March 31, 1931. F. N. CLARK 1,799,089

LADDER STRUCTURE

Filed Oct. 23, 1929

Fig. 1

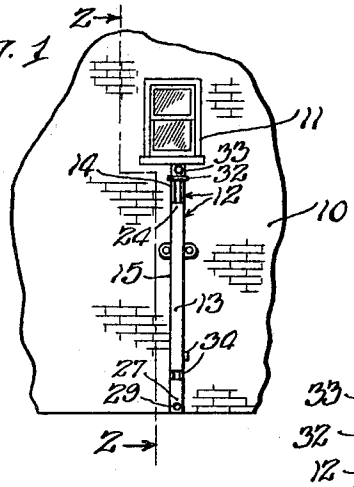


Fig. 2

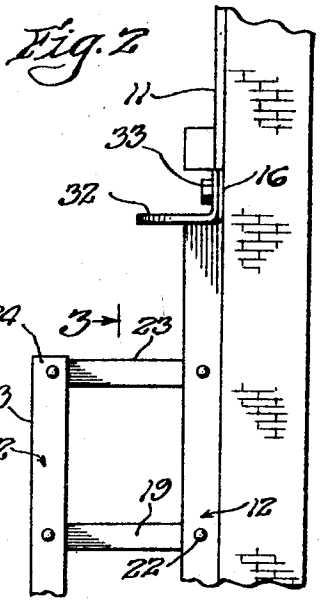


Fig. 3

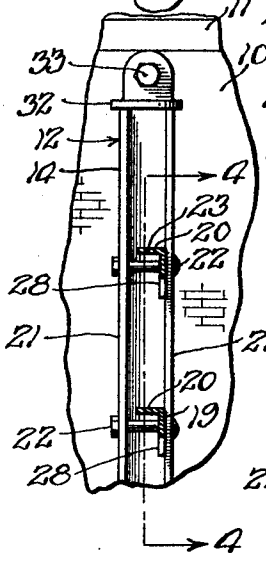


Fig. 4

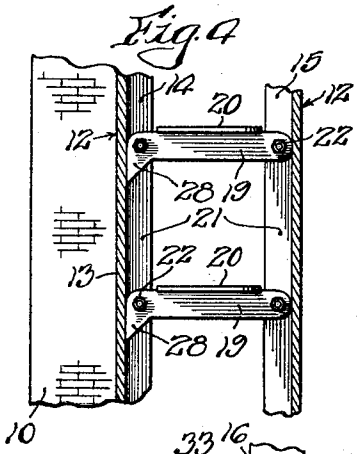


Fig. 5

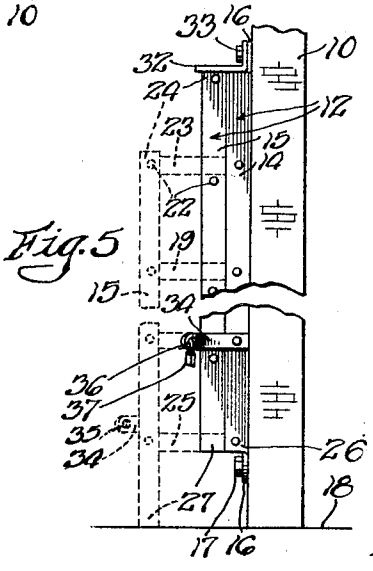


Fig. 6

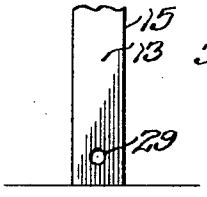
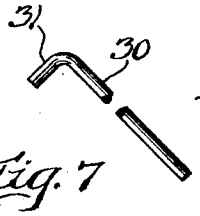
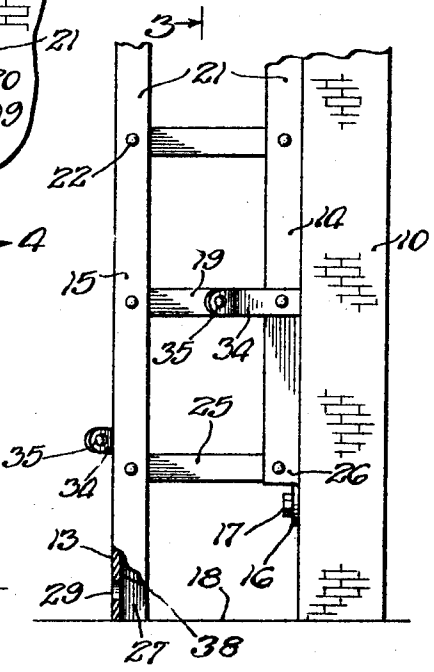


Fig. 7





Fred N. Clark INVENTOR

BY Victor J. Evans

HIS ATTORNEY.

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UNITED STATES PATENT OFFICE

FRED N. CLARK, OF HAMMOND, INDIANA

LADDER STRUCTURE

Application filed October 23, 1929. Serial No. 401,803.

This invention relates to certain novel improvements in ladder structures and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

Among the several objects of this invention is the provision of a ladder structure which may be erected against a perpendicular wall of a building structure or against a telegraph post or the like in such a manner that the ladder may be folded or collapsed so as to conceal the rounds or rails thereof so that after the ladder structure has been thus folded or collapsed the same cannot be tampered with or afford ascending or descending thereon.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a view of the ladder embodying my invention showing the same erected against the wall of a building structure;

Fig. 2 is a side view of the ladder embodying my invention showing the same in distended position and taken substantially on the line 2—2 on Fig. 1;

Fig. 3 is a fragmentary sectional detail view of the same taken substantially on the line 3—3 on Fig. 2;

Fig. 4 is a fragmentary sectional detail view taken substantially on the line 4—4 on Fig. 3;

Fig. 5 is a side view of the ladder as illustrated in Fig. 2 but showing the same in folded or collapsed position;

Fig. 6 is an edge view of the lower end of the outer of the side rails of the ladder construction embodied in my invention; and

Fig. 7 is a perspective view of an instrument or tool used to facilitate extending or distending of the ladder embodying my invention.

As stated at the outset the ladder construction which embodies my invention can be used in many instances with great efficiency and in order to more fully set forth the appreciable meritoriousness of my invention I have shown in the drawing my ladder structure associated with a building structure. In this connecton a wall of the building is indicated at 10 and is provided with a window frame 11. Against this wall 10 is associated my ladder construction which will now be more fully described.

The preferred form of construction of my improved ladder includes two channel members 12 arranged in opposed relation with respect to each other to dispose the bight portion or wall 13 of the channel members 12 at the outer side. These channel members 12 provide the longitudinal rails 14 and 15 of the ladder. The rail 14 provides at each end a perforated projection 16 through the perforation of which is adapted to be passed a head bearing securing element 17 which is securely fixed in the wall 10 so as to support the rail 14 with its lower end an appreciable distance above the ground 18 whereby when the ladder is in a folded or collapsed position the lower end of the ladder will be a substantial distance above the ground.

The upper end of the rail 14 when secured to the wall 10 will be disposed adjacent the window 11.

The rails or steps of the ladder are indicated at 19. These rails are each preferably formed from an angle plate so as to provide a horizontal flange 20 upon which the foot is adapted to rest when the ladder is in use. Each rail or step 19 has its ends positioned between the opposite flanges 21 of the rails 14 and 15 and are pivotally secured to these flanges by means of suitable nonremovable pintles 22.

As shown in Fig. 2 when the ladder is in extended position the rail 15 will have its end disposed to rest upon the ground 18 and this is accomplished by the positioning of the rails or steps 19 in spaced relation with respect to the rails 14 and 15. That is to say, the top rail or step 23 of the rails 19 is located adjacent the end 24 of the rail 15 while the lowermost rail 25 of the rails 19 is positioned adjacent the lower end 26 of the rail 14

whereby when the ladder is collapsed by lifting the rail 15 upwardly to dispose the rails or steps 19 between the rails 14 and 15 this rail 15 when in its full collapsed position will have its end 27 disposed adjacent the end 28 of the rail 14 as best shown in Fig. 5.

In order to strengthen the pivot point between the rail 14 and the steps 19 each step is provided with a depending projection 28 which, when the ladder is extended, bears against the adjacent wall 13 of the rail 14 thus relieving the strain upon the pintles 22 connecting the steps to the rail 14.

The end 27 of the rail 15 is provided with an opening 29. To facilitate extending or distending of the ladder structure I provide a tool 30 which has an angled head 31. This head 31 is adapted to pass through the opening 29 so as to bear against the inner face 38 of the wall 13 of the rail 15 whereby when the user bears upwardly or downwardly a leverage will be provided so as to afford expeditious elevating or lowering of the rail 15 when distending or extending the ladder.

To prevent sleet, rain or other elements from finding entrance between the rails 14 and 15 when in distended position I provide at the head of the ladder structure a guard 32 which may be in the form of a flexible strip attached as at 33 to the wall structure 10.

In order to prevent unauthorized tampering with the ladder structure when the same is collapsed I provide a means for locking the rails in collapsed position. This means in the present instance includes two plates 34 connected to the rails 14 and 15 and are provided with registering openings 35 for the passage of a bolt 36 of a lock structure 37.

It will be seen from the description herein that when my ladder structure is associated with a wall or a building or adjacent one side of a telegraph post or the like it will occupy when collapsed a minimum space. The ladder structure further will not act as an attraction to children to climb a telegraph pole as it will be seen that unless the ladder is extended it affords no foot hold.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

A collapsible ladder including a pair of channel shaped side rails, steps pivotally connected to the side rails and adapted to be confined in the channel of said side rails when said side rails are in collapsed position, means for connecting one of the side rails to a stationary structure, a guard positioned to cover the top ends of said rails when said rails are in collapsed position, an arm mounted on the stationary rail and having an opening in the outer end thereof, and an arm carried by the movable rail having an opening therein adapted to be aligned with said first named opening when said rails are in collapsed position whereby a locking element may be extended through said openings to lock said rails in collapsed position.

In testimony whereof I affix my signature.

FRED N. CLARK.