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LADDER ATTACHMENT

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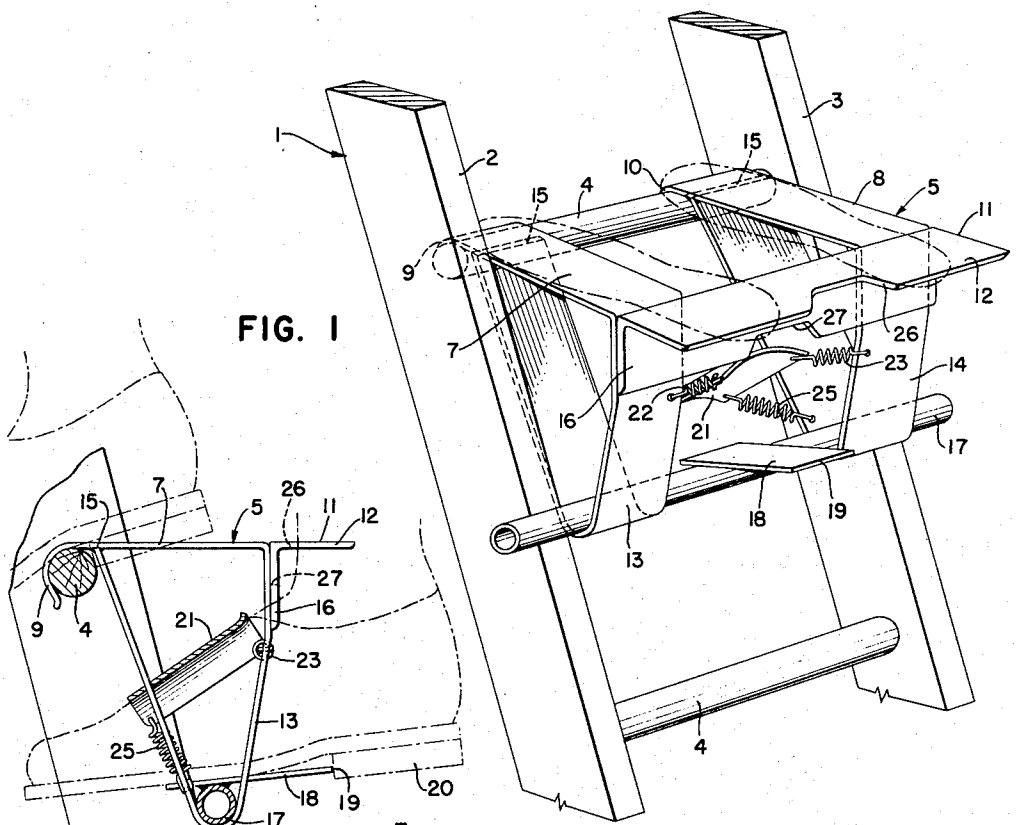


FIG. 1

FIG. 3

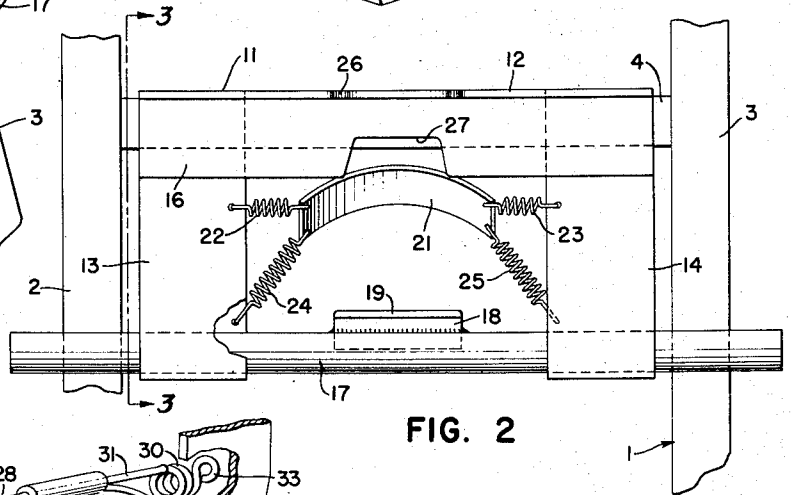


FIG. 2

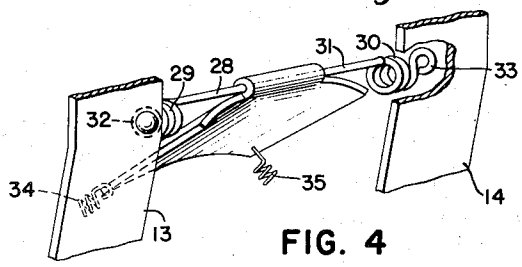


FIG. 4

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LADDER ATTACHMENT

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2 Claims. (Cl. 304—31.5)

This invention relates to an attachment for use with ladders and more particularly to a step that may be readily positioned on a rung of the ladder to provide a platform on which a workman may stand when using the ladder. Such a platform not only is much more comfortable but much safer than the rung of the ladder. The step of the present invention also may be moved up or down the ladder readily by the workman with one foot, leaving his hands free to hold onto the ladder as to carry other things up and down at the same time. It is therefore an object of this invention to provide a readily movable step that is firmly mounted yet readily detachable from a rung of a ladder.

Another object of this invention is to provide a simple and economical platform for use with a ladder.

A further object of the invention is to provide a platform that may be readily moved up and down while the workman is on the ladder.

A still further object of the invention is to provide a platform that is firmly and rigidly associated with the ladder.

These and other objects of the invention will be apparent herein as the description hereof proceeds and in the claims thereunto appended.

In the drawings:

Figure 1 is a perspective of the step in the position;

Figure 2 is a front elevation of the invention with a partial section;

Figure 3 is an end elevation of the invention; and

Figure 4 is a partial front elevation of a modification of the invention.

In Figure 1, a portion of a ladder 1 having side rails 2 and 3 with rungs 4 extending therebetween is represented in an inclined position similar to that when the ladder is being used by a workman. The ladder step 5 is mounted on the rung 4 and provides a generally U shaped supporting platform. As is readily apparent the step provides a rigid and substantial supporting platform but may be readily detached from the rung and moved to another position when desired.

In the preferred form of the invention, the platform is formed by identical portions 7 and 8 extending substantially normal to the rung 4 and parallel to each other between the side rails 2 and 3. A downwardly extending hook 9 and 10 on the end of portions 7 and 8 respectively engage the ladder rung 4. As shown an angle iron 11 with the surface of one leg 12 in alignment with the surface of portions 7 and 8 extends transversely to these portions and completes the platform of U shape.

As best seen in Figures 1 and 2, the portions 7 and 8 of the platform are formed from a strip of rigid material such as rolled or sheet steel, or other comparable material. The strip is shaped to approximate a modified V shape to form supporting members 13 and 14 for the platform portions 7 and 8 closing the open end of the V. One end 15 of the V is attached to the underside of portion 7 or 8 adjacent the hook 9 or 10 to prevent any substantial shifting of the hook on the ladder rung

4. The upper end of the other end of the V forms a surface to which the leg 16 of the angle iron 11 is attached for example by welding or riveting to the supporting members 13 and 14. A cross member 17 which engages the side rails 2 and 3 of the ladder 1 extends through the apex of the V of the supporting members 13 and 14 and is fastened thereto. The cross member 17 engages the side rails 2 and 3 of the ladder after the hooks 9 and 10 are placed over the rung 4 so as to provide a solid mounting for the platform. In order to provide means for easily moving the step 5 up or down to a different rung on the ladder, a plate 18 is attached to the cross member 17 approximately midway between the supporting members 13 and 14. The plate 18 is preferably of a length so that the outer end 19 engages the inner edge of the heel 20 of the workman's shoe. A saddle 21 is spaced from and resiliently attached to the supporting members 13 and 14, to engage the top of the instep of the workman's foot as shown in Fig. 3. As shown coil springs 22, 23, 24, and 25 extend between the corners of the saddle 21 and the legs of the supporting members 13 and 14 to position the saddle so that the end of the saddle nearest the ladder is closer to the plate 18 than the outer end. This allows the workman's foot to be easily inserted between the saddle and the plate yet the saddle snugly but releasably engages the workman's foot until he desires to remove it. The plate 18 and saddle 21 prevent the platform from tipping on the workman's foot when he is moving it from one position to another. In order that the workman's foot may be completely inserted, notches 26 and 27 are formed in the legs 12 and 16 of the angle iron 11 to provide clearance for the top of the instep and ankle of the operator.

In using the step the workman stands on the platform with his feet in the approximate position indicated by the dotted lines in Fig. 1. It is apparent that a substantial portion of his foot is supported by the platform. When he desires to move the platform up or down the ladder, he moves one foot to the rung 4 in the opening of the platform, then inserts the other foot between the saddle 21 and cross member 17 until his heel engages the end of the plate 18. The respective position of the feet is indicated by the dotted lines in Fig. 3. The step is now moved up to disengage the hooks 9 and 10 without interference from the other foot, then the workman may go up or down the ladder to the desired position. At this point he places the free foot in the center of the rung then moves the stop in so that the hooks 9 and 10 engage the rung. He then removes his foot from the saddle and places both feet out on the platform again. At the time the workman is moving the step, both hands are free to carry any other equipment he may have and to hold on to the ladder. In no instance is it necessary for the workman to step on the platform to move it in either direction.

Fig. 4 illustrates another means of resiliently attaching the saddle 21 to the supporting members 13 and 14. The spring element 28 as shown includes a pair of spaced coils 29 and 30 joined by the portion 31 and formed of a single piece of spring wire. The coils 29 and 30 include several loose turns and fastening loops 32 and 33 formed on the extreme ends of wire. The loops 32 and 33 are attached to the outer legs of the supporting members 13 and 14, for example by a bolt and nut or rivet passing through the loop and leg. The outer edge of the saddle is attached to a spring element 28 for example by bending a tab on the edge around the portion 31 of the spring element. The inner corners of the saddle are attached to the inner legs of the members 13 and 14 by means of coil springs 34 and 35 similar to those used in the modification shown in Figs. 1, 2

and 3. When the workman inserts his foot between the saddle **21** and the plate **18**, the coils **29** and **30** permit the saddle to move upwardly to accommodate the workman's foot and at the same time cause it to snug against the foot.

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit or scope of the invention.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A step for use with a ladder having a pair of side rails and spaced rungs extending therebetween comprising a generally U shaped platform to support a person thereon when mounted on a ladder rung with the opening of the U facing the ladder, the opening providing space for a person to position one foot on the rung free of the platform; a downwardly extending rung engaging hook on the end of each leg of the U at the open end; a pair of mounting members extending downwardly from the underside of each leg of the U of the platform, each member being generally V shaped with one of the open ends of the V being rigidly attached to the platform adjacent the hook and the other end adjacent the closed end of the U; a cross member attached to the mounting members adjacent the closed end of the V and adapted to engage the side rails of the ladder to hold the platform in position with respect to the ladder; and a saddle member resiliently attached to the mounting members and spaced from the cross member to releasably engage the upper portion of a foot when inserted between said cross member and said saddle member to permit the worker to move the platform up or down the ladder with his foot.

2. A ladder step for use on a ladder having side rails and spaced rungs extending therebetween, said step

being readily movable up and down on said ladder while a person is on the ladder comprising a pair of substantially identical rigid strip members, each of said strip members being substantially V shaped with the top of the V being closed; a downwardly extending hook formed on the top portion adjacent on leg of said V adapted to engage a rung of the ladder; a second member extending transversely to and rigidly attached to the other leg of each of the V shaped members to maintain the V shaped members in spaced relation to each other to lay between the side rails of the ladder and having at least a portion of the surface of said second member in substantial alignment with the closed portion of the V the closed portion of the V and the aligned surface of the second mentioned member forming an open-center foot supporting surface extending in a substantially horizontal plane when in position on the ladder; a cross member attached to the apices of the V shaped members, said cross member joining and extending beyond the V shaped members to engage the side rails of the ladder; and a resiliently mounted saddle member extending between the V shaped members and spaced from said third member constructed and arranged to engage the instep portion of the person's foot when inserted between the cross member and the last mentioned element.

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