Feb. 22, 1938. M. HONIG 2,109,196

FIRE LADDER AND SAFETY ELEVATOR

Filed Nov. 17, 1936 2 Sheets-Sheet 1

FIG. 3

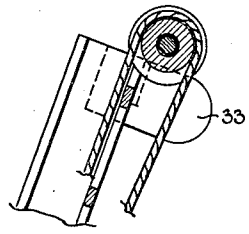


FIG. 4

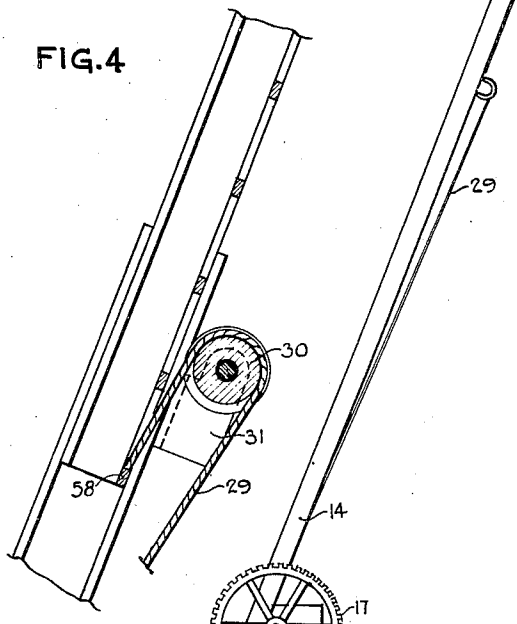


FIG. 1

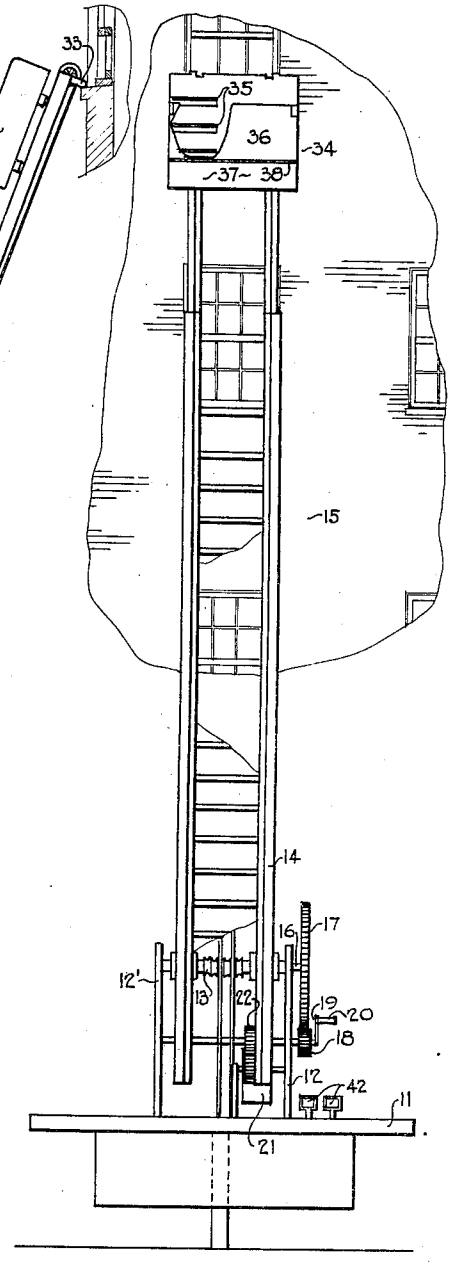


FIG. 2

INVENTOR.
MORRIS HONIG
BY Peter W. Boesen
ATTORNEY.

Feb. 22, 1938. M. HONIG 2,109,196

FIRE LADDER AND SAFETY ELEVATOR

Filed Nov. 17, 1936 2 Sheets-Sheet 2

FIG. 5

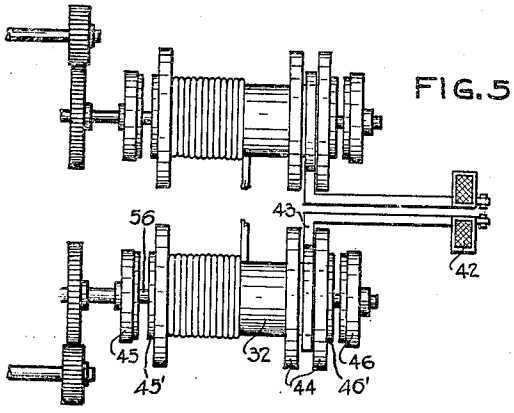
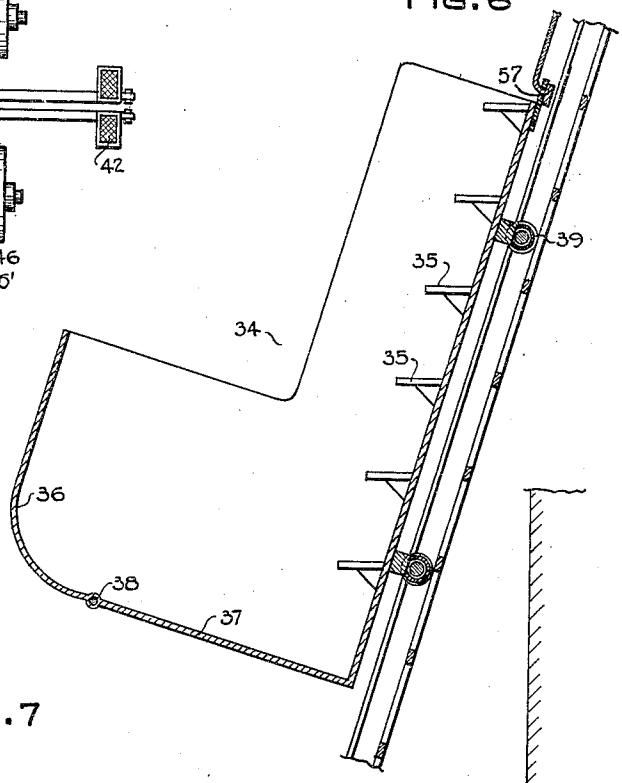


FIG. 6



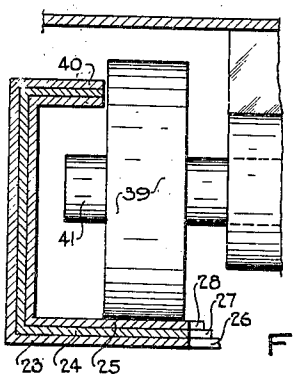


FIG. 7

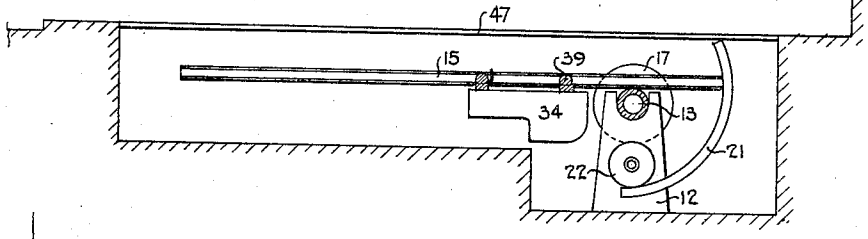


FIG. 8

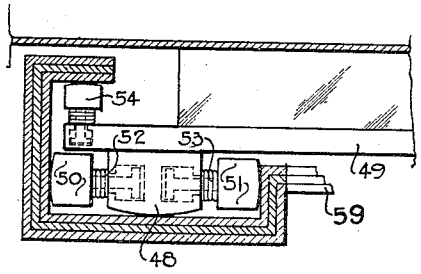


FIG. 9

BY

INVENTOR.
MORRIS HONIG
Peter W. Boesen
ATTORNEY.

Patented Feb. 22, 1938 2,109,196

UNITED STATES PATENT OFFICE

2,109,196

FIRE LADDER AND SAFETY ELEVATOR

Morris Honig, Bronx, N. Y.

Application November 17, 1936, Serial No. 111,185

2 Claims. (Cl. 227—8)

This invention relates to new and useful improvements in safety elevators, and it has for its special purpose to construct a combined fire ladder and safety elevator, the ingenious construction of which makes it possible quickly and without danger to save people from burning buildings.

The ladder is built in sections, and the somewhat U-shaped sidepieces, which also serve as tracks for the safety elevator, are slidable each one inside of the next lower section, and as a plurality of sections may be used, practically any ordinary height may be reached.

A further object is to the effect that when my invention is installed, as hereinafter described, in front of a building, present ugly and undesirable fire escapes may be omitted.

With the above and other objects in view, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed, and illustrated in the accompanying drawings forming part of this application, and in which similar characters of reference indicate corresponding parts in all views, and in which:—

Figure 1 shows a side elevational view of my invention installed on a fire truck, and with the safety elevator in operation ready to receive people from a burning building.

Figure 2 illustrates a front view of the same operation, the truck being here omitted.

Figures 3 and 4 are enlarged sectional views, clarifying constructional details of my invention.

Figure 5 is a top view indicating a schematic arrangement of the hoisting and lowering apparatus.

Figure 6 is a transverse sectional view through my safety elevator.

Figure 7 is an enlarged view of the rollers or wheels operating in the tracks.

Figure 8 indicates a schematic layout of my invention installed in front of a building.

Figure 9 shows a modification in regard to constructional parts of my safety elevator, and a different arrangement of the U-shaped sidepieces of the ladders.

My invention can be mounted on a truck as in Figure 1, a fixed rotary platform as in Figure 2 or concealed in a covered dugout as in Figure 8.

Referring more particularly to the drawings, 10 indicates a fire truck or engine of ordinary make with a platform 11 pivotally mounted on the same. To said platform 11 are secured two brackets 12 and 12'. A roller 13, which forms an integral part with the lowest section 14 of the ladder 15, has its axis 16 mounted on said brackets. To the axis and outside of the brackets is furthermore secured a gear 17, which is adapted to cooperate with a smaller gear 18 for the purpose of adjusting the ladder in regard to any desired window.

The smaller gear 18 may be mechanically operated, or may be provided with a regular arm 19 and handle 20 for manual manipulation.

Integral with the lower end of the outer and consequently the lowest section 14 of the ladder, is a guiding gear-arrangement, comprising a somewhat semi-circular or arcuate rack 21 and a pinion 22 cooperating with the gear 18, thus providing for a double contact and rigid operation.

The ladder consists of sections so constructed that each section slides within the next lower one, as especially will be seen in Figure 7, where three sections of the U-shaped sidepieces are shown at 23, 24, 25, and 26, 27 and 28 indicate the rungs, respectively.

Figure 4 illustrates means for the hoisting and lowering of a section of the ladder, relative to the adjoining one. A rope 29 is secured to the lower end of the section 58 and rolls on a pulley 30 which is secured to the next lower section by means of brackets 31.

A mechanically operated drum 32 located under the platform, and on which drum the other end of the rope is wound, serves to quickly raise or lower the section. Each section will have a separate drum.

One end of the elevator rope is secured to the drum 32 in any suitable manner, while the other end is secured to the elevator, as shown in the Figure 6, by numeral 57.

Figure 4 illustrates the way the rope is fastened to the ladder sections, as one end of the rope 29 is secured to the lowest rung 58.

Figure 3 shows a similar arrangement for the operation of the safety elevator. The section shown here being the innermost and consequently the top section. The latter is furthermore provided with two bracket-like extending portions 33 to rest on the sill of the window, thus preventing the ladder from sliding.

Figure 6 is a section through my safety elevator 34. In one corner of the same steps 35 are arranged especially for the use of old and sick people, or for instance, in the case of the pregnancy of a woman.

When the ladder is adjusted to the window in question, the elevator is hoisted up to the same, and people merely walk into it after which it is lowered by the operator. When the operator thus has lowered the elevator the front part 36

of the same, which is hinged to the bottom **37**, as seen at **38**, is turned down forming a gangplank for the rescued people to use in stepping down onto the platform to safety.

The importance of eliminating the dangerous walk up and down a shaky ladder five to six stories high is self-explanatory, and will not need to be stressed.

The elevator wheels **39** are so constructed that the tops of these extend above the top flange **40** (see Fig. 7), while each of the ends of the axles **41** is within the space formed by the U-shaped sidepiece or track, and below the top flange.

This latter construction makes it impossible for the elevator to jump off the tracks.

An ordinary clutch-system is indicated in Figure 5. Identical units such as that described below are provided for each ladder extension. A conventional cable extends from each drum to its respective ladder section, so the showing is omitted. Operated by pedals **42**, the fork-shaped arms **43**, secured between two flanges **44**, in the drum, will contact and connect the latter to either the forward driving or reverse driving gears **45** and **46** for a hoisting or lowering movement, respectively. Thus said clutch is slidably and pivotally arranged upon an axle **56**; the drum is upon one end thereof formed with a double flange **44** with sufficient space between said flanges to permit a fork-shaped member **43** to be injected between the latter. By means of foot pedals **42**, as shown herein, or other suitable means, said drum can be moved towards either of the two clutch-plates **45** and **46** rotating in opposite direction; said clutch-plates engage similar plates **45'** or **46'** attached to either side of the drum. Gear arrangement for the operation of said clutch plates is part of the commonly known engine machinery for said purpose, and is not claimed herein.

Figure 8 shows my invention installed in front of a building, for instance, in a dugout beneath the sidewalk, under a removable cover **47**, on fixed supports **12**.

The arrangement is similar to that described before, except that an electric motor may conveniently be installed in the dugout for the operation of the ladder.

A modification in regard to the constructional parts is shown in Figure 9.

The sidepiece is of a slightly different construction and arrangement, and instead of the wheel a sliding shoe arrangement is provided for herein.

Thus the main slide **48** is secured to a crossbar **49**, and in the same slide track are mounted two side guide shoes **50** and **51**, which by means of the springs **52** and **53** are pressed against the sides of the tracks even when the said shoes move from one section into the next, thereby assuring that the slide will always remain on the tracks. At **59** is shown part of a rung of the ladder, as said rung is attached to said slide **48**.

It will be understood the side-pieces in Figure 9 are of slightly different dimensions.

A similar top guide shoe **54** is inserted in the end of the crossbar **49**.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. A device of the class described, comprising a safety elevator, wheels mounted thereon, side pieces of a sectional adjustable ladder, said side pieces being U-shaped in cross-section and arranged on a platform, whereby to serve as tracks for said wheels, means for operating the elevator and ladder, said means consisting of a plurality of rope drums, each drum being independently mounted on an axle and serving a separate ladder section, two flanges disposed on the end of each drum and adapted to form a groove, a fork-shaped member inserted into said groove and an operating rod connected to said fork-shaped member, a pedal adapted to manipulate said rod, a forward driving and a reverse driving gear mounted on the axle, one on each side of the drum, friction clutches attached to the inside of said gears, cross-bars secured to the lower surface of the elevator, slide shoes arranged on said cross-bars and engaging said tracks, spring actuated means for urging the said shoes to remain on the tracks, and means for the mechanical operation of the device.

2. A device of the class described, comprising a safety elevator, wheels mounted thereon, side pieces of a sectional adjustable ladder, said side pieces being U-shaped in cross-section and arranged on a platform, whereby to serve as tracks for said wheels, means for operating the elevator and ladder, said means consisting of a plurality of rope drums, each drum being independently mounted on the axle and serving a separate ladder section, two flanges disposed on the end of each drum and adapted to form a groove, a fork-shaped member inserted into said groove, and an operating rod connected to said fork-shaped member, a pedal adapted to manipulate the rod, a forward driving and a reverse driving gear mounted on the axle, one on each side of the drum, and friction clutches attached to the inside of the gears, substantially as and for the purpose set forth.

MORRIS HONIG.