Nov. 6, 1956 J. J. PELOUCH 2,769,507

FRAME CONTACT LIFT

Filed July 10, 1953 3 Sheets-Sheet 1

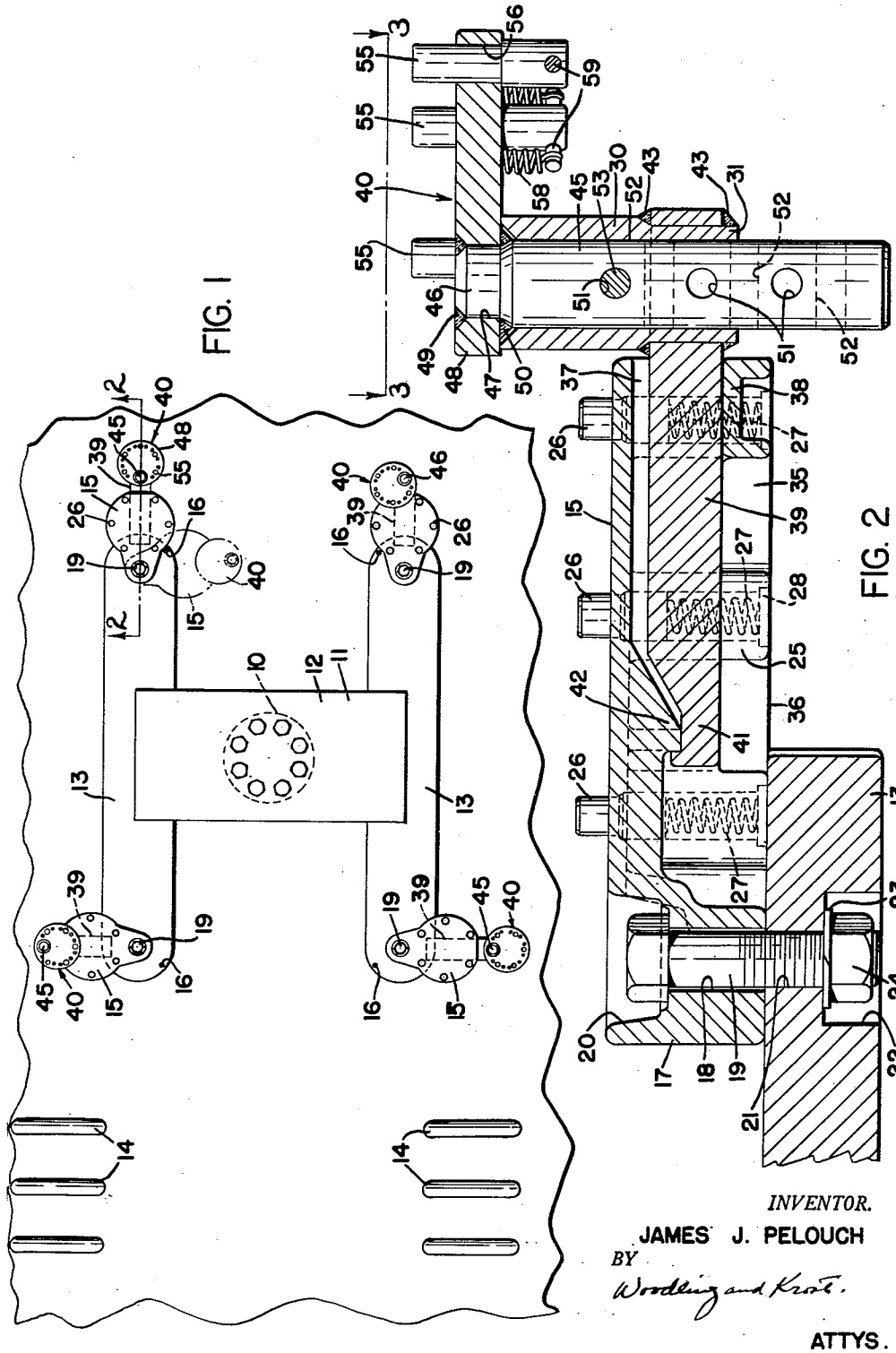


FIG. 1

FIG. 2

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Nov. 6, 1956 J. J. PELOUCH 2,769,507

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Filed July 10, 1953

3 Sheets-Sheet 2

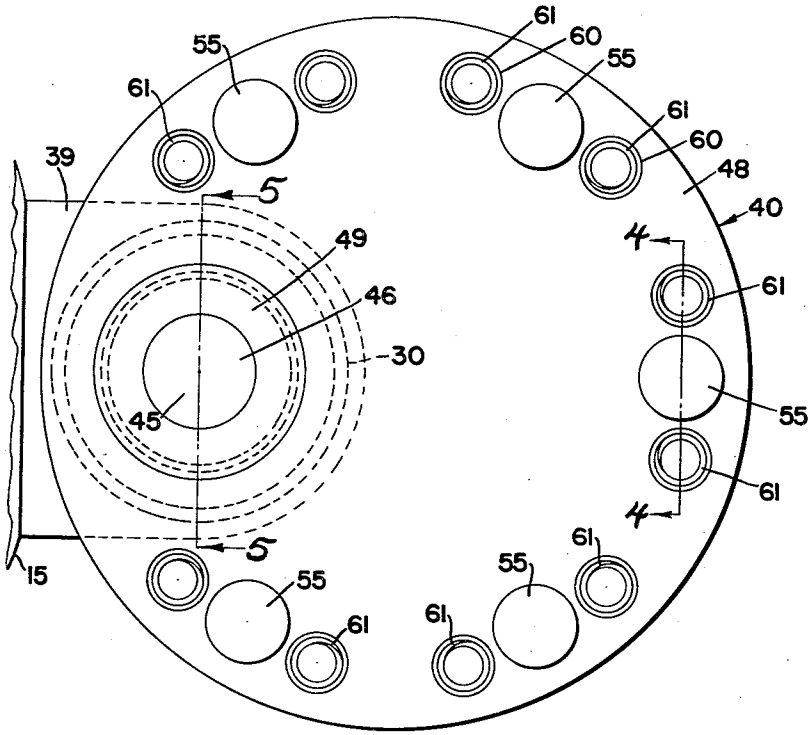


FIG. 3

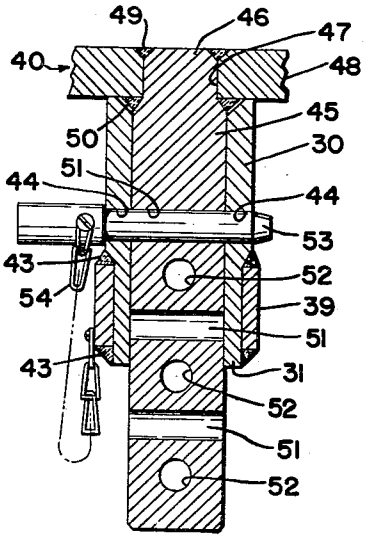
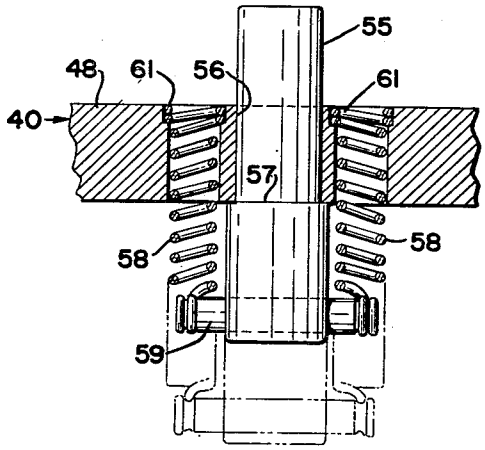


FIG. 5

FIG. 4



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Nov. 6, 1956 J. J. PELOUCH 2,769,507

FRAME CONTACT LIFT

Filed July 10, 1953 3 Sheets-Sheet 3

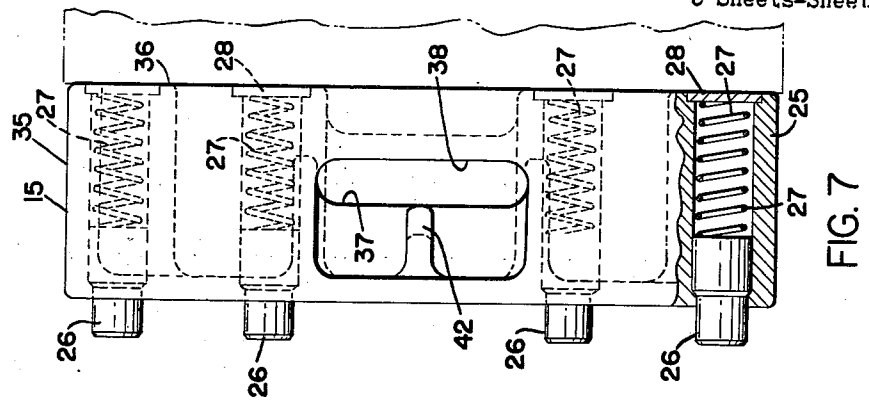


FIG. 7

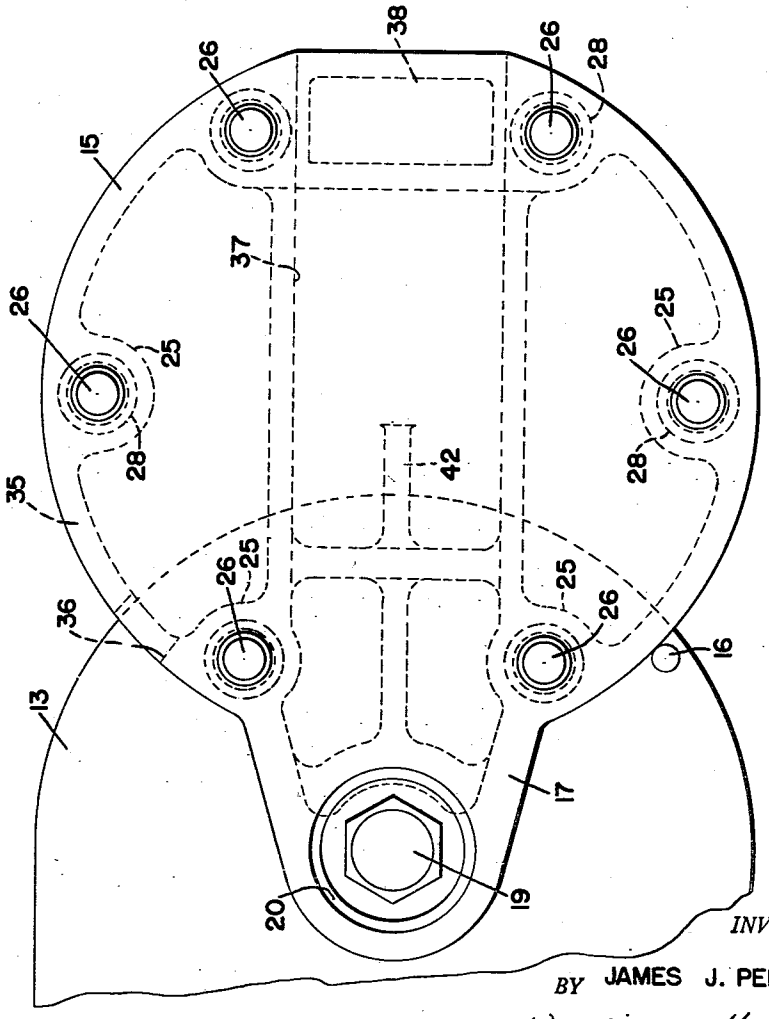


FIG. 6

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United States Patent Office 2,769,507 Patented Nov. 6, 1956

2,769,507

FRAME CONTACT LIFT

James J. Pelouch, Cleveland, Ohio, assignor to Farm Tools, Inc.

Application July 10, 1953, Serial No. 367,199

6 Claims. (Cl. 187—8.75)

This invention relates to vehicle lifting hoists of the kinds described in copending application, Serial No. 288,829, filed May 20, 1952, and U. S. Letters Patent 2,581,137.

An important object of the present invention is to improve the usefulness and performance of the foregoing structures by the provision of a variable position extension means by which the vehicle engaging and supporting structure carried by the superstructure can be arranged laterally or longitudinally beyond the normal reach of the superstructure and at various elevations relative thereto to be adaptable to the support of vehicles of all shapes and sizes of underpinning.

Another object is to provide simple and efficient means whereby the superstructure can be quickly adapted to the construction of the particular vehicle to be serviced, in order to cut the time the vehicle is out of service and to save the customer's waiting time, which are important factors in successful service station operations.

A further object is the provision of the vehicle engaging and supporting structures with a variable stepped construction which may be provided with means which are self-conforming to the shape of the underparts of a vehicle for preventing sideways movement of a vehicle supported thereon.

A still further object is the provision of a vehicle engaging and supporting structure provided with outwardly urged projections and a simplified structure for mounting these projections.

Other objects and advantages of the invention may become apparent during the course of the following description.

In the accompanying drawings forming a part of the description and wherein like numerals are employed to designate like parts throughout the several views:

Figure 1 is a top plan of a vehicle hoist arrangement embodying the invention and showing various positions of the vehicle engaging and supporting structure;

Figure 2 is an enlarged vertical section of one end of the vehicle engaging and supporting structure taken on the line 2—2 of Figure 1;

Figure 3 is a top plan of a detachable secondary extension pad viewing the same from line 3—3 of Figure 2;

Figure 4 is an enlarged fragmentary section of a part of the secondary extension pad taken on the line 4—4 of Figure 3;

Figure 5 is an enlarged fragmentary section of part of the secondary extension pad taken on the line 5—5 of Figure 3;

Figure 6 is an enlarged top plan of the primary extension pad; and

Figure 7 is an end elevation of the same.

Referring now particularly to the drawing, wherein a preferred embodiment of the invention is shown for the purposes of illustration and not for limitation, a lifting structure here shown as a single air-hydraulic lift post 10 is mounted in a garage floor to be moved vertically thereof in the usual manner to raise and lower a vehicle

for repairs, greasing and/or lubrication, as is well understood. A superstructure or platform 11 is rigidly connected to the upper end of this post 10 and is composed of a horizontal saddle plate rigidly mounted on the upper end of the post, and the ends of this saddle plate are rigidly connected with the medial portions of a pair of horizontal elongated side rails 13 arranged in special parallel relation to one another. The saddle and rails form an H-shaped platform or superstructure as set forth in copending application Serial No. 288,829, and the rails are considerably shorter than the usual wheel supporting side rails of former hoists or lifts, in order that vehicle engaging and supporting structures will, in most cases, engage and support the vehicle from parts other than the wheels or axles, and such as the vehicle frame and chassis parts, so that the wheels hang unsupported for more convenient lubrication and repairs. However, it is not intended to restrict the use of the device to the engagement of such vehicle parts, as it is capable of extension to engage any parts of the vehicle which may be desired. In order to accurately position a vehicle upon the hoist in a position where the vehicle engaging parts of the hoist are approximately beneath the parts to be engaged and supported, the floor of the garage is provided with a series of markers or vertical parallel raised ribs 14 arranged transversely in the wheel tracking of a vehicle driven toward the lowered superstructure for elevation of the vehicle. The individual members 14 of each series may be spaced such calculated distances apart so as to indicate where various makes and models are to be stopped to dispose their underpinnings in the approximate positions to be engaged by the parts of the vehicle engaging and supporting structure when the superstructure is elevated by raising the post 10. The post forms part of the lifting structure; and the side rails constitute the superstructure.

On the longitudinal center line of each side rail and at each end thereof, or at each corner of the superstructure, is pivoted a variable extension vehicle engaging and supporting structure in the form of a circular primary pad or platform structure 15, which is adjustable horizontally in an arcuate path through approximately 347 degrees, preferably coming to stop against a stop pin 16 of the rail in either direction of its movement to stop the pad in either position shown in dotted or in full lines in the upper right hand corner of Figure 1. These pads 14 may be swung either clockwise or counterclockwise to be disposed in any position between these two extremes to engage with the underparts of any vehicle, as shown at the left hand ends of the side rails 13 in Figure 1.

Each of these primary extension pads 15, as best shown in Figures 2, 6 and 7, is preferably composed of a casing having an integral lateral extension 17, which is thickened at its outer end and is provided with a vertical bolt opening 18 for the reception of a bolt 19. This bolt has a head disposed in a countersunk recess in the top of the extension. The lower end of the bolt is threaded into an opening 21 near the end of the side rail 13 and is disposed in a countersunk recess 22 in which a lock washer 23 is disposed on the bolt with a nut 24 holding it in place within the recess as shown. To assemble each pad on its respective side rail, a bolt 19 is dropped through the aperture 18 and threaded through the rail until tight, then is backed off a partial turn to allow the pad freedom of swinging movement, after which the lock washer and nut are placed on the bolt.

The lower face of each pad 15 and extension 17 are parallel with the upper surface of its respective side rail so as to have a firm bearing contact thereon in any of its angular adjusted positions with respect to the rail.

Each pad **15** is provided with a series of circumferentially arranged, equally spaced and radially enlarged vertical bearings **25**. Each bearing **25** slidably mounts a pin or projection **26**. The projections or pins **26** may be projected above the top surface of the pad **15** by any suitable means which will permit them to be forced inwardly of the pad by a vehicle part resting upon the same, whereby the vehicle part will be supported upon the pad, and those pins which are not engaged by a vehicle part will be left projected to extend between and alongside of other vehicle underparts to prevent accidental movement of the vehicle relative to the superstructure. In this instance, each pin **26** is provided with an enlarged inner end sliding in the bearing **25** to limit outward projection of the pin caused by a coiled spring **27** placed in the bearing for urging the pin upward. A removable closure member **28** closes the lower end of the bearing and supports the spring therein.

Each pad **15** is provided with a depending circular skirt or flange **35** integrally merged into the bearings **25**, and the lower edge **36** of the skirt is adapted to ride upon the top surface of its respective side rail **13**. This skirt may continue around projection **17** and is provided with a vertical slot **36** extending from its lower edge near the projection to permit passage of the stop pin **16** in order to increase the swinging movement of the pad to **347** degrees and enable the pad **15** to swing further inwardly and laterally of the side rail to be disposed more nearly at right angles thereto. Each pad **15**, at a point diametrically opposite the projection **17** is provided with an internal socket **37** extending diametrically toward the projection **17**. The outer end of this socket is provided with a horizontal wall portion **38**, which in effect forms a fulcrum point for a supporting bar **39** of a detachable secondary vehicle engaging and supporting pad or platform structure **40**. The innermost end of the bar **39** is provided with a hook formation **41** adapted to interlock with a depending latch lug **42** formed integrally on the interior of the primary pad **15** to extend into the socket **37** as best seen in Figure 2.

This secondary pad or vehicle engaging and supporting structure **40** is adapted to be used in conjunction with one or more of the primary pads **15** to afford additional lengthwise reach and/or elevation to the pads **15** to adapt the vehicle engaging and supporting structure to makes and models of vehicles having underparts which would not be properly engaged and supported by the primary pads **15**. In some cases, both primary and secondary pads can be employed conjointly to simultaneously engage and support the underparts of a vehicle, and when the added longitudinal extension and/or elevation is not necessary as afforded by the secondary pads, they may be disconnected from the primary pads and stored until their use becomes necessary. This secondary pad structure is mounted upon the free end of the bar **39** by providing a vertical bearing or sleeve **30** having a reduced end **31** extending through an opening in the outer end of the bar **39** and welded as at **43** thereto. This bearing **30** has its upper end disposed a substantial distance above the top surface of its primary pad **15** to give requisite elevation to the secondary pad **40**. The bearing **30** is also provided with a pair of diametrically disposed apertures **44** for a purpose which will presently appear. Vertically adjustable in this bearing **30** is an elongated vertical shaft or stud **45** having a reduced upper end **46** for passage through an opening **47** arranged eccentrically in a circular pad plate **48**. This reduced upper end of the shaft **46** is welded securely to the edges of the opening of the pad plate **48** as indicated at **49** and **50**. When the pad plate **48** is in its lowermost position, its undersurface engages the upper end of the bearing **30** as shown in Figure 2. In order that the secondary pad plate **40** can be locked at various elevations above the primary pad **15**, the shaft or stud **45** is provided with a series of vertically spaced transverse openings **51**. Alternate openings **52** extend through the shaft **45** at right angles to the openings **51** in order that the secondary pad plate **48** may be locked at right angular positions about the axis of the shaft **45**, and at different elevations by extending a locking pin **53** through the openings **44** in the bearing and any one of the openings **51** or **52** which are brought into registration therewith. In order that the pin **53** will always be handy for use, it is connected by a chain **54** to the bar **39** or bearing **30**. Since the secondary pad plate **48** is secured off-center or eccentrically to the upper end of the shaft **45**, and the latter is rotatably mounted in the bearing **30**, this secondary pad can be rotated with the shaft **45** through 360 degrees to be arranged in longitudinal alignment with the primary pad **15**, to overlap the same, or to be extended laterally or longitudinally beyond the same to be adaptable to whatever arrangement of underparts of a vehicle as may be encountered.

The secondary vehicle engaging and supporting pads or platforms **40** are each provided with a series of pins or projections **55** which are normally projected above the upper surface of the pad as best seen in Figures 2, 3 and 4 to engage with and be disposed alongside of the underparts of a vehicle to prevent it from moving or sliding relative to the lift. This series of projections is arranged in a circle near the outer edge of the pad and are spaced apart equidistantly and are slidable in openings **56** extending vertically through the plate **48**. Upward projection of each pin is limited by providing the pin with a shoulder **57** adapted to engage with the underside of the plate **48**. The projection and shoulder are normally held projected upwardly to the extent of their movement by a pair of coiled springs **58** which have their upper ends secured to the plate **48** and their lower ends connected to opposite ends of a pin **59** extending transversely through the lower end of the pin **55**. For securing the upper ends of these springs to the pad plate **48**, the latter is provided with vertical openings at diametrically opposite sides of each projection **55**, and the upper ends of these openings are enlarged to form seats for the enlarged upper ends **61** of the coil springs **58**. Thus, a pair of coil springs **58** normally urges each projection **55** upwardly to extend above the top surface of the pad plate **48** and is limited in its upward movement by the shoulder **57** engaging the underside of this plate. When the vehicle underparts rest upon any one or more of the projections **55**, they are depressed against the tension of the coil springs **58** which hold the projections firmly against such parts of the vehicle. Those projections **55** not depressed by vehicle parts resting thereon remain in their outwardly projected positions to be arranged between and alongside of other vehicle parts to prevent accidental shifting movement of the vehicle on the lift.

From the foregoing description, it will be observed that the primary and secondary pads may be employed separately or conjointly to engage and support the vehicle at the ends of the two side rails; the secondary pads **40** being utilized when it is desired to extend the effective length or width of the side rails or whenever it is desirable to support the vehicle upon the superstructure at various elevations or to fit against and support underparts of a vehicle which do not extend down far enough to be engaged or supported by the primary vehicle engaging and supporting pads **15**. It will also be apparent that the secondary pads **40** may be adjusted to various elevations above the primary pads by inserting the locking pin **53** through registered openings in the shaft and bearing **30**, and that when this locking pin is removed, the secondary pads **40** may be swung about the axes of the bearings **30** to overlap the primary pads, or be extended laterally and/or longitudinally therebeyond. The primary pads **15** may also be swung about their pivots **19** to be disposed laterally and longitudinally beyond the side rails **13** of the superstructure. Thus, when the two pads or platforms at each corner of the superstructure are used conjointly, the vehicle engaging and supporting structures embody two supporting surfaces arranged at different elevations and these can be individually swung about their individual axes to provide

the vehicle engaging and supporting structure with supporting surfaces which have substantially universal movements to adapt them to any arrangement or shape of vehicle underparts which may be encountered in practice. Whenever a vehicle is encountered which does not require the extra elevation or extension provided by the secondary pads 40, they may be disconnected from the primary pads by simply tilting the bars 39 on the fulcrum portions 38 to unhook the portions 41 and 42 after which the bar and secondary pad can be readily slid out of the primary pad and stored for subsequent use.

From the foregoing description, it will be apparent that various changes in size, construction and relationship of parts may be varied without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A vehicle hoist having lifting means, a superstructure carried by said lifting means, and variable extension means carried by said superstructure and including a primary vehicle engaging and supporting pad connected on a vertical axis at one end portion thereof to said superstructure, and a secondary vehicle engaging and supporting structure connected on a pivot shaft to said primary pad at another end portion thereof and having a horizontal vehicle engaging and supporting pad mounted at one end on said pivot shaft and extendable beyond said primary vehicle engaging and supporting pad, and means including said pivot shaft for varying the vertical distance between said primary and secondary vehicle engaging and supporting structures, and for adjustably securing the second pad in different angular positions.

2. A vehicle hoist having lifting means, variable position extension means carried thereby and comprising a primary vehicle supporting structure pivotally movable about a vertical axis on said lifting means for movement of the free end of said primary vehicle supporting structure in a horizontal plane beyond an end and the sides of said lifting means, a secondary vehicle supporting structure mounted near the free end of said primary vehicle supporting structure on a vertical pivot for movement with said primary vehicle supporting structure and independently in a horizontal plane to positions overhanging said primary vehicle supporting structure and to positions beyond the sides and end thereof to vary the longitudinal reach of said primary vehicle lifting structure, and means including said vertical pivot to vary the elevation of said secondary structure, and a plurality of projections spring projected vertically from said primary and secondary vehicle lifting structures.

3. A vehicle hoist having lifting means with a vehicle engagement structure carried thereby, a plurality of variable extension means carried by said structure to engage and support a vehicle, each of said extension means including first and second vehicle supporting platform structures, said first vehicle supporting platform structure including a primary pad movable about a first axis on said vehicle engaging structure for extension beyond an end and the sides of the latter and including a socket extending longitudinally thereof, said second platform structure including a bar positionable in said socket, said bar having a vertical bearing, said second platform structure further including a shaft mounted in said vertical bearing for oscillation therein, and a secondary pad carried by said shaft and disposed eccentrically thereof for extension beyond the end and sides of said first platform structure upon turning of said shaft.

4. A vehicle hoist having lifting means with a vehicle superstructure carried thereby, variable extension means carried by said superstructure to support a vehicle, said variable extension means including first and second vehicle supporting platform structures, said first vehicle supporting platform structure including a primary pad movable about a first axis on said superstructure for extension beyond the limits of the latter and including a socket therein, said second platform structure including a bar positionable in said socket, said bar having a vertical bearing member, said second platform structure further including a shaft mounted in said bearing member for turning movement therein, and a secondary pad carried by said shaft for extension beyond the limits of the primary pad upon turning movement of said shaft.

5. A vehicle hoist having lifting means with a vehicle superstructure carried thereby, variable extension means carried by said superstructure to support a vehicle, said variable extension means including first and second vehicle supporting platform structures, said first vehicle supporting platform structure including a primary pad movable about a first axis on said superstructure for extension beyond the limits of the latter and including a socket therein, said second platform structure including a bar positionable in said socket, said bar having a vertical bearing member, said second platform structure further including a shaft mounted in said bearing member for turning movement therein, a secondary pad carried by said shaft for extension beyond the limits of the primary pad upon turning movement of said shaft, and means including said bearing member and said shaft for adjusting the vertical distance between said primary and said secondary pad.

6. A vehicle hoist having lifting means, a superstructure carried by said lifting means, and variable extension means carried by said superstructure and including a primary vehicle engaging and supporting structure, a first pivot shaft connecting said primary vehicle engaging and supporting structure to said superstructure, a secondary vehicle engaging and supporting structure including a vertical bearing element carried by said primary vehicle engaging and supporting structure, a vertical shaft element mounted in said bearing element and adjustable vertically thereof, one of said elements having transverse openings at various radial angles and elevations to register with an opening in said other element, means adapted to enter said registering openings to lock said shaft at various elevations and at various radial angles relative to said bearing element.

References Cited in the file of this patent

UNITED STATES PATENTS

895,834	Aungst	Aug. 11, 1908
978,026	Jaenichen	Dec. 6, 1910
1,105,438	Illenberger	July 28, 1914
2,229,113	Mizer	Jan. 21, 1941
2,458,986	Frey	Jan. 11, 1949
2,552,974	Johnson	May 15, 1951
2,581,137	Pelouch	Jan. 1, 1952
2,593,635	Walker	Apr. 22, 1952
2,612,355	Thompson	Sept. 30, 1952

FOREIGN PATENTS

497,847	Belgium	Dec. 16, 1950