(No Model.) 3 Sheets—Sheet 1.

C. F. ENDRISS.

LADDER AND LADDER SUPPORT.

No. 549,910. Patented Nov. 19, 1895.

Fig. 1.

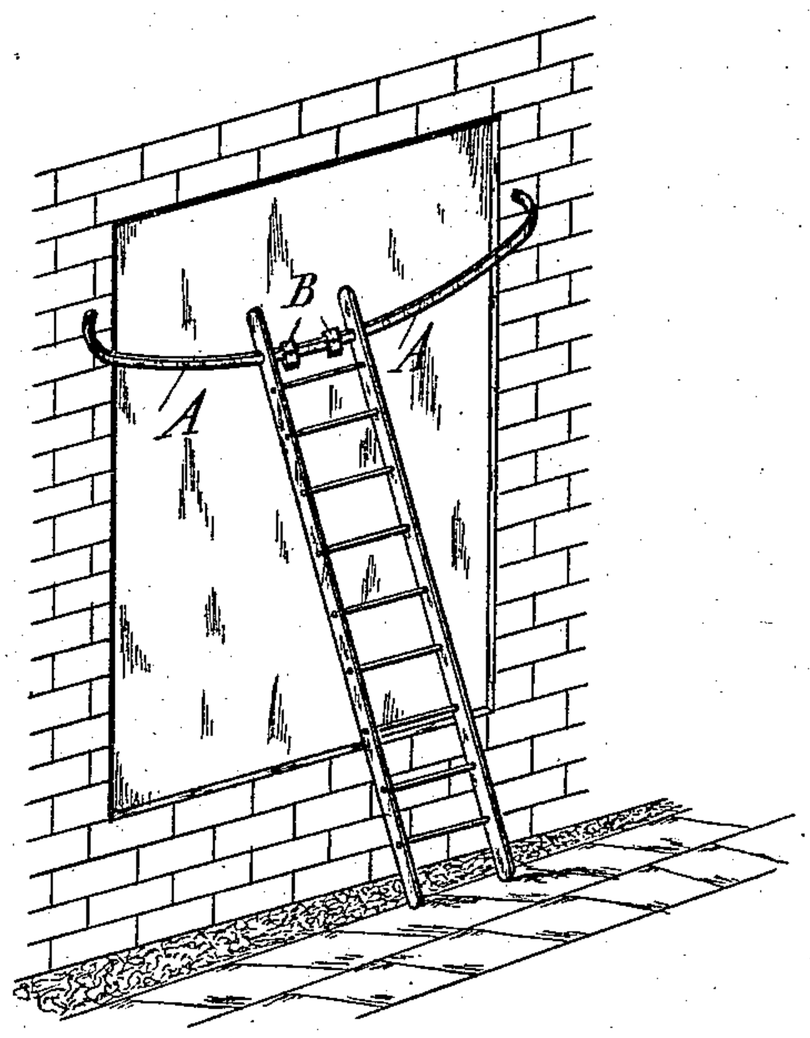


Fig. 2.

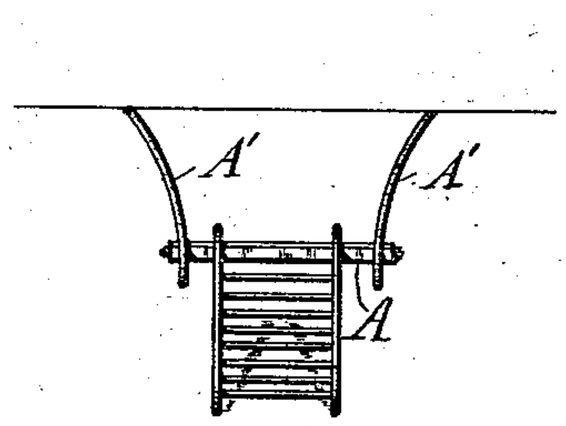


Fig. 3.

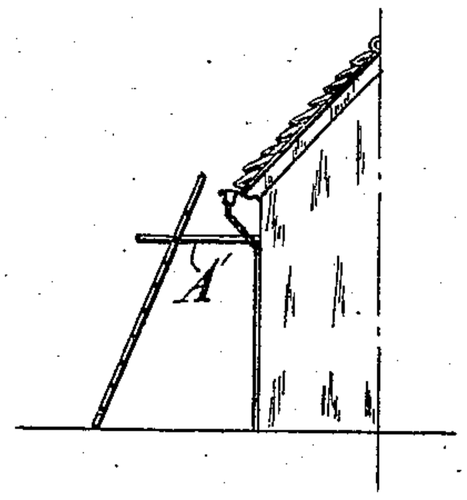


Fig. 4.

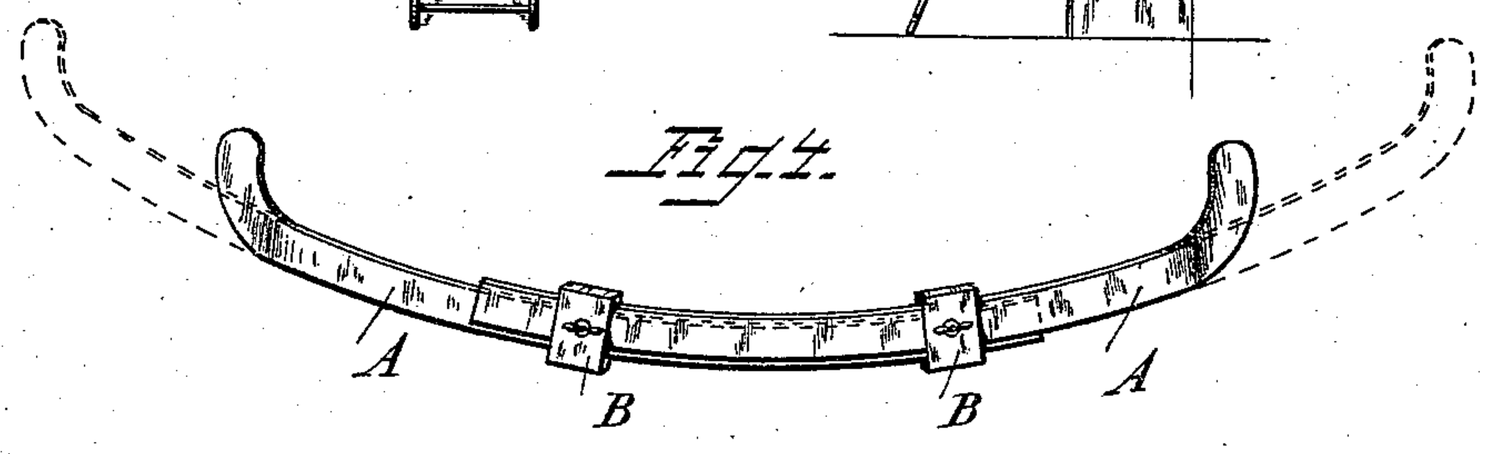
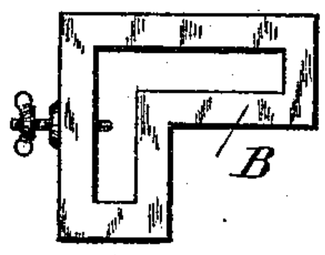


Fig. 5.



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(No Model.) 3 Sheets—Sheet 2.

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LADDER AND LADDER SUPPORT.

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Fig. 6.

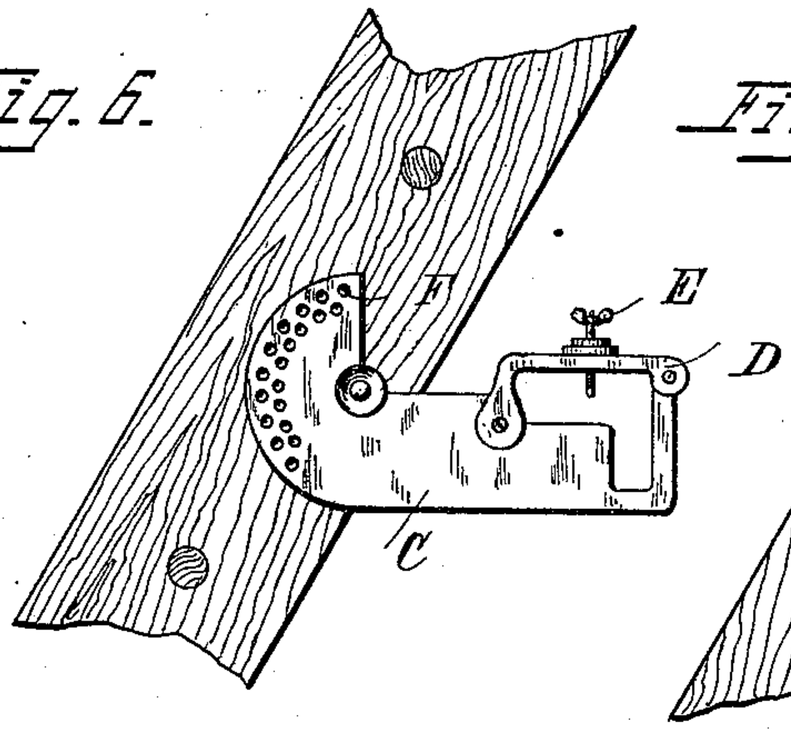


Fig. 9.

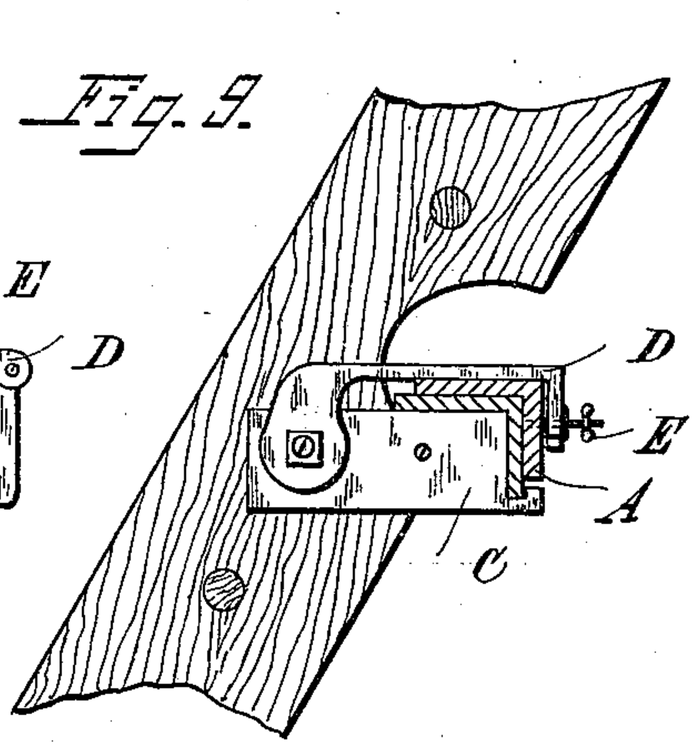


Fig. 7.

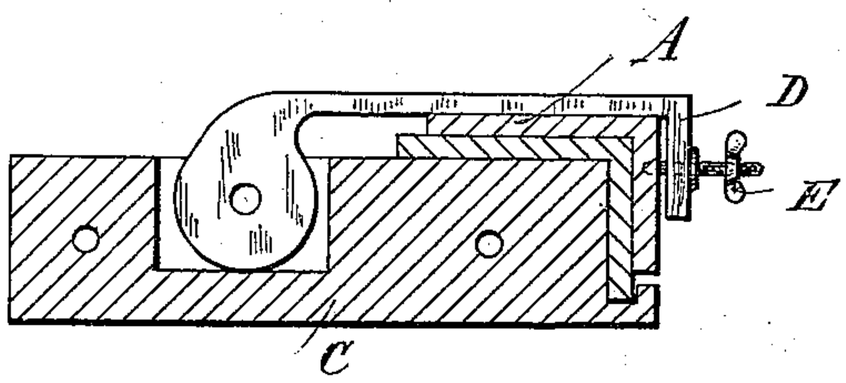


Fig. 8.

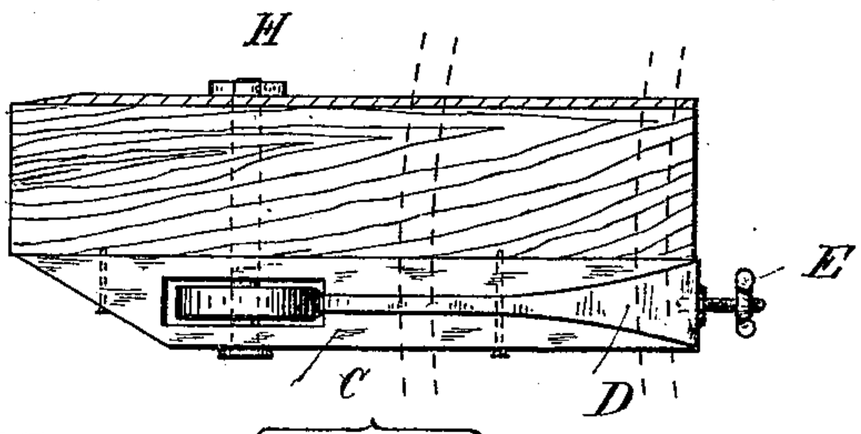
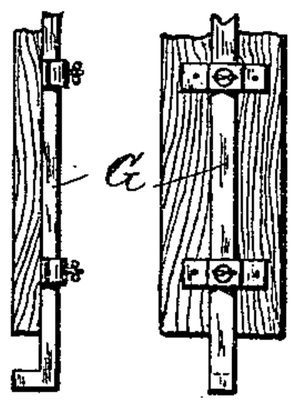


Fig. 10.



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(No Model.) 3 Sheets—Sheet 3.

C. F. ENDRISS.

LADDER AND LADDER SUPPORT.

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Fig. 13.

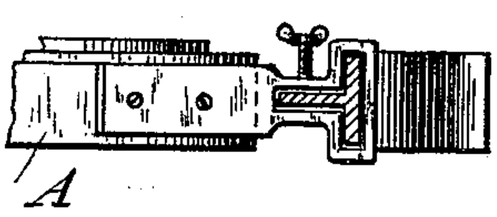


Fig. 11.

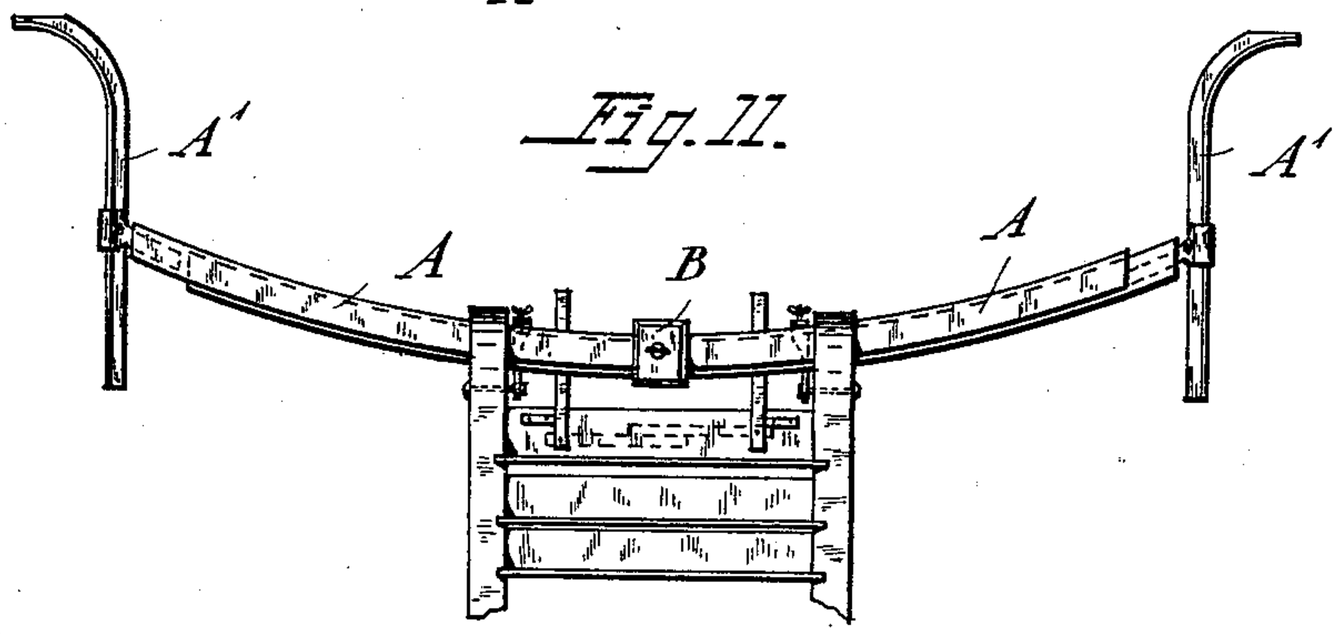


Fig. 12.

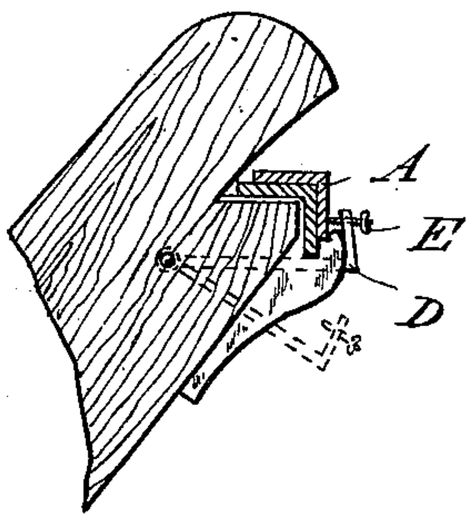


Fig. 14.

Fig. 16.

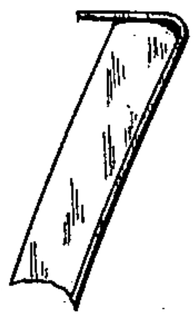
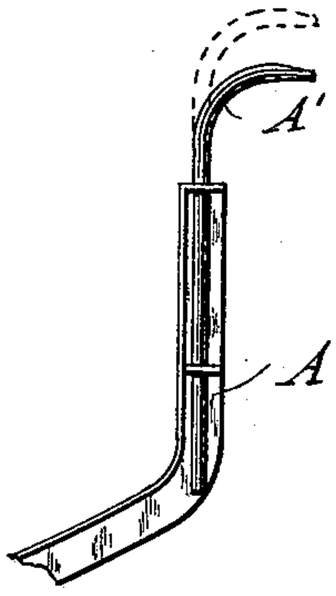


Fig. 15.



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UNITED STATES PATENT OFFICE.

CARL FERDINAND ENDRISS, OF GÖPPINGEN, GERMANY.

LADDER AND LADDER-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 549,910, dated November 19, 1895.

Application filed May 31, 1895. Serial No. 551,145. (No model.)

To all whom it may concern:

Be it known that I, CARL FERDINAND ENDRISS, gentleman, a subject of the Emperor of Germany, residing at Göppingen, Würtemberg, Germany, have invented new and useful Improvements in or Relating to Ladders and Ladder-Supports, of which the following is a specification.

It frequently happens that for cleaning windows, painting sign-boards, &c., the upper end of the ladder-uprights or side bars cannot be laid directly against these objects, and under such circumstances it is necessary to have recourse to auxiliary appliances, which are in general but little reliable and which must be specially constructed on each special occasion and are generally troublesome to prepare and fit. The present invention has the advantage of obviating this evil by providing an adjustable lean-to device for ladders which is, moreover, adjustable in regard to the breadth between the supports as well as the number of rounds in height. This is attained by forming the lean-to support for the top of the ladder of two sliding bent rods, which are united to the uprights of the ladder in such a manner that by means of suitable adjustable devices the width of the supporting-arms can readily be regulated in accordance with the varying requirements of each special case.

In the accompanying drawings, Figure 1 is a perspective view of a ladder provided with my improvements and shown as leaning against a wall having an opening or window. Figs. 2 and 3 represent a modification which has for its object to increase the distance of the ladder-head from the supporting-wall. Fig. 11 shows a combination of the lean-to device shown in Fig. 1 with that shown in Figs. 2 and 3. Fig. 4 is an enlarged top plan view of the extensible lean-to device shown in Fig. 1. Fig. 5 is a side view of the clamp B shown in Figs. 1 and 4. Figs. 6, 7, 8, 9, and 12 show various forms of clamping attachments for securing my improved lean-to device to the ladder. Figs. 10, 13, 14, 15, and 16 are details which will be more particularly described in the specification.

Referring to the drawings, Figs. 1, 4, and 5, the new lean-to device consists of rods A, sliding upon each other, so as to admit of being fastened in any required position as to width of bearing. They may advantageously be bent, so that, on the one hand, their supporting ends may rest at right angles, or nearly so, against the supporting-wall, and, on the other hand, that with every increase in the width of the opening there may also be an increase in the distance of the ladder-head from the supporting-wall. These rods A may be formed of iron, tubular, flat, angle, or other shape in section, or they may be formed of any other suitable material, and they may be secured together, after being adjusted for any given width of opening, by means of clamps or sleeve B, such as are shown in Figs. 4 and 5. As shown in the drawings, the rods A are made of angle-iron, and the clamps B are made with a right-angled slot to receive them.

Secured to the ladder-uprights are shoes C, Figs. 6, 7, 8, and 9, whereby the fastening may either be permanent or temporary. In the latter case the said shoes may be applied and fastened to the ladder-uprights in any desired position, while in the former case the height of the ladder can be altered in a well-known manner by means of sliding uprights, which can be drawn out. These shoes have grooves, in which the rods or bars A can be screwed or clamped fast. To this end is arranged upon each shoe a hinged arm or bow D in such a manner that the rods can easily be laid in the groove and there secured by means of a set-screw E or equivalent. If the height at which the rods are to be secured to the ladder-uprights is required to be capable of adjustment within not too large limits, the shoe C is preferably pivoted to each upright of the ladder and can by means of the series of holes F and suitable bolts be firmly united with the uprights in various positions, according to desire or necessity, as clearly shown in Fig. 6.

In the modification shown in Figs. 2 and 3 the lean-to bars A are secured to the ends of a cross-bar attached to the ladder by suitable means, as bolts, and the shoes to which the cross-bar is clamped may be with advantage also secured by bolts to the ladder, so as to be adjustable, so that the lean-to device may be applicable at any desired height. In the extremities of the rods A there may be arranged other arms having a sliding adjust-

ment at right angles to the rods A, so that the distance of the ladder-head from the supporting-wall is capable of variation within the widest limits. Such an arrangement is shown in Figs. 11 and 13, in which the parts are arranged so that both the width of opening and the distance of the ladder-head from the supporting-surface may be adjustable. The rods A′, which rest upon the wall, are, as shown, adjustably secured in clamps at the ends of the rods A. A special stop arrangement, such as shown in Figs. 14 and 15, may be employed in lieu of clamps and set-screws for the adjustment of the arms A′. To this end a sliding prolongation is introduced into the arm A and provided with a series of holes or ratchet-teeth, in which a spring or detent fastened to the arm or a spring-controlled pin *a* is arranged to engage. The arms A′ may be made of iron pipe or flat bar and may be bent, as shown in Fig. 16.

It will easily be seen that in any case the new lean-to device is quickly and readily capable of adjustment, both in height and width, to meet the requirements of all ordinary circumstances.

It is not necessary that the ladder should invariably stand in the center of the arms, but, on the contrary, it admits of being moved along them in either direction and can be fixed in any desired position. Occasional irregularities in the ground-level can be provided for by means of sliding bolts G or bars affixed to the lower end of one or both side bars of a ladder and secured in any position by suitable set-screws, as shown in Fig. 10.

The adjustment in relation to the distance of the head of the ladder from the face of the building is of special importance for facilitating painting, repairing, or other operations upon eaves, gutters, signs, and other projecting devices.

It is to be noted that this new lean-to device may be supplied of specific dimensions for ladders without being fitted with adjustable arrangements or devices.

Having now particularly described the nature of my invention and in what manner the same is to be performed, what I claim is—

1. The combination with a ladder of laterally extending bearings or supports attached thereto, one or both of said supports being adjustable to vary the width of bearing, substantially as described.

2. The combination with a ladder of rods sliding upon each other holding the head of the ladder from the wall and means to fasten the rods in any required position as to width of bearing, substantially as described.

3. The combination with a ladder of a laterally extending rod or rods A connected to the ladder, and supporting rods connected to the rod or rods A at the extremities thereof, substantially as described.

4. The combination with a ladder of rods such as A sliding upon each other and rods such as A′ fastened to the ends of the rods A and adjustably connected thereto, substantially as described.

5. The combination with a ladder of shoes C, preferably adjustably connected to the uprights of the ladder, and rods A sliding in the shoes and clamped therein, substantially as described.

6. The combination with a ladder, of a rod or rods, such as A, connected to the upper end of the ladder and extending laterally from said ladder, and forwardly projecting supports at the extremities of said rod or rods and rigidly connected therewith, substantially as described.

7. The combination with a ladder of shoes, rods A sliding in these shoes and bearing arms such as A′ sliding in these rods, substantially as described.

8. The combination with a ladder of shoes, rods sliding in these shoes and sliding upon each other and means to fasten the rods in any required position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL FERDINAND ENDRISS.

Witnesses:
LUDWIG MACK,
WM. HAHN.