

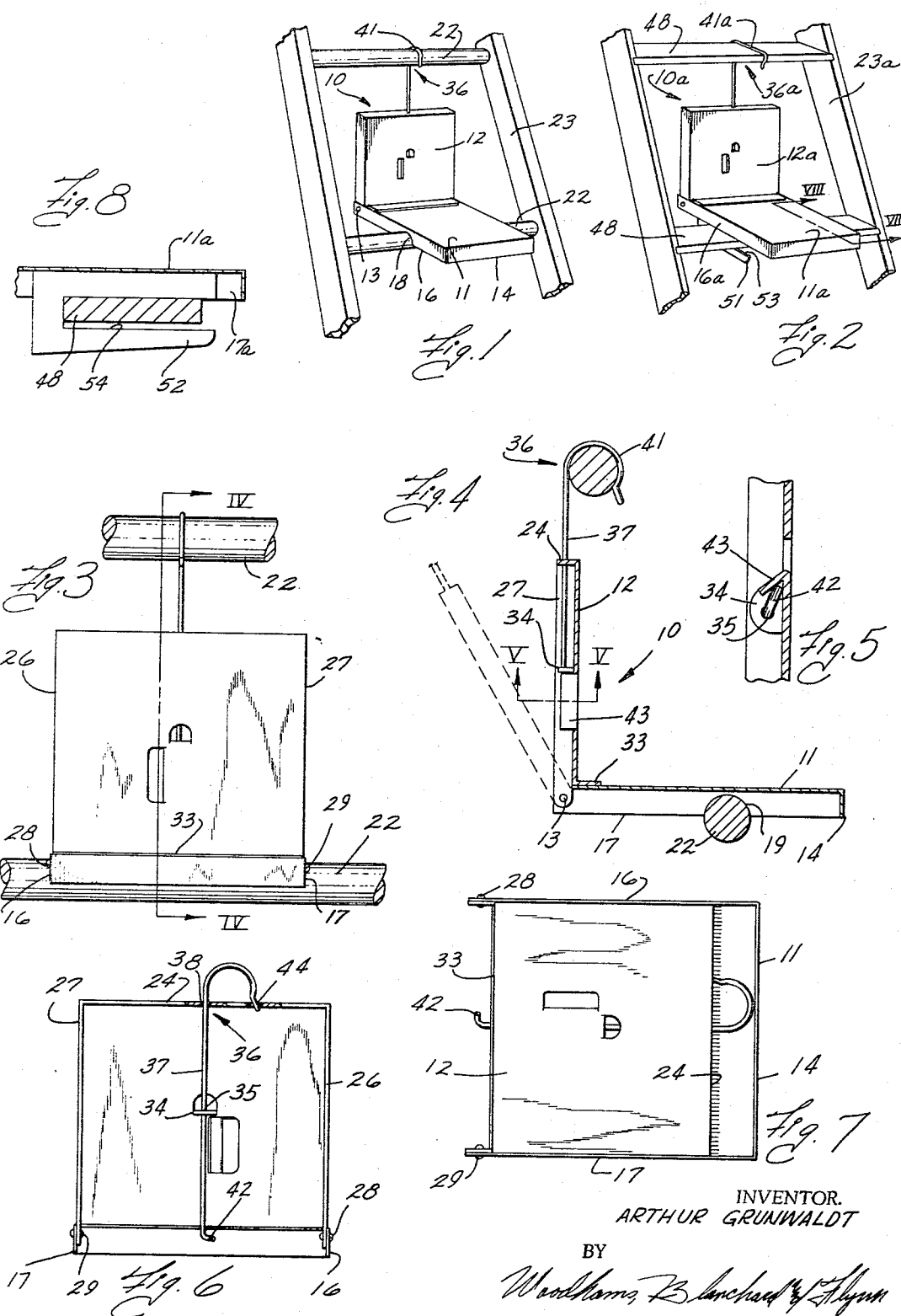
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ARTICLE SUPPORT FOR A LADDER

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ARTICLE SUPPORT FOR A LADDER  
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This invention relates in general to a portable device for removably supporting an article upon the rungs or steps of an upright ladder disposed in its substantially normal position of use and, more particularly, to such a device which is especially adapted to support a container full of liquid upon and between a pair of adjacent rungs of said conventional ladder.

Ladders have been used, as far back as history records, for the purpose of supporting humans in elevated positions while they perform various operations or work. Consequently, numerous devices have been developed expressly for the purpose of supporting articles, such as tools or containers, upon a ladder. In spite of this fact, it is believed that applicant's invention, as defined hereinafter, contains novel features particularly useful in the support of open containers, such as paint pails.

Accordingly, a primary object of this invention has been the provision of an improved device for supporting articles, and particularly open containers, upon the rungs or steps of an upright ladder substantially disposed in its normal position of use.

A further object of this invention has been the provision of an article-supporting device, as aforesaid, which can be readily manufactured at a minimum of cost, which is sturdy in construction, which can be collapsed into a relatively small package when not in use, which is adaptable to use with any type of conventional ladder, which is pleasing in appearance and is completely safe for use on a ladder.

Other objects and purposes of this invention will become apparent to persons familiar with this type of device upon reading the following descriptive material and examining the accompanying drawings, in which:

FIGURE 1 is a perspective view of an article-supporting device embodying the invention and mounted upon a fragment of a ladder.

FIGURE 2 is a perspective view of a modified device for supporting an article upon another type of conventional ladder.

FIGURE 3 is a front elevational view of said device in its operating position.

FIGURE 4 is a sectional view taken along the line IV—IV in FIGURE 3.

FIGURE 5 is a sectional view taken along the line V—V in FIGURE 4.

FIGURE 6 is a rear elevational view of said article-supporting device in a partially collapsed position.

FIGURE 7 is a top plan view of said article-supporting device in its fully collapsed position.

FIGURE 8 is a sectional view taken along the line VIII—VIII in FIGURE 2.

For convenience in description, the terms "upper," "lower" and words of similar import will have reference to the device of the invention as appearing in FIGURES 1 to 4, inclusive. The terms "front" and "rear" will have reference to the right and left sides, respectively, of the

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article-supporting device appearing in FIGURE 4. The terms "inner," "outer" and derivatives thereof will have reference to the geometric center of said device and parts thereof.

## General construction

The objects and purposes of the invention, including those set forth above, have been met by providing an article-supporting device comprising first and second substantially rectangular panel members hingedly connected to each other along one edge of each, said panel members being arranged so that they can be pivoted around said hinge axis between first positions substantially parallel and adjacent to each other and second positions disposed at right angles to each other. Each of said panel members is provided with means for gripping a pair of rungs or steps on a conventional ladder whereby said panels will be removably but firmly held in said second positions, and so that one of said panels will be substantially horizontal if the ladder is disposed in a substantially normal position of use.

One of said gripping means is relatively movable with respect to its supporting panel member transversely of the hinge axis. Locking means is provided on and between one of the panel members and said movable gripping means for limiting relative movement therebetween when said gripping means is moved into its step-engaging position.

## Detailed description

The article-supporting device 10 (FIGURE 1), which illustrates a preferred embodiment of the invention, is comprised of a first panel member 11 and a second panel member 12 connected to each other along one edge thereof by the hinge 13. The lower panel member 11 is preferably substantially rectangular and fabricated from relatively light gauge sheet metal or plastic. Said lower panel member has a downwardly extending and integral, front flange 14 which is on the opposite edge of said panel member from the hinge 13. Said lower panel member 11 also has a pair of downwardly extending, substantially parallel side flanges 16 and 17 with downwardly opening, transversely aligned notches 18 and 19, respectively. Said notches 18 and 19 are preferably approximately semi-circular and have a radius slightly larger than the radius of a rung 22 on a ladder 23 of a conventional type.

The upper panel member 12 (FIGURE 4) has a rearwardly projecting upper flange 24 which extends along the upper edge of the panel on the opposite edge from, and substantially parallel with, the axis of the hinge 13. Said upper panel member 12 (FIGURES 3 and 6) also has a pair of substantially parallel side flanges 26 and 27 (FIGURE 6) which project rearwardly and preferably extend transverse of the hinge axis. The rearward ends of the flanges 16 and 17 and the lower ends of the flanges 26 and 27 preferably project beyond the rearward and lower ends, respectively, of the panel members 11 and 12 where they are pivotally connected to each other by the pivot pins 28 and 29, respectively.

The relative sizes of the panel members 11 and 12 are preferably such that the flanges on panel member 12 are disposed substantially telescopically within the flanges on the lower panel member 11 when the support device 10 is in its collapsed position of FIGURE 7. The pivot pins 28 and 29 are preferably located so that, when the upper

panel member 12 is pivoted from its collapsed position of FIGURE 7 through an arc of approximately 270 degrees into its erected position of FIGURES 3 and 4, the rearward edge of the panel member 11 is engaged by the frontward edges of the side flanges 26 and 27 to prevent positively further, forward pivotal movement of said upper panel member 12. A frontwardly extending flange 33 may be provided upon said panel member 12, adjacent the lower edge thereof, so that it engages the upper surface of the lower panel member 11 at about the same time that said lower member is engaged by the flanges 26 and 27, as aforesaid.

The upper panel member 12 is somewhat shorter transverse of the hinge axis than the lower panel member 11 so that, when the panel members are in their collapsed position of FIGURE 7, the top flange 24 is spaced from the front flange 14, for reasons appearing hereinafter.

The upper panel member 12 has an integral, rearwardly extending bracket 34 (FIGURES 4 and 6) which may be notched out of the panel member and which has a guide opening 35 (FIGURE 5), the central axis of which is preferably substantially perpendicular to the hinge axis and parallel with said upper panel member. A hook member 36 (FIGURE 6) has a shank 37 which is slideably disposed within the guide opening 35. Said shank member is also slideably and guidingly received through an opening 38 in the top flange 24, which opening is preferably axially aligned with the opening 35. The hook member 36 has a preferably semicircular hook 41 at its upper end which is snugly but removably engageable with a rung 22 of a ladder 23. Said hook member 36 also has a sidewardly projecting, lower end portion 42 which, as shown in FIGURE 5, extends from the shank 37 in a direction approximately perpendicular to the direction of the sideward projection of the hook 41. The sidewardly projecting end portion 42 is spaced from the adjacent end of the hook 41 a distance approximately equal to or slightly greater than the vertical extent of the upper panel member 12. However, this length may be varied as the need indicates.

A locking flange 43 is integrally connected to the upper panel member 12, as by being notched therefrom so that it is parallel with and overlies a portion of the shank 37. Said locking flange 43 is bent toward said shank 37 so that the end portion 42 is slideably and guidingly received between said flange 43 and the adjacent portion of the upper panel member 12 when, and only when, the hook 41 is projecting frontwardly from said upper panel member 12 whereby rotation of said hook member 36 around its lengthwise axis is positively prevented. A second opening 44 is provided in the top flange 24 to receive the free end of the hook 41 when the hook member 36 is placed in its retracted or storage position of FIGURE 6. The distance between the flanges 14 and 24 will accommodate the portion of the hook projecting upwardly from the flange 24 when the hook is in said storage position.

#### Operation

In operation, the support device 10 is pivotally moved from its FIGURE 7 position to its FIGURE 6 position after which the hook member 36 is then moved outwardly into its FIGURE 4 position from its FIGURE 6 position. The lower panel member 11 is mounted upon a rung 22 so that the notches 18 and 19 embrace the upper surface of the rung. The hook 41 is then looped over the next upwardly spaced rung 22, whereby the device 10 is firmly, but quickly and removably held in its proper position of operation. An open container or other article can now be safely supported upon the lower panel member 11 where it is easily accessible to a person supported by the ladder.

FIGURE 2 discloses a modified structure 10A embodying the invention and adapted for use with the type of ladder 23A commonly referred to as a stepladder and having relatively flat and wide steps 48 in place of the rungs 22 of the ladder 23 found in FIGURE 1. This adaptation can be made by means of a minor change in

the lower panel member 11A and the hook member 36A. That is, two relatively flat and slotted extensions 51 and 52 are secured, as by welding, to the flanges 16A and 17A, respectively, so that the substantially horizontal slots 53 and 54 open frontwardly, said slots being parallel and immediately adjacent to the lower edges respectively of the flanges 16A and 17A. The width of the slots 53 and 54 is preferably such that they snugly receive a step 48 of the ladder 23A.

The hook 41A on the hook member 36A is approximately rectangular in shape to adapt itself to the corresponding cross-sectional shape of a step 48 on the ladder 23A. Otherwise, the hook member 36A may be identical with the hook member 36. Aside from the obvious minor changes required in mounting the alternate support device 10A upon the stepladder 23A, its operation and performance is identical with that set forth above with respect to the article-supporting device 10.

Although particular preferred embodiments of the invention have been set forth in detail above for illustrative purposes, it will be understood that variations or modifications of such disclosure, which come within the scope of the appended claims, are fully contemplated.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An article support for mounting on and between a pair of spaced steps or rungs on a substantially upright ladder, comprising:

a pair of substantially planar members hingedly connected to each other along one edge of each; first gripping means on one of said planar members intermediate the one edge thereof and the opposite edge thereof engageable with a step for positively opposing relative transverse movement thereof in a horizontal direction;

second gripping means on the other one of said planar members releasably engageable with a second step spaced from said first step, said second gripping means being adjustable with respect to said other planar member; and

cooperating locking means on said other planar member and said second gripping means for holding same in selected relative positions whereby engagement of said gripping means with a pair of spaced steps will hold said planar members in positions substantially perpendicular to each other.

2. A device for supporting an article upon the steps or rungs of an upright ladder disposed in its substantially normal and upright position of use, comprising:

first and second substantially rectangular panel members hingedly connected to each other along one edge of each;

first gripping means on said first panel member between the one edge thereof and the opposite edge thereof engageable with one of said steps for positively opposing relative, horizontal transverse movement thereof;

second gripping means adjustably mounted upon said second panel member for movement transversely of said hinge axis into and out of a position for engaging another step spaced from said one step; and

cooperating locking means on said second panel member and said second gripping means for limiting movement of said second gripping means with respect to said second panel member, whereby engagement of said steps by said first and second gripping means holds said panel members at substantially right angles to each other.

3. A device according to claim 2, wherein said first gripping means comprises a pair of notched flanges extending transversely of said edges and downwardly from said first panel member;

wherein said second gripping means comprises a bracket extending from the second panel member and having

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an opening therethrough, and a hook element having an elongated shank slideably disposed within said opening; and  
 wherein said locking means comprises a sideward projection on said shank spaced from said hook and flange means on said second panel member engageable by said projection for preventing rotation of said hook member around the axis of said shank when said second gripping means is in its step-engaging position.

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