

No. 774,123.

PATENTED NOV. 1, 1904.

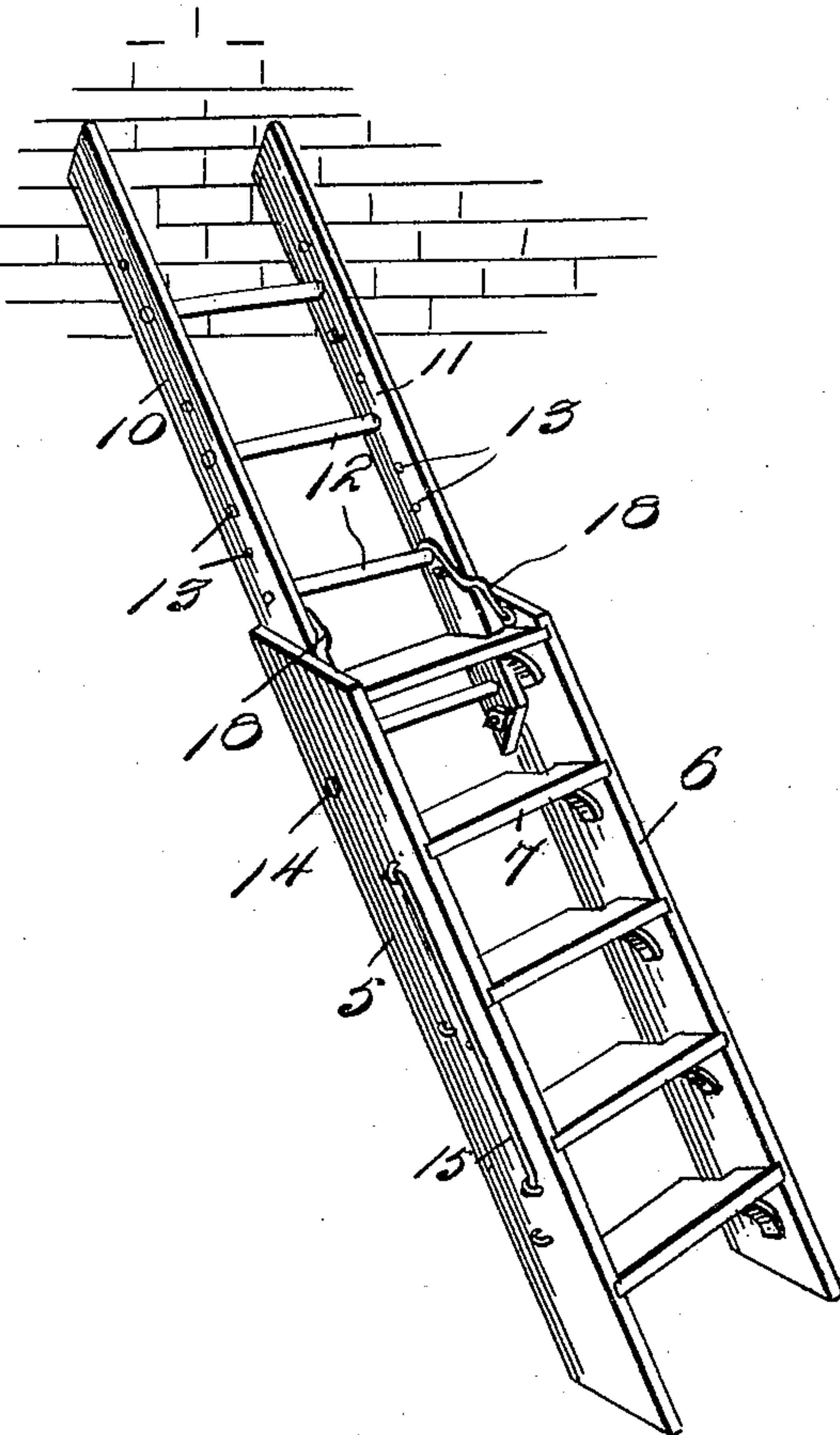
B. C. WILLIAMS & F. C. HEINE.

LADDER.

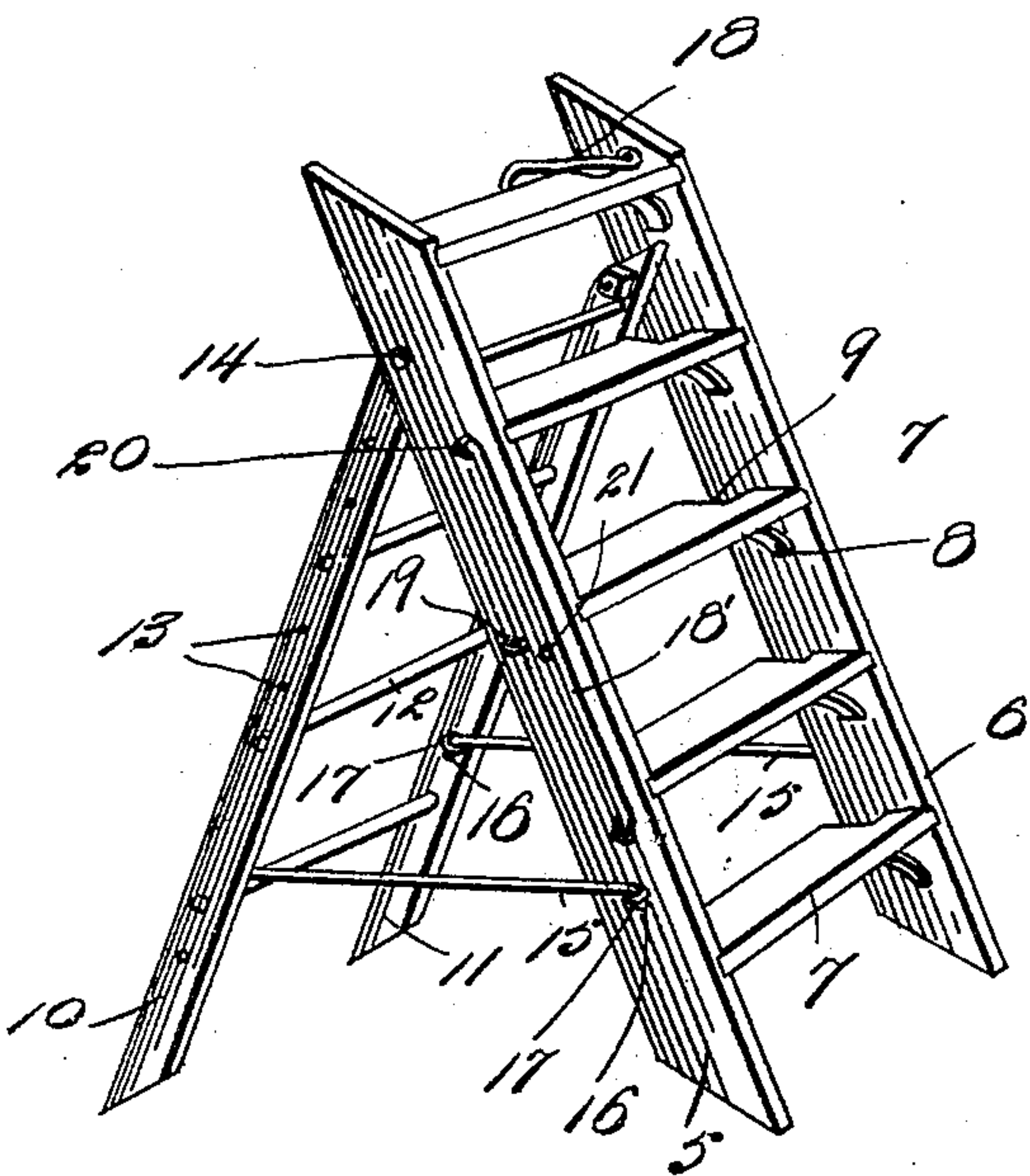
APPLICATION FILED DEC. 2, 1902.

NO MODEL.

*Fig. 2.*



*Fig. 1.*



Witnesses  
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By *[Signature]* Attorneys



# UNITED STATES PATENT OFFICE.

BURT C. WILLIAMS AND FREDERICK C. HEINE, OF FORT WAYNE,  
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## LADDER.

SPECIFICATION forming part of Letters Patent No. 774,123, dated November 1, 1904.

Application filed December 2, 1902. Serial No. 133,626. (No model.)

*To all whom it may concern:*

Be it known that we, BURT C. WILLIAMS and FREDERICK C. HEINE, citizens of the United States, residing at Fort Wayne, in the county of Allen, State of Indiana, have invented certain new and useful Improvements in Ladders; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ladders, and more particularly to the class of step-ladders; and it has for its object to provide a construction which may be converted into an extension-ladder of various lengths with a minimum expenditure of time and energy.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in both views, Figure 1 is a perspective view of the structure set up as a step-ladder. Fig. 2 is a perspective view of the structure set up as an extension-ladder.

Referring now to the drawings, the present ladder comprises what may be termed the "main" step portion, including the sides 5 and 6 and between which are connected the steps 7, which latter are provided with supporting-brackets 8, which also add rigidity to the structure. The steps 7 are formed by boards which have their front edges flush with the front edges of the sides and have the central portions of their rear edges flush with the rear edges of the sides, the rear edges being notched at their ends, as shown at 9, for a purpose to be hereinafter explained.

In connection with the main step portion of the ladder there is employed a prop, including the sides 10 and 11, having the connecting-rungs 12, and through these sides, above, below, and between the rungs, are formed perforations 13, which aline transversely of the prop in pairs. The sides 5 and 6 of the main portion of the ladder are perforated to receive pivot-bolts 14, which are adapted for engagement with the perforations 13 interchangeably, but which when the structure is used as a self-supporting ladder are engaged with the

uppermost perforations of the sides 10 and 11, these bolts being engaged with the sides 5 and 6 at this time near to the upper ends of the latter, as illustrated at Fig. 1. It will be understood, however, that if the step portion is to be held less steep the pivot-bolts may be engaged with the lower perforations 13. To hold the sides 10 and 11 at the proper angles to the sides 5 and 6, brace-rods 15 are employed and have downturned ends 16, which are removably engaged with staples or loops 17 on said sides. When the ladder is not in use, the braces are disengaged and the sides 10 and 11 are folded between the sides 5 and 6 and into the notches 9 of the steps 7.

When the ladder is to be extended to its maximum length from the position shown in Fig. 1, the braces 15 are disengaged and the sides 10 and 11 instead of being folded downwardly between the sides 5 and 6 are swung upwardly to lie with what are then their lower ends between the sides 5 and 6 and are held against return movement by means of the hooks 18, which are pivoted to the inner faces of the sides 5 and 6 and which hooks at such time are engaged over an adjacent rung 12, as shown in Fig. 2 of the drawings. When it is desired to shorten the ladder, the pivot-bolts 14 are withdrawn from the sides 10 and 11 and the latter are slid or adjusted farther between the sides 5 and 6, after which the bolts are engaged with other perforations 13, brought into alinement with those of the sides 5 and 6 by such adjustment. In this position of the parts 10 and 11 those portions lying between the sides 5 and 6 engage the notches 9, so as to be flush with the rear edges of the sides 5 and 6. It will thus be seen that the desired extension of the sides 10 and 11 above the sides 5 and 6 can be readily secured.

What is claimed is—

A ladder comprising sides and connecting-steps, a prop comprising sides and connecting-rungs, said sides being disposed between the first-named sides and pivoted thereto, said prop and ladder being adapted for alinement to form a continuous ladder, and hooks pivoted to the inner faces of the sides of the ladder adjacent to the top thereof, said hooks

comprising offset end portions, and a connecting-web lying at right angles to the end portions, said hooks being adapted for engagement with one of the links of the prop to hold  
5 the prop and the ladder in alinement and to lie when so engaged with the connecting-web upon the forward edges of the sides of the prop.

In testimony whereof we affix our signatures in presence of two witnesses.

BURT C. WILLIAMS.  
FREDERICK C. HEINE.

Witnesses:

HOWARD HAUTHORN,  
FREDERICK W. ROEBK.