

M. T. MURPHY.

FOLDING LADDER.

APPLICATION FILED NOV. 23, 1911.

1,065,166.

Patented June 17, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

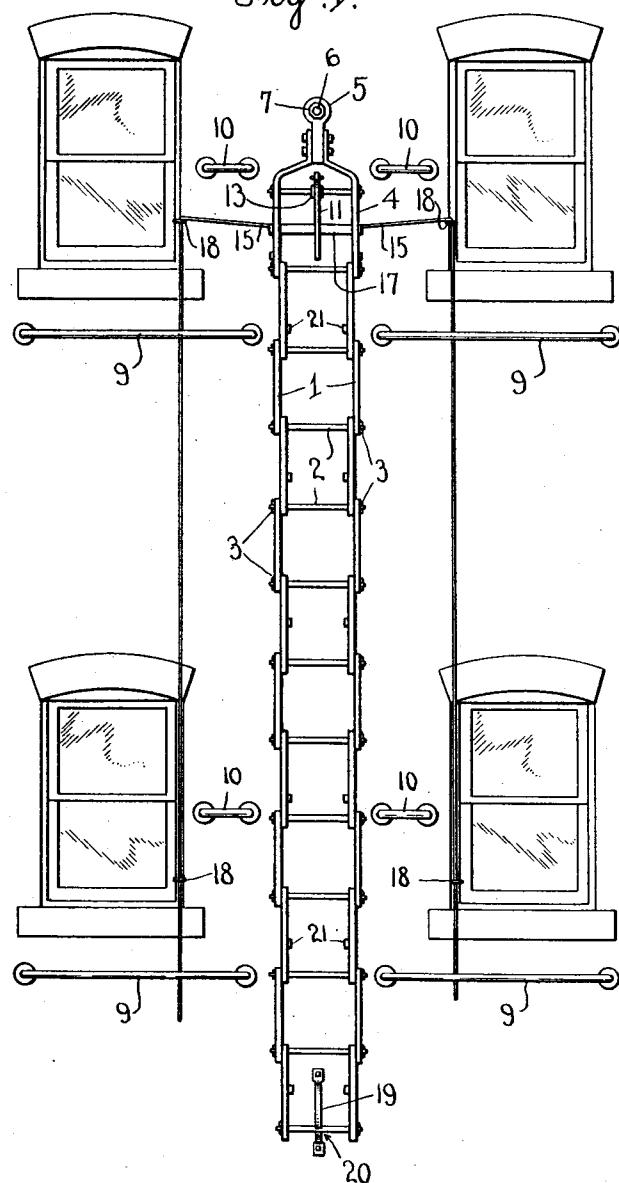
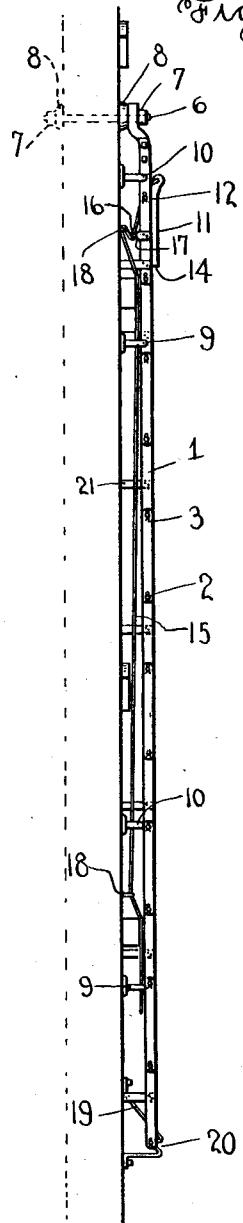


Fig. 2.



Inventor

Witnesses

L. B. James  
C. C. Hunt.

M. T. Murphy

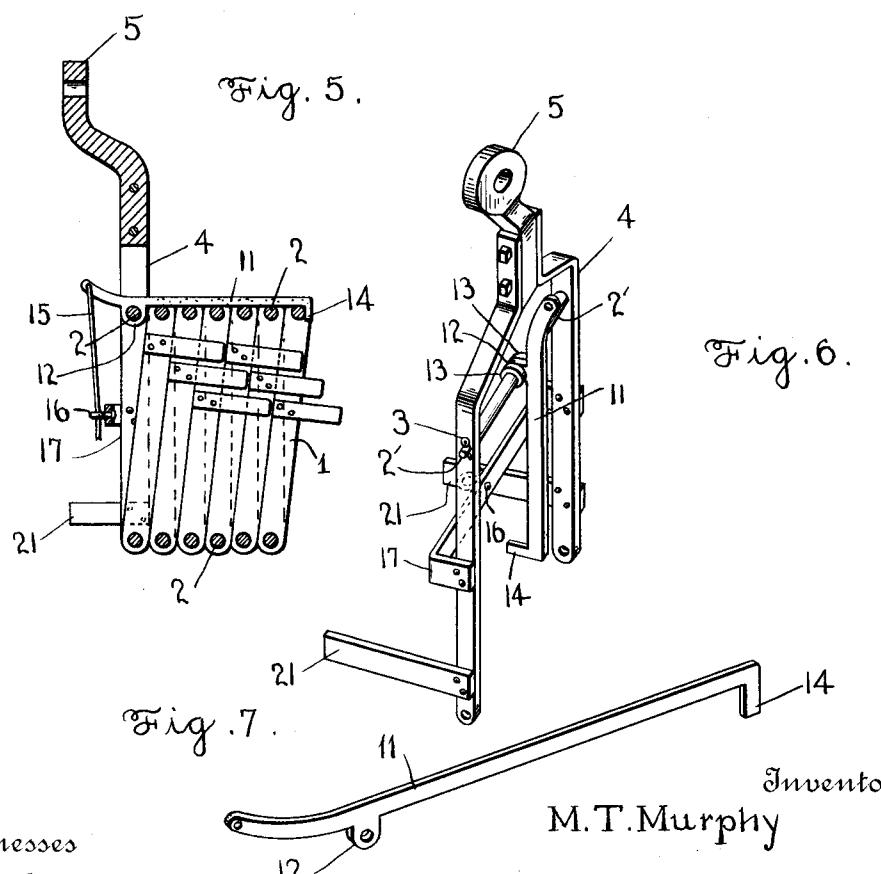
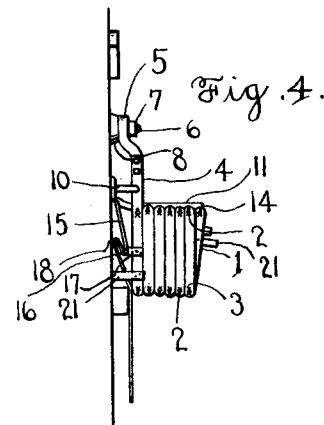
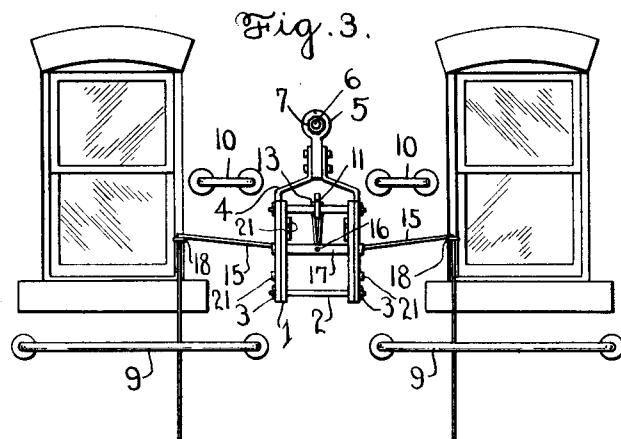
by *A. Blawie son & Co*

Attorneys

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Inventor

M. T. Murphy

Witnesses

L. B. James  
C. E. Hunt

by *A. B. Williamson & Co.*  
Attorneys

# UNITED STATES PATENT OFFICE.

MICHAEL T. MURPHY, OF NEW BRITAIN, CONNECTICUT.

## FOLDING LADDER.

1,065,166.

Specification of Letters Patent. Patented June 17, 1913.

Application filed November 23, 1911. Serial No. 662,018.

To all whom it may concern:

Be it known that I, MICHAEL T. MURPHY, a citizen of the United States, residing at New Britain, in the county of Hartford and 5 State of Connecticut, have invented certain new and useful Improvements in Folding Ladders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled 10 in the art to which it appertains to make and use the same.

This invention relates to improvements in folding ladders.

One object of the invention is to provide 15 a ladder formed of a plurality of pivotally connected sections adapted to be folded together into small compact form and having an improved means whereby the same may be mounted and operated.

20 Another object is to provide a ladder of this character which when permanently secured to a building, is provided with a holding mechanism adapted to be released from the ground or from the lower floors of 25 the building.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings, Figure 1 is a front view of a portion of a building showing my improved ladder firmly secured thereto and in position for use; Fig. 2 is a 35 side view of the same; Fig. 3 is a view similar to Fig. 1 showing the ladder folded; Fig. 4 is a side view thereof; Fig. 5 is an enlarged central vertical sectional view of the ladder in folded position as shown in 40 Figs. 3 and 4; Fig. 6 is a detail perspective view of the permanent attaching mechanism for the ladder; Fig. 7 is a similar view of the latch or holding device for holding the ladder in folded or inoperative position.

45 My improved ladder is formed of a plurality of pivotally connected sections each of which comprises pairs of bars 1 having in their ends apertures with which are engaged the rungs or rounds 2 of the ladder, 50 said rounds having their ends reduced to form shoulders which prevent the inward movement of the side bars. In the reduced ends of the rounds are formed transverse apertures with which are engaged cotter pins 3 whereby the ends of the bars are secured to the rounds. The ends of the bars

of each alternate section are arranged within the bars of the adjoining sections thus permitting the bars to be readily folded together when the ladder is in an inoperative 60 position as shown.

In the embodiment illustrated which shows a ladder for permanent attachment to a building, the upper end of the ladder has secured thereto a permanent attaching device or hanger comprising an inverted U-shaped hanger composed of a pair of supporting and attaching bars 4 which are connected together and to the upper end of the ladder by the upper rung 2 and are further 70 braced and connected together near their other ends by a cross bar 2'. The upper ends of the attaching bars 4 are bent inwardly and are bolted or otherwise secured to the shank of an attaching eye 5 which 75 shank has an offset to dispose the attaching or pivoting eye 5 in a plane parallel with the bars 4 and spaced inwardly from the plane occupied by said bars. This eye 5 is adapted to be engaged with the outer end 80 of an attaching bolt 6 arranged through the wall of the building and having on its ends clamping nuts 7 and spacing washers 8 as shown. Spacing arms 21' extend laterally 85 inward at right angles from the free or lower ends of the bars 4 which in connection with the offset eye 5 space the side bars 4 a suitable distance from the building or other support to which it is applied to afford ample room for the movement of the latch 90 bar 11 and for the feet and hands of a person using the ladder. The upper end of the ladder when thus constructed may be attached to the building at any suitable point, but is preferably attached between two rows 95 of windows so that access may be had to the ladder from the windows on either side thereof. When the ladder is so arranged suitable foot rails 9 and hand rods or bars 10 are secured to the side of the building below and at one side of the windows to provide means for assisting the occupants of 100 the building in reaching the ladder.

When not in use the sections of the ladder are drawn up and folded together in close 105 compact form as shown in Figs. 3, 4 and 5 of the drawing in which position the parts are normally held by a holding mechanism comprising a latch or hook shaped bar 11, provided near its inner end with an aper-tured attaching lug 12 which is pivotally 110 connected with the upper rung of the ladder

and is held in a central position thereon by 5 collars or washers 13 arranged on the rung at each side of the bar and secured in position by cotter pins arranged through the 10 rung as shown. The bar 11 is of sufficient length to extend across the top of the folded sections of the ladder and has on its outer end a finger 14 which is adapted to hook over the rung of the outer section thereby 15 securely holding the section in a folded or inoperative position as clearly shown in the drawings. The inner end of the bar 11 is preferably curved upwardly to a slight extent and has formed therein an eye to which 20 is connected the upper ends of releasing cords 15 which pass downwardly through a guide eye 16 secured to a cross bar 17, the ends of which extend at right angles to its body portion and are fastened to the attaching 25 bars 4, whereby the cord guiding eye is disposed out of the way of the ladder sections when said sections are in folded position and hence the operation of the cord is not interfered with. After passing through 30 the guide eye 16 the cords extend laterally to and through a series of guide eyes 18 secured to the frames of the windows on each side of the ladder as clearly shown in Fig. 1 of the drawing. By thus arranging the releasing 35 cords, it will be seen that when either of the same are pulled from any of the windows or from the ground that the catch or holding bar 11 will be rocked and disengaged from the folded sections of the ladder thereby releasing the said sections and permitting the same to drop and the 40 ladder to unfold to an operative position. When the ladder has thus been released and the sections thereof have been unfolded and 45 dropped to an operative position the lower rung of the ladder will come into engagement with a fastening hook or catch 19 secured to the side of the building near the

ground, said catch being preferably formed from a flat metal strip bent midway between its ends to form a rung receiving notch 20 with which the lower rung is engaged thereby holding the ladder and preventing the same from swinging when in use. Secured to the side bars of each alternate section of 50 the ladder adjacent to the lower ends of said bars are spacing bars or plates 21 which project inwardly at right angles to the bars and are adapted to engage the outer side of the building, said bars or plates being of 55 sufficient length to space the ladder a suitable distance from the building and to firmly hold the ladder while in use.

Having thus described my invention, what I claim is:

In a device of the character set forth, the combination with a ladder having a plurality of foldable sections, of a ladder attaching device comprising an inverted U-shaped member having an inwardly offset support-engaging pivot eye at its top and inwardly extending spacing arms projecting from the spaced depending lower ends of said U-shaped member, said arms and eye co-operating to hold the U-shaped member 65 in spaced relation to its support when applied, a cross bar arranged in said U-shaped member, a horizontal lever pivoted intermediate of its ends to said cross bar and having at its outer end means to engage the 70 folded ladder and at its inner end ladder releasing means, said inner end being slightly shorter than said spacing arms.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MICHAEL T. MURPHY.

Witnesses:

W. F. MANGAN,  
W. F. DELANEY.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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