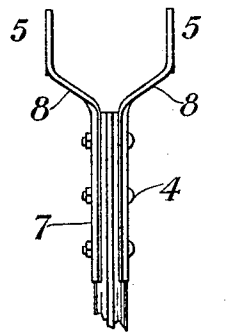
F. PERSSON.

FOLDING SCALING LADDER.

APPLICATION FILED MAY 10, 1916.

1,206,906. Patented Dec. 5, 1916.



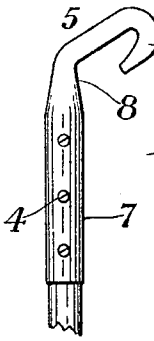


Fig. 5.

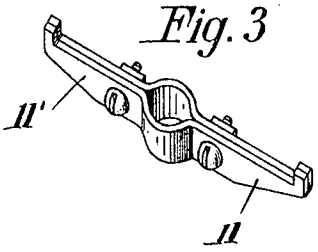
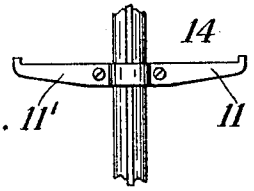


Fig. 3



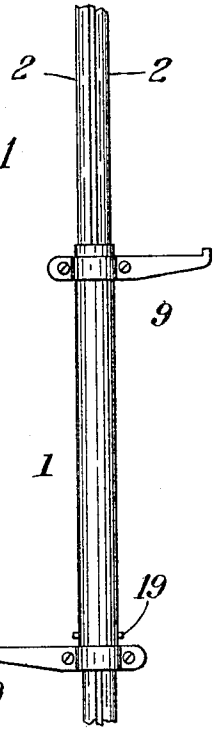


Fig. 1

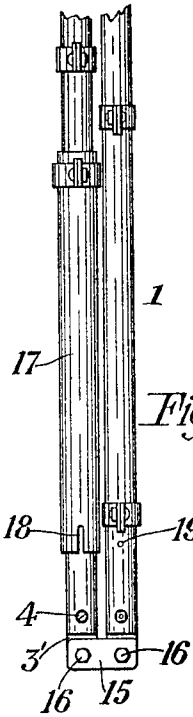


Fig. 2

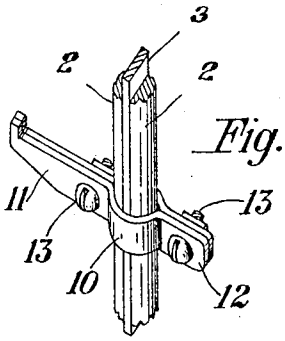
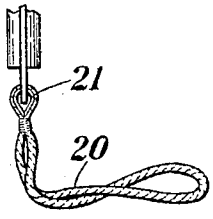


Fig. 4



Inventor:
Frans Persson
per Thomas D. Lockwood
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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FOLDING SCALING-LADDER.

1,206,906. Specification of Letters Patent. Patented Dec. 5, 1916.

Application filed May 10, 1916. Serial No. 96,588.

To all whom it may concern:

Be it known that I, FRANS PERSSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Folding Scaling-Ladders, of which the following is a specification.

This invention pertains to scaling ladders and one of its objects is the provision of a light portable ladder, which may be folded to occupy minimum space for purposes of transportation.

Another object is the provision of a ladder in which the bar or supporting member is so constructed as to have the greatest possible strength consistent with cheapness of manufacture.

Still another object is to provide a retaining means for the joint of a folding ladder which will render the ladder rigid when unfolded, and at the same time will not materially interfere with the spacing of the steps or rounds.

A further object of the invention is the provision of a means whereby the steps or rounds may be secured to the bars or supporting members without splitting the wood.

These foregoing and other objects are attained by means of the construction illustrated in the accompanying drawing in which,

Figure 1 is a view in elevation of the improved ladder, parts being broken away to permit of illustration upon a larger scale; Fig. 2 is a fragmentary side elevation showing the hinge structure; Figs. 3 and 4 are perspective views showing the detail structure of the foot-pieces; and Fig. 5 is a detail view showing the structure of the hook members.

Referring to the drawing 1 designates generally the main supporting bar of the ladder, the same being made up of two half round wooden strips 2, between which is placed a thin strip of metal 3, for the purpose of giving additional strength and rigidity to the bar. The three members of which the bar is composed may be secured together by any suitable means as by bolts or rivets 4 extending through the same at suitable intervals. In the perferred construction but a single supporting bar is provided, instead of having two side bars as is usual in ladder construction. This, materially reduces the weight of the ladder, thereby rendering it more readily transportable from place to place.

To the upper end of the supporting bar two hook members 5 are secured by suitable bolts or rivets. Each of these members comprises a hook proper 6, and shank 7 which is slightly concave in section, so that it fits the rounded surface of the supporting bar 1. A flat neck portion 8 extends laterally from the shank to the hook so as to space the two hooks a considerable distance apart, whereby the ladder is rendered more stable when supported or suspended from a telephone cable or other object.

At suitable intervals along the supporting bar 1, steps 9 are secured. These steps are each formed of two similar sections stamped or otherwise formed from sheet or strap metal, each section being formed with a half round bend 10 therein adapted to fit the rounded surface of the supporting bar, a foot piece 11 being extended laterally in one direction from the part 10 and a lug 12 extending in the other direction. The two sections are clamped about the supporting bar by suitable clamping bolts 13 passing through perforations in the foot piece 11 and lug 12 at each side of the half round bend 10. This construction permits of securing the steps to the supporting bar without perforating the latter, whereby splitting of the wood is avoided, and at the same time serves to secure together the several parts of which the supporting bar is composed, thus resulting in an exceedingly compact and rigid construction. The rivets hereinbefore referred to as securing the several parts of the supporting bar together may be omitted if desired without weakening the structure to any considerable degree. If desired, instead of arranging lugs 12 at one side of the half round portion of the step member, a foot piece 11′ may be used so that foot members extend to each side of the supporting bar 1, but it is perferred to construct the top step 14 in this manner only, arranging the remaining steps so that

the foot pieces 11 of alternate steps extend in opposite directions.

In order to render the ladder still more compact and portable it is perferred to construct the supporting bar 1 of folding sections. In the construction disclosed this bar is shown as being made of two sections, but it is understood that as many sections may be used as desired. The two sections of the supporting bar, are connected by a suitable hinge or flexible joint, formed by extending the strip of metal 3 somewhat beyond the ends of the half round strips 2 at the ends of the sections which are to be jointed, and connecting these extended portions 3′ by means of a pair of straps 15, bolts or rivets 16 being extended through suitable holes in the ends of the straps 15 and extensions 3′, to permit of a pivotal movement of the parts. By this construction the two sections of the supporting bar may be arranged so as to lie side by side for purposes of transportation.

In order to hold the two sections rigidly in position when the supporting bar is unfolded, a long sleeve or collar 17, preferably of metal, is slidably arranged upon the upper section, and is permitted to drop down over the hinge and extend about equal distances over the adjacent ends of the two sections. To prevent this sleeve from turning, vertical slots or notches 18 may be provided in the lower end thereof, which are adapted to engage the projecting ends of a pin 19, arranged transversely through the lower section of the supporting bar.

In order to give sufficient rigidity to the structure, the sleeve 17 should be of considerable length. This would be objectionable because it might interfere with the spacing of the steps were it not for the fact that I adopt the expedient of clamping one of the steps to the sleeve or collar 17 itself, instead of to the body of the supporting member 1 proper. This permits of the use of a sleeve 17 longer than the distance between a pair of steps as a space equal to twice the distance between two steps is available for the operation of the sleeve.

In order to steady the ladder when suspended by engaging the hooks 6 over a telephone cable or other support, a suitable rope or other member 20, provided with a metal eye 21 is secured to the lower end of the lower section of the supporting bar 1 by passing the eye through the bar or through an extending portion of the metal strip 3 thereof.

In use the supporting bar 1 is unfolded and the sleeve 17 slipped over the hinge or joint with the slots 18 engaging the pin 19. The hooks 6 are then engaged with a suitable support such as a telephone cable or the ledge of the roof of a building and the workman or other person may then scale the ladder, it being steadied if desired by a person below holding the rope handle 20. When it is desired to transport the ladder the sleeve 17 is elevated above the hinge and the two sections of the supporting bar are swung around to a position parallel with each other.

It will thus be seen that a very light compact, and yet a strong ladder has been produced, and while the specific embodiment disclosed has been found entirely satisfactory, it will be understood that various parts and details of construction may be varied or altered without departing from the spirit of the invention as defined in the appended claims.

What I claim is:

1. A supporting member for a ladder, comprising two sections, each section consisting of a metal strip with wooden strips attached to each side thereof, the metal strip of each section extending beyond the ends of the wooden strips, and hinge members connecting the extensions.

2. A ladder comprising a main supporting member consisting of a central metal strip and a pair of wooden strips lying on each side thereof and means for securing the parts of the supporting member together, consisting of foot pieces clamped about the supporting member.

3. A supporting member for a ladder formed in sections, hinges connecting sections together, an elongated sleeve slidably mounted upon the supporting member, and adapted to be arranged over the hinged ends of the sections to hold the same in fixed relation, and a foot piece carried by the sleeve.

4. A ladder comprising a supporting member formed in sections, hinges for connecting the sections together, foot pieces arranged at intervals along said supporting member, a sleeve of a length greater than the distance between two adjacent foot pieces slidably mounted upon the supporting member, and adapted to be arranged over the hinged ends of the sections to hold the same in fixed relation and a foot piece carried by said sleeve.

5. A ladder comprising a single main supporting member formed of a metal strip with wooden strips secured to each side thereof, foot pieces secured at intervals thereto, hooks having extensions engaging the bar and secured to the bar by securing means extending through said extensions and the strips of which the bar is composed, said hooks being separated laterally to steady the ladder when suspended from above.

6. A supporting member for a ladder formed in sections, a hinge for connecting the sections, a sleeve slidably mounted upon the supporting member, and adapted to be

arranged over the hinge, a foot-piece carried by said sleeve, and interlocking means for the sleeve and one of the sections to prevent the sleeve from turning with respect to the supporting member comprising a projection to engage a corresponding recess.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 6th day of May, 1916.

FRANS PERSSON.

Witnesses:
FRED'K. S. ROBINSON,
RALPH W. WOLF.

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