March 20, 1962 H. BURNSTEIN 3,025,923

COLLAPSIBLE LADDER

Filed Jan. 30, 1961 2 Sheets-Sheet 1

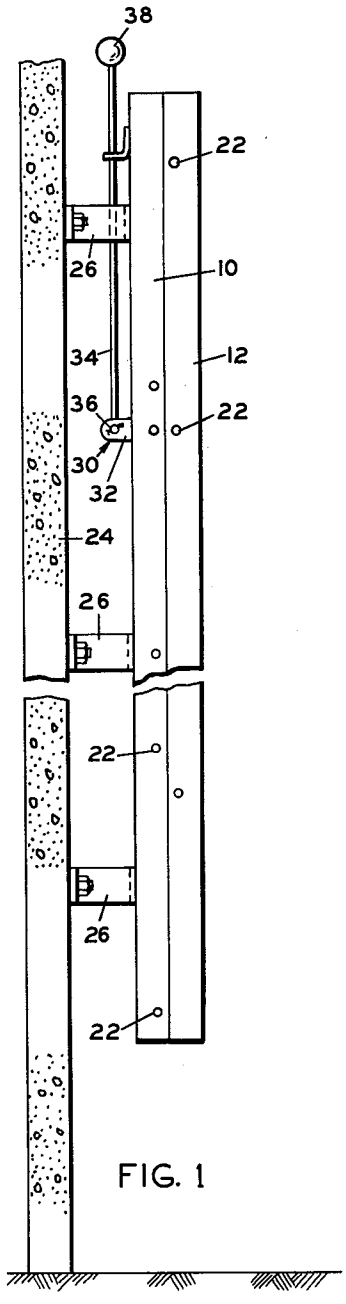


FIG. 1

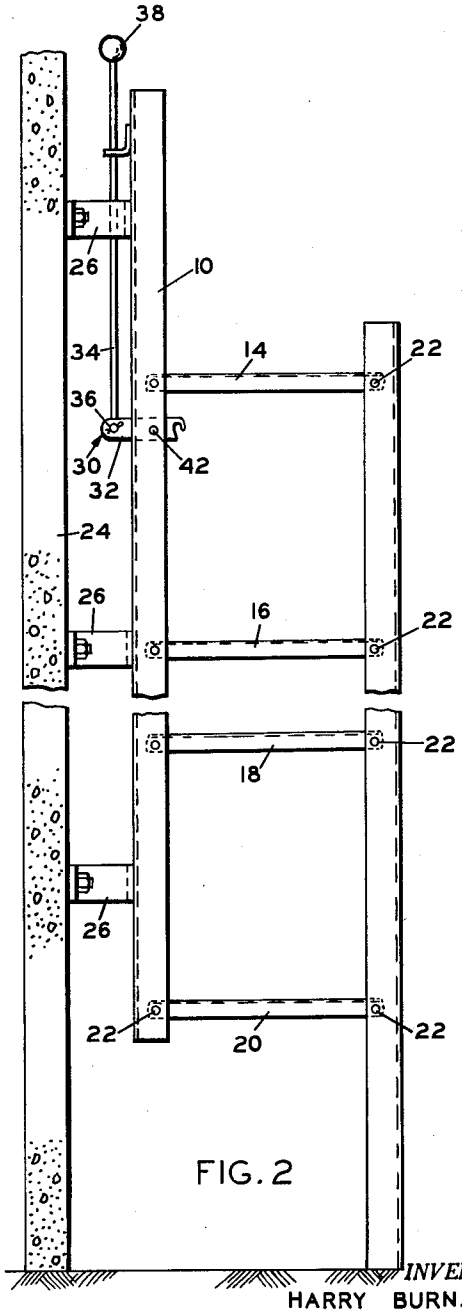


FIG. 2

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COLLAPSIBLE LADDER

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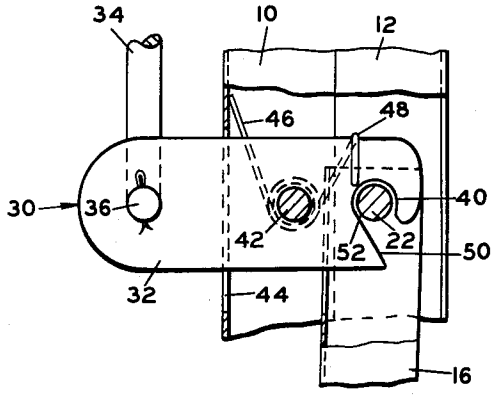


FIG. 3

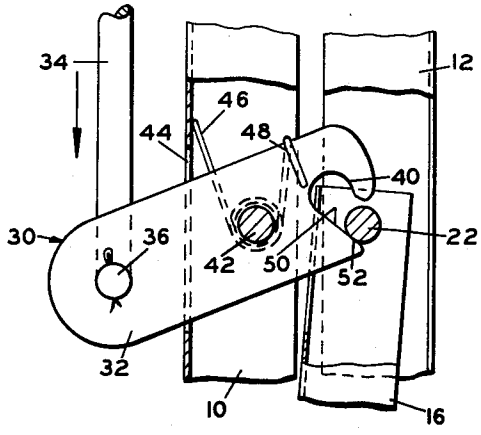


FIG. 4

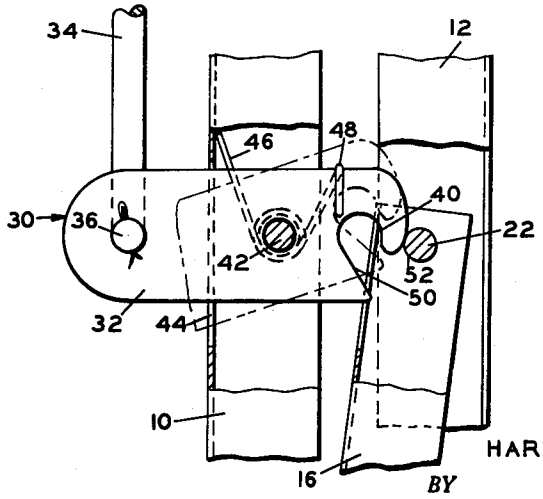


FIG. 5

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COLLAPSIBLE LADDER

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2 Claims. (Cl. 182—96)

This invention relates to collapsible ladders of the type that are attached to the sides of buildings and serve as fire escapes.

In general the present invention relates to improvements in ladders of the type that include spaced side members that are joined by vertically spaced rung. The ends of the rungs are pivotally attached to the side members whereby the ladders can be selectively disposed in a folded configuration, wherein the side member lie along side of each other, or in an open operative configuration wherein the side members are spaced from one another and the rungs are extended horizontally.

In accordance with the present invention, the ladder construction includes a novel actuating means for retaining the ladder in a folded configuration and for releasing the ladder to an operated configuration. The actuating means is provided with a handle portion located at the top of the ladder adjacent the sill of a window whereby a person escaping from the window can manipulate the actuating means and quickly unfold the ladder.

As another aspect of the present invention, the ladder construction is provided with means for forcing the side members apart in the event they become frozen together when icing conditions prevail.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of embodiment of the invention is clearly shown.

In the drawings:

FIG. 1 is a front elevational view showing the ladder of the present invention disposed in folded configuration;

FIG. 2 is a front elevational view showing the ladder of the present invention disposed in an open operative configuration; and

FIGS. 3 through 5 are partial broken elevational views of the ladder of the preceding figures which views illustrate an actuating means comprising a portion of the ladder construction.

Referring in detail to the drawings, FIGS. 1 and 2 illustrate a ladder constructed in accordance with the present invention that includes side members **10** and **12** that are joined together by a plurality of vertically spaced rungs, some of which are seen at **14—20**.

Side members **10** and **12** are preferably formed from metal channel stock of U-shaped cross section and include transverse pivot pins **22** that form the pivotal connections between the ends of the rungs and the side members.

As seen in FIGS. 1 and 2, left side member **10** is attached to a building wall **24** by a plurality of vertically spaced brackets **26**.

The ladder construction further includes an actuating means indicated generally at **30** which comprises movable member **32** mounted on one of the side members **10** and an actuator **34** having its lower end connected to movable member **32** at a pivot **36** and its upper end provided with a handle portion **38**.

Referring next to FIGS. 3–5, movable member **32** of actuating means **30** is preferably in the form of a pivoted lever provided with a first latch portion **40** formed by an open ended slot that detatchably engages a second latch portion which may be provided by one of the rung pivot pins **22** as illustrated or which may be provided by a separate member.

With continued reference to FIGS. 3–5, movable member **32** is pivotally attached to side member **10** at a pivot pin **42** and includes an end that extends through a slot **44** provided in the outer web of U-shaped side member **10**.

A wire tortion spring **46** is wrapped around pin **42** and includes a U-shaped portion **48** that overlies the top of movable member **32** and serves to bias said member towards the latched and folded configuration of FIG. 3.

Movable member **32** further includes a cam surface **50** that is movable into force transmitting relationship with a shoulder **52** formed by a confronting side of latch element **22**.

In operation, when handle **38**, FIGS. 1 and 2, of actuator **34** is pushed downwardly, latch element **40** moves away from latched engagement with latch element **22** and cam **50** moves into force transmitting engagement with shoulder **52** on latch element **22** whereby side member **12** is forced away from folded engagement with side member **10**. In the event the two side members are frozen together, the ice is readily cracked upon striking a downwardly directed blow on handle **38** when serves to cam the two latch members apart with the mechanical advantage provided by pivoted lever **32**.

While the form of embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. A collapsible ladder comprising, in combination, a left side member; a right side member; a plurality of vertically spaced rung members including left ends pivotally connected to said left side member and right ends pivotally connected to said right side member, said side members being extendable from a folded position wherein said rung members extend vertically to a spaced position wherein said rung members extend horizontally; lever means generally rectilinear in configuration extending through one of said side members and beyond on either side thereof in normally transverse relationship to the long axis of said side member, said lever means pivoted intermediate its ends on one of said members, the end of said lever means extending beyond said side member in the direction of the other side member having a latch portion for engaging a latch receiving portion carried by the other of said side members in releasably latching relationship, said latch portion including a downwardly facing hook portion normally in engagement with the upper surface of said latch receiving portion, and an upwardly and inwardly inclined cam surface disposed below said hook portion and in force transmitting engagement with the latch receiving portion of the other of said side members for separating the side members upon pivotal movement of said lever means, the other end of said lever means extending beyond said side member in the opposite direction having actuating receiving means, and vertically actuating rod means associated with said side members to which said lever means is pivoted in spaced parallel relationship therewith, said rod means being connected at one end to said actuating receiving means of said lever means to pivot said lever means.

2. A collapsible ladder comprising, in combination, a left side member; a right side member; a plurality of vertically spaced rung members including left ends pivotally connected to said left side member and right ends pivotally connected to said right side member, said side members being extendable from a folded position wherein said rung members extend vertically to a spaced position wherein said rung members extend horizontally; lever means generally rectilinear in configuration extending through one of said side members and beyond on either side thereof in normally transverse relationship to the long axis of said side member, said lever means pivoted intermediate its ends on one of said members, the end of

said lever means extending beyond said side member in the direction of the other side member having a latch portion for engaging a rung member carried by the other of said side members in releasably latching relationship, said latch portion including a downwardly facing hook portion normally in engagement with the upper surface of said rung member, and an upwardly and inwardly inclined cam surface disposed below said hook portion and in force transmitting engagement with said rung member of the other of said side members for separating the side members upon pivotal movement of said lever means, spring means between said lever means and the side member to which it is mounted to bias said side member toward the closed position, the other end of said lever means extending beyond said side member in the opposite direction having actuating receiving means, and vertically actuating rod means associated with said side members to which said lever means is pivoted in spaced parallel relationship therewith, said rod means being connected at one end to said actuating receiving means of said lever means to pivot said lever means.

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