Dec. 25, 1951 A. O. REED 2,580,045

STEPLADDER

Filed Jan. 12, 1948

FIG. 1

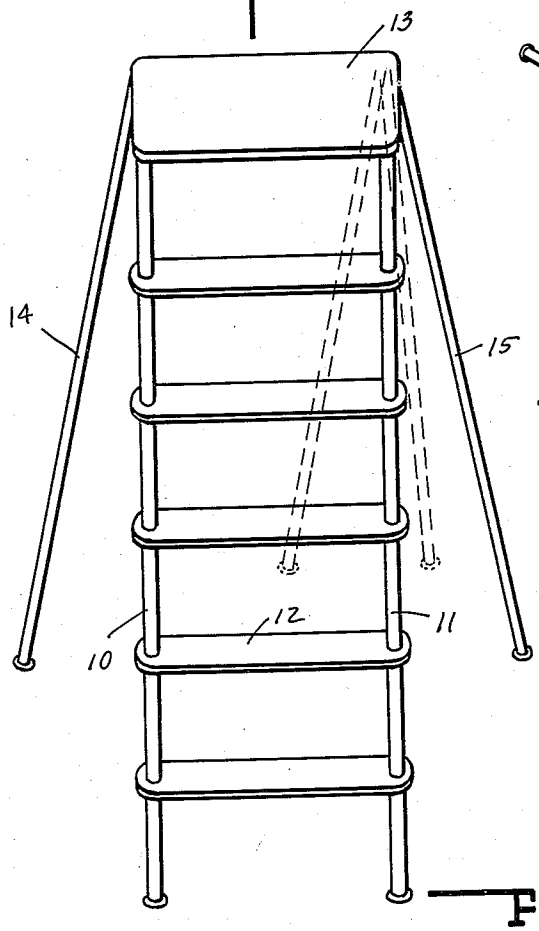


FIG. 2

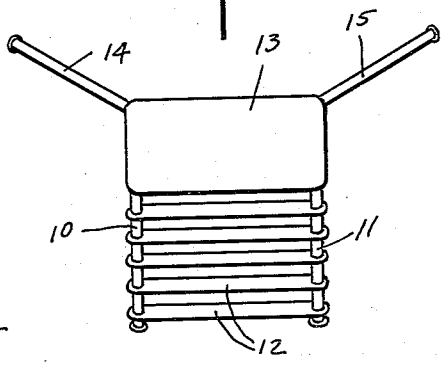


FIG. 3

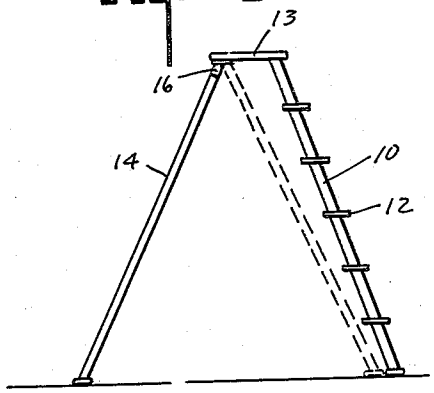


FIG. 4

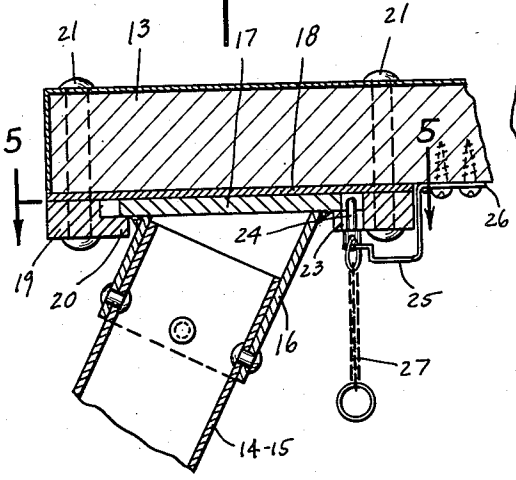
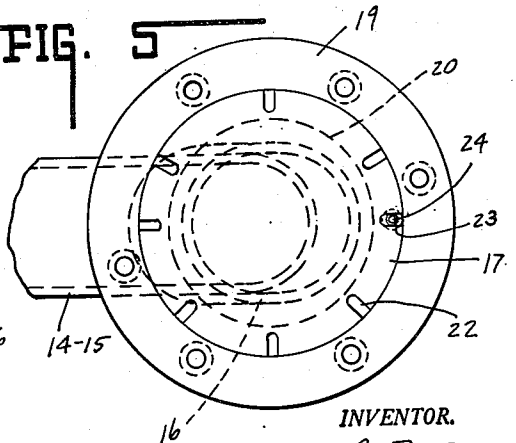


FIG. 5



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STEPLADDER

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2 Claims. (Cl. 228—29)

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This invention relates to a step ladder of that character having a pair of fixed front legs and independently adjustable or swivelly mounted rear bracing legs.

It is the purpose of the invention to provide a step ladder of this character, preferably of reinforced metal tubing, wherein the rear bracing legs may be adjustably locked in varying positions about a vertical axis as from an inward position adjacent the front legs for storage and carrying purposes, to other selected supporting positions. The structure is such that the rear legs may be rotated to the usual rearward and lateral bracing positions, or one leg may be positioned laterally and inwardly at such angle as to enable the ladder to be supported with its top platform against a wall, in a corner, or upon uneven ground as conditions may require.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a front perspective view of a step ladder showing various positions of the bracing legs in dotted lines.

Fig. 2 is a plan view indicating a selected position of the rear bracing legs.

Fig. 3 is a side view thereof.

Fig. 4 is an enlarged sectional view through the top support and one of the bracing legs.

Fig. 5 is a section taken on the line 5—5 of Fig. 4.

In the drawings there is shown a step ladder having a pair of front supporting legs 10 and 11 and a series of steps 12 secured at spaced intervals to said legs in any suitable manner. To the upper end of the supporting legs 10, 11 there is a top platform 13. When the ladder is set up for use in the usual manner, the legs 10, 11 extend at an angle to the horizontal, whereas the steps 12 and platform 13 extend in a horizontal plane. A pair of bracing legs 14, 15 have their upper ends secured to the underside of the top platform 13, preferably adjacent the opposite rear corners thereof.

For securing the upper ends of each of the legs 14, 15, there is provided an angularly disposed socket member 16 depending at an angle from the swivel plate 17. Said swivel plate is carried adjacent a thrust plate 18. Surrounding the swivel plate there is provided a ring 19 having an annular inwardly extending portion 20 for confining the swivel plate 17 against the thrust plate while permitting relative rotation thereof. The ring and thrust plate are jointly secured to the underside of the platform 13 by suitable bolts

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21. Such mounting of each of the rear bracing legs is to permit rotation thereof about a vertical axis when the platform is in horizontal position. However, by reason of the fixed angular relation of each of said legs through its socket member 16 and relative to the swivel plate, said legs will at all times extend therefrom at a predetermined angle.

The swivel plate 17 is provided with an annular series of spaced apertures or recesses herein illustrated as peripheral notches 22. The inwardly extending portion 20 of the ring 19 is apertured at 23 for receiving a latching pin 24. Said latching pin is arranged to interconnect the swivel plate with the ring to lock the supported bracing leg in a selected position when the pin is extended into a selected aperture 22. Said pin is biased upwardly into locking engagement with such selected aperture by a leaf spring 25 having one end secured at 26 to the underside of the top platform adjacent the leg fitting, and with its free end yieldingly pressed under spring tension against the lower end of the latching pin. If desired, a pull chain 27 may be secured to said pin for disengaging it from one of the apertures 22 under tension of said spring.

From the foregoing it will be observed that the bracing legs are mounted independently of each other and while always remaining at the same relative angle to the top platform, they may be independently rotated to different adjusted positions relative to each other and the front supporting legs, depending upon the use to which the ladder may be put. With the bracing legs turned inwardly their lower ends will lie adjacent the front supporting legs for storage purposes or when the ladder is being carried. On the other hand, the legs may be positioned to compensate for an uneven supporting surface. Also, when it is desired to brace the ladder adjacent a wall, both bracing legs may be positioned at approximately a 90 degree angle from the front legs and, therefore, be free from interference with the wall. Similarly, when it is desired to place the ladder against a corner, the far leg may be swung outwardly and the inner leg inwardly to provide an outward bracing of the ladder against the wall with the adjacent bracing leg free from interference therewith. However, it is particularly noted that at all times the bracing legs remain in the same angular relation to the top platform and are securely held against wobble or displacement by reason of the relative extensive area of the fitting including the swivel and thrust plates.

The invention claimed is:

1. A step ladder comprising a pair of front supporting legs joined in spaced relation by a series of steps secured thereto, a top platform secured adjacent its forward corners to the upper ends respectively of said legs, a pair of rear bracing legs, and means for selective angular adjustment of each of said rear legs relative to said front legs and to each other, said means comprising a ring secured to the underside of said platform adjacent each of its rearward corners, said rings each having an inwardly extending annular flange normally spaced from said platform, a swivel plate rotatably mounted between said platform and each of said respective flanges and provided with a series of arcuately spaced apertures, and an angularly extending socket secured to each of said swivel plates for receiving and having rigidly secured thereto the upper end of one of said rear bracing legs to permit free rotation thereof about a vertical axis at a fixed angle thereto, and a latching element movable in and out of latching engagement within said apertures for locking said plate and leg in a selected position.

2. A step ladder comprising a pair of front supporting legs joined in spaced relation by a series of steps secured thereto, a top platform secured adjacent its forward corners to the upper ends respectively of said legs, a pair of rear bracing legs, and means for selective angular adjustment of each of said rear legs relative to said front legs and to each other comprising a thrust plate secured to the underside of said platform adjacent each of its respective rearward corners, a ring secured to each of said plates and having

an inwardly extending annular flange normally spaced from said platform, a swivel plate rotatably mounted between said thrust plate and each of said rings, said swivel plates being provided with a series of arcuately spaced apertures, an angularly depending socket secured to each of said swivel plates for rigidly accommodating the upper end of said respective rear bracing legs to permit free rotation thereof about a vertical axis at a fixed angle thereto, a latching pin slidable in each of said rings for selective engagement with one of said apertures and spring means extending into engagement with said pins, said spring means comprising a leaf spring having one end secured to the underside of said platform and its free end in engagement with said pins respectively for normally biasing each into latching position.

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