F. LEHMANN.

ADJUSTABLE LADDER SUPPORT.

APPLICATION FILED FEB. 21, 1911.

1,004,284.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.

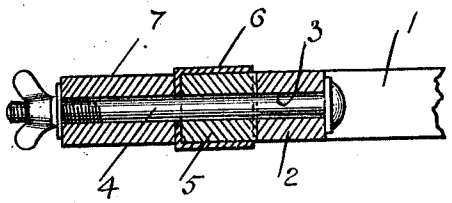

Fig. 3.

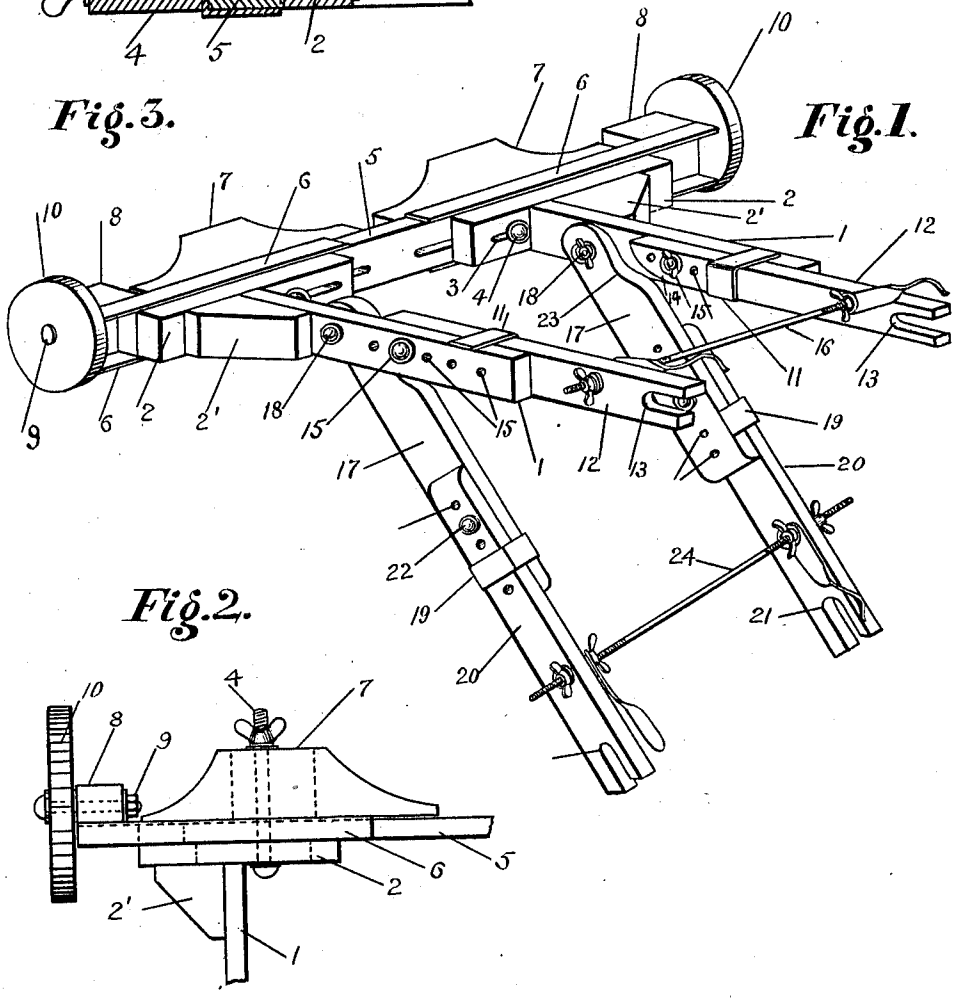

Fig. 1.

Fig. 2.

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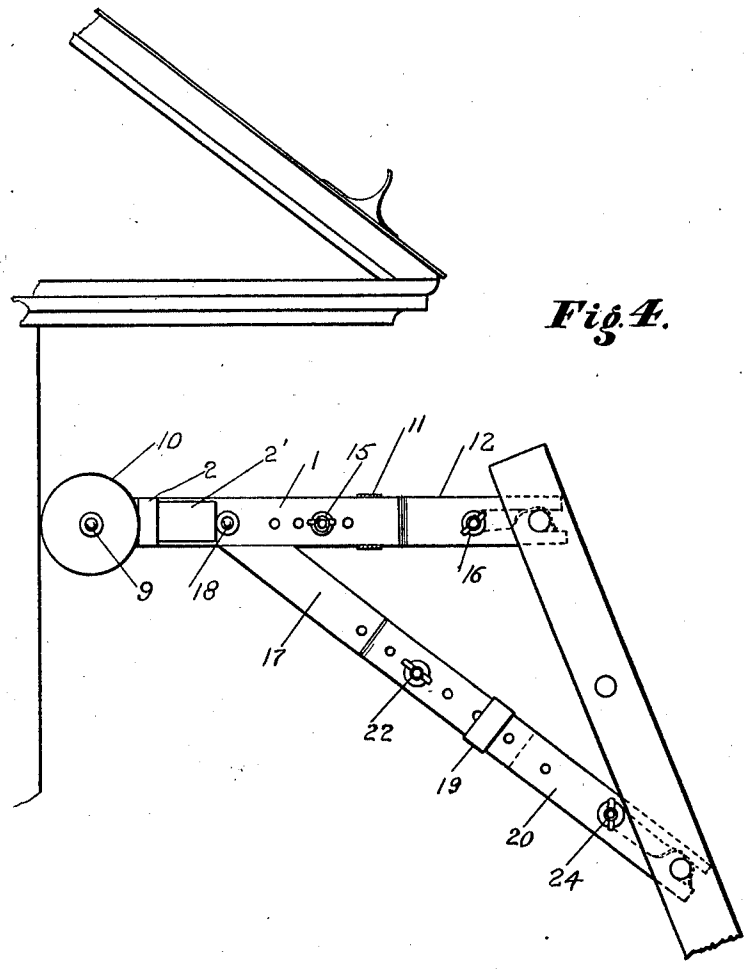

Fig. 4.

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ADJUSTABLE LADDER-SUPPORT.

1,004,284. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed February 21, 1911. Serial No. 610,102.

To all whom it may concern:

Be it known that I, FERDINAND LEHMANN, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Adjustable Ladder-Support, of which the following is a specification.

My invention relates to improvements in ladder supports in which the several parts are adjustable and are operated in conjunction with an ordinary ladder: and the objects of the improvement are, first, to provide a support which can be attached to any ordinary ladder so as to enable otherwise non-accessible parts of a building to be brought within reach, second, to afford facilities for the proper adjustment of the different parts, third, to enable the ladder to be rested in front of an opening in a building such as a door or window, and still be supported from the wall of the building, fourth, to enable the ladder to be rested against circular objects or columns without danger of tipping in either direction, and fifth to provide an adjustable safety device which can be attached to any ordinary ladder forming a support from which otherwise non-accessible objects can be reached without danger.

I attain these results by the mechanism illustrated in the accompanying drawings in which:—

Figure 1 is a perspective view of the adjustable ladder support, and is shown unattached so that its construction can be more readily understood. Fig. 2 is a part plan view of the cross bar with rollers, the inclined braces being removed and the arms broken off. Fig. 3 is a sectional view of the cross bar with rollers along the line A A′, showing construction. Fig. 4 is an illustration showing the adaptation of the ladder support adjusted to a building where the cornice projects beyond the reach of the workman with an ordinary ladder.

Similar symbols refer to similar parts throughout this specification.

The arms 1 are firmly attached at one end to the sliding block 2 by the stiffening piece 2′, the sliding block 2 has within it a slot or opening 3 through which is passed a clamping bolt 4 which bolt passes through a slotted hole in the cross bar 5 and thence through a slot in the sliding channel bar 6 and finally through a slot in the reversible curvilinear bracket 7 at the inner side of the cross bar 5, see Fig. 3. At the outer ends of the sliding channel bar 6 is attached a block 8 through which is passed a bolt 9 forming the bearing for the roller 10. Toward the other or outer end of the arm 1 is attached a clamp 11 through which is passed the extension arm 12 having a recess 13 formed in its outer end of suitable form to pass over a ladder round, and rounded off as shown at its inner end as shown at 14. Certain holes equally spaced are bored through the arm 1 and through the extension arm 12, through one of which is passed the clamping bolt 15, and when it is desired to lengthen or shorten the arm the bolt 15 is removed and extension arm 12 is moved to suitable position and the bolt replaced. The extension rod 16 passes through suitable holes in the extension arms, having long threads on either end, and fitted with thumb nuts and washers, so that the space between the extension arms can readily be adjusted to the width between the ladder sides, and also forming a brace for the arms. At the inner end of the arms 1 and toward the inside of the arms are fastened the inclined braces 17 at their upper end, moving freely on the center bolt 18 which passes through the arm 1 having thumb nuts for tightening when in desired position. At the outer end of the inclined braces 17 is a clamp 19 through which is passed the extension brace 20 having a recess 21 at its lower end suitably formed to pass over a ladder round. Certain holes equally spaced are bored through the inclined brace 17 and through the extension brace 20, through one of which is passed the clamping bolt 22 and when it is desired to lengthen or shorten the inclined braces the bolt 22 is removed and the extension brace 20 moved to suitable position and bolt 22 replaced. The upper end of the inclined braces 17 is rounded as shown and its upper side is hollowed out at 23 to allow for clearance of the end 14 of the extension arm 12. The extension rod 24 passes through suitable holes in the extension braces, having long threads on either end, fitted with thumb nuts and washers, so that the space between the extension braces can readily be adjusted to the width between the ladder sides, and also forming a tie or brace for the extension braces.

The cross bar 5 is formed in once piece as shown and has within it two horizontal slot holes extending toward either end from the

center and through which the clamping bolt 4 is passed, thus enabling the sliding channels 8 and the reversible curvilinear brackets 7 to be adjusted without disarranging the position of the sliding block 2 or the arms 1. Toward the inner side of the cross bar 5 and toward either end is attached by the bolt 4 the sliding channels 6 which have within them and toward their inner end a horizontal slot hole through which the bolt 4 is passed, and to the outer end of the channel 6 is attached a block 8 with the bolt 9 which in turn carries the roller 10 thus enabling the sliding channel 6 with rollers 10 to be adjusted without disarranging the position of either the sliding block 2 or the reversible curvilinear brackets 7. In a similar manner the reversible curvilinear brackets 7 which have within them the horizontal slot hole through which the bolt 4 is passed, are attached to the sliding channels at the inner side and these reversible curvilinear brackets 7 can be adjusted without disarranging the position of either the sliding channel 6 or the sliding block 2, thus making all attachments to the cross bar independently adjustable. The objects of this adjustment are to provide a means for supporting a ladder so that it will be possible to work in front of a window or a door opening in a building, to work on a column or circular portions of a building, or on a cornice or rain spouting without danger and to provide a safe and durable ladder support which is adjustable to meet all conditions in or around a building. If it is desired to place the ladder across an open doorway, which on account of some obstruction at the top is not a safe support for a common ladder, then we take the aforesaid ladder support and loosen the bolts 4 and extend the sliding parts attached to the cross bar as before described until the rollers 10 are resting against the side posts of the opening, similarly it can be used to cross a window opening.

If it is desired to work on a cornice or rain spouting of the roof of a building, the brackets can be adjusted to meet the requirements of the offset of the roof by loosening the clamping bolts 15 and 22 respectively in the arms 1 and the inclined braces 17 making the necessary adjustment by lengthening or shortening the extension arms 12 and the extension braces 20 when the ladder will stand as shown in Fig. 4.

After having fully described my invention what I claim is:

1. An adjustable ladder support, the cross bar of which has within it two horizontal slot holes extending toward each end from the center and through each of which is passed an adjusting bolt, sliding blocks to which are rigidly fastened the arms or side frames, and a horizontal slot hole in the sliding blocks through which the adjusting bolts can be passed, extension pieces to the side frames, which have at their outer ends a recess of suitable size and shape to receive a ladder round therein.

2. An adjustable ladder support, having a cross bar in which are two horizontal slot holes, adjusting bolts passing through the said slot holes, two sliding channel bars which have horizontal slot holes therein and toward their inner ends through which the aforesaid adjusting bolt is passed, and at their outer end each having fastened a block to which a roller bearing is attached.

3. An adjustable ladder support, having a cross bar in which are two horizontal slot holes, adjusting bolts passing through the said slot holes, and two reversible curvilinear brackets each of which has within it a horizontal slot hole through which one of the aforesaid adjusting bolts is passed, and by means of which the said reversible curvilinear brackets can be revolved or turned end for end, making them reversible, they having on their outer faces two curved surfaces separated by a vertical surface through which vertical surface the horizontal slot hole is made, the curved surfaces being formed to certain suitable determined radius, and the edges of these curved faces being rounded off to that in setting the ladder against a curved object such as a pillar or column, there will only be a small part of the surface resting against the curved surface, and they being so formed that by reversing them or turning them end for end on the cross bar, that different diameters of structures can be thus arranged for, the inner surface of the said reversible curvilinear brackets being flat and when in position, fits against the cross bar and is attached thereto by means of the said adjusting bolt.

4. An adjustable ladder support, having a cross bar to which by means of adjusting bolts, are attached two sliding blocks having the side frames or arms rigidly attached thereto, extensions to these arms having a recess in the outer ends for passing over a ladder round, two struts or braces suitably fastened to the said side arms, extensions to these struts or braces each having a recess in the lower end for passing over a ladder round, and extension rods for adjusting the distance between them and so constructed with long screw threads on each end as to permit this adjustment to be made to suit any width of ladder to which the ladder support might be applied.

5. An adjustable ladder support having a cross bar with horizontal slot holes therein, two sliding blocks with side frames rigidly attached, extensions to the said side frames having a suitable recess in the outer ends thereof to pass over a ladder round, two inclined braces attached to the said side

frames and extensions to these inclined braces having a suitable recess at their lower ends to pass over a ladder round, two extension rods with long screw threads for adjusting the distance between the aforesaid side frames and inclined braces, two sliding channel bars having blocks attached to their outer ends to which the roller bearings are attached, two curvilinear reversible brackets of different radius circle at opposite ends, two adjusting bolts which pass through the horizontal slotted holes in the sliding blocks, the cross bar, the sliding channel bars, the reversible curvilinear brackets, thus permitting the clamping of all these parts together with the cross bar, and enabling the adjustment of any one part without interfering with the other parts, and making the device adjustable to meet all conditions that arise, all of which substantially as set forth and described in the foregoing specification.

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Witnesses:
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