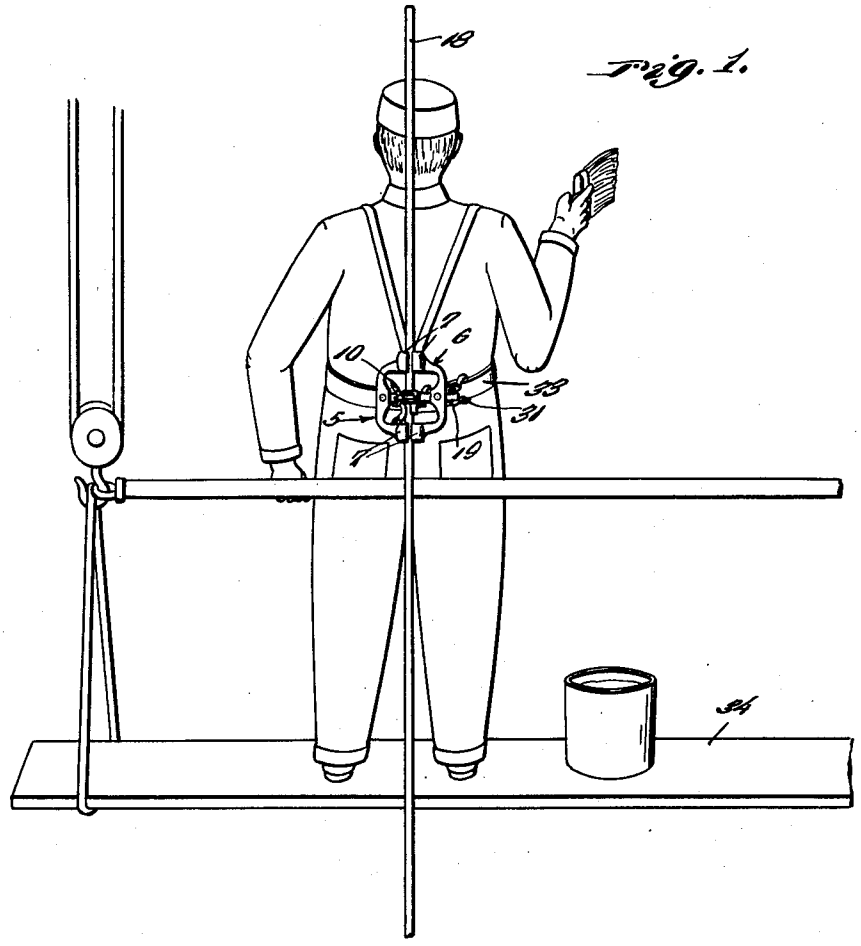
June 25, 1940. M. SILVIA 2,205,933

LIFE-LINE RATCHET

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Fig. 1.



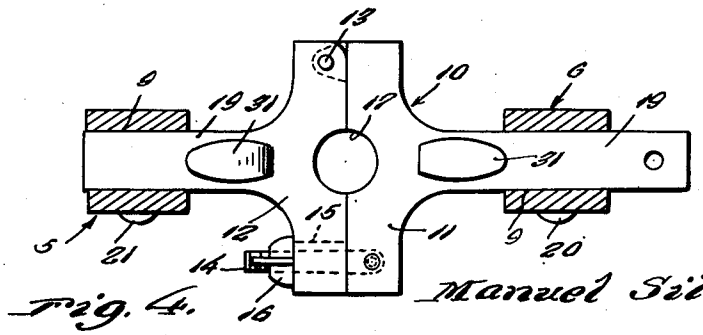


Fig. 4.

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Fig. 2.

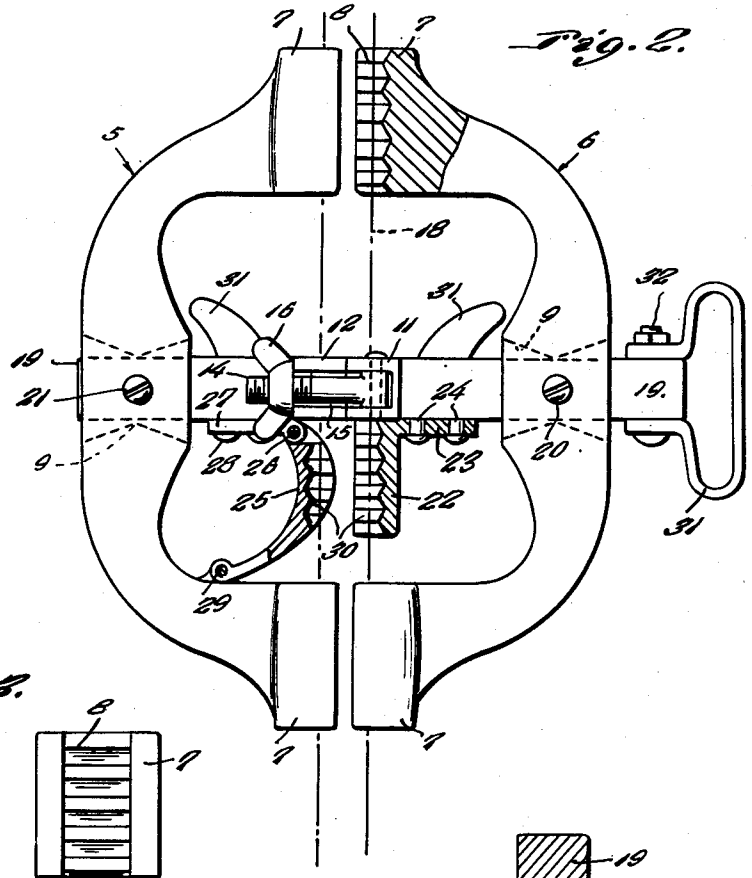


Fig. 3.

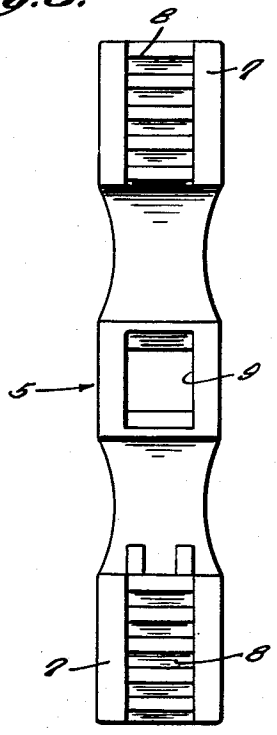


Fig. 5.

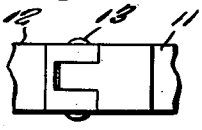
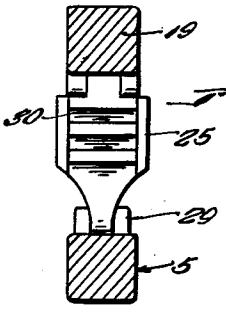


Fig. 6.



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2,205,933

LIFE-LINE RATCHET

Manuel Silvia, Newark, N. J.

Application December 1, 1939, Serial No. 307,161

5 Claims. (Cl. 227—49)

This invention is a safety device, which might be termed a "life-line ratchet" and is for use by painters and similar artisans when working on a scaffold or the like for protecting such artisans against falling and consequent possible fatal injury; and the invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:

Figure 1 is an elevational view illustrating the application of the invention.

Figure 2 is a view of the device with certain parts broken away and shown in section.

Figure 3 is an elevational view of one of the sections of the frame forming part of the device.

Figure 4 is a transverse sectional view through the device with the ratchet mechanism of the device shown in plan.

Figure 5 is a fragmentary detail elevational view showing the manner of pivotally connecting the sections of the ratchet device together, and

Figure 6 is a detail sectional view showing in elevation one of the complemental ratchet members.

Referring more in detail to the drawings it will be seen that in the preferred embodiment thereof the device comprises a frame consisting of a pair of complemental substantially U-shaped sections 5 and 6 respectively.

Each of the sections 5 and 6 has the legs or terminals thereof merging into semi-cylindrical guide sections 7, the concave faces or surfaces of which are toothed or otherwise provided to present roughened gripping or contact surfaces 8.

Each of the sections 5 and 6, intermediate its respective opposite ends is provided with a through opening 9, which has its upper and lower walls flaring from the center to the respective opposite ends thereof as shown.

Mounted in the frame is a ratchet mechanism indicated generally by the reference numeral 10.

The ratchet mechanism 10, in the preferred embodiment thereof, comprises a pair of complemental head members 11 and 12 which at one end are pivotally connected together as at 13.

At the free end thereof the head member 11 has pivoted thereto a bolt 14 which is accommodated in a furcation 15 provided in the free end of the head member 12. Threaded on the bolt 14 is a wing nut 16 which, as shown in Figure 4, when threaded home against the bifurcated end of head member 12 serves to hold the members 11 and 12 in the closed position shown in Figure 4.

The head members 11 and 12 are complementarily formed as at 17 to provide a through opening therethrough to accommodate a life-line or rope 18 which may be suspended from the top of a building, wall, or the like upon which work, such as painting, or the like, is being performed.

The head members 11 and 12 are provided on the ends of shanks 19.

The shank 19 of head member 11 is accommodated in the opening 9 of the frame member 6 and is pivoted therein through the medium of a screw or the like 20, while the shank 19 of the head member 12 is accommodated in the opening 9 of the frame member 5 and is pivoted therein through the medium of a screw or similar fastening element 21. Thus it will be seen that each shank has a slight pivotal movement in the frame section to which it is connected.

Mounted on and depending from the head member 11 is what may be termed a jaw or gripping element 22, the same being in the form of a semi-cylinder provided at one end with an attaching flange 23, through the medium of which and rivets or other fastening elements 24 said element 22 is secured to the head member 11 and its associated shank 19.

Complementing the member 22 is an arcuate jaw member 25 that at one end is pivoted as at 26 to an ear-equipped plate 27 riveted or otherwise secured as at 28 to the underside of the shank 19 of head member 12. The other end of the member 25 is pivoted to the frame member 5 as at 29.

Each of the members 22, 23 is provided with a concave working surface equipped with teeth or otherwise roughened as at 30.

Also, the shanks 19 of the head members 11 and 12 are provided on the topsides thereof with stop lugs or dogs 31.

As shown in the drawings, the life-line or rope 18 is trained through the complemental guides 7—7, the opening 17 provided by the complemental formations of the meeting faces of the members 11 and 12, and between the surfaces 30 of the members 22 and 25.

Pivoted to the free end of the shank 19 of head member 11, through the medium of a bolt or other pivoted element 32 is a loop 31 through which is trained the waist-encircling belt 33 which the artisan will wear about his waist as clearly suggested in Figure 1.

From the above it will be apparent that should the artisan slip or fall from the scaffold 34, or

other support upon which he may be standing, the belt, through means of the loop 31, will cause the shank 19 to move on the pivot 20 and as said shank 19 is connected with the opposite shank so that the two shanks move in unison, the section 5 will be moved either upwardly or downwardly and toward the other section 6 so that the rope 18 will be gripped between the upper and lower members 7 and between the parts 22 and 25. If the shanks swing downwardly the lug 31 to the left in Figure 2 will engage section 5 to keep the same substantially straight so that it will move downwardly and inwardly to cause the members 7 and 22 and 25 to grip the cable and if the shanks swing upwardly the lug 31 to the right in Figure 2 will engage the section 6 to keep this section substantially straight during the movement of the parts.

It will be seen that the device is quick-acting in operation and will serve to effectively break, if not completely prevent the falling of the artisan while at work; and that the same, while simple in construction and operation, can also be readily used by the artisan without in any wise interfering with his work.

It is believed that a full and complete understanding of the invention, from the foregoing, will be had without further detailed description thereof.

Having thus described the invention what is claimed as new is:

1. A safety device of the character described comprising a two-part frame, said parts being complementarily formed at opposite sides of the frame to provide guides for a life-line, shank members pivoted intermediate their ends to two other sides of the frame, jaws on the inner ends of said shanks provided to accommodate the life-line trained therebetween, said jaw members being pivoted at one end, and complementarily equipped at the end opposite to said pivot for securing said jaws in closed condition, each of said jaws having a toothed element connected therewith for engaging the life-line, and a belt-accommodating loop pivotally connected to the free end of one of said shanks, one of said toothed members being substantially semi-cylindrical in cross-section, and the other of said toothed members being substantially semi-cylindrical in cross-section and also longitudinally curved, the last-mentioned one of said toothed members being pivoted at one end thereof to one of said jaws and at the opposite end thereof to one of said frame members.

2. A safety device of the class described comprising a pair of substantially U-shaped members each having gripping jaws at the ends, a bar pivotally connected with the bights of the two members with one end of the bar extending outwardly beyond the might of one of the members, a belt engaging loop connected to said extending end of the bar and outwardly curved stop lugs on the bar and located in the space formed by the U-shaped members, one stop engaging one of the U-shaped members when the bar is moved in one direction and the other lug engaging the other U-shaped member when the bar is swung in an opposite direction.

3. A safety device of the class described comprising a pair of substantially U-shaped members each having gripping jaws at the ends, a bar pivotally connected with the bights of the two members with one end of the bar extending outwardly beyond the bight of one of the members, a belt engaging loop connected to said extending end of the bar and outwardly curved stop lugs on the bar and located in the space formed by the U-shaped members, one stop lug engaging one of the U-shaped members when the bar is moved in one direction and the other lug engaging the other U-shaped member when the bar is swung in an opposite direction, said bar having an opening in its middle portion for the passage of a rope which passes between the gripping parts at the ends of the U-shaped members, a stationary jaw attached to the bar and a movable jaw member having one end pivotally connected with the bar and another end pivotally connected with a U-shaped member and said movable jaw member gripping the rope between itself and the stationary jaw member when the bar is moved.

4. A device of the class described comprising a pair of U-shaped members each having jaws at its ends and each jaw being of substantially semi-circular shape with a gripping surface on its concave face, the bight part of each U-shaped member having an opening passing therethrough with the opening flaring from the center thereof to each end, a pair of shanks, one passing through the opening of one U-shaped member and the other through the opening of the other U-shaped member, each shank being pivoted to the U-shaped member for rocking movement in the opening, a head connected with the inner end of each shank and each head having a recess therein, the two recesses forming an opening for the passage of a cable, means for hingedly connecting the heads together, latch means for holding the heads in contacting relation, one end of one shank extending outwardly beyond the U-shaped member to which it is pivoted, a belt-engaging loop connected with said extending end, a stationary jaw connected with the head of the last-mentioned shank and being of substantially semi-circular shape in cross section and arranged in substantial alignment with a part of the hole formed by the two heads of the shanks, a movable jaw of substantially arcuate shape having one end pivoted to the opposite shank on its head and its other end pivoted to a part of the U-shaped member to which said last-mentioned shank is pivoted, said movable jaw gripping a rope between itself and the stationary jaw when the shanks are moved.

5. A device of the class described comprising a pair of U-shaped members each having jaws at its ends and each jaw being of substantially simi-circular shape with a gripping surface of its concave face, the bight part of each U-shaped member having an opening passing therethrough with the opening flaring from the center thereof to each other, a pair of shanks, one passing through the opening of one U-shaped member and the other through the opening of the other U-shaped member, each shank being pivoted to the U-shaped member for rocking movement in the opening, a head connected with the inner end of each shank and each head having a recess therein, the two recesses forming an opening for the passage of a cable, means for hingedly connecting the heads together, latch means for holding the heads in contacting relation, one end of one shank extending outwardly beyond the U-shaped member to which it is pivoted, a belt-engaging loop connected with said extending end, a stationary jaw connected with the head of the last-mentioned shank and being of substantially semi-circular shape in cross section and arranged in substantial alignment with a part of the hole formed by the two heads of the

shank, a movable jaw of substantially arcuate shape having one end pivoted to the opposite shank on its head and its other end pivoted to a part of the U-shaped member to which said last-mentioned shank is pivoted, said movable jaw gripping a rope between itself and the stationary jaw when the shanks are moved, and a curved stop lug on each shank and curved toward the bight of the U-shaped member to which the shank is connected, said lugs being arranged on the opposite sides of the shanks from that to which the stationary and movable jaw members are connected.

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