

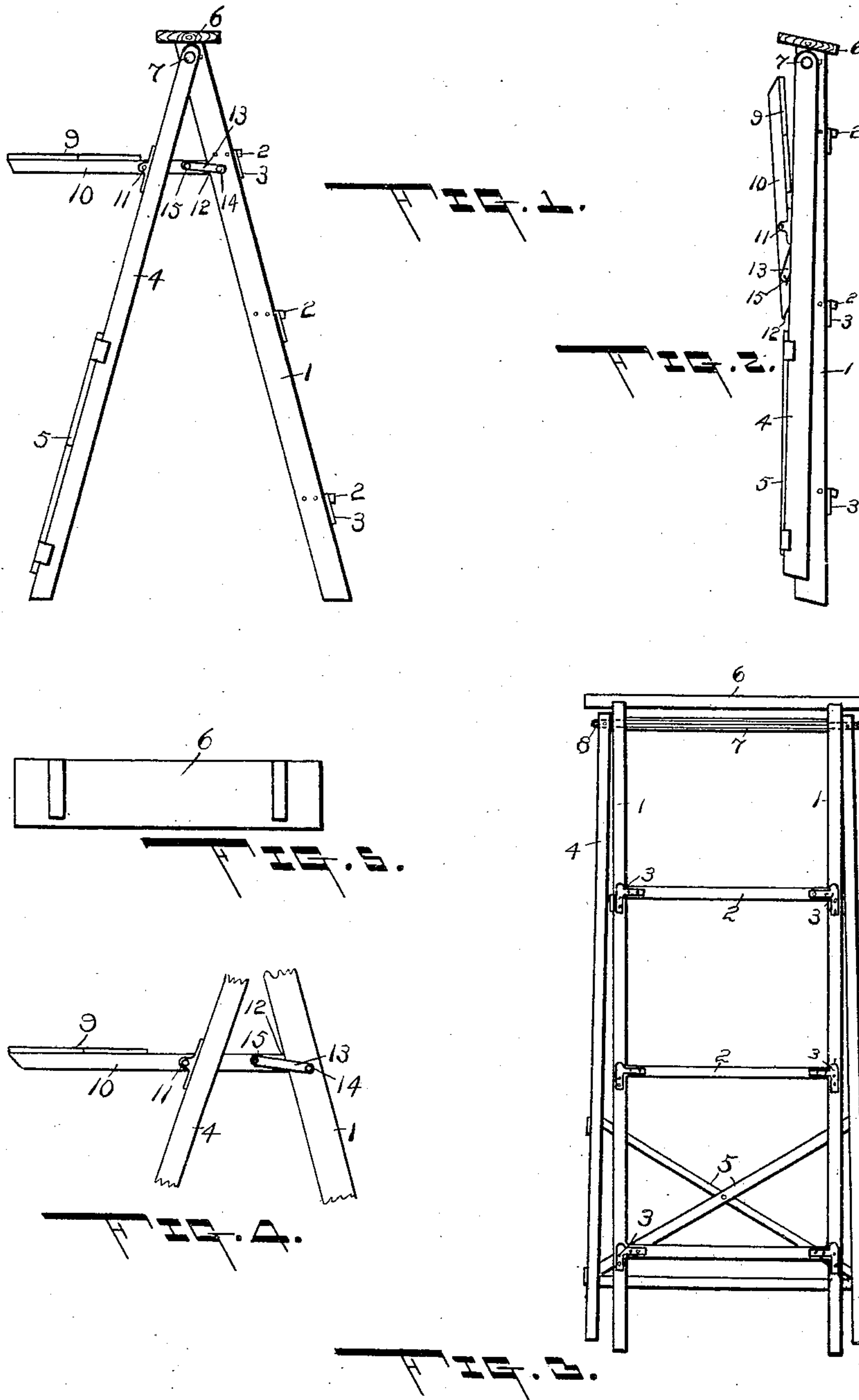
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W. F. STEVENS.

STEP LADDER.

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WITNESSES:

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STEP-LADDER.

No. 856,108.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. STEVENS, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Step-Ladders; and I 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.

My invention relates to step ladders, one object being to provide a most neat and inexpensive device of this character which will be very strong and yet light in weight and simple in construction.

Another object is the provision of a step ladder comprising a ladder section and a brace or prop section pivotally secured together at their upper ends in a novel manner, one section being preferably wider than the remaining section in order to embrace the sides of the remaining section to economize space when the device is not in use.

A further object of my invention is the provision of a combined shelf and link connection between the two sections of the step ladder, the link connection being so arranged that when the device is in use, the sections will be positively held apart to prevent the collapse of the ladder and permit it to be slid or drawn over the floor at will.

To these and other ends therefore my invention consists in certain novel features and combinations of parts together with their equivalents such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a side view of my invention when in use, Fig. 2 is a similar view showing it closed, Fig. 3 is a front view, Fig. 4 is a detail view of the link construction and Fig. 5 is a detail view of the bottom face of the top step.

The device consists of a ladder section and a prop section, the ladder section comprising the usual side rails 1.1 between which extend the steps 2.2 and I preferably connect the side rails and steps in addition to the usual fastening means by the angle braces 3.3 the arms of which are secured by fastenings to the steps and rails respectively such braces being conveniently stamped from a flat sheet by means of dies.

The prop section comprises the side bars 4.4 trussed together by rods 5.5 in any suit-

able manner the distance between the inside faces of the bars being greater than the distance between the outer faces of the rails 1.1 whereby the bars are adapted to embrace and lie parallel with the outside faces of the rails when the device is closed or collapsed.

The extreme upper ends of the side rails are connected by and adapted to support a step 6 the under face of which is transversely grooved from one edge part way across to receive the upper ends of the rails, and passing between the rails just beneath the top step 6 is a cross rod 7 preferably of hard wood as rock elm for instance, such cross rod being reduced at its opposite ends, as at 8.8 the reduced ends being journaled in apertures formed through the side rails. The reduced ends of the cross rod extend beyond the outer faces of the rails and are received in the upper ends of the side bars 4.4 to which the ends of the cross rod are fixedly secured, the cross rod and prop section moving relative to the ladder section when said prop section is moved in or out. The shoulders formed by reducing the ends of the cross rod about the inner faces of the side bars to brace the same. This construction forms a neat strong pivotal connection between the ladder and prop sections and will last as long as the ladder. Co-operating with this pivotal connection is the link connection between the ladder and brace sections which consists of a shelf 9, projecting from the prop section the arms 10.10 of the shelf being received between the side bars to which they are pivotally connected intermediate their ends as at 11.11. These arms extend forwardly from their pivotal support, the extreme forward ends being beveled or chamfered as at 12.12 at such an angle as to squarely engage the rear edges of the side rails 1.1 of the ladder section when the ladder is extended in use. Straps 13.13 pivotally secured as at 14.14 to the outer faces of the side rails 1.1 are pivotally fastened to the arms 10.10 at points 15.15 intermediate the pivotal supports 11.11 and the inclined front ends 12.12. Furthermore, these link connections operate as toggle levers, and the pivotal points 15.15 are above a line drawn between the points 11 and 14 when the ladder is in use, thus bracing the sections apart and permitting the ladder while in use to be slid or drawn around without collapsing, the inclined ends 12.12 preventing the link connections from buckling or beaking upward.

It is evident that I have devised a most

simple yet highly efficient step ladder. When the device is in closed position, the side bars lie outside the side rails and the shelf folds upwardly between the side bars.

5 Having thus fully disclosed my invention what I claim as new is:—

1. A step ladder comprising ladder and prop sections pivotally secured together, and a link connecting the sections, one member 10 of the link being pivotally connected to the prop section and extending forwardly to engage the ladder section when the step ladder is extended, the remaining member of the link being pivotally connected to the ladder 15 section and extending rearwardly to overlap the first named member, the members being pivotally connected to each other, the entire forward end of the first named member adapted to squarely engage the inclined edge 20 of the ladder section when the step ladder is extended.

2. A step ladder comprising a ladder section composed of side rails and steps, a prop section pivotally connected to the ladder section, arms pivotally secured to the prop section and projecting forwardly, the forward 25 ends of the arms being beveled and adapted to take squarely throughout their lengths against the inclined rear edges of the side 30 rails, and straps pivotally secured to the side

rails and to the arms, the pivotal points of connection of the arms with the straps being above the pivotal points of connection of the straps and rails and of the arms and prop section, respectively when the ladder and 35 prop sections are at their farthest distance apart.

3. A step ladder consisting of a ladder section, a prop section, a shouldered cross rod reduced at its ends, and pivotally connecting 40 the sections, and links, one member of each link being pivotally connected to the prop section, and extending forwardly to engage the ladder section when the step ladder is extended, the remaining members of each link 45 being pivotally connected at their forward ends to the ladder section, the second named link members extending rearwardly and overlapping the first named link members, to which they are pivotally connected at points 50 on a plane above the pivotal points of connection of the link members with the prop and ladder sections respectively.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM F. STEVENS.

Witnesses:

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