in Figure 6, this form being preferred for use in connection with slides or chutes. Each of the alternate levers 40 and 37 carries stairs 50. Correspondingly the levers 33 and each lever 39 carries a chute section 51. Thus, when the device is expanded as in Figure 2, the platforms 47 and 49 will lie in horizontal position while the chute and stair sections of the lazy tongs will lie in inclined position so that a person may descend the lazy tongs, transferring from section to section of the stairs by the platforms 47 or one may slide articles down the chutes, transferring one section to another of the chute arrangement at the platforms 49.

In order to relieve stress on the screws 21 there is provided for each pair of bars 19 a hook member 52 which in one position allows the bar 30 to move in the slots 20 but when in another position such as is shown in dotted lines in Figure 1, these hooks will engage the collars 35, thus taking the stress off the screws. The motor 29 has its shaft 28 extending entirely therethrough and entering a gear box 53 to drive the gearing therein, the latter not being shown, which is controlled by a lever 54. Associated with the gearing in this box is a shaft 55 carrying a bevel gear 56 which meshes with a bevel gear 57 fixed on the shaft 58 of a winding drum 59. On this drum is wound a cable 60 which extends upwardly through a guide pulley 61 carried by a bracket 62 supported by the pin connection 63 of one of the yokes 42. This cable, after passing the guide pulley, extends to an eye 64 at the outer end of a crane jib 65 connected to one of the lazy tongs levers by means of a universal joint arrangement 66 best shown in Figure 11. Depending from the outer end of this jib is a pulley 67 through which a hoisting rope may run. This arrangement is to enable weights too heavy to be readily handled manually to be removed from burning buildings and lowered to the ground. Obviously the jib 65 may be raised or lowered to get the required reach by means of the cable 60 and the crane may be swung into and out of position adjacent the building.

While the invention has been described primarily as a fire escape, it is understood that the same may be employed for other purposes, and while there is herein shown and described the preferred embodiment of the invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:

1. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, a rolling platform supporting said lazy-tongs, and horizontally shiftable jacks depending from said platform for anchoring the platform immovably on its supporting surface.

2. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, stairs carried by alternate levers of each lazy-tongs and connected to opposite ends of vertically alternate platforms, a rolling platform supporting said lazy-tongs, and horizontally shiftable jacks depending from said platform for anchoring the platform immovably on its supporting surface.

3. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, chutes carried by alternate levers of each lazy-tongs and connected to opposite ends of said platforms, a rolling platform supporting said lazy-tongs, and horizontally shiftable jacks depending from said platform for anchoring the platform immovably on its supporting surface.

4. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, telescopic guide means connecting the upper ends of each terminal pair of levers, a rolling platform supporting said lazy-tongs, and horizontally shiftable jacks depending from said platform for anchoring the platform immovably on its supporting surface.

5. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, stairs carried by alternate levers of each lazy-tongs and connected to opposite ends of vertically alternate platforms, telescopic guide means connecting the upper ends

of each terminal pair of levers, a rolling platform supporting said lazy-tongs, and means for anchoring said platform immovably on its supporting surface.

6. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower treminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, chutes carried by alternate levers of each lazy-tongs and connected to opposite ends of said platforms, telescopic guide means connecting the upper ends of each terminal pair of levers, a rolling platform supporting said lazy-tongs, and horizontally shiftable jacks depending from said platform for anchoring the platform immovably on its supporting surface.

7. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, stairs carried by alternate levers of each lazy-tongs and connected to opposite ends of vertically alternate platforms, chutes carried by alternate levers of each lazy-tongs and connected to opposite ends of said platforms, a rolling platform supporting said lazy-tongs, and means for anchoring said platform immovably on its supporting surface.

8. In a fire escape, a pair of spaced lazy-tongs structures, each consisting of a series of pairs of levers, each pair being centrally connected by pivot means and the ends of each pair between the upper and lower terminal pairs being pivotally connected, means to move the lower ends of each lower terminal pair toward and from each other, landing platforms angularly disposed with respect to said levers to lie in a horizontal position upon the lazy-tongs being in elevated position, stairs carried by alternate levers of each lazy-tongs and connected to opposite ends of vertically alternate platforms, chutes carried by alternate levers of each lazy-tongs and connected to opposite ends of said platforms, telescopic guide means connecting the upper ends of each terminal pair of levers, a rolling platform supporting said lazy-tongs, and means for anchoring said platform immovably on its supporting surface.

STEFANO CHIARELLO.