

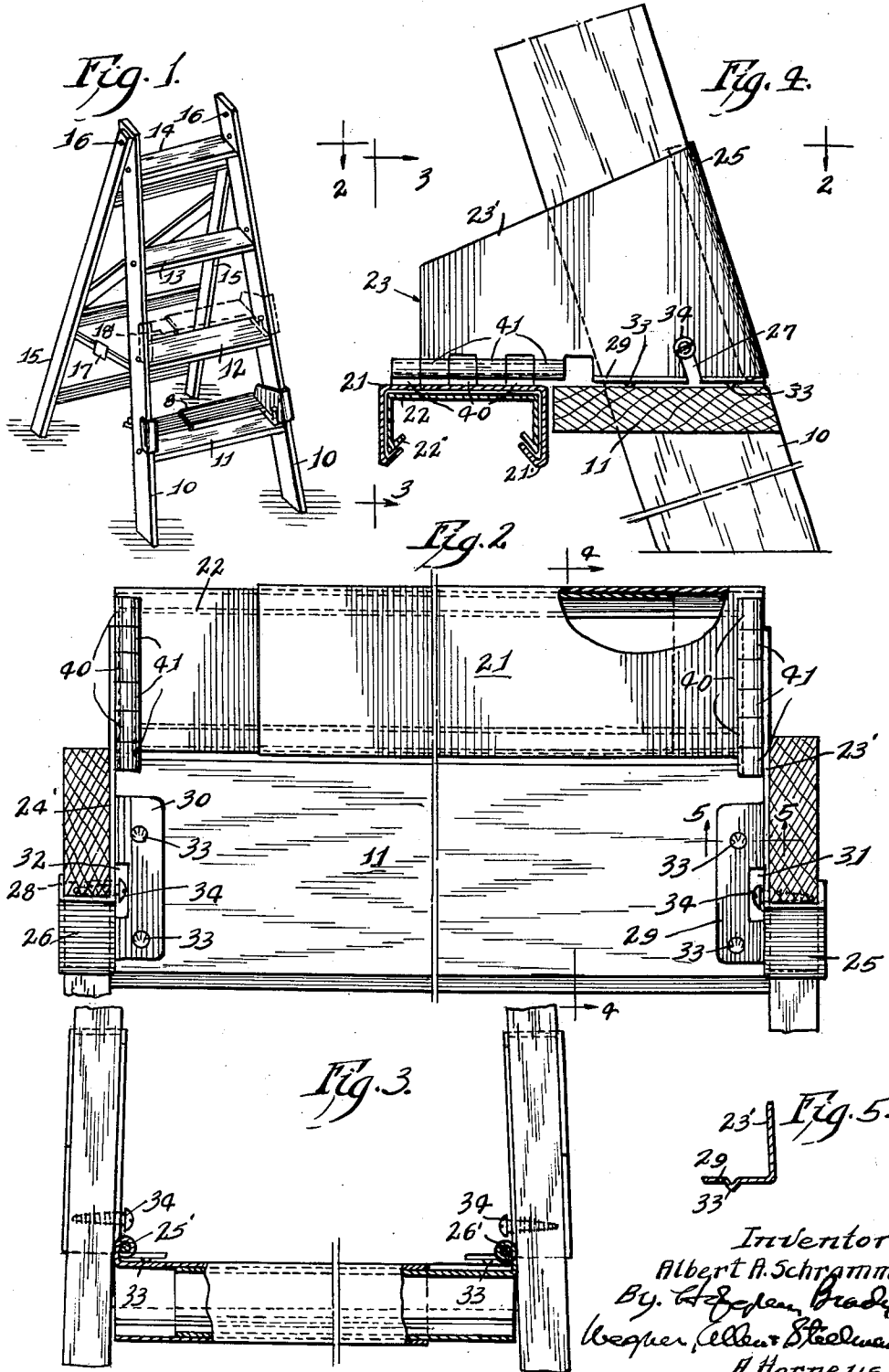
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PORTABLE PLATFORM STEP FOR STEPLADDERS

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PORTABLE PLATFORM STEP FOR STEPLADDERS

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This invention relates to improvements in stepladder steps and more particularly to a portable step extension or platform for widening the normal step of a stepladder.

It is an object of this invention to provide a new and improved portable platform step for a stepladder adapted when installed to cooperate with a permanent ladder step to form a wider step or platform for the user's safety and comfort.

Another object is to provide such a portable platform step which is adjustable so as to fit with ladder steps of varying lengths and which is readily attachable and detachable.

Another object is to provide such a device with improved means for attaching it securely and rigidly in place on the legs of a ladder without requiring an existing ladder step for support.

A still further object is to provide such a device which is of a simple, sturdy and unique construction so that it can be easily produced, packaged and used.

Other objects will become apparent from the following description, taken in connection with the accompanying drawings, in which:

FIGURE 1 is a perspective view showing a stepladder with a preferred form of the present invention attached thereto;

FIGURE 2 is an enlarged fragmentary plan view along the line 2-2 of FIGURE 4;

FIGURE 3 is a rear elevational view along the line 3-3 of FIGURE 4;

FIGURE 4 is a section along the line 4-4 of FIGURE 2; and

FIGURE 5 is a fragmentary section along the line 5-5 of FIGURE 2.

There is shown in the drawings and will herein be described in detail a preferred embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

The invention is useful in transforming new as well as old conventional type stepladders into a platform type ladder. By applying an attachable and independently supported portable auxiliary or platform step, adjustable in length to suit the various widths of a ladder from top to bottom, as an extra or extension step in the same plane and adjacent to one of the normal fixed steps of the ladder, a wider step or platform is formed which provides more comfort and safety for the user.

FIGURE 1 of the drawings shows a conventional stepladder having step supporting legs 10 provided with steps 11, 12, 13 and 14, rear brace members 15 pivotally connected to the upper ends of the legs 10 at 16, and the usual side braces 17. The steps are rigidly attached between the legs 10 and are progressively shorter in length from the bottom to the top of the ladder. It will be noted that the steps of this type conventional stepladder are flat and are sufficiently wide to support substantially the entire sole of a user's shoe as distinguished from a ladder having cylindrical rungs. 8 indicates generally the preferred form of the invention in place on the bottom step 11, and 18' indicates in dotted lines the position which the invention would have in relation to another step on the ladder.

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As shown, the invention comprises two self-supporting telescoping channel members 21 and 22 which are located alongside of a ladder step 11 to cooperate with the step to form a platform. These telescoping channel members have flanges 21' and 22' on their edges, as shown best in FIGURE 4, to provide guides and insure rigidity of the auxiliary step they form. They are adapted to be supported on the ladder legs 10, independently of the adjacent permanent step, by brackets 23 and 24 which are pivotally connected to the outer ends of the channel members by pivot pins 25' and 26', which pass respectively through loops 40 on the channel members and cooperative loops 41 on the brackets, thus forming hinges. The brackets 23 and 24 may have flat trapezoidal shaped portions 23' and 24' fitting against the inside surfaces of the ladder legs 10 and have integral flanges 25 and 26 which wrap around the front edges of the ladder legs 10 to support the extension platform step on a conventional step-ladder, with the channel members positioned adjacent a ladder step. Slots 27 and 28 in the flat portions 23' and 24' are parallel to flanges 25 and 26 and are adapted to receive nails or screws 34 which are fastened to the ladder legs and contribute to the positioning and supporting of the portable auxiliary ladder extension step. Inwardly turned flanges 29 and 30 along the lower edges of the brackets have openings 31 and 32 therein which provide entrances to the slots 27 and 28 for the screws to facilitate installation and removal of the device. Small pointed projections 33 may be provided on the lower surface of flanges 29 and 30 to position the extension step on a plane with the ladder step.

When a ladder is to have an extension step attached thereto, the extension step channels are adjusted to the desired length and the brackets are positioned against the inside surfaces of the ladder legs with the wrap-around flanges 25 and 26 then placed against the front faces of the ladder legs and moved down as far as possible to the top of the selected ladder step, for example, step 11. While the extension step is held in this position, nails or screws 34 are inserted into the side of the ladder legs 10 through and at the top of slots 27 and 28, a distance so that the heads of the screws just clear the outer surfaces of brackets 23 and 24, respectively. To remove the extension step the brackets are slid up the ladder legs 10 beyond the screws 34, allowing the heads of the screws to pass through the flange openings 31 and 32. The extension step is then moved forwardly of the ladder legs 10 to disengage the flanges 25 and 26, after which the channel members 21 and 22 and the brackets 23 and 24 may be compacted. Thus it can be seen that the invention may be easily installed and removed.

It is to be noted that the auxiliary platform step is adapted to be positioned behind and on the same plane with a conventional ladder step, and is supported independently of the ladder step. The flanges 29 and 30 of the side brackets 23 and 24 are so positioned to stiffen bracket plates 23' and 24' and to act as a seat for positioning the platform step adjacent the ladder step 11 and provide for proper placement of the supporting screws or nails 34. The screws 34 which are required to be inserted by the user into the sides of the ladder legs 10 adjacent each step where the platform step is to be installed, extend through the slots 27 and 28 in the brackets 23 and 24. The engagement of the brackets with the screws and the engagement of the flanges 25 and 26 with the ladder legs absorb the lateral thrust or force when the invention is being used, with the top of the wrap-around portions 25 and 26 acting as a fulcrum on the front face of the ladder legs 10. These wrap-around

portions serve as a definite positioning means as well as a stiffening means for the brackets which enables them to sustain the fulcrum action and the weight placed on the platform step when in use.

The screws 34, other than serving as thrust absorbing pins, serve also to bolster the side bracket plates 23 and 24 against buckling because of the extended head beyond the slots 27 and 28. A small clearance is left between the heads of the screws and brackets 23 and 24 when inserting screws 34 to facilitate the removal of the platform step since said screws remain in the ladder legs at all times ready for the portable platform step to be moved from one position to another.

The hinges have an important function in that they will allow the sides of the brackets 23 and 24 to conform to the inwardslope of the ladder legs 10 for a close fit. Also, said hinges make it possible to have a smaller package for storing and shipping the device.

I claim:

1. A platform step for stepladders having flat steps, comprising an extensible auxiliary step device adapted to be positioned adjacent to and on the level of a permanent and fixed flat ladder step to cooperate with said flat ladder step to form a platform substantially greater in width than the original flat ladder step, and means for supporting said device on the legs of the ladder comprising brackets movably connected one to each end of said step device, said brackets having flat portions adapted to fit against the adjacent legs of the ladder and wrap around flanges extending from the forward edges of said flat portions and around the front edge of the ladder legs, said flat portions having downwardly opening slots therein spaced away from and parallel to said wrap-around portions, and adapted to have their upper ends rest upon fixed pin members on the ladder legs above a step so that the weight on the auxiliary step is carried by the pins and the points of contact of the wrap-around portions of the bracket on the ladder legs.

2. A portable platform step for a stepladder having flat steps comprising: pair of telescopic channel members having flat surfaces of a width approximately equal to that of a ladder step and adapted to form an extension step alongside a ladder step; brackets having wrap-around portions adapted to extend around the front edge of the ladder legs above a ladder step to position the extension step alongside the rear edge of the ladder step; and hinge means connecting said brackets to the outer ends of the channel members permitting the brackets to pivot into contact with the ladder legs from a folded position in which the brackets are adjacent the channel members.

3. A portable platform step as defined in claim 1 where said brackets include inwardly turned flanges along their lower edges, which inwardly turned flanges have openings to cooperate with said slot openings.

4. A portable extension step for a stepladder having flat steps comprising, in combination, a step device composed of slidably extensible members adapted to be positioned alongside and on a level with any permanently fixed flat ladder step to form a platform step, and sup-

porting brackets for the ends of said device having hinge connections therewith to permit the brackets to be folded against the device or against the legs of the ladder, each bracket including a wrap-around portion extending around the front of the ladder leg and portions adapted to rest upon pins secured to the insides of the ladder legs.

5. A platform step for stepladders having flat steps, comprising an auxiliary step device adapted to be positioned to be positioned adjacent to and on the level of a permanent and fixed flat ladder step to cooperate with said ladder step to form a platform substantially greater in width than the original ladder step, said device comprising telescopic members permitting adjustment of the length of the step device to fit adjacent any one of several ladder steps, and means for supporting said device on the legs of the ladder and independent of the permanent and fixed flat ladder step comprising brackets affixed one to each end of said step device, said brackets having flat portions adapted to fit against the adjacent legs of the ladder and wrap around portions extending from the forward edges of the flat portions and around the front edge of the ladder legs, said flat portions having slots therein parallel to said wrap-around portions, and adapted to have their upper ends rest upon fixed pin members on the ladder legs above a step so that the weight on the auxiliary step is carried by the pins and the points of contact of the wrap-around portions of the bracket on the ladder legs.

6. A platform step for stepladders having flat steps of a width to accommodate the sole of a user's shoe, comprising: a pair of telescoping channel members having a flat upper surface and downwardly depending flanges on each member, said flanges having portions retaining one member in the other with the members adapted to be positioned with their flat surfaces adjacent to and on the level of a flat ladder step and extended to the length thereof to cooperate with said flat ladder step to form a platform of a width to accommodate the sole and heel of a user's shoe; and means for supporting said channel members on the legs of the ladder comprising brackets having flat portions adapted to fit against the adjacent legs of the ladder and wrap-around portions extending from the forward edges of the flat portions and around the front edges of the ladder legs, and hinges securing one bracket to the outer end of each channel member and including portions of the channel member ends and portions of the bottom edges of the brackets and a pin connection therebetween extending transverse to the channel members, permitting said brackets to be moved toward and away from the ladder legs.

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