Aug. 26, 1952 J. J. PELOUCH 2,608,381

SAFETY LEG SUPPORT FOR VEHICLE SERVICING LIFTS

Filed May 29, 1950 2 SHEETS—SHEET 1

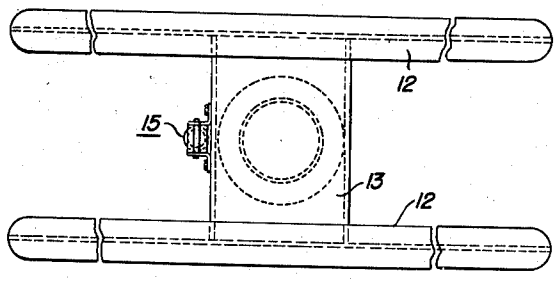


Fig.2

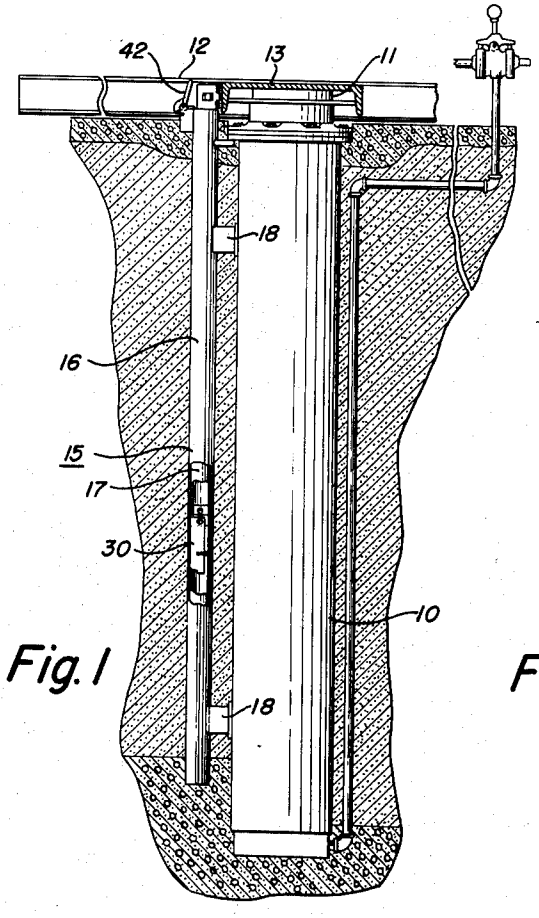


Fig.1

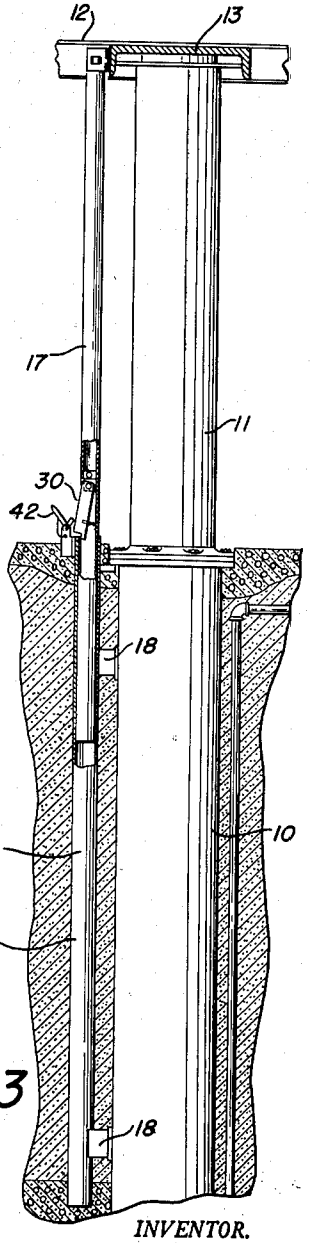


Fig.3

INVENTOR.
JAMES J. PELOUCH

BY

Hoodling and Krost attys.

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SAFETY LEG SUPPORT FOR VEHICLE SERVICING LIFTS

Filed May 29, 1950 2 SHEETS—SHEET 2

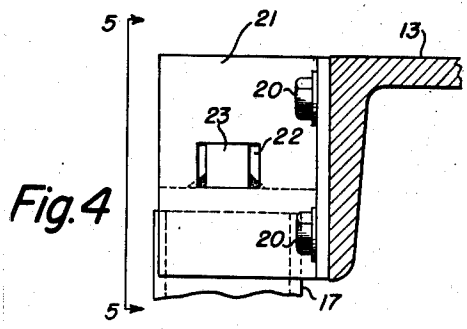


Fig.4

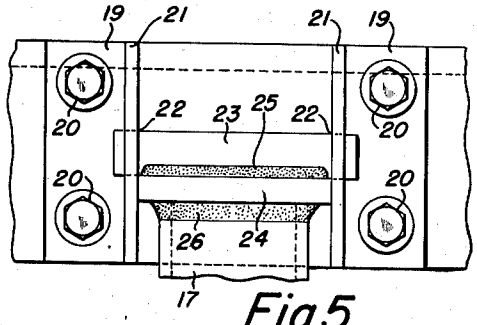


Fig.5

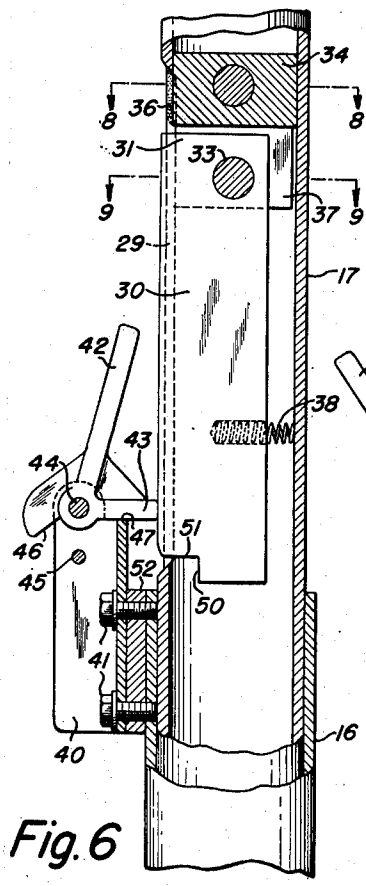


Fig.6

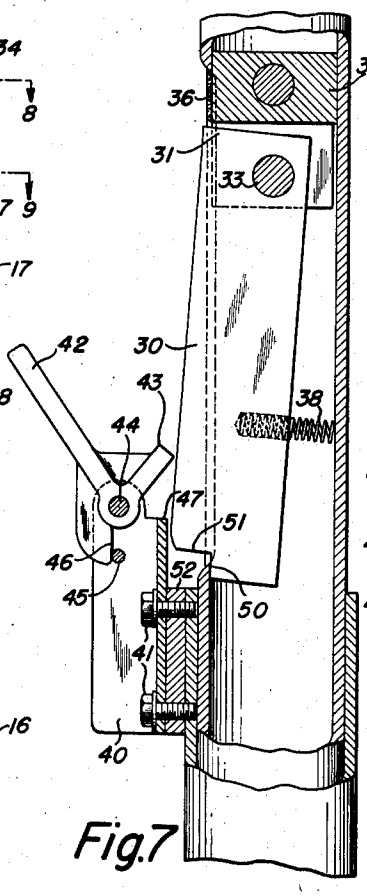


Fig.7

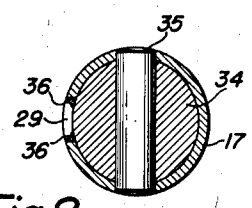


Fig.8

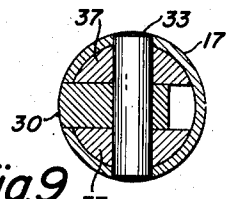


Fig.9

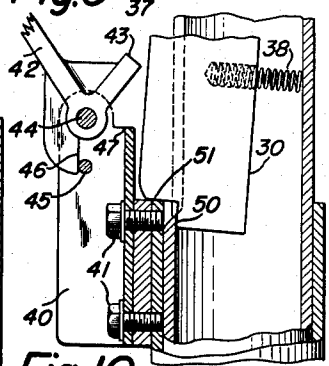


Fig.10

INVENTOR.
JAMES J. PELOUCH

BY Stroudley and Kost attys.

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SAFETY LEG SUPPORT FOR VEHICLE SERVICING LIFTS

James J. Pelouch, Cleveland, Ohio, assignor, by mesne assignments, to Farm Tools, Inc., a corporation of Ohio

Application May 29, 1950, Serial No. 164,909

4 Claims. (Cl. 254—93)

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The invention relates to a safety leg support for vehicle servicing lifts, and more particularly to a safety leg support of the latch type.

An object of the invention is the provision of a latch for a safety leg support which latch must be manually operated preparatory to lowering the lift mechanism.

Another object of the invention is the provision of means responsive to the upward movement of the lift to restore the manually operable means which governs the operation of the latch.

Another object of the invention is the provision of a latch member which must be manually operated to lower the lift mechanism and which is automatically restored to a latching position by the upward movement of the lift mechanism.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a side elevational view of a lift mechanism embodying the safety leg support constituting the invention;

Figure 2 is a plan view of Figure 1, and shows principally the lifting structure for lifting a vehicle for servicing;

Figure 3 is a view similar to Figure 1, but shows the lifting ram and lifting structure elevated to a latching position of the safety leg support;

Figure 4 is an enlarged and fragmentary view of the top part of the safety leg support and shows the manner in which it is connected to the lifting structure of the lift mechanism;

Figure 5 is an enlarged and fragmentary view taken along the line 5—5 of Figure 4;

Figure 6 is an enlarged and fragmentary view showing principally the latch member of the safety leg support, and shows the latch member in its unlatched position preparatory to lowering the lift mechanism;

Figure 7 is a view similar to Figure 6 but shows the latch member in its latching position which prevents the lift mechanism from being lowered in the event of the failure of the fluid power source;

Figure 8 is a cross-sectional view taken along the line 8—8 of Figure 6;

Figure 9 is a cross-sectional view taken along the line 9—9 of Figure 6; and

Figure 10 is a fragmentary view similar to the view in Figure 7, but shows the latch member engaging the top ledge of the support member

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which represents the condition of latching engagement in the event of failure of the fluid power source which is employed to raise and hold the lift to an elevated position.

In the drawings, the safety leg support is illustrated in connection with an automotive lift of a well known type. As illustrated principally in Figures 1, 2 and 3, the lift mechanism comprises a cylinder 10 embedded in the ground. Mounted within the cylinder 10 is a ram 11 upon the upper end of which is mounted a lifting structure 12 for supporting the vehicle which is being serviced. The lifting structure comprises not only the side members upon which the vehicle is mounted, but also a channel cross-plate 13 which is connected to the upper end of the ram 11.

The safety leg is illustrated generally by the reference character 15 and comprises a support member 16 which is in the form of a hollow pipe, and a rod 17 which slides up-and-down within the pipe support member 16. The pipe support member 16 is anchored to the side of the cylinder 10 by means of anchoring supports 18 which are in the form of brackets welded to the cylinder 10 and to the pipe support member 16. Accordingly, the pipe support member 16 is rigidly anchored to the side of the cylinder 10. The rod 17 may be hollow and its upper end is connected to the channel cross-plate 13 by means of fastening brackets 19 and a cross pin 23. The brackets 19 may be connected to the side edge of the channel cross-plate 13 by means of bolts 20. The fastening brackets 19 are provided with spaced flanges 21 having openings 22 therein which receive the cross pin 23. In actual practice, the cross pin 23 is welded to the top surface of a plate 24 which plate is in turn welded to the top of the rod 17. The reference character 25 indicates the weld material for welding the cross pin 23 to the plate 24, and the reference character 26 represents the weld for welding the plate 24 to the top of the rod 17. The openings 22 in the flange 21 which receive the cross pin 23 may be somewhat elongated as shown in Figure 4 so as to permit a small amount of lateral movement during the elevation of the lifting structure in order to relieve the rod 17 and the pipe support member of excessive stress.

As shown in Figures 6 and 7, the rod 17 which is hollow is provided with a side recess 29 which is constructed by milling a slot in the side of the rod 17. Mounted in this recess 29 is a latch member 30 which constitutes the safety feature of the leg support. The upper end 31 of the latch member is pivotally mounted about a pivot

pin 33 and the lower end of the latch member is free to swing outwardly beyond the limit of the rod 17. The pivot pin 33 is carried by a fill plug 34 that fits inside of the hollow rod 17. The fill plug 34 may be anchored to the inside of the hollow rod 17 by means of a cross pin 35. To insure further safety, the fill plug 34 may also be welded to the hollow rod 17 at the places indicated by the reference character 36 as well as at other places which are accessible for welding. The lower end of the fill plug 34 is slotted to provide two legs 37 between which the upper end 31 of the latch member fits, and through which the pivot pin 33 extends. A spring 38 is employed to bias the latch member 30 outwardly beyond the limit of the rod 17.

The latch member 30 is actuated in opposition to the spring 38 by means of a handle 42 which is pivotally mounted upon a pivot pin 44 carried by a bracket 40 that is secured to the cylinder 10 by means of bolts 41. As shown in Figures 6 and 7, an arm 43 extends laterally of the handle 42, which arm 43 is adapted to press against the latch member 30 against the opposition of the spring 38. The Figure 7 shows the latch member in its latching position which illustrates the safety position of the safety leg. Preparatory to lowering the ram 11, the operator must move the lever 42 to the position shown in Figure 6 and in this position the arm 43 presses against the side edge of the latch member 30 and presses it inwardly of the recess 29 in the rod 17. With the latch member 30 pressed inwardly, the latch surface 51 on the lower end thereof clears the ledge 52 on top of the pipe support member 16, and thus the safety leg permits the ram 11 to be lowered. The latch member 30 slides within the hollow pipe support member 16 as the ram 11 is lowered. Upon raising the ram 11, the latch member 30 upon reaching the recess 29 snaps or swings outwardly against the end of the arm 23 and continued upper movement of the latch member 30 rotates the arm 43 counter-clockwise until the handle 42 passes bevond the vertical center of the pivot pin 44 and then the handle 42 continues to rotate further counter-clockwise until the rearward extension 46 hits the stop pin 45, which position is shown in Figure 7. The latch member 30 swings outwardly until the shoulder 50 on the lower end of the latch member engages the inside of the hollow rod 17. When the operator desires to lower the ram 11 he must operate the handle 42 in a clockwise direction until the arm 43 engages the top edge 47 of the bracket 40.

In operation, when the ram 11 is elevated by hydraulic pressure to its uppermost position, the latch member 30 does not actually engage the ledge 52 of the support member, which is the position shown in Figure 7. However, upon failure of the fluid power, and in the event that the ram 11 starts to descend, then the latch member 30 will prevent the ram from lowering, since the latch surface 51 will engage the ledge 52 of the support member as shown in Figure 10.

Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. In a lifting mechanism comprising a ram and a lifting structure carried by said ram, a rod arranged at one side of said ram and connected with said ram for vertical movement therewith, a support member having a ledge mounted alongside of said rod, a latch member having first and second end portions, means for pivotally mounting said first end portion to said rod with said second end portion arranged to swing to a latching position in the path of the ledge of said support member, spring means for urging said second end portion toward said latching position, and a control lever pivotally mounted on said support member and movable to first and second operating positions, pivot means for said control lever, first stop means to arrest pivotal movement of said control lever in said first position, second stop means to arrest pivotal movement of said control lever in said second position, said control lever having arm means which in said second position reacts against said pivot means and extending therefrom towards said latch member in substantially a perpendicular direction thereto for pressing said latch member to an unlatched position to clear the ledge of the support member and permit a downward movement of said latch member and rod relative to said ledge, said arm means remaining in said second position against the constraining force of said spring means urging said latch member thereagainst with substantially no torque transmitted to said control lever to return same to said first position, said latch member during upward movement of said rod engaging said arm means and returning the control lever to said first position, said control lever remaining in said first position with the arm means clearing said latch member and permitting same to swing to a latching position to engage the ledge of the support member.

2. In a lifting mechanism comprising a ram and a lifting structure carried by said ram, a rod arranged at one side of said ram and connected with said ram for vertical movement therewith, a support member comprising a hollow member surrounding said rod and having a ledge mounted alongside of said rod, said rod having a recess provided therein, a latch member having first and second end portions, means for pivotally mounting said first end portion to said rod in said recess with said second end portion arranged to swing outwardly of said recess to a latching position beyond the limits of said rod in the path of the ledge of said support member, spring means for urging said second end portion outwardly of said recess toward said latching position, and a control lever pivotally mounted on said support member and movable to first and second operating positions, pivot means for said control lever, first stop means to arrest pivotal movement of said control lever in said first position, second stop means to arrest pivotal movement of said control lever in said second position, said control lever having arm means which in said second position reacts against said pivot means and extends therefrom towards said latch member in substantially a perpendicular direction thereto for pressing said latch member inwardly of said recess to an unlatched position to clear the ledge of the support member and permit a downward movement of said latch member and rod relative to said ledge, said arm means remaining in said second position against the constraining force of said spring means urging said latch member thereagainst with substantially no torque transmitted to said control lever to return same to said first position,

said latch member during upward movement of said rod engaging said arm means and returning the control lever to said first position, said control lever remaining in said first position with the arm means clearing said latch member and permitting same to swing outwardly of said recess to a latching position to engage the ledge of the support member.

3. In a lifting mechanism comprising a ram and a lifting structure carried by said ram, a rod arranged at one side of said ram and connected with said ram for vertical movement therewith, a support member having a ledge mounted alongside of said rod, a latch member pivotally mounted to said rod and arranged to swing to a latching position in the path of the ledge of said support member, spring means for urging said latch member toward said latching position, and a control lever pivotally mounted on said support member and movable to first and second operating positions, pivot means for said control lever, first stop means to arrest pivotal movement of said control lever in said first position, second stop means to arrest pivotal movement of said control lever in said second position, said control lever having pressing means which in said second position reacts against said pivot means and extends therefrom towards said latch member in substantially a perpendicular direction thereto for pressing said latch member to an unlatched position to clear the ledge of the support member and permit a downward movement of said latch member and rod relative to said ledge, said pressing means remaining in said second position against the constraining force of said spring means urging said latch member thereagainst with substantially no torque transmitted to said control lever to return same to said first position, said latch member during upward movement of said rod engaging said pressing means and returning the control lever to said first position, said control lever remaining in said first position with the pressing means clearing said latch member and permitting same to swing to a latching position to engage the ledge of the support member.

4. In a lifting mechanism comprising a ram and a lifting structure carried by said ram, a rod

arranged at one side of said ram and connected with said ram for vertical movement therewith, a support member having a ledge mounted alongside of said rod, a latch member pivotally mounted to said rod and arranged to swing to a latching position in the path of the ledge of said support member, biasing means for urging said latch member toward said latching position, and a control lever pivotally mounted on said support member and movable to first and second operating positions, pivot means for said control lever, first stop means to arrest pivotal movement of said control lever in said second position, said control lever having pressing means which in said second position reacts against said pivot means and extends therefrom towards said latch member in substantially a perpendicular direction thereto for pressing said latch member to an unlatched position to clear the ledge of the support member and permit a downward movement of said latch member and rod relative to said ledge, said pressing means remaining in said second position against the constraining force of said spring means urging said latch member thereagainst with substantially no torque transmitted to said control lever to return same to said first position, said latch member and said pressing means having frictional engagement during the upward movement of said rod to return the control lever to said first position, said control lever remaining in said first position with the pressing means clearing said latch member and permitting same to swing outwardly of said recess to a latching position to engage the ledge of the support member.

JAMES J. PELOUCH.

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