Aug. 7, 1945. G. M. FENNER 2,381,492

STEP LADDER

Filed May 25, 1944 2 Sheets-Sheet 1

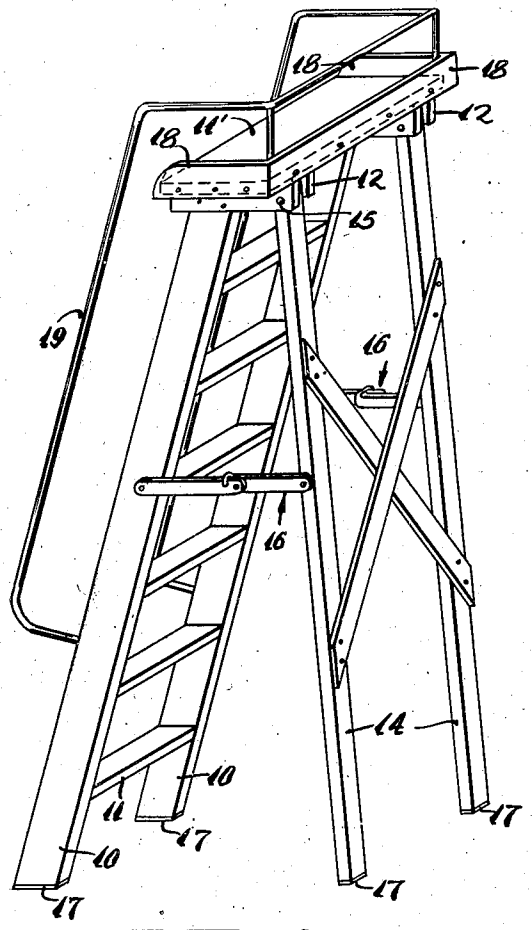


Fig. 1.

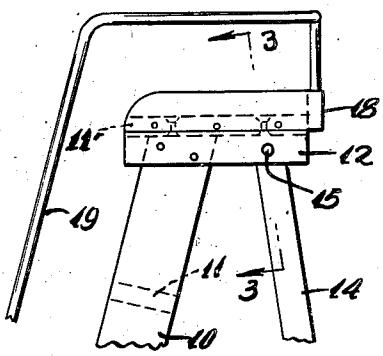


Fig. 2.

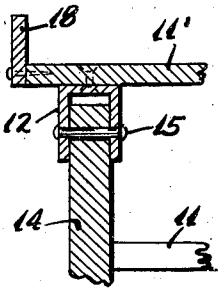


Fig. 3.

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STEP LADDER

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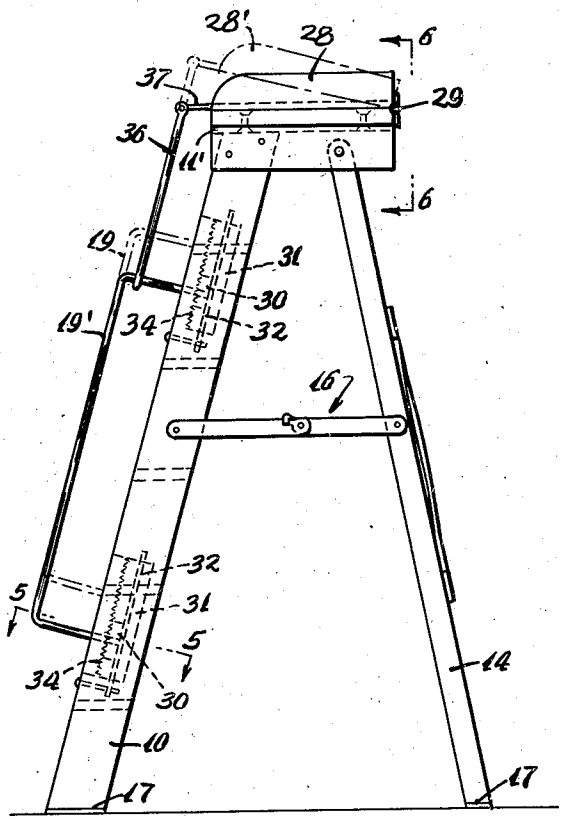


Fig 4

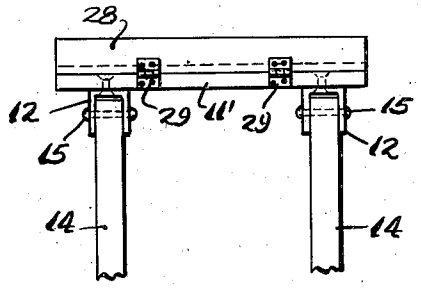


Fig. 6.

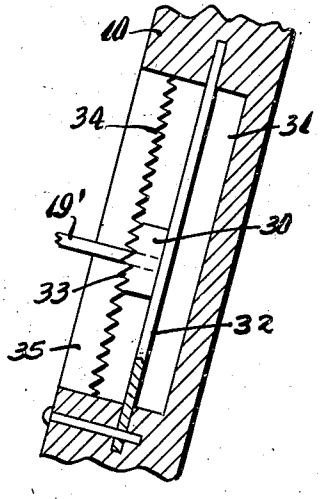


Fig. 7.

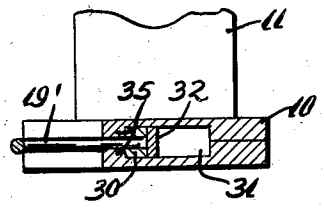


Fig. 5.

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STEPLADDER

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Application May 25, 1944, Serial No. 537,207

6 Claims. (Cl. 228—17)

This invention relates to new and useful improvements in a step ladder, and particularly relates to a step ladder intended to be used in the home.

In the general type of step ladder now used in the home there is a shelf in the back of the ladder which assumes a horizontal position when the ladder is opened for use. It is intended that pails, hammers, and other implements and objects be rested on this shelf when one mounts the step ladder. However, this construction is faulty in that quite often articles fall off the shelf.

This invention proposes to improve the household stepladder by increasing the size of the top step, preferably making it twice as wide and at least two inches longer at each side. It is proposed to provide this top step with guard rails so that pails, brushes, articles and tools may be safely rested on the step without any danger of their falling off.

It is also proposed to provide the new and improved step ladder with hand rails extending along each of the sides for assisting a woman in mounting the ladder.

It is also proposed to provide the ladder with rubber or felt feet for preventing it from slipping and generally acting as a sturdy support.

It is contemplated to construct the ladder of wood in the usual way. The hand rails may be of wood, iron, or other suitable materials.

The invention also proposes a modification of the ladder generally defined.

Another object of the invention is the construction of an article as mentioned, which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set for.

In the accompanying drawings forming a material part of this disclosure—

Fig. 1 is a perspective view of a step ladder constructed in accordance with this invention.

Fig. 2 is a fragmentary side elevational view of a top portion of the step ladder shown in Fig. 1.

Fig. 3 is a fragmentary enlarged vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a side elevational view of a step ladder constructed in accordance with a modified form of this invention.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a fragmentary elevational view looking in the direction of the line 6—6 of Fig. 4.

Fig. 7 is a fragmentary enlarged sectional view of a portion of Fig. 4.

The improved step ladder in accordance with the form of the invention disclosed in Figs. 1–3, includes a pair of side rails 10 and steps 11 mounted between said side rails. The top step 11′ is relatively larger than the other steps 11 to form an enlarged top for the ladder. Preferably, the top step 11′ is twice as wide and at the sides extend at least two inches past the sides of the side rails 10. Channel members 12 are mounted on and beneath the said top step 11′ and connect with the side rails 10 for rigidly and firmly supporting said top step.

Support legs 14 are pivotally connected with the top step 11′ by pintle rivets 15 mounted through the back portion of the channel members 12. The support legs 14 are associated with means for holding them extended or retracted. This means comprises the usual foldable side arms 16. Felt or rubber pads 17 are mounted upon the bottom ends of the side rails 10, and the support legs 14.

Guard rails 18 are mounted along the sides and the back of said top step 11′. Hand rails 19 are mounted upon the front sides of said side rails 10, and extend above rails 18.

The advantage of the new and improved step ladder resides in the fact that brushes, pails and various tools and articles may be placed upon the top step 11′ and one may mount the ladder without any danger of these articles falling off. The guard rails 18 prevent them from doing so. The hand rails 19 are very convenient for gripping while mounting the ladder.

In Figs 4–7 a modified form of the invention has been disclosed which distinguishes from the prior form in several respects. In this form of the invention a tray-like member 28 is mounted upon the top step 11′ of the ladder. This tray-like member 28 is connected by hinges 29 at its back with the back edge of the top step 11′. The ladder is provided with a fixed hand rail 19 mounted upon one of the side rails 10 thereof and with a movable hand rail 19′ mounted upon the other side rail 10 of the ladder. This movable hand rail 19′ has its ends provided with slides 30 slidably mounted in recesses 31 formed in said side rail 10. A leaf spring 32 engages the head 30 urging it forwards. The head 30 is provided with serrations 34 which in its forward position engages complementary serrations 34 on strip portions 35 extended along the front sides of the

recess 31. A link 36 is pivotally connected with the hand rail 19' and pivotally connects with an arm 37 projecting from the front of the tray 28.

In other respects this form of the invention is identical to the previous form and like parts are identified by like reference numerals.

This modified form of ladder is used in the same way as the first form of the invention. However, it has the additional advantage that when desired the hand rail 19' may be manually pressed inwards so that the heads 30 slightly flex the leaf springs 32 to disengage the serrations 33 from the serrations 34. Then the hand rail 19' may be shifted upwards or downwards so that the motion is transmitted by the link 36 to the tray 28. In this way the tray may be moved to various positions, as for example, the position indicated by the dot and dash lines 28' in Fig. 4. When the handle 19' is released the springs 32 will indirectly lock the parts in adjusted positions.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. A step ladder, comprising a pair of side rails, and steps mounted between said side rails, and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, means for holding said support legs in extended positions, and a tray-like member mounted on said top step, said tray-like member being hingedly connected at its back on said top step, and means for holding said tray-like member in various hinged positions, including a link connected with said tray-like member, a hand rail adjustably mounted on one of the side rails of said ladder and connected with said link.

2. A step ladder, comprising a pair of spaced side rails, steps mounted between said side rails and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, a tray-like member hingedly connected at its back on said top step, a hand rail vertically adjustably mounted on one of said side rails, and means connecting the free front edge of said tray-like member to said hand rail for holding said tray-like member in various rearwardly inclined positions in the various vertical adjusted positions of said hand rail on said side rail.

3. A step ladder, comprising a pair of spaced side rails, steps mounted between said side rails and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, a tray-like member hingedly connected at its back on said top step, a hand rail vertically adjustably mounted on one of said side rails, and means connecting the free front edge of said tray-like member to said hand rail for holding said tray-like member in various rearwardly inclined positions in the various vertical adjusted positions of said hand rail on said rail, comprising an arm extending from the free front edge porton of said tray-like member at a point above said hand rail, and a link interposed between the outer end of said arm and the top of said hand rail.

4. A step ladder, comprising a pair of spaced side rails, steps mounted between said side rails and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, a tray-like member hingedly connected at its back on said top step, a hand rail vertically adjustably mounted on one of said side rails, and means connecting the free front edge of said tray-like member to said hand rail for holding said tray-like member in various rearwardly inclined positions in the various vertical adjusted positions of said hand rail on said side rail, comprising linkage interposed between said tray-like member and said hand rail.

5. A step ladder, comprising a pair of spaced side rails, steps mounted between said side rails and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, a tray-like member hingedly connected at its back on said top step, a hand rail vertically adjustably mounted on one of said side rails, and means connecting the free front edge of said tray-like member to said hand rail for holding said tray-like member in various rearwardly inclined positions in the various vertical adjusted positions of said hand rail on said side rail, said hand rail being U-shaped and having the ends of its arms extended into recesses formed in said side rail, said vertically adjustable mounting of said side rail comprising slides within said recesses and fixedly mounted on the inner ends of the arms of said hand rail, complementary serrations formed between the adjacent faces of said slides and side rail for holding said hand rail against vertical adjustment when engaged, and resilient means urging said slides into positions to engage said serrations.

6. A step ladder, comprising a pair of spaced side rails, steps mounted between said side rails and the top step being relatively larger to form the top of the ladder, support legs pivotally connected with said top step, a tray-like member hingedly connected at its back on said top step, a hand rail vertically adjustably mounted on one of said side rails, and means connecting the free front edge of said tray-like member to said hand rail for holding said tray-like member in various rearwardly inclined positions in the various vertical adjusted positions of said hand rail on said side rail, said hand rail being U-shaped and having the ends of its arms extended into recesses formed in said side rail, said vertically adjustable mounting of said side rail comprising slides within said recesses and fixedly mounted on the inner ends of the arms of said hand rail, complementary serrations formed between the adjacent faces of said slides and side rail for holding said hand rail against vertical adjustment when engaged, and resilient means urging said slides into positions to engage said serrations, comprising leaf springs extending across said recess and bearing against a side of said slides opposed to the sides having said serrations.

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