Nov. 6, 1956 J. J. PELOUCH 2,769,508

FRAME CONTACT LIFT

Filed May 20, 1952

2 Sheets-Sheet 1

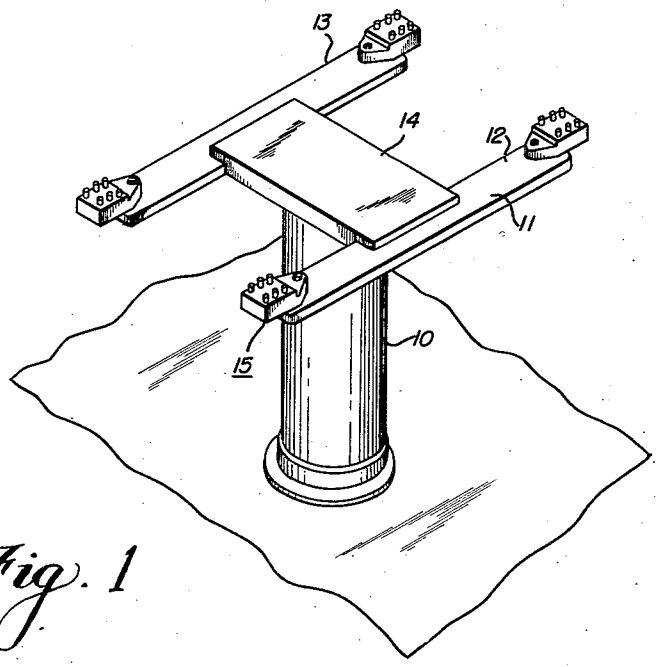


Fig. 1

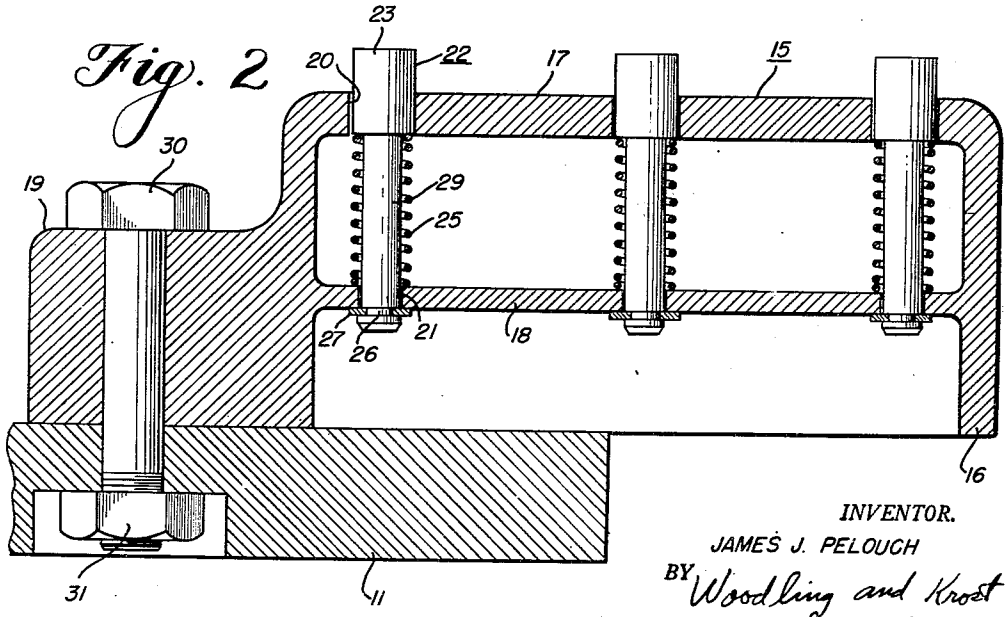


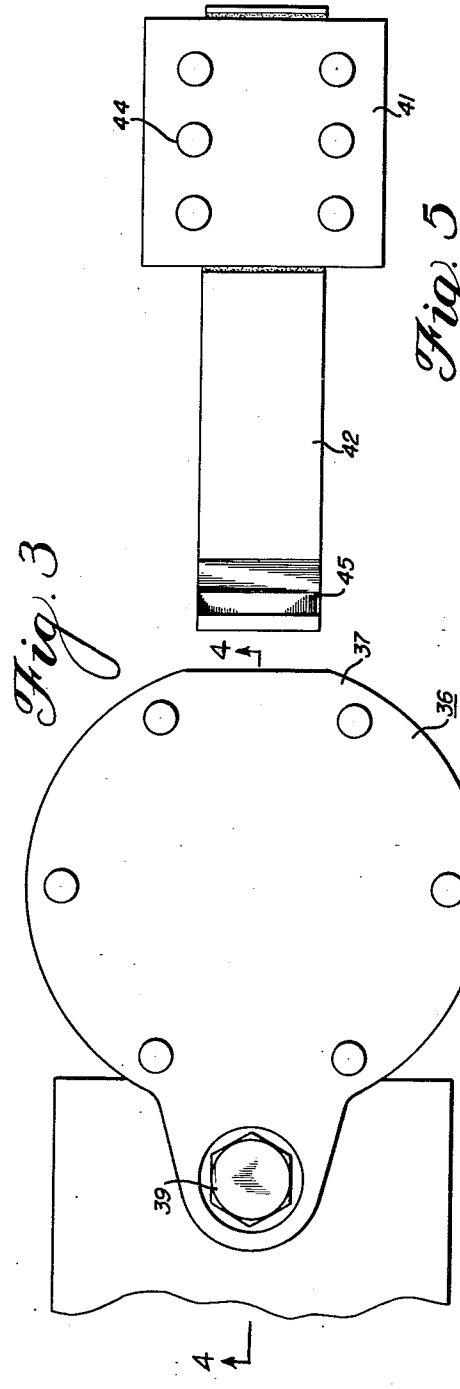
Fig. 2

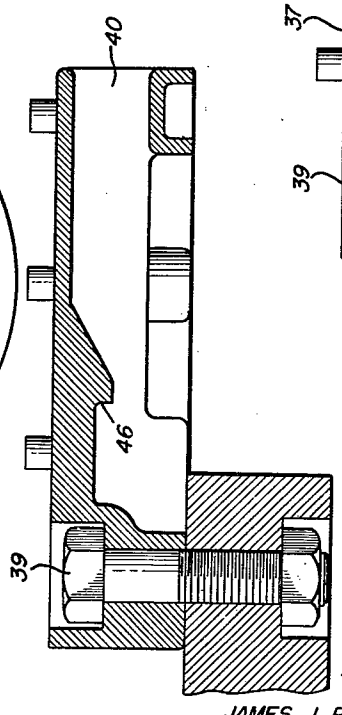
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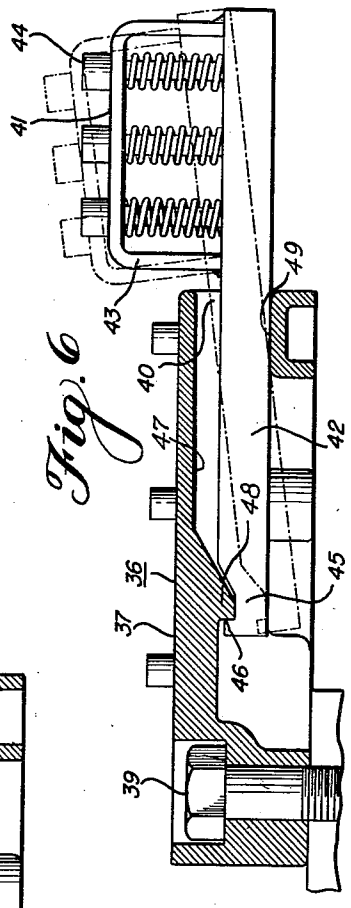
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FRAME CONTACT LIFT

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FRAME CONTACT LIFT

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4 Claims. (Cl. 187—8.75)

This invention relates to a vehicle lifting hoist construction, and relates especially to a hoist having the superstructure thereof adapted to contact only the frame of a vehicle rather than the axles thereof.

Vehicle hoists are made in several standard forms, the oldest and most common being a lifting post with two horizontal trough members upon which the wheels of the vehicle drive and rest. Such a hoist leaves the vehicle in exactly the same condition as when it rests upon the roadway.

Another type of hoist has two longitudinal rails closely spaced to extend between the wheels of the vehicle and contact the front and rear axles. Such a hoist allows the wheels to hang free, whereby the wheels may be removed for servicing of brakes and similar operations, but the suspension mechanism, including the springs of the vehicle, remain in exactly the same condition as when the vehicle is resting upon the roadway.

Recently, two-post lifts have been developed in order to leave the central area of the vehicle accessible to the operator for various repairing and service operations. However, these hoists also contact the axles of the vehicle and consequently the springs and associated parts remain substantially the same as when the vehicle is resting upon the roadway. A two-post lift has been developed wherein the two posts are side by side and have individual longitudinal rails. The rails are fixed with respect to the posts and cannot be adjusted for various types of frame structures. Accordingly, the rails have been provided with changeable blocks. A variety of such blocks must be kept on hand and installed upon the rails before the lift can be used on a particular vehicle. Failure to obtain the correct block could possibly result in damage to the vehicle.

Each of the foregoing types of lifts have specific uses, and the two-post lifts are especially useful for their intended purpose. However, the large majority of service stations, and the greasing department of the larger service stations, are interested mainly in providing a good lubrication job, and consequently the operator is interested in relaxing the springs and associated parts of the vehicle. In the past the operator has manually bounced the car upon the lift in order to work the grease well into the springs. More recently a supplementary jack has been provided which extends between the rails of the hoist and contacts the frame or differential housing in order to lift the weight of the vehicle off the springs. Such jacks are longitudinally shiftable along the rails, or removable therefrom by the operator. However, the use of a jack or manual bouncing of the vehicle produces, at best, only a fair substitute for the ideal condition of allowing the wheels and springs of the vehicle to hang completely relaxed. Many obstacles prevented the provision of a suitable lift to accomplish this ideal condition prior to the present invention.

Therefore, an object of this invention is to provide a vehicle hoist adapted to contact only the frame of a vehicle, or in other words to lift the vehicle without compressing the springs and associated parts of the vehicle.

Another object of this invention is to hoist an automobile in such a manner that the springs and wheels hang free without support from the hoist in order that the wheels will drop down with respect to the fenders of the automobile, or any fender accessories, and thereby be readily accessible without removing any of the fender members and for exposing otherwise unaccessible fittings.

Another object of this invention is to hoist a vehicle with the least interference to the servicing operator in gaining access to the operating parts of the vehicle.

Still another object of this invention is to provide a means for adapting a foreshortened vehicle hoist structure to service substantially all makes and models of vehicles.

Yet another object of this invention is to provide a vehicle hoist giving a greater supporting stability to a hoisted vehicle.

And another object of this invention is to provide a minimum sized structure which holds the vehicle securely.

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 drawings, in which:

Figure 1 is a perspective picture view of the improved vehicle hoist of this invention;

Figure 2 is a sectional view through a variable position pad of the swingable type for the improved hoist of this invention;

Figure 3 is a top plan view of an alternate type of variable position pad for holding a special purpose extension member;

Figure 4 is a sectional view along the line 4—4 of Figure 3;

Figure 5 is a top view of the extension member for use with the alternate type pad; and

Figure 6 is a view similar to Figure 4 with the extension member illustrated in dotted lines in the position necessary for insertion of the extension, and in full lines in the service position of the extension.

Referring now to the drawings, the reference character 10 indicates a lift post with a superstructure mounted thereon. The superstructure comprises a longitudinal rail 12 and a longitudinal rail 13 extending substantially parallel with respect to one another and carried by a cross arm 14. The cross arm 14 rests directly upon the lift post 10.

The longitudinal rails 12 and 13 of the illustrated lift are spaced further apart than the conventional lift adapted to contact the front and rear axles of a vehicle. The width of a superstructure is thus so great that if the length of the rails were as long as the conventional lift they would interfere with the wheel mounting structure of the vehicles mounted thereon. Accordingly, the lift is further modified from standard practice by having the longitudinal rails 12 and 13 shortened to the extent that they will not reach the distance between the front and rear axles of the average passenger vehicle. In other words, the rails are less than the average wheel base of present day motor cars.

The extra width provided by this construction contributes far greater safety and stability for the supported vehicle and substantially eliminates the possibility of the vehicle tipping sideways off of the lift as can happen in the conventional lift which contacts both the front and rear axles to lift the vehicle. This added safety of lateral stability for the vehicle is important both to prevent property damage and injury to persons working upon the hoisted vehicle.

In this invention, the vehicle is made laterally stable by the extra wide spacing of the longitudinal rails, and

is held securely upon the rails by a means of a plurality of variable positionable pads **15**. In the illustrated embodiment of the invention, four such pads are mounted on the four ends of the two longitudinal rails **12** and **13**. Each of the holding pads **15** comprises a frame **16**. In the Figure 2 of the drawings the frame is shown as comprising a top plate **17** and a bottom plate **18**, but the term frame is not to be considered as limiting the structure to a hollow structure as illustrated.

The frame **16** is provided with a base portion **19** to rest upon the top surface of the longitudinal rail. A pivot pin **30** extends through the base **19** and the longitudinal rail upon which the pad is mounted, and is held in place by a nut **31**. It is preferable that the nut **31** be locked against accidental disengagement from the pin **30**. Thus, the pad may swing about the pin **30** through a 360° path. The pad is illustrated as being pivoted from one end thereof, but of course can be a long pad pivoted in the center, if desired.

Although a pad having a solid contact face would be serviceable, the construction is improved by the provision of a plurality of holding pins **22** projecting upwardly from the surface of each pad. In each of the pads, holes **20** are provided through the top plate **17**, and holes **21** through the bottom plate **18**. The holding pins **19** are provided with enlarged head areas **23** and reduced shank pins **24**. The end of the shank **24** is provided with a circumferential groove **26**, and a lock clip **27** associated therewith in order to hold the pin **22** to a fixed maximum vertical projection out of the top plate **17**. A coil spring **25** is provided around the shank **24** in contact with the shoulder between the head **23** and the shank **24** and in contact with the surface of bottom plate **18**. Thus, the holding pins are urged upwardly through the holes **20** to the maximum distance permitted by the gauging lock clips **27**, but may be forced downwardly flush with the top surface of a plate **17** by an external force.

When a vehicle is being lifted, the holding pins **22** are urged upwardly against or on the side of parts of the vehicle. Thus, one holding pin may be depressed by the weight of the vehicle since a part thereof is immediately over the depressed holding pin and at the same time another of the holding pins may extend upwardly along side the same or another part of the vehicle. If a holding pin is depressed by a part of the vehicle and the vehicle moves slightly in any direction whereby that pin is released from said part, that pin will immediately snap upwardly along side of or next adjacent to that part. Many times this snapping of the pins upwardly makes noise whereby the operator of the hoist knows that the pins are in holding position. If a part of the vehicle resting on the upper pad has an opening or a depression therein, a pin may snap upwardly into or be positioned in such opening or depression. The holding pin or plunger **22** may be any projection or other upwardly movable member which may be extended upwardly from the engagement structure to prevent slippage or movement of the vehicle in any direction while it is resting on the vehicle engagement structure of the lifting hoist. With the vehicle hoists equipped with plungers or holding pins, the same as or similar to those illustrated or described in the present invention, there is little danger of the vehicle moving or sliding off the vehicle lift hoist. It is understood that many other vehicle hoists may be equipped with upwardly urged plungers which will prevent slipping of the vehicle and thus hold it safely.

The provision of the swingable pads **15** has made the hoist of this invention adaptable to practically all vehicles, and thereby has made a foreshortened and widened superstructure feasible for producing better lubrication and service operations with greater safety.

In Figures 3 through 6 of the drawings a modified form of the variable pads is illustrated. Reference character **36** refers generally to the modified form. The pad or body member **36** is illustrated in substantially circular

design, although such design is not essential for utility of the pad. The pad **36** comprises a frame structure **37** and a base **38** corresponding to the frame **16** and base **19** of the pad illustrated in Figures 1 and 2 of the drawings. A pin **39** is employed to pivotally mount the pad **36** on the superstructure, and corresponds to the pin **30** of Figure 2.

The internal structure of the pad **36** comprises a longitudinal socket **40**. An extension member or vehicle support **41**, as illustrated in Figures 5 and 6 of the drawings, is provided with an engagement arm **42** to extend into the socket **40** of the pad or body member **36**.

The extension member **41** consists essentially of the arm **42** and a secondary pad **43** mounted thereon. The secondary pad **43** may be provided, if desired, with a plurality of holding pins **44** corresponding to the holding pins **22** in Figure 2.

The arm **42** is provided with a hook end or element **45**, and the socket **40** of the pad **36** is provided with a downwardly extending projection **48** which constitutes or forms a downwardly facing shoulder element or mating latch wall portion **46**. The socket **40** has a top wall **47** from which the projection **48** extends and also has a support member **49** at a forward portion thereof. When the secondary pad **43** is in position an intermediate portion of the arm **42** engages the support member **49** which acts as a fulcrum therefor. Therefore, in the event that the pad **36** cannot be properly placed to reach the desired supporting portion of a vehicle, the extension member **41** may be inserted into the socket **40** by holding the arm **42** at an upwardly extending angle as illustrated by the dotted lines in Figure 6, and extended into the socket until the end **45** of the arm **42** has passed under the latch wall portion **46**. Thereafter, the arm **42** may be allowed to drop into contact with the lower portion of the socket **40**, and the hook end **45** will then engage the latch wall portion **46** to prevent unintentional withdrawal of the arm **42**. By the combination of the extra length provided by the arm **42** and the ability to pivot provided by the pin **39**, the secondary pad **43** may be employed to reach any frame width beyond the normal reach of the pad **36**.

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 nad 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 vehicle lift having a superstructure, said superstructure including a body member, said body member having a socket provided with a top wall and a support member spaced from said top wall, a vehicle support including an arm with a supporting pad on a first end thereof, a shoulder element and a hook element, means mounting one of said elements facing downwardly from said top wall, means mounting the other of said elements projecting upwardly on the second end of said arm, said arm extending into said socket and residing within said socket with an intermediate portion engaging said support member and said arm and top wall elements interengaging, said support member constituting a fulcrum for said vehicle support whereby a downward force on said supporting pad is resisted by the arm element engaging said top wall element, and surfaces in said socket defining sufficient space vertically below said top wall element to accommodate the maximum vertical dimension of said arm element whereby removal of said vehicle support is effected by lowering said arm element away from said top wall element and pulling said arm from said socket.

2. In a vehicle lift having a superstructure, said superstructure including a body member, said body member

having a socket provided with a top wall and a support member spaced from said top wall, a vehicle support including an arm with a supporting pad on a first end thereof, a shoulder element and a hook element, means mounting one of said elements facing downwardly from said top wall, means mounting the other of said elements projecting upwardly on the second end of said arm, said arm extending into said socket and residing within said socket with an intermediate portion engaging said support member and said arm and top wall elements interengaging, said support member constituting a fulcrum for said vehicle support whereby a downward force on said supporting pad is resisted by the arm element engaging said top wall element, surfaces in said socket defining sufficient space vertically below said top wall element to accommodate the maximum vertical dimension of said arm element whereby removal of said vehicle support is effected by lowering said arm element away from said top wall element and pulling said arm from said socket, a plurality of holding pins carried in said supporting pad, and means urging each pin independently in an upward direction against or beside the part of any vehicle resting on said supporting pad.

3. In a vehicle lift having a superstructure, said superstructure including a body member, said body member having a socket provided with a top wall and a support member spaced from said top wall, a vehicle support including an arm with a supporting pad on a first end thereof, a shoulder element and a hook element, means mounting one of said elements facing downwardly from said top wall, means mounting the other of said elements facing upwardly on the second end of said arm, said arm extending into said socket and residing within said socket with an intermediate portion engaging said support member and said arm and top wall elements interengaging, said support member constituting a fulcrum for said vehicle support whereby a downward force on said supporting pad is resisted by the arm element engaging said top wall element, surfaces in said socket defining sufficient space vertically below said top wall element to accommodate the maximum vertical dimension of said arm element whereby removal of said vehicle support is effected by lowering said arm element away from said top wall element and pulling said arm from said socket, a plurality of holding pins carried in said top wall element, means urging each pin independently in an upward direction against or beside the part of any vehicle resting on said top wall, a plurality of second holding pins carried in said supporting pad, and means urging each of said second pins independently in an upward direction against or beside the part of any vehicle resting on said supporting pad.

4. In a vehicle lift having a superstructure, said superstructure including a body member, said body member having a socket provided with a top wall having a downwardly extending projection member constituting a shoulder within said socket, a support member spaced from said top wall, a vehicle support including an arm and a supporting pad, said arm having an upwardly extending hook on one end thereof and said vehicle supporting pad on the other end thereof, said arm extending into said socket and residing within said socket with an intermediate portion engaging said support member and said hook engaging said shoulder, said support member constituting a fulcrum for said vehicle support whereby a downward force on said supporting pad is resisted by the hook of said arm engaging said projection member, surfaces in said socket defining sufficient space vertically below said projection member to accommodate the maximum vertical dimension of said hook of the arm whereby removal of said vehicle support is effected by lowering said hook of said arm away from said projection member and pulling said arm from said socket.

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