

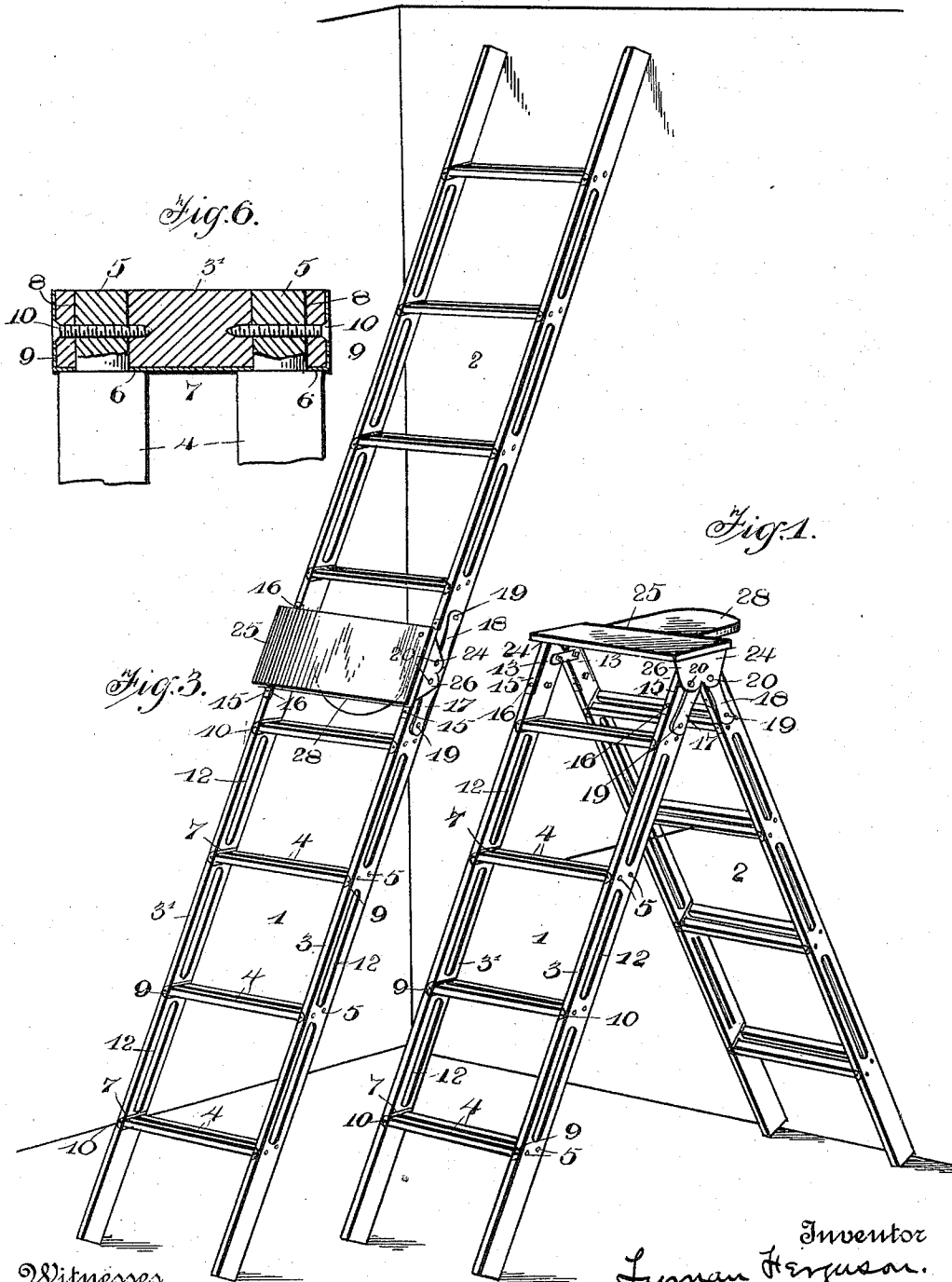
(No Model.)

2 Sheets—Sheet 1.

L. FERGUSON.
EXTENSION STEP LADDER.

No. 579,263.

Patented Mar. 23, 1897.



Witnesses
Wm. F. Doyle.
H. F. Eunis.

Inventor
Lyman Ferguson.
By H. B. Willson.
Attorney

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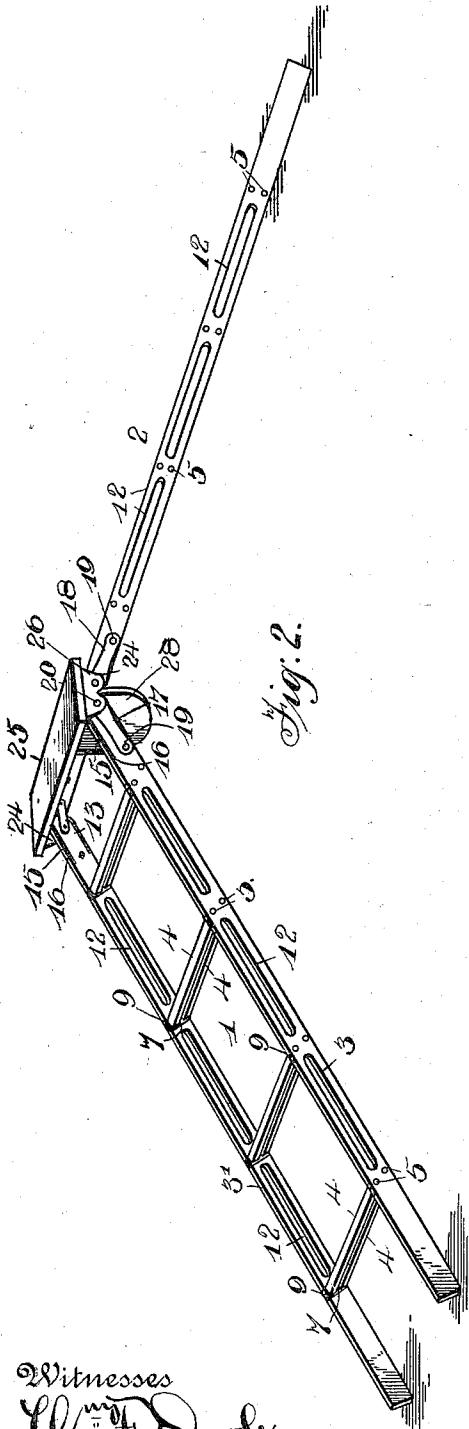


Fig. 2.

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Fig. 5.

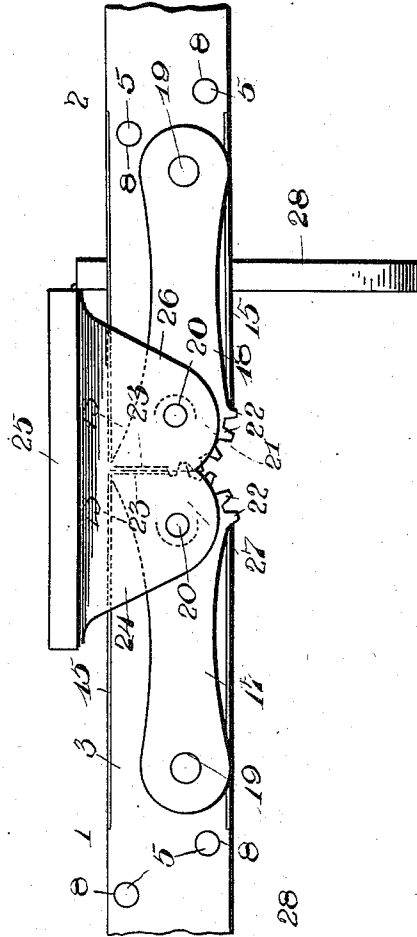
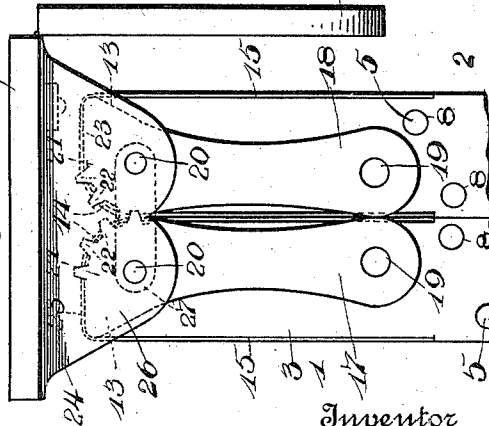


Fig. 4.



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UNITED STATES PATENT OFFICE.

LYMAN FERGUSON, OF ITHACA, NEW YORK.

EXTENSION STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 579,263, dated March 23, 1897.

Application filed September 19, 1896. Serial No. 606,351. (No model.)

To all whom it may concern:

Be it known that I, LYMAN FERGUSON, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Extension Step-Ladders; and I do 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 has relation to improvements in extension step-ladders, and the object is to produce a simple, durable, and convenient ladder of this class for general household and mercantile use; and to these ends the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same figures of reference indicate the same parts of the invention.

Figure 1 is a perspective view of my improved extension step-ladder. Fig. 2 is a similar view showing the ladder lowered to form a work-bench. Fig. 3 is a perspective view showing the ladder extended. Fig. 4 is a detail of the hinge-joint closed. Fig. 5 is a similar view with the joint open, and Fig. 6 is a detail of the rung-joint in the side rail.

1 represents the front section, and 2 the back section, one being a counterpart of the other. The section 1 comprises the side rails 3 3', secured together by the rectangular rungs 4 4, arranged in horizontal pairs, as shown.

The cylindrical ends 5 of said rungs first pass through the orifices 6 6 in the sheet-metal strap 7, and then are closely fitted in the orifices 8 8 in the rails. These straps 7 have projecting ears 9, which are bent at a right angle over the front and rear edges of the rails, and a finishing-screw 10 is inserted through the ear, the front end of the rail, and entirely through the cylindrical end of the rung, making at once a simple, strong, and durable joint, as will be seen by reference to Fig. 6.

A portion of the side rails is cut away between each pair of rungs to form oblong re-

cesses or openings 12 to reduce the weight of the ladder without in any manner sacrificing its strength.

The upper ends 13 of the side rails are cut off square, and the contiguous corners 14 of the front and back sections 1 and 2 are rounded to form a hinged joint, somewhat similar to a pocket-knife blade, and a strap 15 extends up the front edge, across the end 13, around the corner 14, and down the back of each side rail, the parallel ends of said strap being firmly secured to the rail by bolts 16 16. This strap forms a durable brace for the ends of the rails and effectually prevents them from splitting.

17 18 represent the side plates, firmly secured to the outside of the side rails by bolts 19 20, a portion of their upper contiguous ends 21 being rounded and formed with segmental interlocking teeth 22, while their straight ends 23 form abutting bearings when the sections are opened to form a continuous straight ladder, as shown in Figs. 3 and 5.

24 24 represent brackets secured to the platform 25, their depending twin arms 26 26 being secured to the side rail and plates 17 18 by the bolts 20, which pass through the arms 26, the plate, and the side rail, and through the ends of a strap-brace 27 on the inside of the adjoining upper ends of the rails.

By reason of the teeth on the plates meshing the front and back sections are held in the same relative position without regard to their degree of inclination to each other, and consequently the platform remains at a right angle to a line bisecting the angle of the two sections, as shown in Figs. 1, 2, and 3.

28 represents a semicircular shelf secured by a hinge 29 to one end of the platform, and when in use is held in place by a button 30 on the platform to form a horizontal continuation of the platform, and when not in use is folded down out of the way, as shown in Figs. 2 and 3.

A ladder thus constructed forms a very cheap, strong, and durable as well as safe support, and when extended, as shown in Fig. 3, the abutting ends 13 of the side rails and the right-angular ends 23 of the toothed

plates make the ladder as strong and secure as if the side rails of the two sections were one continuous piece.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

Having thus fully described my invention what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. An extension step-ladder comprising two counterpart sections and intermeshing tooth-plates 17 18 having abutting bearings, substantially as and for the purpose set forth.
2. An extension step-ladder, comprising the

sections 1 and 2, brackets 24, the platform 25 secured to the top of said brackets, the plates 17 18 secured to the upper ends of said sections and formed with intermeshing teeth and abutting bearings, as and for the purpose set forth.

3. In a ladder of the class described, the combination with the side rails, of the rectangular rungs, having cylindrical outer ends, the strap 7 having angular ears 9, and the screw 10 passing through said ears, side rail and rung, substantially as shown and described.

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

LYMAN FERGUSON.

Witnesses:

SAML. A. DRURY,
E. F. CAVERLY.