Sept. 12, 1939. E. L. WEAVER 2,172,860

PLATFORM LADDER

Filed Dec. 19, 1938 2 Sheets-Sheet 1

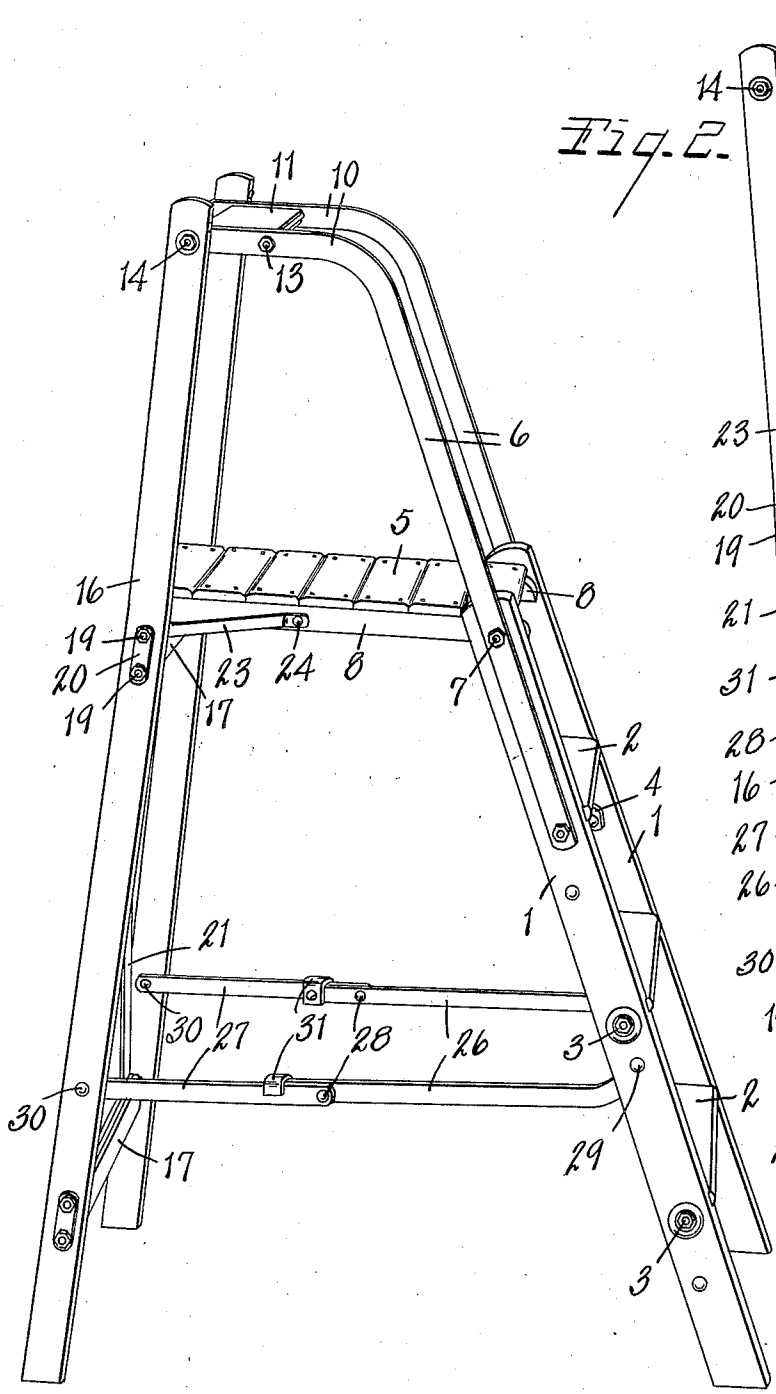


Fig. 1.

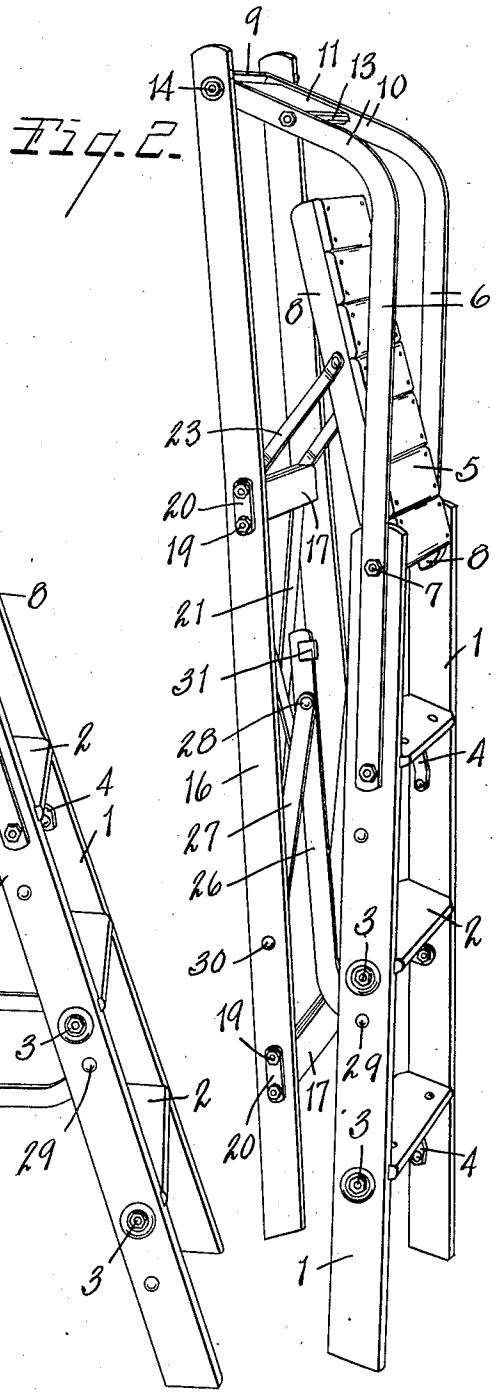


Fig. 2.

INVENTOR.
Earl L. Weaver
BY Earl O. Chappell
ATTORNEYS

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PLATFORM LADDER

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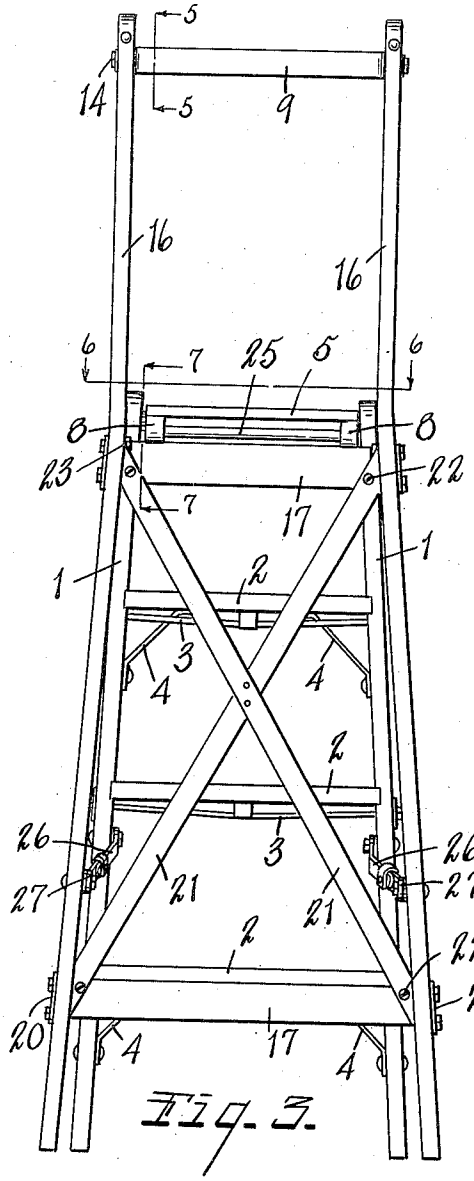


Fig. 3.

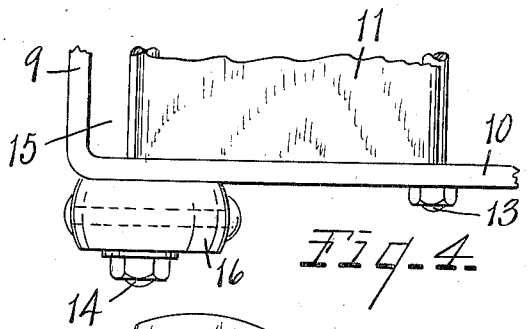


Fig. 4.

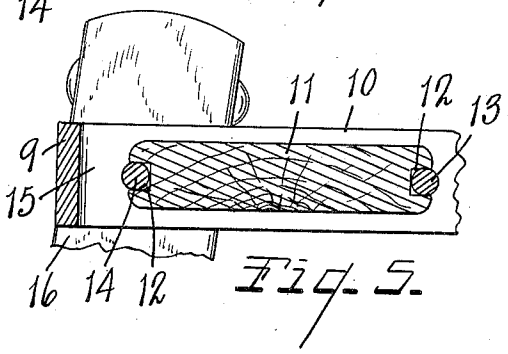


Fig. 5.

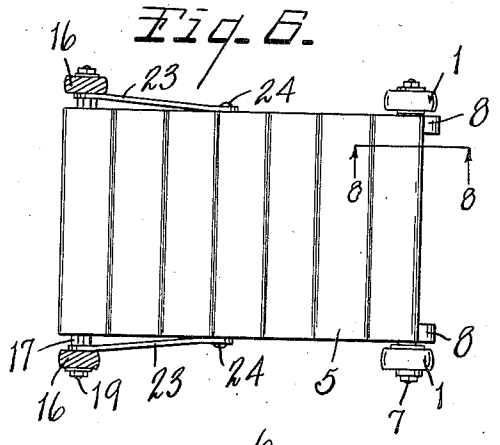


Fig. 6.

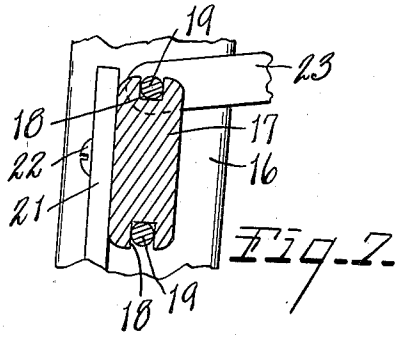


Fig. 7.

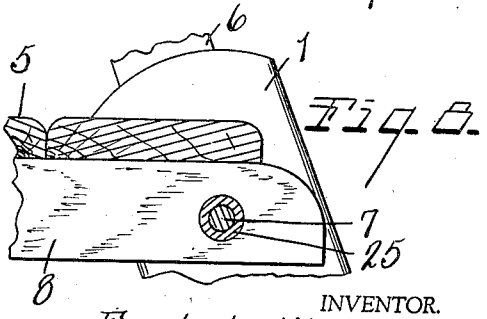


Fig. 8.

INVENTOR.
Earl L. Weaver
BY Earl T. Shakfell
ATTORNEYS

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UNITED STATES PATENT OFFICE

2,172,860

PLATFORM LADDER

Earl L. Weaver, Goshen, Ind., assignor to Goshen Manufacturing Company, Goshen, Ind.

Application December 19, 1938, Serial No. 246,683

9 Claims. (Cl. 228—17)

This invention relates to improvements in platform ladders.

The main objects of this invention are:

First, to provide a stepladder of the platform type especially adapted for painters and other workmen requiring the use of tools or implements in the performance of their work.

Second, to provide a stepladder of the platform type which, while comparatively light in weight, is very rigid, the ladder being provided with parts which constitute guard rails for the worker's platform.

Third, to provide a ladder of the character described having these several advantages which is quite compact when collapsed.

Fourth, to provide a stepladder which is very rigid when erected, the parts being arranged to effectively sustain the thrust to which the ladder is subjected in use.

Objects relating to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of my invention is clearly illustrated in the accompanying drawings in which:

Fig. 1 is a side perspective view of my improved ladder.

Fig. 2 is a perspective view with the ladder collapsed.

Fig. 3 is a rear elevation with the ladder erected.

Fig. 4 is an enlarged fragmentary top view.

Fig. 5 is an enlarged detail section on line 5—5 of Fig. 3.

Fig. 6 is a horizontal section on line 6—6 of Fig. 3.

Fig. 7 is a fragmentary section on line 7—7 of Fig. 3.

Fig. 8 is a fragmentary view sectioned on line 8—8 of Fig. 6.

The embodiment of my invention illustrated comprises a pair of risers 1, 1 with the steps 2 arranged between them, the ends of the steps being mortised into the risers and the risers clamped upon the steps by means of the combined tie bolts and truss rods 3. Braces 4 are provided for the top step. In the structure illustrated there are only three steps and a platform 5 which constitutes a step, but it will be understood that the height of the ladder is regulated by the work for which it is designed to be used.

The risers are provided with extension bars 6, 6, the lower ends of which are lapped upon the outer sides of the risers receiving the combined tie and truss rod 3 for the upper step and the bolt or tie rod 7 which constitutes a pivot for the platform 5. The platform is made up with suitable top boards and sills or supporting bars 8 which are engaged with the rod 7. The riser extensions are formed integrally as a U-shaped member, the bight 9 thereof constituting a cross member connecting the upper ends of the bars as is clearly shown in the drawings.

The riser extension bars 6 have horizontally disposed top portions 10 adapted to support the table 11. This table in the embodiment illustrated is a board having grooved edges 12 receiving the tie rods or bolts 13 and 14 extending between the top portions of the extension bars. It will be noted that the rear tie rod 14 is spaced from the cross portion 9 of the riser extensions but it is sufficiently close thereto that the space 15 is adapted to receive the handles of paint brushes, for instance, and support them in convenient reach of the workman. The cross member 9 serves as a tool support with which hammers, pliers or other tools may be engaged.

The tie rod 14 also serves as a support for the struts or legs 16 which are pivoted thereon to be swung to erected position as shown in Fig. 1, or to collapsed position shown in Fig. 2. These struts are provided with upper and lower cross members each consisting of a board-like member 17 having grooves 18 in the edges thereof receiving the tie rods 19. The members 17 are arranged with their ends in abutting relation to the strut so that when the tie rods are tightened the risers are drawn up firmly against the ends of the members 17 which serve as effective bracing and cross members. Combined washer and tie plates 20 are preferably employed for each pair of tie rods 19.

The struts are further braced by means of the crossed braces 21 which are secured to the board members of the cross members as by screws 22, the ends of these braces being cut as shown in Fig. 3 so that they abut the inner sides of the struts.

To automatically swing the platform to erected position when the struts are swung rearwardly or to erected position I provide a pair of links 23 which are pivoted to the platform bars at 24 and engaged with the upper tie bolt 19 of the upper cross member as shown in Fig. 7.

The tie bolt 7 is provided with a spreader 25 to prevent the tightening of the bolt and the clamping engagement of the platform. When the ladder is erected the riser extension bars serve as guard rails for the platform.

To support the struts in erected position I pro-

vide a pair of stretchers each consisting of a pair of links **26** and **27** pivotally connected to each other at **28**. The links **26** are pivoted to the risers at **29** while the links **27** are pivoted to the struts at **30**. Stops **31** are provided on the overlapping ends of the links **26** to limit the downward movement of the pivoted ends of the links. When the ladder is erected these stretchers are actuated to the position shown in Fig. 1, and to collapse the ladder the pivot joint between the links is broken by an upward pull thereon which permits the ladder to be collapsed as shown in Fig. 2.

The parts of my improved ladder are arranged so that they are effectively braced and this permits the parts to be of comparatively light material without sacrificing strength.

I have illustrated and described my invention in a very practical embodiment thereof. I have not attempted to illustrate or describe certain modifications or adaptations which I contemplate as it is believed this disclosure will enable those skilled in the art to adapt my invention as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the outer sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U shaped member the bight of which is disposed at the top and constitutes a cross member, a work table disposed between the top portions of said riser extensions in spaced relation to said cross member thereof to coact therewith in providing an implement holder, said work table comprising a board having longitudinally grooved edges and tie bolts extending between the riser extensions in engagement with said grooves, struts pivotally engaged with the rearward of said table supporting tie bolts, top and bottom cross members connecting said struts, each cross member comprising a vertically disposed board-like member disposed between the struts with their ends abutting the inner sides thereof and having longitudinal grooves in their edges and tie rods engaged in said grooves and extending through the struts, combined washer and tie plates common to the pairs of cross member tie rods, a platform pivoted between the upper ends of the risers and adapted when erected to rest on the upper of said cross members, links pivotally connected to said platform and to said struts to permit an upward and forward collapsing movement of the platform, said links being pivoted on the upper tie rod of the upper cross member, and crossed braces secured to the board portions of said cross members with their ends in abutting relation to the inner sides of the struts.

2. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the outer sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U shaped member the bight of which is disposed at the top and constitutes a cross member, a work table disposed between the top portions of said riser extensions in spaced relation to said cross member thereof to coact therewith in providing an implement holder, said work table comprising a board having longitudinally grooved edges and tie bolts extending between the riser extensions in engagement with said grooves, struts pivotally engaged with the rearward of said table supporting tie bolts, top and bottom cross members connecting said struts, each cross member comprising a vertically disposed board-like member disposed between the struts with their ends abutting the inner sides thereof and having longitudinal grooves in their edges and tie rods engaged in said grooves and extending through the struts, combined washer and tie plates common to the pairs of cross member tie rods, a platform pivoted between the upper ends of the risers and adapted when erected to rest on the upper of said cross members, and links pivotally connected to said platform and to said struts to permit an upward and forward collapsing movement of the platform, said links being pivoted on the upper tie rod of the upper cross member.

3. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the outer sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U shaped member the bight of which is disposed at the top and constitutes a cross member, a work table disposed between the top portions of said riser extensions in spaced relation to said cross member thereof to coact therewith in providing an implement holder, said work table comprising a board having longitudinally grooved edges and tie bolts extending between the riser extensions in engagement with said grooves, struts pivotally engaged with the rearward of said table supporting tie bolts, cross members connecting said struts, and a platform pivoted between the upper ends of the risers and adapted when erected to rest on one of said cross members.

4. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the sides of said risers and having rearwardly projecting top portions, said riser extensions being fomed integrally as a U shaped member the bight of which is disposed at the top and constitutes a cross member, struts pivotally secured to said riser extension, top and bottom cross members connecting said struts, each cross member comprising a vertically disposed board-like member disposed between the struts with the ends thereof abutting the inner sides of the struts and having longitudinal grooves in their edges and tie rods engaged in said grooves and extending through the struts, combined washer and tie plates common to the pairs of cross member tie rods, a platform pivoted between the upper ends of the risers and adapted when erected to rest on the upper of said cross members, and crossed braces secured to the board portions of said cross members with their ends in abutting relation to the inner sides of the struts.

5. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U-shaped member the bight of which is disposed at the top and constitutes a cross member, struts pivotally secured to said riser extension, top and bottom cross members connecting said struts, each cross member comprising a vertically disposed board-like member disposed between the struts with the ends thereof abutting the inner sides of the struts and having longitudinal grooves in their edges and tie rods engaged in said grooves and extending through the struts, combined washer and tie plates common to the pairs of

cross member tie rods, and a platform pivoted between the upper ends of the risers and adapted when erected to rest on the upper of said cross members.

6. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U-shaped member the bight portion of which is disposed at the top and constitutes a cross member, struts pivotally secured to said riser extension, cross members connecting said struts, a platform pivoted between the upper ends of the risers and adapted when erected to rest on one of the last named cross members, and crossed braces secured to said cross members with their ends in abutting relation to the inner sides of the struts.

7. In a stepladder, the combination of risers having steps fixedly secured between them, riser extension bars secured to the outer sides of said risers and having rearwardly projecting top portions, said riser extensions being formed integrally as a U-shaped member the bight portion of which is disposed at the top and constitutes a cross member, struts pivotally secured to said riser extension, cross members connecting said struts, combined washer and tie plates common to the pairs of cross member tie rods, a platform pivoted between the upper ends of the risers and adapted when erected to rest on the upper of said cross members, links pivotally connected to said platform and to said struts to permit an upward and forward collapsing movement of the platform, said links being pivoted on the upper tie rod of the upper cross member, and a pair of collapsible spreaders extending between said struts and risers and each comprising a pair of pivotally connected links pivotally connected to the struts and risers, one link of each pair being provided with a stop engaging the other link of a pair when the spreaders are in erected position.

8. In a stepladder, the combination of risers having steps secured between them, riser extension bars secured to said risers, said riser extension bars being constituted by an integral U-shaped member having the bight thereof at the top of the ladder and constituting a transverse member, a work table disposed between the top portions of said riser extension bars in spaced relation to said transverse member to coact therewith in providing an implement holder, struts pivotally connected to said riser extension bars, cross members connecting said struts, and a platform pivoted between the risers and adapted when erected to rest on one of the cross members.

9. In a stepladder, the combination of risers having steps secured between them, riser extension bars secured to said risers, said riser extension bars being constituted by an integral U-shaped member having the bight thereof at the top of the ladder and constituting a transverse member, and a work table disposed between the top portions of said riser extension bars in spaced relation to said transverse member to coact therewith in providing an implement holder.

EARL L. WEAVER.