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Bergeson et al.

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[54] **LADDER AND PLATFORM ASSEMBLY**

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[52] **U.S. Cl.** ..... **296/23 R,** 280/163, 182/88

[51] **Int. Cl.** **B60p 3/34**

[58] **Field of Search** ..... 296/23 R, 23 MC, 26; 280/163, 164 R, 166; 182/84, 88

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[57] **ABSTRACT**

A ladder and platform assembly is disclosed for utilization with conventional rear-access campers. The assembly comprises a fixed rectangular frame having two opposed side channels forming a track for a movable rectangular frame. The movable frame includes two opposed side rails slidably mounted within the side channels of the fixed frame. The movable frame also includes a pair of parallel lateral beams located at the rearward end thereof for supporting a platform section. Upon installation, the movable frame is adapted to slide along the side channels to enable the platform section to extend out of the rearward end of the camper, directly below the entryway. The movable frame also includes a center rail extending longitudinally along the movable frame. The ladder comprises a rectangular carriage having two sides that are adapted to slide within the frame side rails and the center rail. The ladder further includes a first pair of side rails pivotally connected to the forward end of the carriage and a second pair of side rails pivotally connected to the rearward end of the carriage. A plurality of rectangular step sections are pivotally connected at their corners to the two pairs of ladder side rails. During retraction, the ladder carriage is moved forwardly and the ladder side rails and steps are pivoted upwardly to lie flush within the movable frame. During extension, after the movable frame is extended rearwardly to expose the platfrom section, the ladder carriage is moved rearwardly and the ladder side rails and steps are pivoted downwardly until the bottom extremities of the ladder contacts the ground.

10 Claims, 4 Drawing Figures

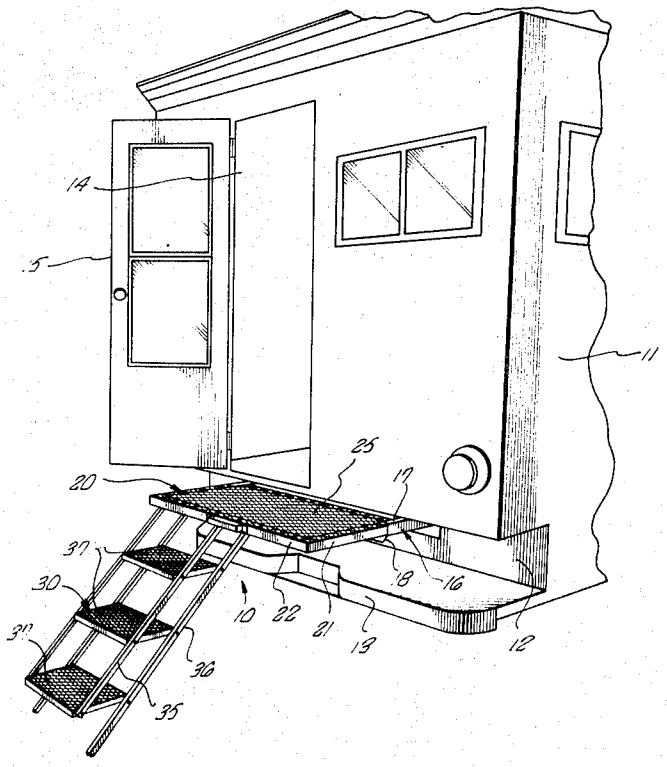
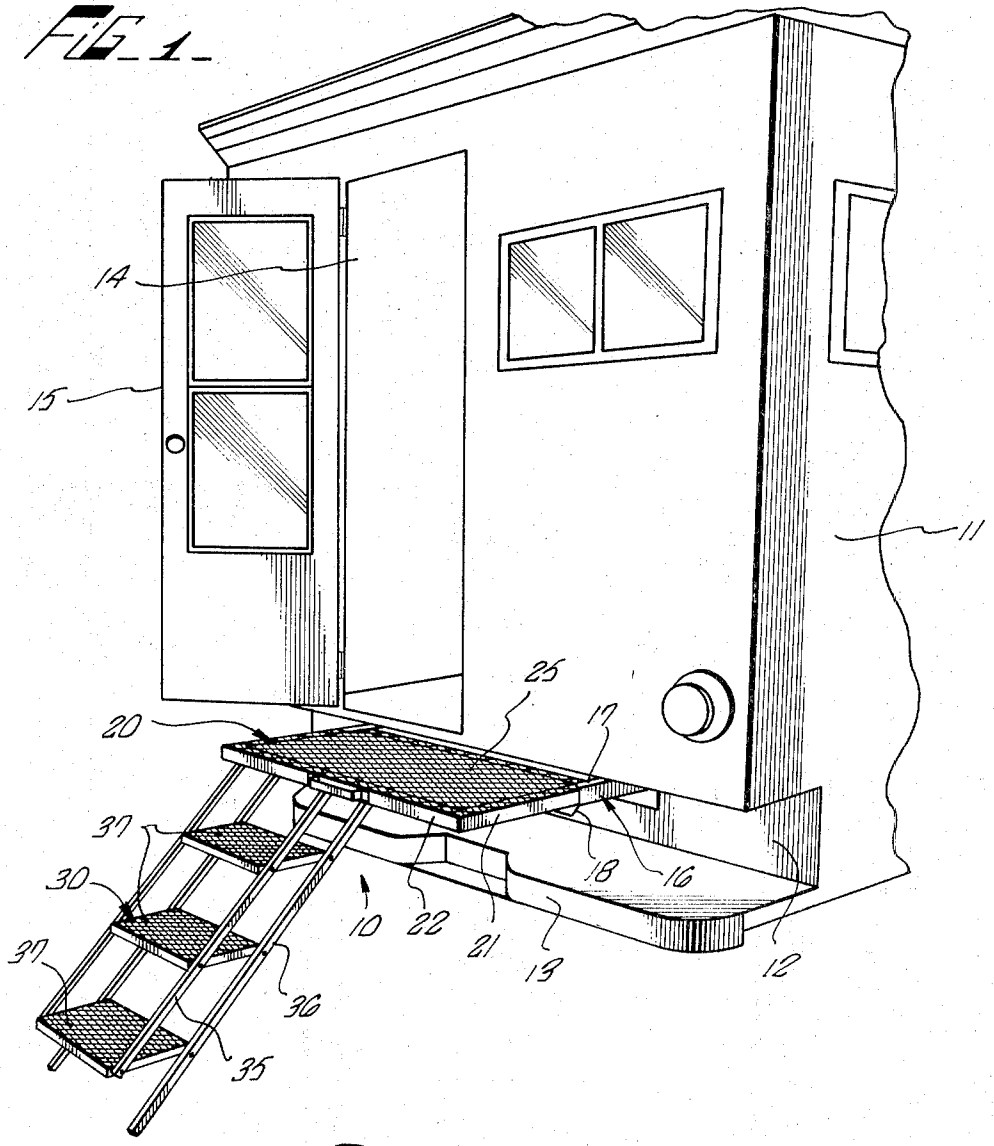


FIG. 1


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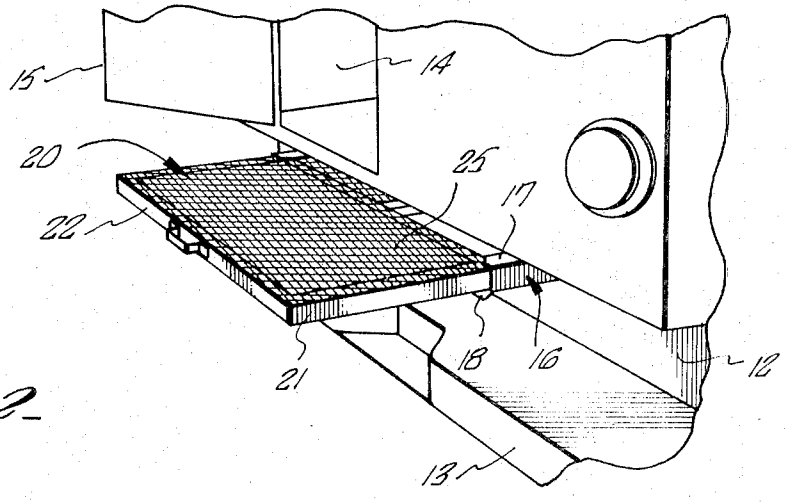
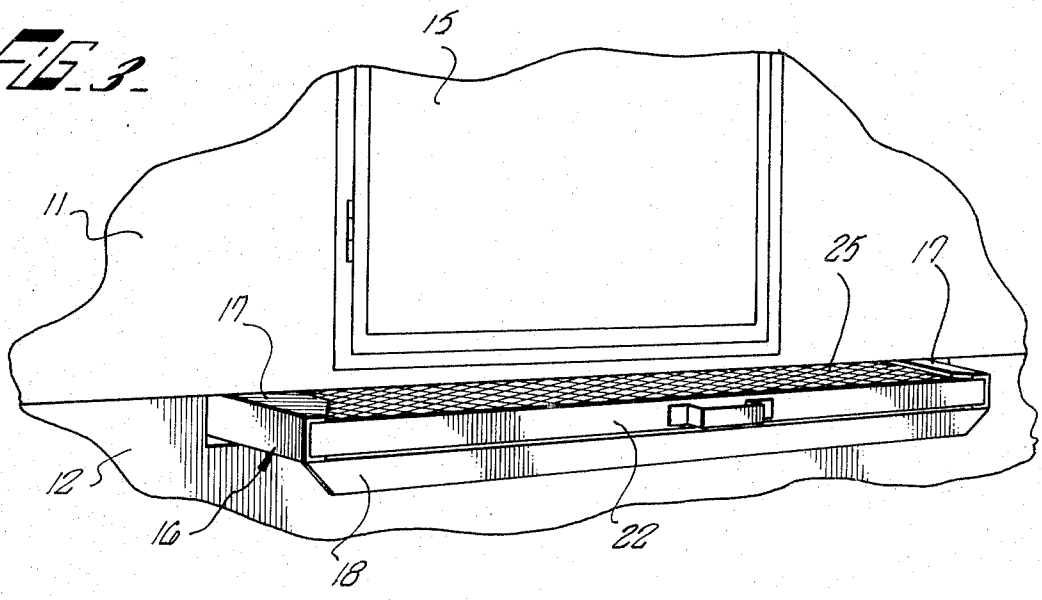

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FIG. 2

FIG. 3


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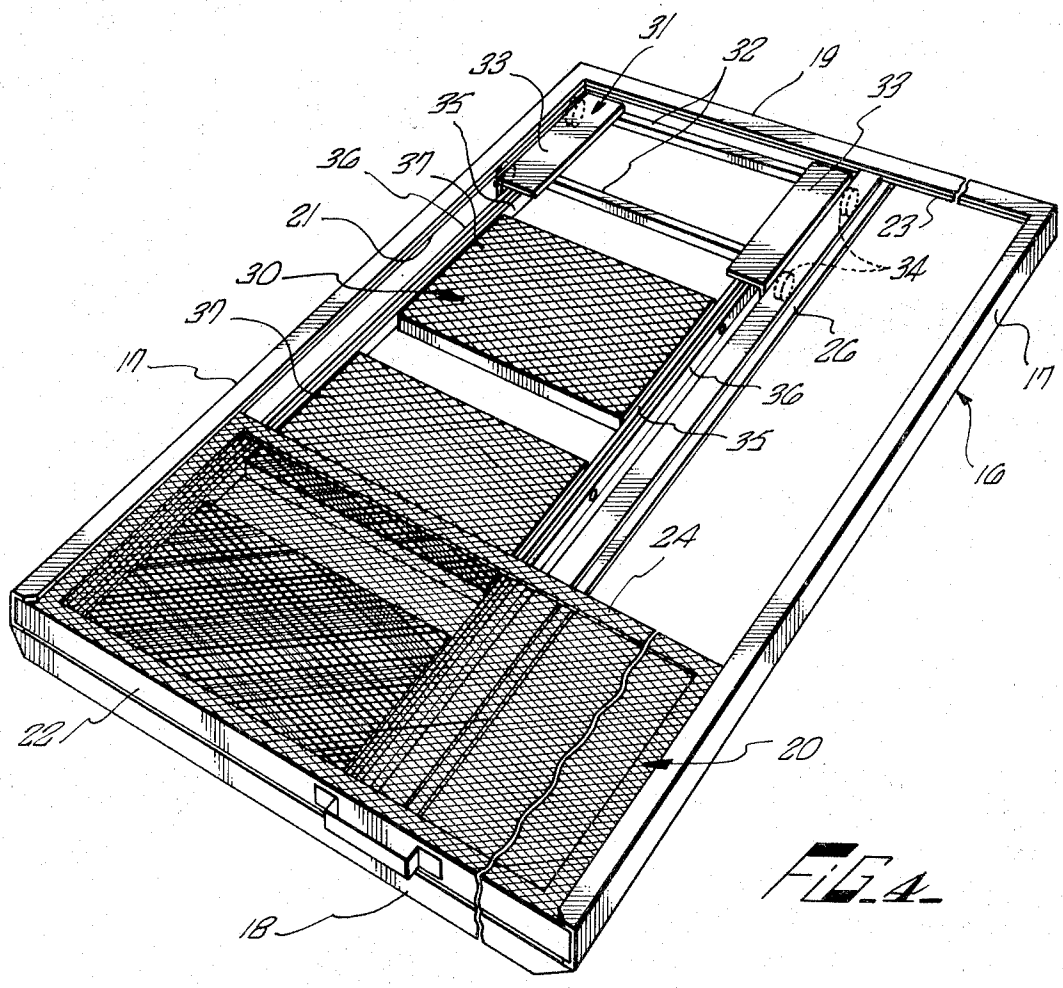

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FIG. 4

LADDER AND PLATFORM ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a ladder and platform assembly that is especially adapted to be installed under the entryways of campers.

2. Description of the Prior Art

In recent years, record numbers of campers and related equipment have been sold. It is believed that the reason for this upsurge is that people are striving to get away from the smog and crowded conditions of today's cities for their leisure. However, as evidenced by the exotic interior designs of many of the campers, the public does not wish to leave all of the conveniences of home to endure the hardships of outdoor living. Today's campers are equiped with many modern conveniences such as running water, built-in stoves and refrigerators, tub or shower units, radios and televisions and many more.

Although the exterior design of campers has improved somewhat in recent years, nearly all of the campers suffer from a serious shortcoming that is a major annoyance to the users. This shortcoming relates to the ease (or the lack) of access to the interiors of the campers. In many campers, especially those camper models that are adapted to be mounted on truck beds, the entry doors are located a few feet above ground level. Most of these camper-truck combinations have a single step mounted directly below the door in the form of a small ramp or a part of the bumper. However, this step does not extend out a sufficient distance to be used easily. Many other camper-truck combinations do not provide any steps at all and the people must fend for themselves in attempting to enter the campers.

One manufacturer has attampted to overcome this problem by producing a short ladder that is adapted to be hung on the bumper of the truck when in use. However, it has been found that the ladder is not universally adapted for all campers. Moreover, such ladders cannot be easily stowed when not in operation. As a result, the utilization of such a ladder is quite cumbersome.

A problem encountered in attempting to utilize any type of ladder is that the ground level upon which the ladder rests can vary a very large amount. A great advantage of campers is that they can travel and alight on any type of terrain and on any slope of terrain. However, because of this, present day ladders for campers are usually one step devices that hang straight down, directly below the camper doorway.

SUMMARY OF THE INVENTION

The present invention obviates the above-mentioned shortcomings by providing a ladder and platform assembly for campers that can be efficiently utilized on any type of terrain.

In its broadest aspect, the ladder and platform apparatus form a movable frame slidably mounted within a pair of side channels. The frame includes a platform section mounted on the one end thereof. A ladder is foldably enclosed within the frame and includes a plurality of side rails pivotally mounted at the upper extremities to a carriage slidably mounted within the frame.

An important advantage of the present invention is that the assembly provided a platform of sufficient size

to enable one entering or exiting the camper to easily stand on the platform while maneuvering the door.

Another advantage of the present invention is that the platform section can be extended from the rear of the camper alone or in conjunction with the ladder.

Still another advantage of the present invention is that the ladder can be pivoted to be grounded on any level of terrain.

A further important advantage of the present invention is that the ladder is retractable to lie flush within the movable frame and the whole assembly can lie within a two inch high compartment below the camper.

Another important advantage of the present invention is that the retracting and extending procedures can be accomplished easily and efficiently.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a conventional camper utilizing the ladder and platform assembly of the present invention, shown in an operable position;

FIG. 2 is a fragmentary perspective view of the assembly of the present invention, shown with the ladder retracted and the platform fully extended;

FIG. 3 is a fragmentary perspective view of the ladder-platform assembly in its fully stowed position; and

FIG. 4 is a perspective view of the ladder-platform assembly prior to installation under the camper.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, FIG. 1 illustrates a ladder and platform assembly, generally indicated by arrow **10**, which is adapted to be mounted below the floor section of a conventional camper module **11**. As with campers of this type, the module **11** is adapted to be supported on the bed **12** of a camper or pickup truck **13**. The camper **11** includes a rear entryway **14** having a door **15** pivotally mounted thereon. Because of the closeness of space inside the camper **11**, the door **15** is adapted to swing outwardly.

The assembly **10** includes a platform sub-assembly generally indicated by arrow **20**, and a ladder sub-assembly, generally indicated by arrow **30**. FIG. **1** shows the assembly **10** with the platform **20** and the ladder **30** fully extended. As will be more fully described hereinafter, the ladder **30** can be retracted under the camper **11** independently of the platform **20**. FIG. **2** shows such a mode. FIG. **3** shows the assembly **10** with both the platform **20** and the ladder **30** retracted beneath the camper **11**.

Referring now to FIG. **4**, the assembly **10** comprises a fixed rectangular frame **16** having a pair of opposed side channels **17** connected at their end by a pair of cross bars **18** and **19**. The side channels **17** are C-shaped with the open sides thereof facing each other to form a pair of tracks for receiving the platform assembly **20**. The frame **16** (and entire assembly) can either

be placed on the bed **12** of the truck **13** prior to mounting the camper module **11** thereon, or the frame **16** can be permanently attached beneath the floor section of the module **11,** to be installed and removed as a unit with the module **11.**

The platform assembly **20** comprises a movable rectangular frame having a pair of opposed side rails **21** interconnected at the ends by a pair of cross beams **22** and **23.** An expanded metal grating **25** may be welded or otherwise fastened to the frame members **21, 22,** and **23** to complete the platform. If desired, the platform assembly may be cast, e.g., of aluminum with spaced apertures therein to provide a sturdy, lightweight platform. The side rails **21** of the platform assembly **20** are adapted to be slidably mounted within the side channels **17** in order to slidingly extend out of the rear end thereof. A third cross beam **24** is also connected to the side rails **21** near the rear ends thereof in order to form a support for the platform **20.**

A third longitudinal rail **26** is located within the movable frame and is connected at its ends to the front and rear cross beams **22** and **23.** The rail **26** is located equidistant the side rails **21** and is in the form of an I-shape member with the open sides facing the side rails **21** to form a pair of tracks.

The ladder assembly **30** comprises a rectangular carriage **31** that is adapted to be slidably mounted within either side of the movable frame. The carriage **31** includes a pair of lateral members **32** and a pair of side members **33** all interconnected to form a rectangular frame. Each side member **33** has a pair of wheels **34** rotatively mounted thereon. The wheels are adapted to ride within either of the tracks formed by the side rails **21** or the center rails **26,** depending on which side of the movable frame the carriage **31** is located.

The ladder **30** is further formed by a first pair of ladder rails **35** pivotally connected to the forward end of the carriage **31** and second pair of ladder rails **36** pivotally connected to the forward end of the carriage **31.** A plurality of step sections **37** are interconnected at their corners to the ladder rails **35** and **36.** The step sections may be of a construction similar to the platform assembly **20,** e.g., cast aluminum or expanded metal welded to a rectangular frame.

Referring back to FIG. **1,** the ladder **30** is shown in its extended position. In this position, the carriage **31** is located at the rearward end of the movable platform frame and the ladder rails **35** and **36** are pivoted downwardly to enable the ends of the rails **35** to contact the ground. It should be noted that because of the configuration of the ladder rails **35** and **36,** the step sections **37** are always located parallel to the ground. This is true no matter what the angular position of the ladder rails **35** and **36.** Because of this, the ladder **30** can be positioned vertically or at any angular position up to the rearward horizontal position. The position, of course, is dependent on the ground level.

In order to retract the ladder **30,** the lower extremities thereof are lifted and the carriage **31** is rolled in to the forward end of the movable frame. As this occurs, the ladder rails **35** and **36,** along with the step sections **37** are adapted to collapse in a single plane and be positioned within the movable frame.

The platform **20** can remain extended from the camper **11,** as shown in FIG. **2,** or the platform **20** can also be retracted by moving the movable frame inwardly. (See FIG. **3**). An important advantage of this embodiment is that the retracted assembly only utilizes approximately a two inch high space beneath the camper.

To extend either of the sub-assemblies, the reverse procedure is carried out.

As can be seen, a completely novel ladder and platform assembly is provided for campers that is easy to operate and advantageous to use.

It should be noted that various modifications can be made to the apparatus while still remaining within the purview of the following claims.

What is claimed is:

1. A storable ladder assembly capable of being used in camper vehicles comprising:

a pair of longitudinal tracks for mounting beneath the floor section of the vehicle;

a movable frame slidably mounted between said pair of tracks, includes two side longitudinal rails which are slidable within said tracks, a pair of cross beams interconnecting the ends of said side longitudinal rails and a third longitudinal rail located between said first two longitudinal rails, one end of said frame having a platform section formed thereon which is adapted to slide outwardly beyond said tracks to extend outwardly from the camper; and

a ladder member comprising a carriage slidably mounted within said frame, said carriage having a pair of lateral side members which are adapted to slide within either of said movable frame's two side longitudinal rails and said third longitudinal rail, at least two ladder side rails pivotally connected to each side member, said side rails having at least one step section pivotally mounted at each corner to respectively a ladder side rail, said carriage adapted to slide toward the end of the frame forming the platform section to enable the ladder side rails to pivot downwardly to contact the ground, said carriage further adapted to slide away from the end of the frame forming the platform section to enable the ladder side rails to pivot upwardly and lie within said frame.

2. The invention of claim **1** wherein said longitudinal tracks comprises a pair of C-shaped channels.

3. The invention of claim **2** wherein said C-shaped channels are connected at their ends to a pair of cross bars to form an integrally structured unit.

4. The invention of claim **1** wherein said side two longitudinal rails comprise a pair of C-shaped rails and said third longitudinal rail comprises an I-shaped rail located equidistant between said C-shaped rails.

5. The invention of claim **4** wherein the lateral sides of said carriage includes wheel means rotatably mounted thereon for riding within the C-shaped and I-shaped rails of said movable frame.

6. A storable ladder assembly for vehicles having a floor support member comprising:

a pair of longitudinal tracks capable of being mounted beneath said support member of said vehicle;

a carriage having a pair of side members movably mounted between said pair of longitudinal tracks and a support platform means extending at least between said side members of said carriage for facilitating egress and entrance to the vehicle;

a pair of ladder side rails pivotally connected to each side member; and

at least one step support section interconnected between said ladder side rails, the mounting arrangement of said carriage permitting it to move towards one end of said tracks to enable said ladder side rails to pivot downwardly to contact the ground and place the step support section in an operative position while movement of the carriage towards the other end of said tracks permits said ladder side rails to pivot upwardly into a storage position between said pair of tracks.

7. The invention of claim **6** wherein said longitudinal tracks comprises a pair of C-shaped channels.

8. The invention of claim **7** wherein said C-shaped channels are connected at their ends to a pair of cross bars to form an integrally structured unit.

9. The invention of claim **6** wherein said step support section is pivotally mounted at its corners to each ladder side rail.

10. The invention of claim **9** wherein a second step support member is connected to said ladder side rails.

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