July 13, 1926. 1,592,109

F. L. JACOBS

STEPLADDER

Original Filed Feb. 23, 1922 2 Sheets-Sheet 1

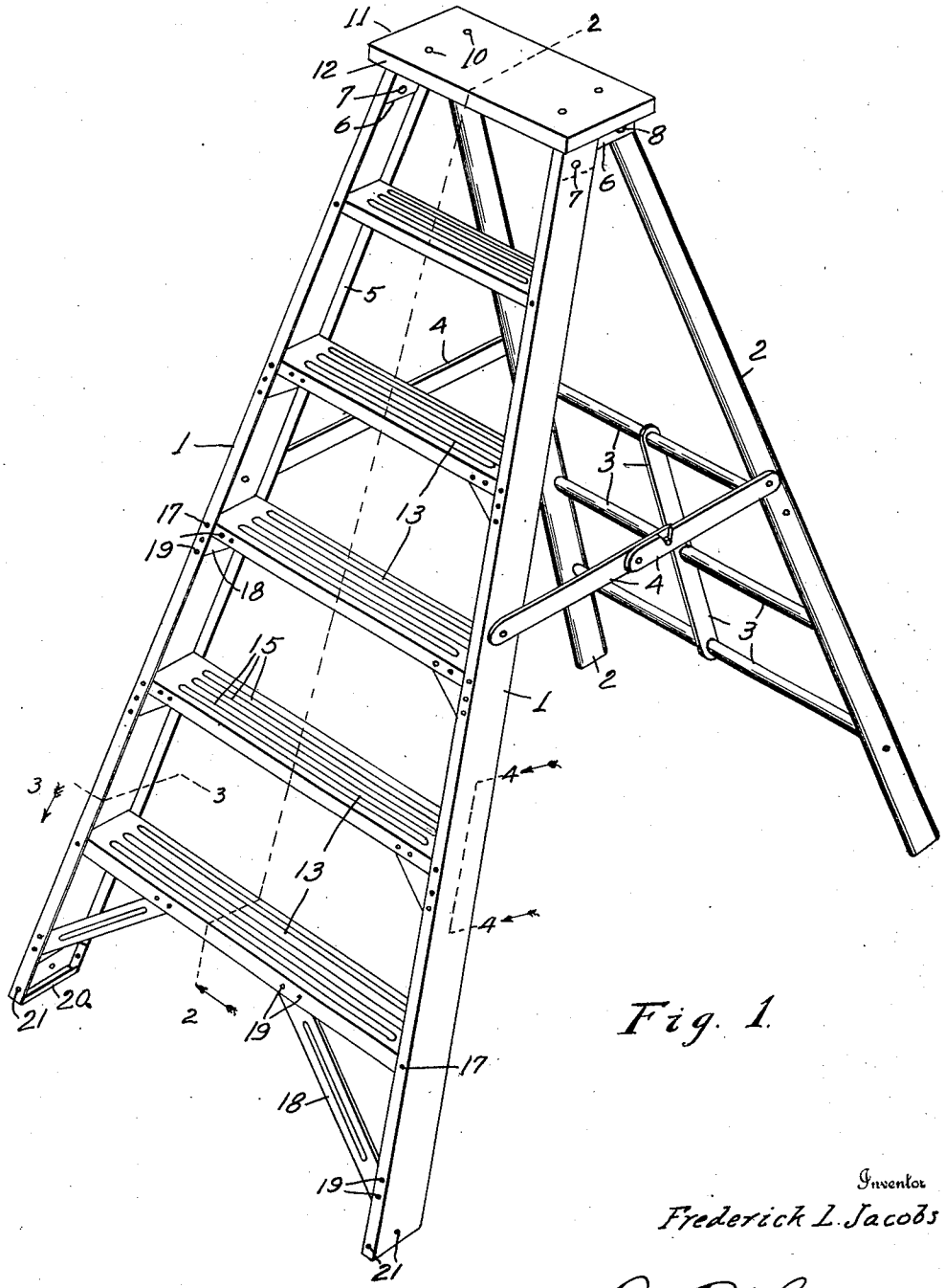


Fig. 1.

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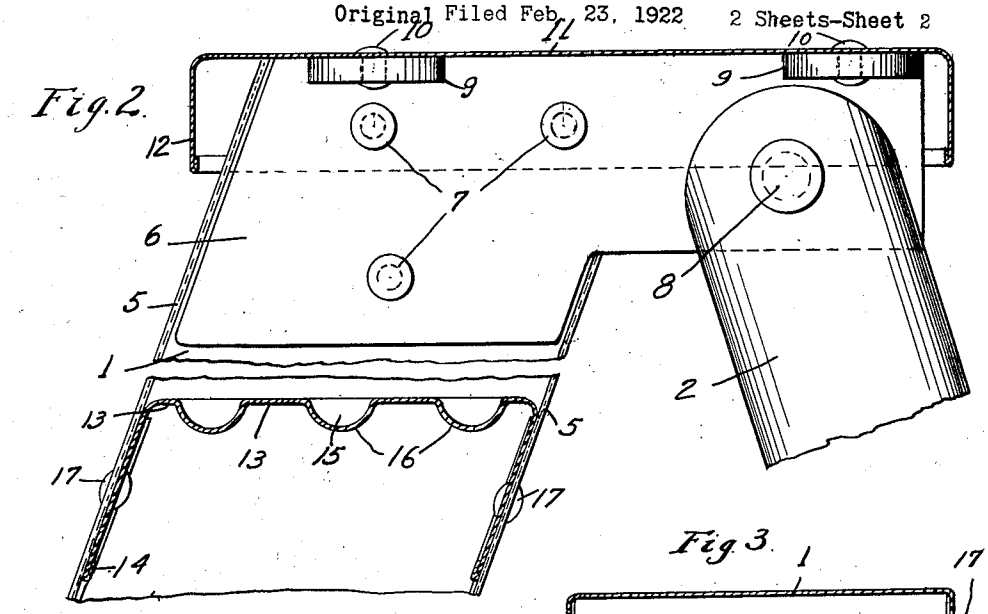
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Original Filed Feb. 23, 1922 2 Sheets-Sheet 2

Fig. 2.



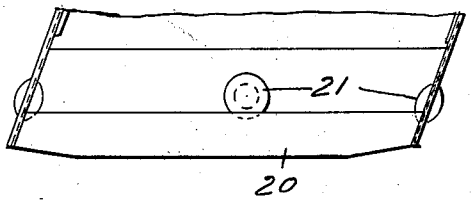


Fig. 3.

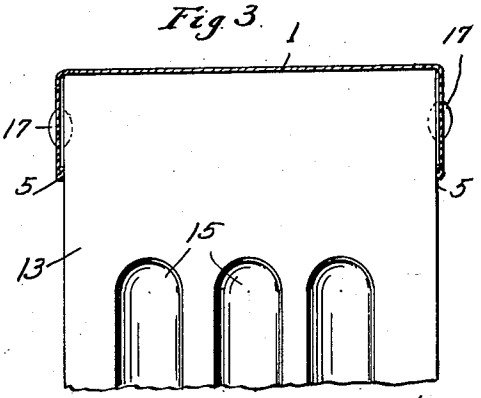
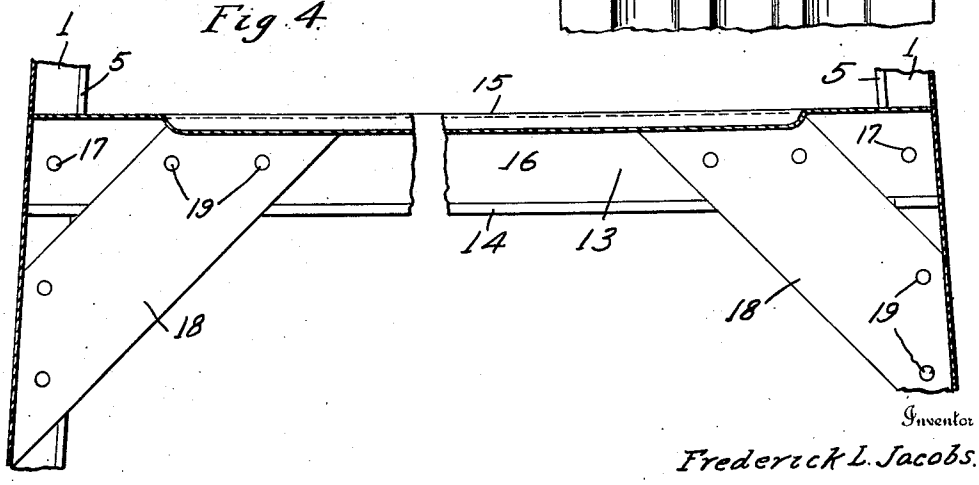


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK L. JACOBS, OF NEWARK, NEW JERSEY.

STEPLADDER.

Application filed February 23, 1922, Serial No. 538,474. Renewed April 2, 1926.

This invention relates to step ladders, and particularly to sheet metal ladders.

It is the object of the invention to provide a step ladder of sheet metal construction, such as will combine a maximum of strength and rigidity with comparative lightness in weight and adapt it to render more durable service than ladders commonly constructed of wood.

The invention contemplates the construction of a foldable step ladder entirely formed of stamped or drawn sheet metal members, and particularly embodies certain novel structural formations and association of the members comprising the steps and stiles of the ladder.

A preferred embodiment of the invention is illustrated in the accompanying drawings, wherein,

Fig. 1 is a perspective view of a step ladder embodying the features of the invention.

Fig. 2 is an enlarged fragmentary view in vertical section on dashed line 2—2 of Fig. 1.

Fig. 3 is a horizontal cross-sectional view on dashed line 3—3 of Fig. 1.

Fig. 4 is a longitudinal vertical sectional view through the stiles and a step of the ladder on dashed line 4—4 of Fig. 1.

Referring to the drawings, 1 indicates the spaced uprights or step stiles of the ladder and 2 a pair of tubular legs for supporting the upper ends of said stiles. Said legs are suitably connected by brace rods as indicated at 3, and are pivotally engaged at their upper ends with extensions on said stiles, being adapted to swing thereon and to be held extended in an angular relation thereto by means of the usual foldably jointed brace arms 4 pivotally connecting said members, as is common in the art.

The uprights or stiles 1 are of sheet metal channel formation, the marginal edges of the channel walls being return bent and folded upon their inner faces, as indicated at 5, to reinforce and strengthen the free edges thereof. Said stiles are spaced with their channels in opposed relation and are each provided at their upper ends with a laterally extending relatively thick sheet metal bracket 6, one end of which is rigidly secured within the channel of the stile by rivets 7, and the opposite end is pivotally engaged by a bolt or stud 8 with the upper end of the respective legs 2. Each of said brackets is formed with a pair of integral laterally projecting ears or lugs 9 flush with the upper edge thereof, upon which there is secured by rivets 10 a sheet metal plate or platform 11 having a depending flange 12 surrounding the upper ends of said legs and stiles. (See Fig. 2).

Extending between the stiles, at spaced intervals longitudinally thereof, is a series of sheet metal plates or steps 13 of inverted channel form, having the free edges of the channel walls return bent and marginally folded as at 14 to reinforce the same, and also having struck into the upper face thereof a plurality of spaced longitudinal depressions 15 forming depending ribs 16, which further serve to reinforce and stiffen the member against lateral stresses. Said steps are of suitable width to closely fit at their ends within the stile channels respectively abutting against the bottom walls of said channels and overlapping the channel side walls of said steps upon the side walls of said stiles, which overlapping portions of said members are secured together by rivets 17, as best shown in Figs. 2 and 4. It is also preferred to provide certain of said steps with angle braces 18, secured by rivets 19 at opposite ends respectively to the channel walls of said steps and stiles, as a means of reinforcement.

At the lower ends of the stiles the channels are closed by means of angle brackets 20, respectively inserted therein and secured by rivets 21 flush with the extremities of said stiles to provide suitable end bearings therefor.

It will be apparent from the foregoing that by the employment of the described structural formation and association of parts, and particularly the formation of the channelled members, in which the free edges of the channel walls are folded or lapped, sheet metal of relatively thin gauge may be rendered suitable to secure the desired strength and lightness as well as to provide a comparatively smooth exterior finish at the exposed edges of the channel members.

What I claim is:

1. A step ladder comprising a pair of opposite channel shaped sheet-metal stiles, a plurality of vertically spaced step members rigidly connecting said stiles, a pair of brackets having their front portions engaged within the channels of said stiles at the upper ends of the latter and having

rearward projecting portions, means of securing the front portion of said brackets to said stiles, and leg members pivoted to the rearwardly projecting portions of said brackets.

2. A step ladder comprising a pair of opposite channel-shaped sheet-metal stiles, a plurality of vertically spaced step members rigidly connecting said stiles, a pair of brackets having their front portions engaged within the channels of said stiles at the upper ends of the latter, and having rearwardly projecting portions, lugs projecting from the top portions of said brackets toward each other, leg members pivoted to the rearwardly projecting portions of said brackets, and a platform surmounting said brackets and secured to said lugs.

3. A step ladder comprising a pair of opposite channel shaped sheet metal stiles, a plurality of vertically spaced step members mounted upon said stiles, a pair of brackets having front portions engaged within the channels of said stiles and having rearwardly projecting portions, the rear walls of the channels of the stiles being cut away adjacent their upper ends to accommodate said rearwardly projecting portions, and leg members pivoted to said portions.

In testimony whereof I sign this specification.

FREDERICK L. JACOBS.