

Feb. 19, 1929.

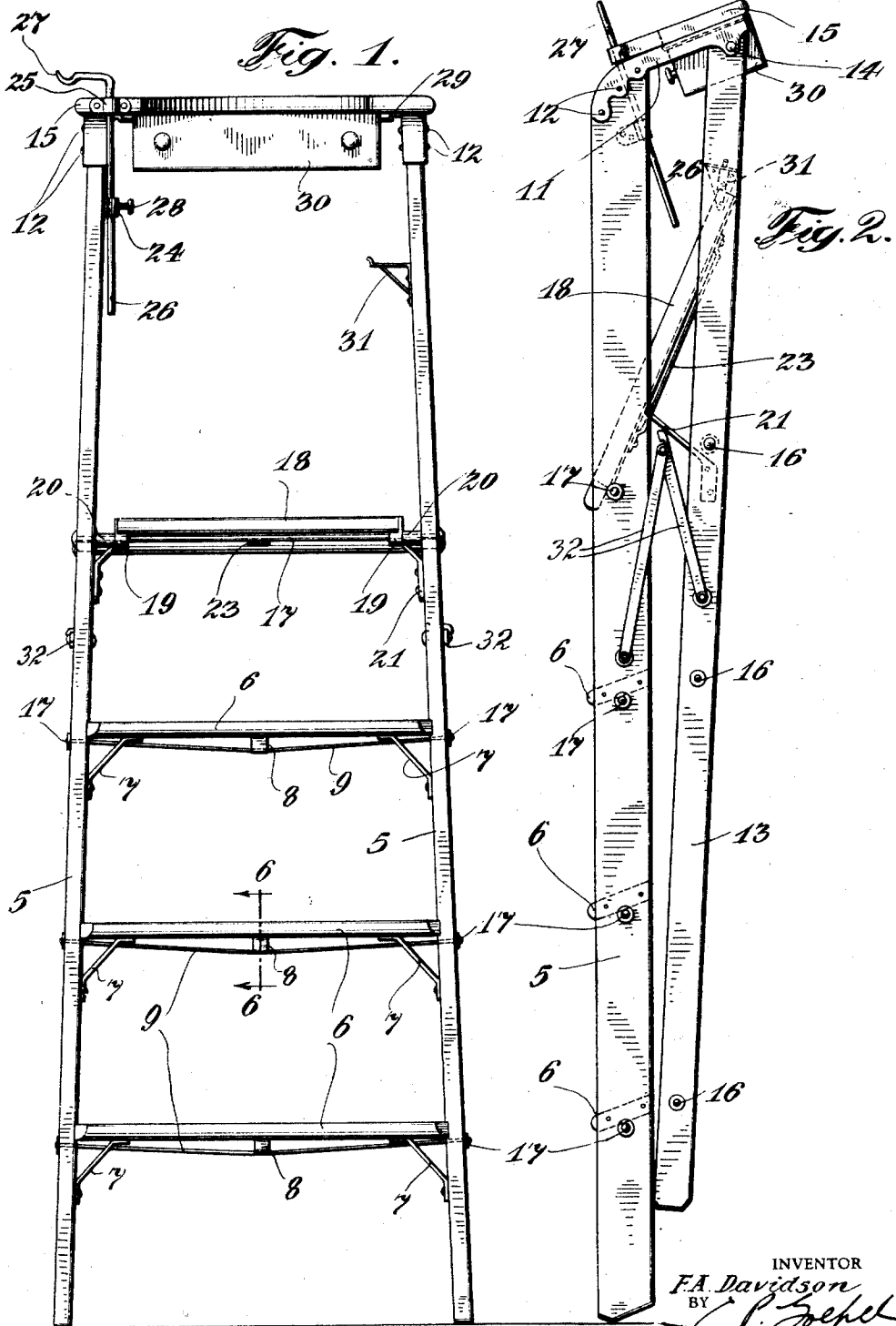
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1,702,249

STEPLADDER

Filed Oct. 21, 1927

2 Sheets-Sheet 1



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Fig. 4.

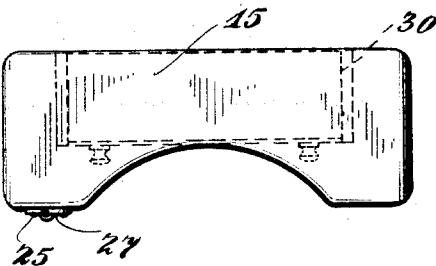


Fig. 6.

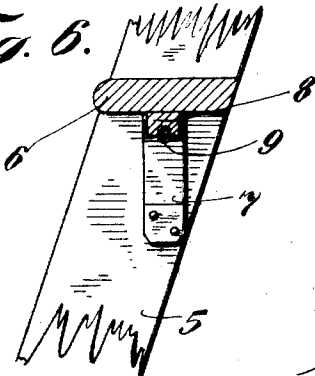


Fig. 3.

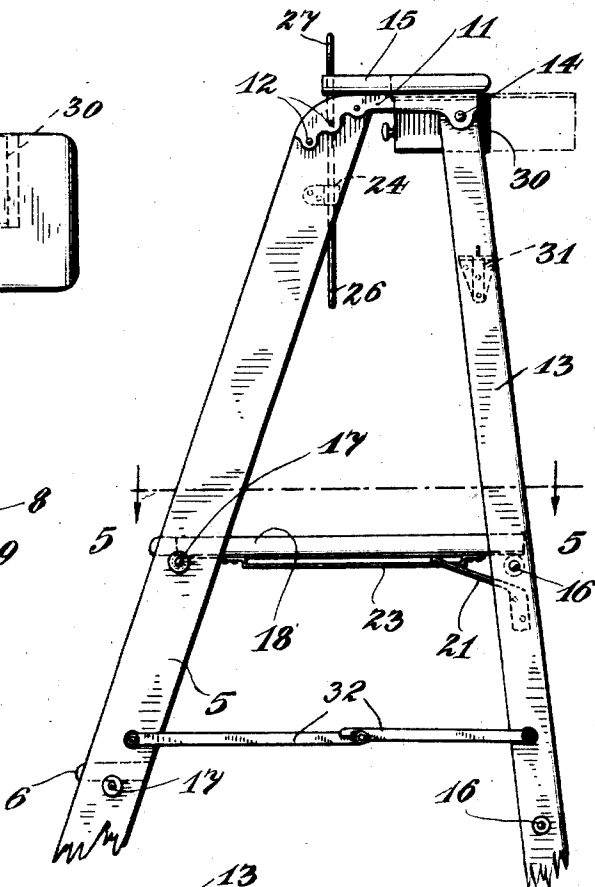
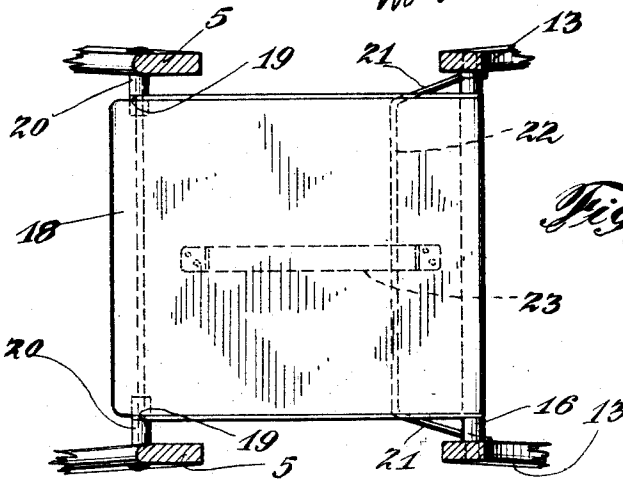


Fig. 5.



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UNITED STATES PATENT OFFICE.

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STEPLADDER.

Application filed October 21, 1927. Serial No. 227,630.

This invention relates to step ladders, and has for its general object and purpose to provide a ladder of simple and durable construction having certain novel features whereby the utility and serviceability of such devices will be increased.

It is one of the detail objects of the invention to provide a platform member pivotally mounted at one of its ends between the front legs of the ladder and adapted to serve as one of the ladder steps, the other end of the platform being supported upon a connecting member between the rear ladder legs when the device is in use, and means extending between and fixed to the rear ladder legs and having a slidable connection with said platform to automatically raise the same to a position between the front and rear pairs of ladder legs as the same are folded or collapsed upon each other.

It is also another object of my invention to provide an improved means for pivotally connecting the front and rear ladder legs with each other at their upper ends.

For the convenience of workmen and mechanics, I also propose to provide a novel form of pail holder, and a tool receiving drawer slidably mounted upon the under side of the top step of the ladder.

With the above and other objects in view, the invention consists in the improved step ladder, and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated several simple and practical embodiments of the invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a front elevation of my improved ladder;

Fig. 2 is a side view thereof showing the ladder collapsed or folded;

Fig. 3 is a detail side elevation of the upper part of the step ladder showing the parts in position for use;

Fig. 4 is a top plan view;

Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 3, and

Fig. 6 is a detail sectional view taken on the line 6—6 of Fig. 1.

Referring in detail to the drawings, 5 designates the front side rails or legs of the step ladder between which at properly spaced intervals a series of horizontal steps 6 are rigidly fixed. Preferably, as herein shown, in addition to securing the ladder steps at each end thereof to the respective front rails 5 by means of nails driven horizontally through the rails and into the steps, an inclined bracing strut 7 is secured to the underside of the step adjacent each of its ends and to the respective rails 5. A block or cleat 8 is also engaged with the under side of the ladder step and is urged upwardly against the central portion thereof by a resilient tension rod 9 which is engaged in a notch or recess in the lower face of said cleat, and extends therefrom in upwardly converging relation to the step through openings in the bracing struts 7 and is suitably fixed at its opposite ends to the side rails 5. In this manner, it will be evident that each step is very rigidly secured in fixed relation to the spaced ladder rails.

To the upper end of each of the front legs or rails 5, a member 11 of channel or U-shaped form in cross section is secured. The upper ends of the rails 5 are fitted into these channel members and secured between the opposite side walls thereof by means of bolts, screws or other analogous fastening elements indicated at 12. From these ladder rails, the channel members 11 project rearwardly and the upper ends of the rear rails or legs 13 of the ladder are pivotally confined in said channels by the bolts indicated at 14. To the upper sides of the channel members 11 the top step or platform 15 of the ladder is suitably fixed at its opposite ends.

The spaced rear legs 13 of the ladder are rigidly connected with each other by means of a series of horizontal rods 16. Above the uppermost fixed step 6 of the ladder a similar rod 17 connects the front ladder rails or legs 5. A platform 18 is provided adjacent one of its ends and at its opposite side edges with suitable bearing sleeves 19 loosely engaged on the rod 17, spacing thimbles 20 being positioned between these sleeves and the inner faces of the rails 5. When the platform is in a horizontal position, it extends forwardly over the rod 17, the end edge thereof being positioned in relation to the side rails 5 similarly to the front edges of the fixed

ladder step 6 so that this end of the platform 18 will serve as an additional step for the ladder. The other end of the platform 18 when in the horizontal position is supported upon the uppermost connecting rod 16 between the rear rails or legs 13 of the ladder. Immediately below this rod, the opposite ends of a guide bracket 21 are securely fixed to the inner faces of the rails 13, said bracket member consisting of a rod having side portions obliquely extending from the fixed ends of said bracket inwardly and upwardly from the rails 13 and connected by a horizontal intermediate portion 22. The bracket member 21 is rigid and rigidly applied to the rails 13. This intermediate portion of the bracket rod is slidably confined against the under side of the platform 18 by means of a metal strap 23 extending over said bracket rod and fixed at its ends to the platform. By means of this construction, it will be evident from a comparison of Figs. 2 and 3 of the drawings, that the platform 18 will be automatically raised or pivotally moved upon the rod 17 to an upwardly extending obliquely inclined position therefrom between the front and rear rails or legs of the ladder, as said ladder legs are folded or collapsed upon each other.

To the inner side of one of the front ladder legs or rails 5 adjacent its upper end, a suitable guide member 24 is secured, and a similar guide member is also secured to the front edge of the top step or platform 5 of the ladder in vertical alignment with the guide 24. A rod 26 is loosely movable through these guides and is provided with a hook 27 on its upper end which is adapted to engage the handle or bail of a pail. The lower guide member is provided with a clamping screw 28 to a rod 26 so that when the rod is lowered upon the bail or handle to confine the same between the hook 27 and the top step 15, the set screw may be tightened against said rod to thereby securely fix the same in place.

Upon the under side of the top step 15 suitably spaced guides 29 are secured for a sliding drawer 30. This drawer is adapted to receive tools or other articles and is movable rearwardly between the guides to open position as indicated in dotted lines in Fig. 3 of the drawings. Also an oil can holder or support indicated at 31 may conveniently be secured to the inner side of one of the front ladder legs 5.

Below the platform 18, the usual pivotally connected spreader links 32 connect the front and rear pairs of ladder legs 5 and 13 with each other.

From the foregoing description considered in connection with the accompanying drawings, the construction, purpose and several advantages of the novel features of my improved step ladder will be fully and clearly understood. The platform 18 provides a

means for supporting pails or other heavy articles, and owing to the manner of pivotally connecting the rear legs at their upper ends with the front ladder legs and the arrangement of the bracket member 21 and its connection with the under side of said platform, it will be apparent that in the folding or collapse of the ladder after use it is not necessary to separately manipulate said platform, but it is automatically moved into folded relation between the spaced ladder legs in the folding or collapsing movement of said pairs of ladder legs upon each other. At the same time, as above explained, the front end of this pivotally movable platform is so mounted and supported between the front ladder legs that it constitutes an additional ladder step. It will therefore, be apparent that a ladder of this construction will be very convenient and serviceable in practical use, while at the same time, owing to the very simple form and construction of the several elements, my present improvements do not add materially to the manufacturing cost to such step ladders as heretofore made.

I have herein shown and described one simple and practical embodiment of the several essential features of my new step ladder, nevertheless it is to be understood that my present improvements might also be incorporated in various other alternative structures, and I accordingly reserve the privilege of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. A step ladder comprising spaced front legs having a plurality of vertically spaced steps rigidly secured therebetween, spaced rear legs pivotally connected at their rear ends with the front legs, a platform pivotally mounted at one of its ends between the front ladder legs to constitute an additional step for the ladder, means connecting the rear ladder legs with each other and supporting the platform in a horizontal position, and additional means rigidly fixed to the rear ladder legs and slidably connected with said platform to pivotally move the same upwardly to an obliquely inclined position between the front and rear pairs of ladder legs when the same are folded and collapsed upon each other.

2. A step ladder comprising spaced front legs having a plurality of vertically spaced steps rigidly secured therebetween, spaced rear legs pivotally connected at their rear ends with the front legs, a platform pivotally mounted at one of its ends between the front ladder legs and to the same to constitute an additional step for the ladder, means connecting the rear ladder legs with each other and supporting the platform in a horizontal position, a rigid immovable bracket member

extending between and rigidly and immov-
ably secured to the rear ladder legs and in-
clined inwardly and upwardly therefrom, and
means on the under side of the platform for
5 sliding engagement with the rigid immovable
bracket whereby the platform is pivotally
moved upwardly to a vertically inclined posi-
tion between the front and rear pairs of ladder
legs as the same are folded relative to each
other. 10
In testimony that I claim the foregoing as
my invention, I have signed my name hereto.

FREDERIC A. DAVIDSON.