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AUXILIARY LADDER STEP ASSEMBLY

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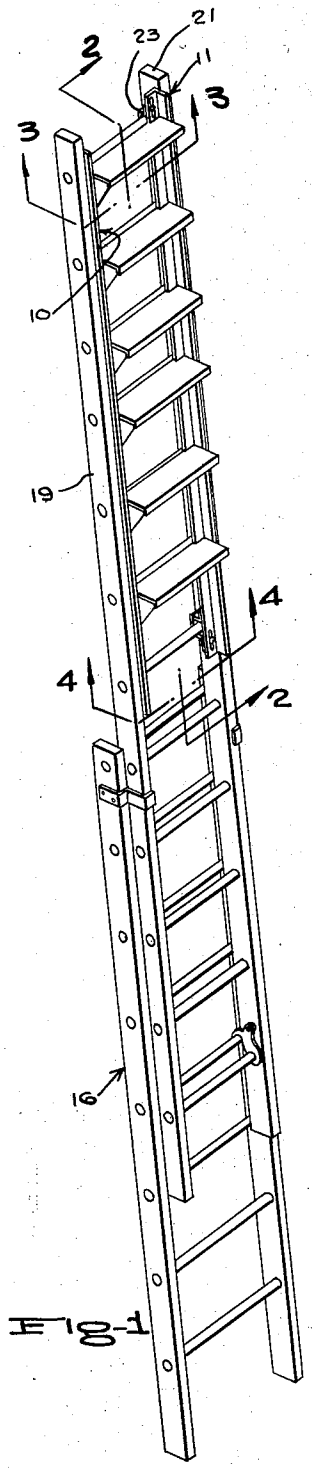


Fig-1

Fig-2

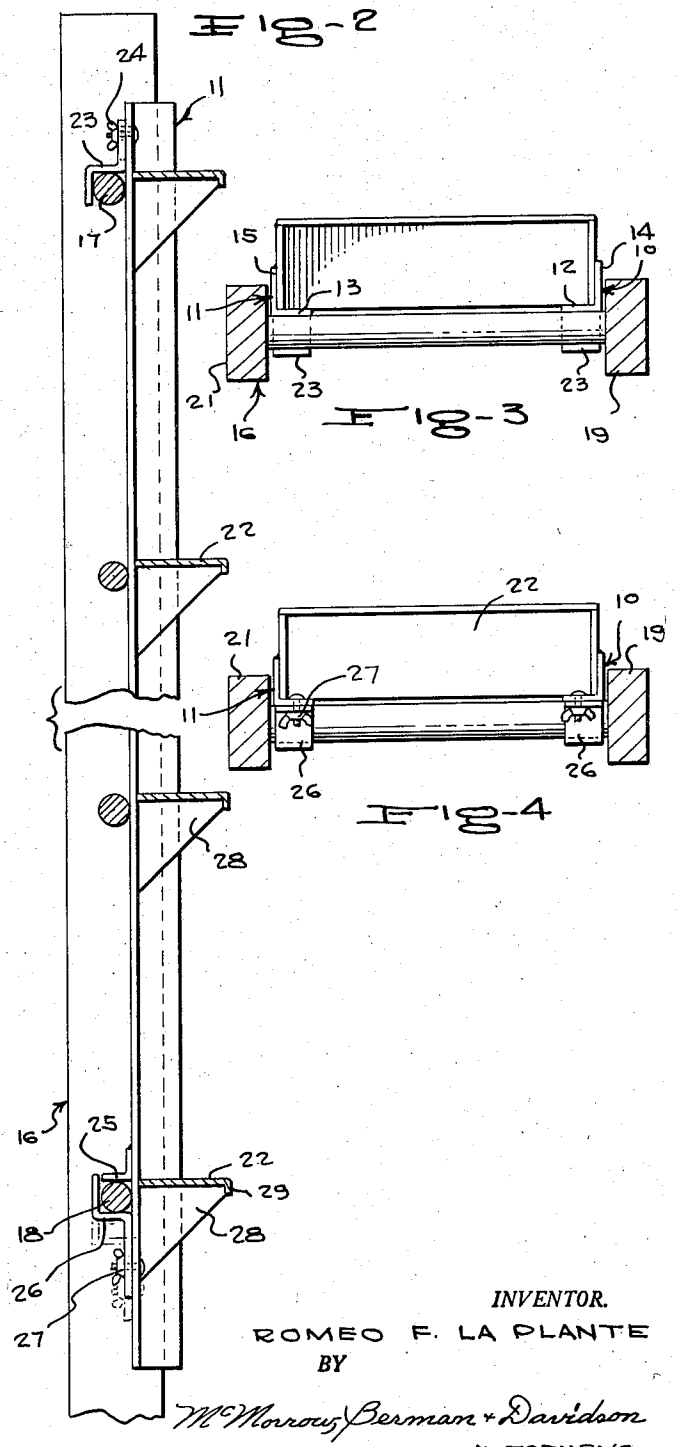


Fig-3

Fig-4

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AUXILIARY LADDER STEP ASSEMBLY

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3 Claims. (Cl. 304—31.5)

The present invention relates generally to ladders, and specifically to an auxiliary ladder step assembly for use with an extension ladder, or the like.

An object of the present invention is to provide an auxiliary ladder step assembly which may be attached to the upper section of an extension ladder and may be left attached to the upper section while the upper section is moved upwardly or downwardly relative to the ladder lower section.

Another object of the present invention is to provide an auxiliary ladder step assembly which lends itself to easy portability, rapid erection upon a ladder portion, safe support of the individual using the ladder, and speedy adjustment of the assembly to extension ladders, or the like, having various lengths between their rungs.

A further object of the present invention is to provide an auxiliary ladder step assembly which is simple in construction, one sturdy in structure, and economical to manufacture in quantity, and one which is highly effective in action.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawing, in which:

Figure 1 is a perspective view of an extension ladder with the auxiliary ladder step assembly of the present invention secured thereto,

Figure 2 is a sectional view on an enlarged scale, with a portion broken away, taken on line 2—2 of Figure 1,

Figure 3 is a sectional view on an enlarged scale, taken on line 3—3 of Figure 1, and

Figure 4 is a sectional view taken on line 4—4 of Figure 1, and on an enlarged scale.

Referring in greater detail to the drawing in which like numerals indicate like parts throughout the several views, the auxiliary ladder step assembly according to the present invention comprises a pair of upright support members **10** and **11** each of angle configuration arranged in parallel spaced relation and adapted for use with either a single ladder section or with the upper or lower ladder section of an extension ladder, as shown in Figure 1.

The support members **10** and **11** are arranged with respect to each other so that one leg **12** of the member **10** faces the one leg **13** of the member **11** with the other leg **14** of the member **10** parallel to the other leg **15** of the member **11**.

When the auxiliary ladder step assembly of the present invention is used with a ladder **16**, the outer faces of the one legs **12** and **13** of the members **10** and **11** respectively, abuttingly engage the rungs **17** and **18** of the ladder **16**, and the outer faces of the other legs **14** and **15** of the members **10** and **11** respectively, abuttingly engage the inner faces of the rails **19** and **21** of the ladder **16**.

A plurality of horizontally disposed plates **22** are arranged in superimposed spaced relation and are positioned so that each has its rearward half portion extending between the support members **10** and **11** and has its

forward half portion positioned forwardly of the support members **10** and **11**. Each plate **22** has the end edges of its rearward half portion fixedly secured by welding, or other means, to the inner faces of the other legs **14** and **15** of the support members **10** and **11** respectively, and has the adjacent parts of the side edge of the rearward portion fixedly secured by welding, or other suitable means to the inner faces of the legs **12** and **13** of the support members **10** and **11** respectively.

Means is provided on the members **10** and **11** for detachably securing the members **10** and **11** to the ladder rungs **17** and **18**. Specifically, this means comprises a pair of brackets **23** secured by bolt and wing nut assemblies **24** to the upper end of each of the support members **10** and **11**, although only the bracket **23** associated with the support member **11** is illustrated in Figures 1 and 2.

The upper end portions of the support members **10** and **11** are provided with closed slots in which the bolts of the bolt and wing nut assemblies **24** are slidable so that the brackets **23** may be adjusted vertically relative to the support members **10** and **11**. The lower end portions of the support members **10** and **11** have, on the outer faces of the legs **12** and **13**, outwardly projecting L-shaped brackets **25** which rest upon the rung **18** and is held in place by a third bracket **26** which is slidably mounted upon the outer face of the leg **13** of the support member **11**. Another bracket **26** is similarly mounted upon the leg **12** of the support member **10** and is similarly movable to receivingly engage the other end of the rung **18** against another bracket **25** serving as a stop for the latter. Other bolt and wing nut assemblies **27** form the means for releasably securing the brackets **25** and **26** in their rung embracing positions.

Base means embodying a gusset plate **28** extends between and is fixedly secured to each end of each of the plates **22** on the under side of the ladder and to the adjacent portion of each of the legs **13** and **14** of the members **10** and **11**.

The forward edge of each of the plates **22** is bent downwardly to form a lip **29**, the under side of which engages the forward upper corner of the respective gusset plates **28** for securely holding the gusset plate **28** in the assembled and welded position.

In use, the auxiliary ladder step assembly of the present invention is quickly and easily attached to any ladder by loosening the bolt and wing nut assemblies **27** and dropping down the brackets **26**. The brackets **23** are then hooked over the appropriate one of the rungs **17** and adjusted to the distance between the rungs **17** and **19**, so that the bracket **25** rests upon and forms a stop for the rung **18**. The bracket **26** is then moved into the position embracing the rung **18** and the bolt and wing nut assembly **27** tightened, so that the auxiliary ladder step assembly of the present invention is securely fastened to the ladder **16** and may be transported therewith.

It is intended that the assembly of the present invention be constructed of lightweight metal so that it is of easy portability and also of economical construction.

What is claimed is:

1. For use with a ladder including spaced side rails and at least two rungs connecting the rails together, an auxiliary ladder step assembly comprising a pair of upright support members each of angle configuration arranged in spaced relation so that one leg of one member faces one leg of the other member with the other leg of said one member parallel to the other leg of said other member, said members being adapted to have the outer faces of said one legs abuttingly engage the rungs of said ladder and the outer faces of said other legs abuttingly engage the inner faces of said ladder rails, a plurality of horizontally disposed plates arranged in superimposed spaced relation and positioned so that each has

its rearward portion between said members and its forward portion forwardly of said members, each of said plates having the end edges of its rearward portion fixedly secured to the inner faces of said parallel other legs of said members and the adjacent parts of the side edge of said rearward portion fixedly secured to the inner faces of said facing one legs of said members, and means on said facing one legs of said members inwardly of the ends of said members for detachably securing said members to said ladder rungs.

2. For use with a ladder including spaced side rails and at least two rungs connecting the rails together, an auxiliary ladder step assembly comprising a pair of upright support members each of angle configuration arranged in spaced relation so that one leg of one member faces one leg of the other member with the other leg of said one member parallel to the other leg of said other member, said members being adapted to have the outer faces of said one legs abuttingly engage the rungs of said ladder and the outer faces of said other legs abuttingly engage the inner faces of said ladder rails, a plurality of horizontally disposed plates arranged in superimposed spaced relation and positioned so that each has its rearward half portion between said members and its forward half portion forwardly of said members, each of said plates having the end edges of its rearward half portion fixedly secured to the inner faces of parallel other legs of said members and the adjacent parts of the side edge of said rearward half portion fixedly secured to the inner faces of said facing one legs of said members, means on said facing one legs of said members inwardly of the ends of said members for detachably securing said members to said ladder rungs, and brace means extending between and fixedly secured to each end of each of said plates on the under side of the ladder and the adjacent portion of said parallel other leg.

3. For use with a ladder including spaced side rails and at least two rungs connecting the rails together, an auxiliary ladder step assembly comprising a pair of upright support members each of angle configuration arranged in spaced relation so that one leg of one member faces one leg of the other member with the other leg of said one member parallel to the other leg of said other member, said members being adapted to have the outer faces of said one legs abuttingly engage the rungs of said ladder and the outer faces of said other legs abuttingly engage the inner faces of said ladder rails, a plurality of horizontally disposed plates arranged in superimposed spaced relation and positioned so that each has its rearward half portion between said members and its forward half portion forwardly of said members, each of said plates having the end edges of its rearward half portion fixedly secured to the inner faces of said parallel other legs of said members and adjacent parts of the side edge of said rearward half portion fixedly secured to the inner faces of said facing one legs of said members, and base means embodying a plate extending between and fixedly secured to each end of each of said plates on the under side of the ladder and the adjacent portion of said parallel other leg.

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