Nov. 15, 1932. R. F. COWELL 1,887,546

METALLIC TRUSSED AERIAL LADDER

Filed June 17, 1931

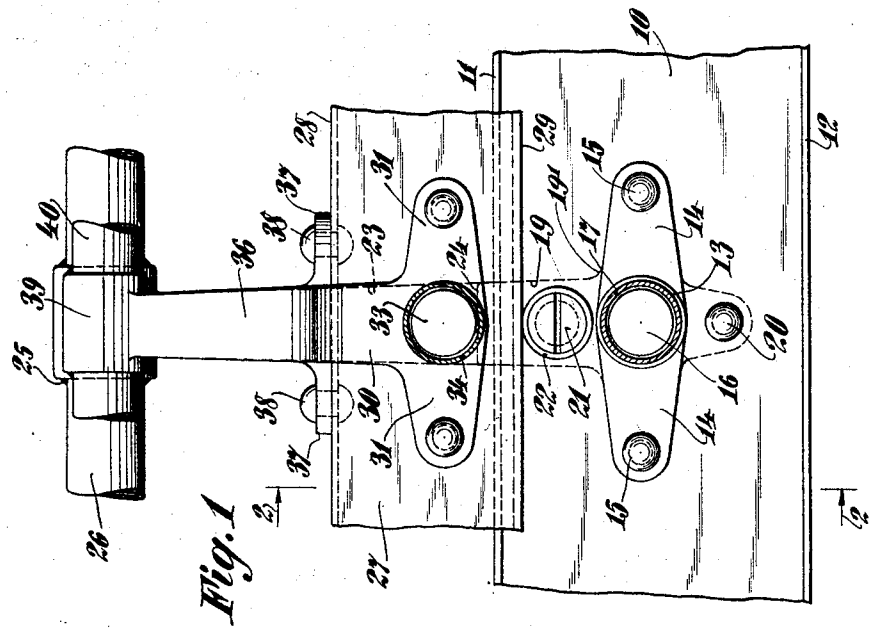


Fig. 1

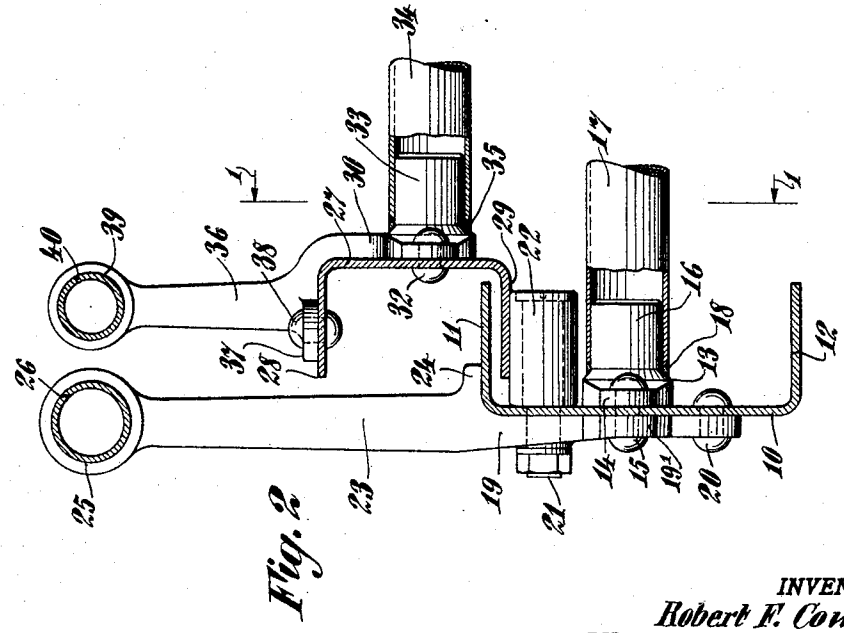


Fig. 2

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UNITED STATES PATENT OFFICE

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METALLIC TRUSSED AERIAL LADDER

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The present invention relates to extension ladders for use particularly in connection with fire apparatus and embodies, more specifically, an improved ladder construction, wherein a bed and fly ladder are so constructed as to be adapted to be readily assembled and operated, both the bed and fly ladders being trussed, the fly ladder being of a maximum width which is substantially equal to that of the bed ladder.

More particularly, the invention embodies an improved ladder construction, wherein great rigidity is afforded against stresses transverse to the plane of the ladder and, with the foregoing in view, it is proposed to provide trusses for both the bed and fly ladders, at the same time preserving, as closely as possible, the width of the fly ladder to substantially that of the bed ladder.

A further object of the invention is to provide a ladder construction of the above character, wherein the gravitational weight of the fly ladder is carried effectively by the bed ladder upon suitable rollers to facilitate the nesting and extension of the fly ladder.

A further object of the invention is to provide a ladder construction of the above character which affords a maximum strength with a minimum of weight, the assembly and operation of the elements being readily effected.

Further objects, not specifically enumerated above, will be apparent as the invention is described in greater detail in connection with the accompanying drawing, wherein:

Figure 1 is a view in section, taken on line 1—1 of Figure 2, showing a portion of one side of the ladder assembly, the section being taken through the ladder rungs and looking toward the side beams of the bed and fly ladders in the nested position.

Figure 2 is a view in section, taken on line 2—2 of Figure 1, and looking in the direction of the arrows.

Referring to the above drawing, the ladders are formed of metal and the bed ladder includes spaced channels 10, these channels being U-shaped in cross section and the upper and lower flanges 11 and 12, respectively, extending inwardly. Within the channel, spaced brackets 13 are secured, the brackets being formed with oppositely extending arms 14 which are riveted to the channel at 15. Upon the brackets are bosses 16 over which the ends of the ladder rings 17 are inserted. The rungs are preferably welded in position at 18, as shown in Figure 2. Upon the outer sides of the channels, brackets 19 are mounted, the lower extremities of these brackets being riveted at 20 to the channels and formed with oppositely extending arms 19′ riveted at 15 to channel 10 and brackets 13. Spaced from the rivets, are bolts 21 which not only serve to secure the brackets 19 to the channel but extend inwardly between the flanges 11 and 12 and mount rollers 22. The brackets 19 are formed with upwardly extending truss rod posts 23, at the lower extremities of which toes 24 are formed to extend over the upper flange 11 of the channel and afford bearing supports for the posts thereon. The upper extremities of the truss rod posts are apertured at 25 and receive a hollow truss rod 26 which is preferably welded or otherwise secured thereto and anchored at its ends at the extremities of the channel.

The fly ladder is formed of a pair of channels 27 each of which has upper and lower flanges 28 and 29, respectively. The flanges 28 and 29 extend outwardly and the lower flange 29 is mounted between the flange 11 and the rollers 22. This construction affords adequate bearing support for the channels 27, at the same time preserving a maximum width of fly ladder. Upon the sides of the channels, brackets 30 are mounted, these brackets being formed with oppositely extending arms 31 which are riveted at 32 to the channels and bosses 33 over which the fly ladder rungs 34 are mounted. Rungs 34 are welded to the bosses 33 at 35 and the brackets 30 are provided with offset and upwardly extending truss rod supporting posts 36 which are formed with flanges 37 riveted at 38 to the top flange 28. Posts 36 terminate at substantially the height of the corresponding bed ladder truss rod posts in order that the truss rods may lie in substantially the same plane when in nested position. The upper extremities of the fly ladder truss rod

posts are apertured at 39 to receive the fly ladder truss rod 40 which is suitably secured thereto.

From the foregoing, it will be seen that a ladder construction has been provided which affords a maximum width of fly ladder for a given width of bed ladder, the construction being such as to afford great strength to the ladder assembly. The foregoing construction further provides a minimum of ladder weight with a maximum of rigidity, the operation of the ladder being facilitated by the provision of rollers which are mounted within the bed ladder channels, as above described.

While the invention has been described with specific reference to the accompanying drawing, it is not to be limited, save as defined in the appended claim.

I claim as my invention:

A metallic ladder construction comprising a bed ladder having channel beams with flanges turned inwardly, bed ladder truss rods, truss rod posts secured to the channels and lying substantially in the plane of the outer sides of the channels, said truss rods being secured to the truss rod posts, a fly ladder carried by the bed ladder and formed with channel beams having flanges turned outwardly, the lower flanges of the fly ladder beams lying between the flanges of the bed ladder beams, and truss rods carried by the fly ladder beams.

This specification signed this 3rd day of June A. D. 1931.

ROBERT F. COWELL.