

Feb. 20, 1951

J. S. CRUMPTON

2,542,398

LADDER

Filed July 28, 1945

2 Sheets-Sheet 1

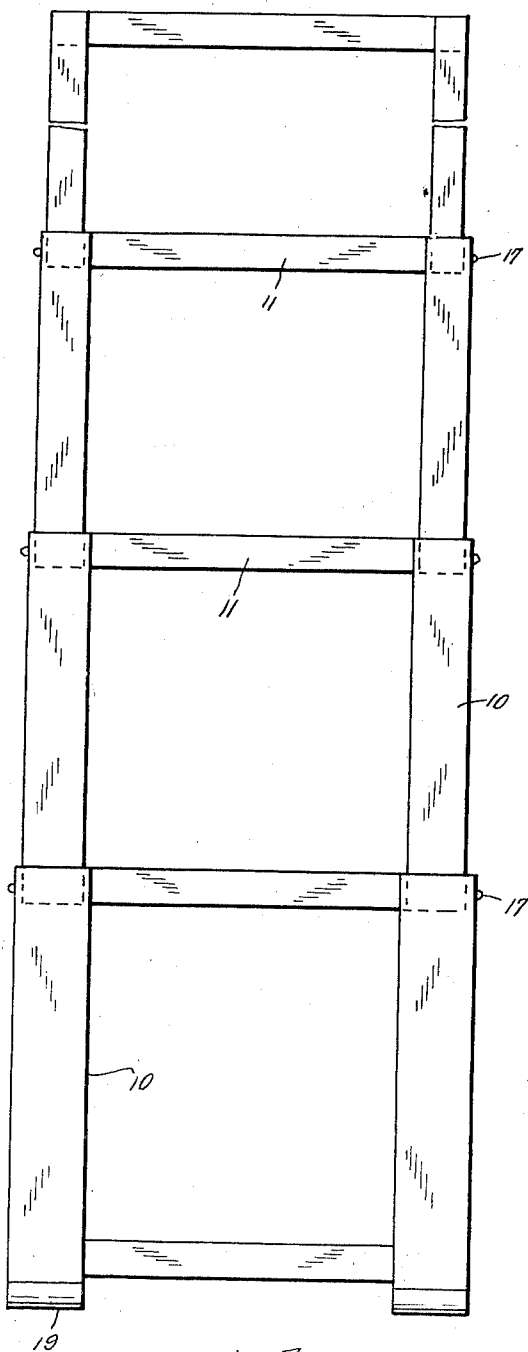


Fig. 1.

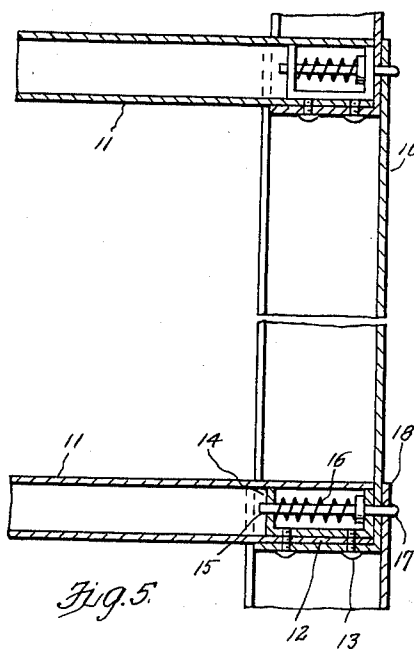


Fig. 5.

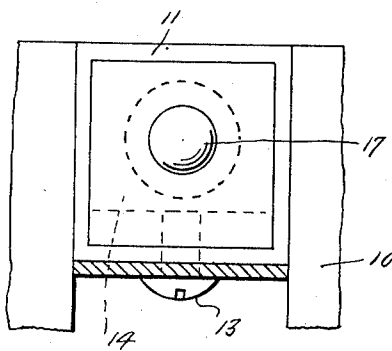


Fig. 6.

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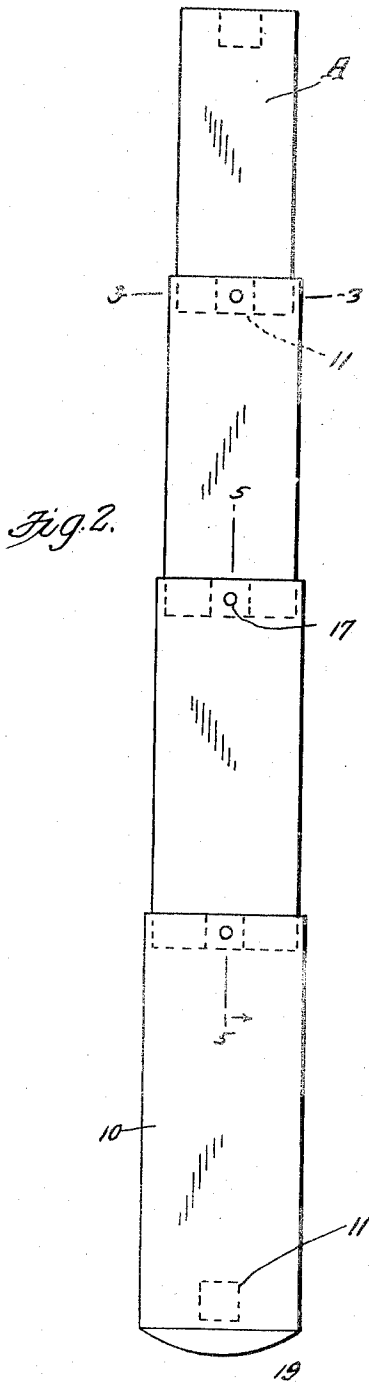
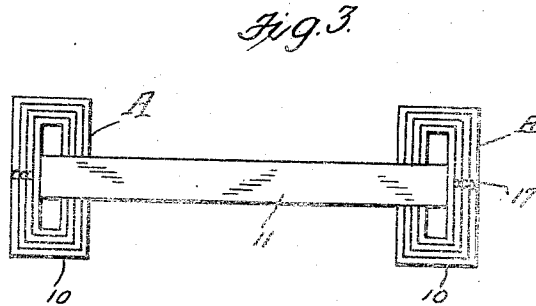
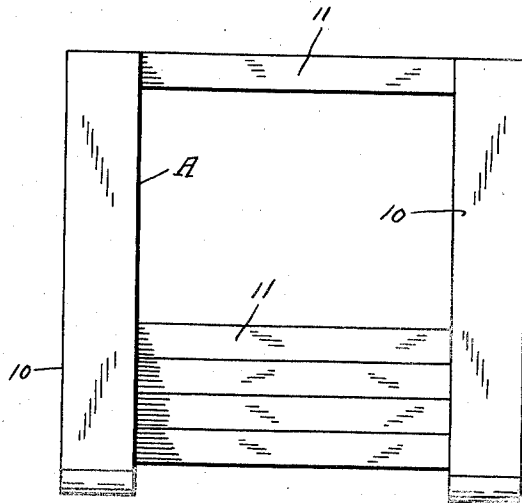
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,542,398

LADDER

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Application July 28, 1945, Serial No. 607,546

3 Claims. (Cl. 228—39)

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The invention relates to a ladder, and more especially to a nested foldable and extensible ladder.

The primary object of the invention is the provision of a ladder including a plurality of nested sections, compactly fitted with each other, whereby the ladder can be contracted or extended to its maximum height, or any part of its height, with ease and dispatch and securely locked to assure safety in the use thereof.

Another object of the invention is the provision of a ladder of this character which, when collapsed, is extremely compact to facilitate handling in congested or crowded spaces.

A further object of the invention is the provision of a ladder of this character, which, if any of its parts are damaged, can be taken apart for repairs or replacement with new parts.

A further object of the invention is the provision of a ladder in which each section of the ladder when raised to its position automatically locks, and which can be collapsed into its nesting position only when the locks are released individually, and wherein the number of sections can be increased or decreased to satisfy the size demanded of the ladder in the use thereof.

A still further object of the invention is the provision of a ladder of this character, which is simple in construction, reliable and efficient in operation, strong, durable, readily and easily adjusted, thoroughly safe in use, and inexpensive to manufacture and assemble.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts, as will be hereinafter more fully described in detail, and illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is an elevation of a ladder constructed in accordance with the invention in an extended position.

Figure 2 is a side edge view thereof.

Figure 3 is a sectional view taken approximately on the line 3—3 of Figure 2.

Figure 4 is an elevation of the ladder in a folded or collapsed condition.

Figure 5 is a fragmentary sectional view taken approximately on the line 5—5 of Figure 2 looking in the direction of the arrows.

Figure 6 is a fragmentary sectional view taken in a plane between the outer walls of bracket 14 and rail 10.

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Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the ladder constituting the present invention, comprises a plurality of extensible and collapsible telescopically interfitted runged or step sections A, each including spaced opposed flat faced tubiform side rails 10 and a cross rung 11, these being made from metal and the rung 11 being welded or otherwise permanently joined to the side rails 10 of each section A. Each end of a rung 11 is carried into the side rail 10 next thereto to provide interiorly of the latter a latch bolt housing 12 within which is fixed, as by fasteners 13, a latch bolt supporting bracket 14 slidably accommodating a latch bolt 15 biased toward latching position by a coiled spring 16. The latching end 17 of each bolt 15 engages a suitable aperture 18 forming a keeper carried by the companion side rail 10 of the next succeeding section A of the ladder so that these sections can be individually latched or locked together in an extended or contracted relationship to each other. The side rails 10 of the respective sections A are slidably and telescopically interfitted with each other for the extensible and contractible conditioning of the ladder as a whole. The extended condition of the ladder is best seen in Figure 1, while the collapsed or contracted condition of such ladder is best seen in Figure 4 of the drawings.

To release one of the sections A from another of such sections in the ladder as a whole, a selected bolt 15 is depressed against the resistance of the spring 16 so that it becomes unlatched for freeing adjacent sections, whereby the same may be adjusted relative to one another and when freed sections A are extended or contracted the bolt 16 is automatically operated by spring 16 for the locking of the sections in either position.

The lowermost section A of the ladder at the bottom ends of the side rails 10 thereof is provided with anti-skid feet pads 19, so as to assure safety in ascending or descending the ladder when set up for use.

From the foregoing it will now be seen that there is herein provided a device accomplishing all the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of the inventive concept, and as many modifications may be made in the embodiment herein shown

and described it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

What is claimed is:

1. An extensible ladder comprising a pair of parallel spaced series of telescoping tubular members, an end wall closing the lower end of each of said members, the members of each of said series having registering longitudinal slots extending upwards from the end walls thereof, a plurality of tubular rungs, each of said rungs extending between said series and connecting corresponding pairs of said members, the opposite ends of each of said rungs projecting into the members connected thereby and resting upon the end walls thereof and also being slidably received in the slots of the immediately adjacent corresponding pair of members, and locking means disposed solely in said rungs for locking tubular members in extended relation.

2. An extensible ladder comprising a pair of parallel spaced series of telescoping tubular members, an end wall closing the lower end of each of said members, the members of each of said series having registering longitudinal slots extending upwards from the end walls thereof, a plurality of tubular rungs, each of said rungs extending between said series and connecting corresponding pairs of said members, the opposite ends of each of said rungs projecting into the members connected thereby and resting upon the end walls thereof with each of the rungs being secured to the end walls and also slidably engaging the immediately adjacent corresponding pair of members in the slots thereof, and locking means disposed solely within the rungs and said members for locking the members in extended relation.

3. An extensible ladder comprising a pair of parallel spaced series of telescoping tubular

members, an end wall closing the lower end of each of said members, the members of each of said series having registering longitudinal slots extending upwards from the end walls thereof, a plurality of tubular rungs, each of said rungs extending between said series and connecting corresponding pairs of said members, the opposite ends of each of said rungs projecting into the members connected thereby and resting upon the end walls thereof and also being slidably received in the slots of the immediately adjacent corresponding pair of members, and locking means disposed solely in said rungs for locking tubular members in extended relation, said last means comprising a bracket in one of the rungs, a fastener securing the bracket, the rung, and the end wall associated with said one rung, a locking pin slidably mounted in said bracket, a spring urging the pin towards locking position, and the member associated with said one rung and the immediately adjacent member having aligned apertures receiving the pin when the latter is in locking position.

JAMES SIDNEY CRUMPTON.

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