United States Patent

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[54] **EMERGENCY FIRE ESCAPE MEANS**

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[52] **U.S. Cl.**.....**182/70,** 182/78

[51] **Int. Cl.**.....**E06c 9/14**

[58] **Field of Search**.....182/70, 73, 76, 18, 19, 77, 182/78

[56] **References Cited**

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[57] **ABSTRACT**

A fire escape device adapted to be mounted to an external wall of a building below a window. A platform is pivotally mounted on a wall. The chain or wire ladder is connected to the platform. When the platform is folded up, it provides an enclosure for the folded ladder. When the enclosure is opened, the platform falls pivotally to a horizontal position. The platform has a trap door in it, operating on hinges that also allow it to pivot downward and release the ladder inside. The ladder descends to the ground.

3 Claims, 5 Drawing Figures

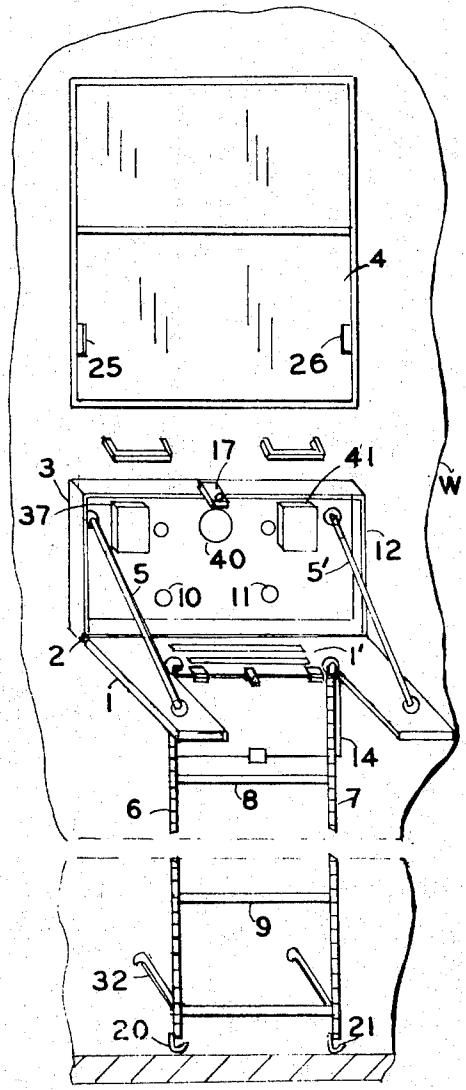


FIG 1

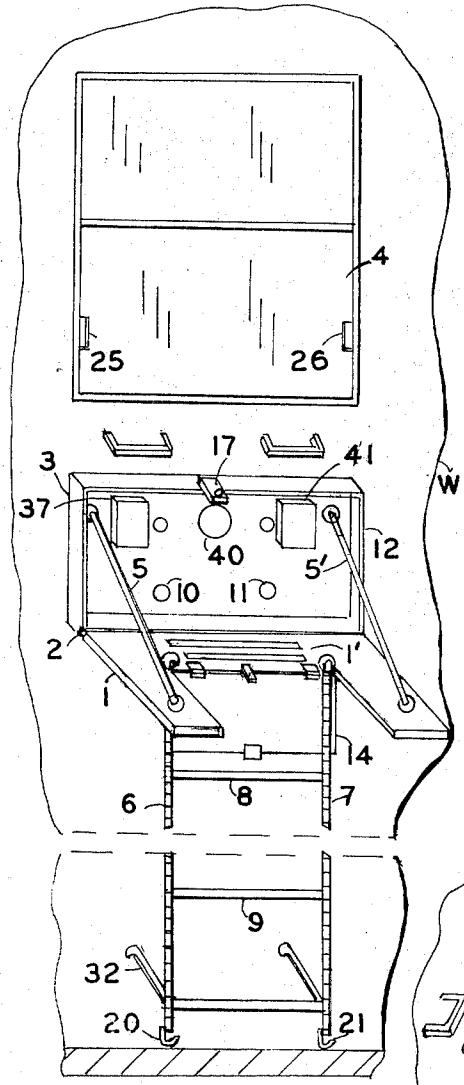


FIG 2

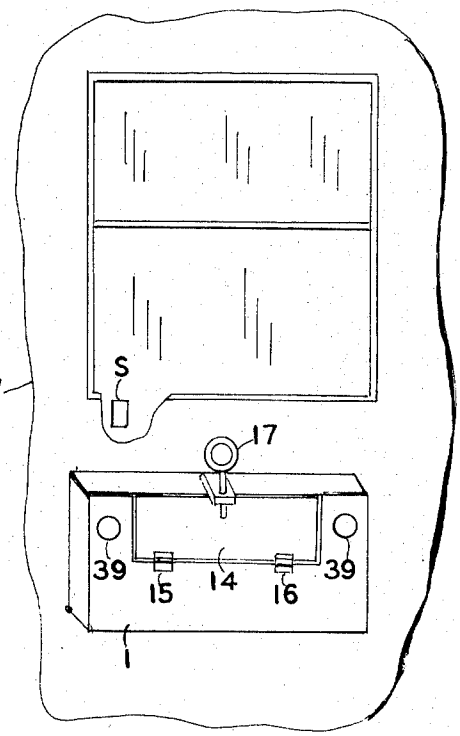
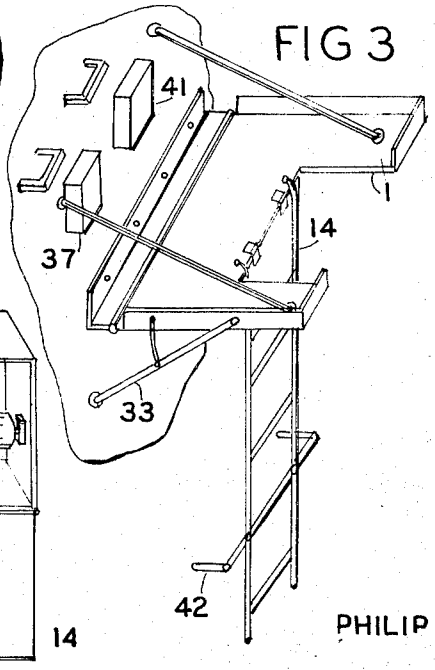


FIG 3



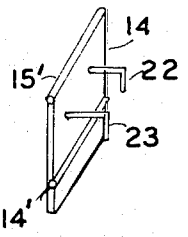


FIG 3A

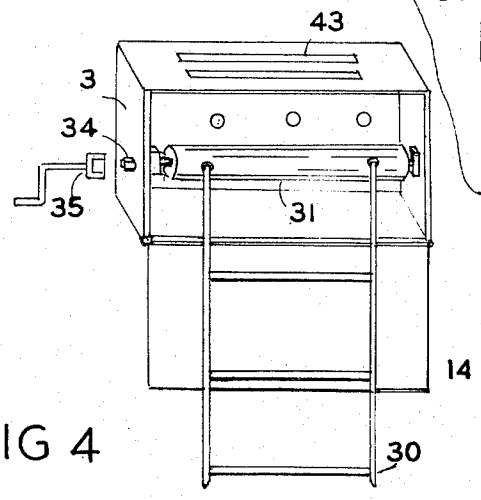


FIG 4

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EMERGENCY FIRE ESCAPE MEANS

This invention relates to emergency fire escape ladders and more particularly to a chain or wire ladder device, adaptable for permanent mounting under a window, on the outside wall of a building.

Two and three story private homes generally do not have fire escapes from the upper floors and these are not required by the building codes and regulations. Since most of these homes are of wood frame construction, containing highly inflammable parts, the occupants are sometimes trapped on a upper floor and unable to escape. Former art that includes the use of ropes or ladders in emergency require experience and great physical prowess to negotiate an exit in this manner or allowing additional exit of infants, children or old folks. Climbing out of a window backwards on to a moving flexible ladder carrying a child is extremely difficult and dangerous. In panic, it would be difficult to find the ladder in the closet and attach it. This invention eliminates this and improves the safety factor considerably. The present invention provides an emergency Fire Escape Means, which is pivotally mounted under a window on the outside wall. The chain or rope ladder is mounted in the device enclosure directly under a window, and is the same general size and appearance as an extending air conditioner unit. It is of weather resistant materials.

In order to activate the fire escape means, the user reaches out the window and opens a single lock control on top of the enclosure. The enclosure then opens by gravity into a horizontal platform to which is connected a chain or wire ladder, mounted on a trap door assembly that pivots on a hinge 180° from the closed position. The trap door descends downward vertically, releasing the stacked ladder held on to its two ladder hooks, that direct the downward release of the ladder in an organized fashion. The ladder falls out of the enclosure and trap door by gravity and extends to the ground or any other safe surface in the area. The ladder is spaced away from the building wall so as to provide sufficient toe room on the rungs of the ladder. This also permits descent on either side of the ladder. In a multiple dwelling windows below would be served by the inside part of the dropped ladder.

Accordingly, a principal object of the invention is to provide new and improved fire escape means.

Another object of the invention is to provide new and improved fire escape means for private two and three story homes, industrial buildings and tenements.

Another object of the invention is to provide new and improved fire escape means, using a chain or wire ladder which is normally contained in an enclosure mounted below a window, the ladder being arranged so that when the enclosure is opened the ladder falls down by gravity and extends to the ground, in a reliable orderly manner.

Another object of the invention is to provide new and improved fire escape means, comprising a platform member adapted to be pivotally mounted on the outside of a building wall under a window, a collapsible ladder connected to said platform, means to hold said platform in closed and open positions, said platform being adapted to hold said ladder in collapsed position when said platform is in closed position,, said ladder being arranged on said platform so that when said platform is moved to open position, said ladder falls down into an extended position.

Another object of the invention is to provide a easily operated lock control device that with the activation of one pin or lock woud reliably open the entire emergency escape device in moments by any user, resulting in speedier safer exits from fire dangers. This can also be operated from inside the building if desired or by automatic electrical means, such as a heat and/or smoke sensors.

Another object of the invention is to provide an emergency fire device that can accommodate more than one person safely and children, said invention containing additional safety features by having optional safety equipment built into it, said equipment being an alarm to attract rescurers and lights that shine on the platform and stairs, and another important feature being enclosure of a harness and adequate rope or cable for lowering children or those hurt.

These and other objects of the invention will be apparent to the following specifications and drawings, of which,

FIG. 1 is a perspective view of an embodiment of the invention in open position.

FIG. 2 is a perspective view of the embodiment of FIG. 1 in closed position.

FIGS. 3 and 4 are perspective views of modifications of the invention.

FIG. 3A is a detail view of FIG. 3.

The device is installed by bolting the back panel or the platform support chain to the structural members of the house, underneath a window. The device is then closed up as shown in FIG. 2 until it is necessary to use it.

When it is necessary to use the escape ladder device, the person wishing to escape, reaches out the window and releases the single control latch, 17, or from inside the building, the platform 1 will then fall down to the position shown in FIG. 1 which is substantially horizontal where it it is held by chains 5,5'. The chain ladder, 6, 7, 8, 9, will fall down when the trap door, 14 opens by gravity. The ladder is released from ladder mounting hooks, 22, 23,, on the trap door, 14, which in an open position reverses the position of the hooks and allows gravity release. The ladder will then fall to the ground to provide a convenient exit. Note that the ladder, in the down position, is spaced from the building wall sufficiently, so that the wall will not interfere with the proper foot holds on the rungs of the ladder. This feature also permits use of the ladder from either side, such as when the device is higher than windows below where entry to the ladder can be made directly. If desired, hooks 20, 21, may be connected to the bottom of the ladder and secured to corresponding hooks or eyes at the ground level to prevent the ladder from swaying. These hooks would have to be manually engaged to hook holders, not shown, by someone on the ground or else, the first user could secure the bottom hooks. Note the ladder steady rests 32 and 42, fold into ladder and pivot to lock onto building wall orrest against same. Also note additional supports, 33, shown on FIG. 3, that can be secured to the wall or from the wall to the device platform to provide additional safety with greater loading in industrial or tenement situations.

FIG. 3, and 3A shows a modification of the invention illustrating a pair of ladder holding hooks,, 22, 23, mounted on the hinged trap door, 14. The purpose of

the hooks, 22, 23, is to prevent the chain from getting tangled up. The hooks, 22, 23, are adapted to hold the rungs of the ladder so that the interconnecting chains will not tangle and release orderly. The hooks, 22, 23, will not release the ladder until the trap door is in its final position vertically, where the hooks, 22, 23, have reversed their original position 180°, and allow delivery of the ladder according to the way the ladder was packed for delivery. In the closed position the hooks, 22, 23, are in a upward position as opposed to the open position when facing downward, in the right position to deliver the ladder. The single latch 17, releases the platform and its subordinate unit the trap door simultaneously.

FIG. 1 shows a built in lighting system, 39, 40, that lights the entire platform area. FIG. 2 shows an alternate light, 39, on the outside of the closed unit, which when activated becomes the bottom part of the platform and will light the steps going down. The single latch control, 17, when opened automatically connects the light circuit permitting A/C or D/C power supply operation.

FIG. 1 also shows an alarm system, 37, activated by the single latch, 17, upon initial opening powered the same as the lights. This will attract attention of passer-bys and rescuers and also provide protection against unauthorized users to gain entry or descent.

FIG. 3 shows adjustable self locking hinge type heavy support brackets, 33, for heavier loads on industrial or tenement use. They could also be a manual locking type easily placed by the user into a hook or eye attached primarily to the platform base or to the house. In the design of specific tenement use the emergency fire escape means could be made offset to allow use from only one designated window at a time. FIG. 3 also shows horizontal ladder supports,, 32, placed at intervals to provide stability for descent. They can be either stand-off type or hooked into building, they fold and unfold on ladder steps.

FIG. 3 shows alternative supports, 42, for ladder of a wider design to permit wider passage width and inside passage on the ladder which supports 32 would be too narrow to allow climbing inside without interfering with the user.

FIGS. 1 and 3 show a unit, 41, that contains lowering ropes and harnesses to lower children or victims. Wire rope would connect to harnesses with an "S" hook for quick uncoupling, from both below or above.

FIG. 3A shows a detail view of the trap door, 14, in open position showing hinges 14' and 15' and ladder holding hooks, 22, 23.

FIG. 4 shows another modification of the invention,, wherein the ladder, 30, is made of wire instead of chain and is adapted to roll up on the roller, 31, which is rotatably mounted on brackets extending from the back panel, 3.

FIG. 4 shows a non skid step, 43, as part of this device,, also a connecting drive, 34, as part of the roller assembly and a wind-up handle,, 35, to wind up the cable properly onto the roller.

I claim:

1. Fire escape means comprising a platform member pivotally mounted on the outside of a building wall under a window, an access trap door pivotally mounted in a cutout in said platform,

a collapsible ladder connected to said platform, adjacent said door pivot,

means to hold said platform in closed and open positions, said trap door holding said ladder in collapsed condition when said platform is in closed position, said ladder being arranged on said access trap door so that when said platform is moved 90° to open position, said access trap door moves 180° and said ladder falls down into an extended position, away from the building wall, wherein said access trap door has ladder holding hooks that direct the delivery of the life saving ladder correctly and quickly said hooks being L shaped hooks attached to said door to hold said ladder in up position of said door and to release the said ladder in down position of said door.

2. Apparatus as in claim 1, having enclosure means connected to said platform member so that when said platform member is in closed position, said ladder is completely enclosed and protected from the weather.

3. Apparatus as in claim 1, said ladder having stand off members to hold said ladder spaced from the wall.

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