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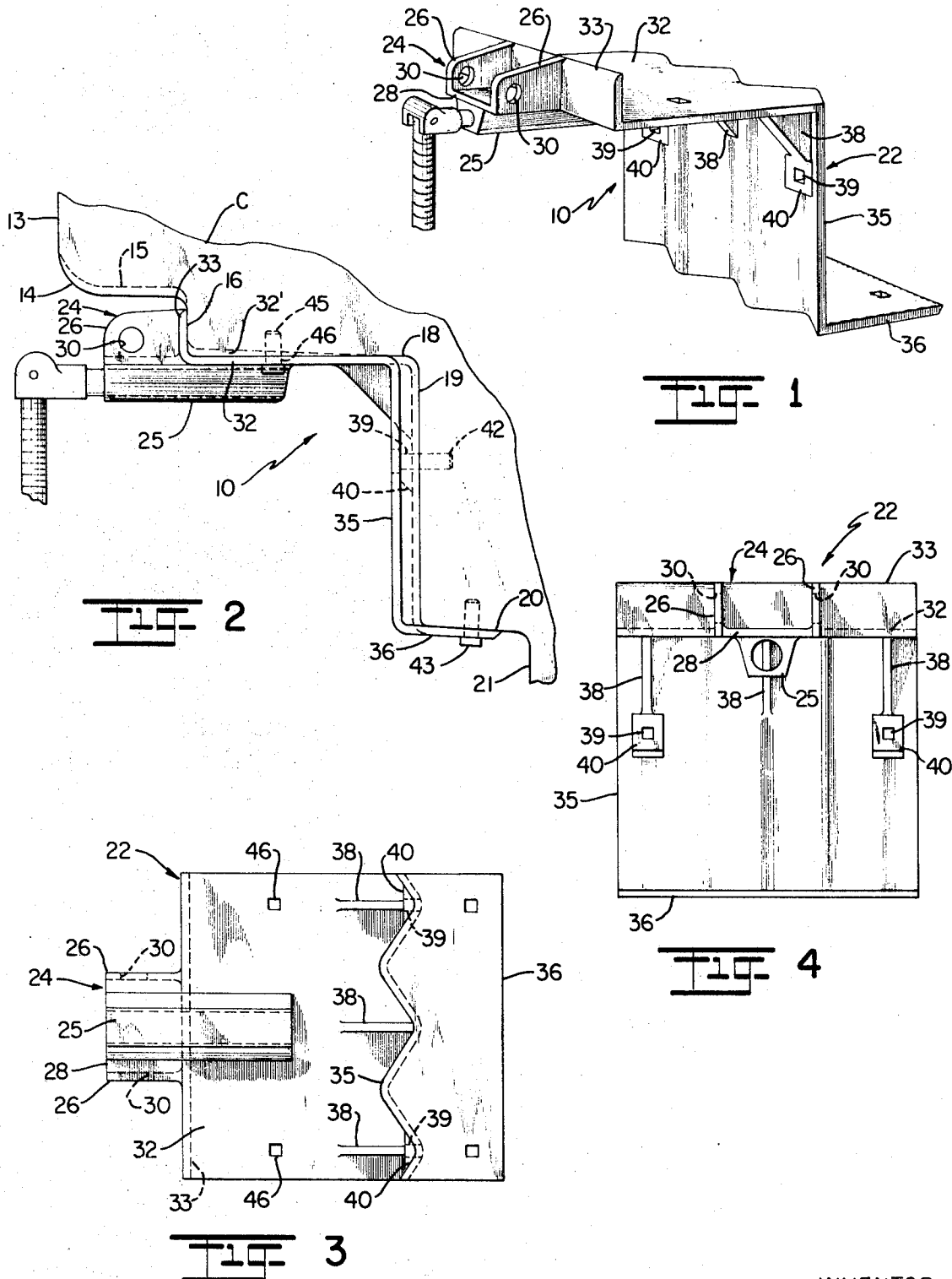
R. S. STEELE

3,567,182

LIFT BRACKET ASSEMBLY FOR CAMPERS

Filed Feb. 28, 1968

2 Sheets-Sheet 1



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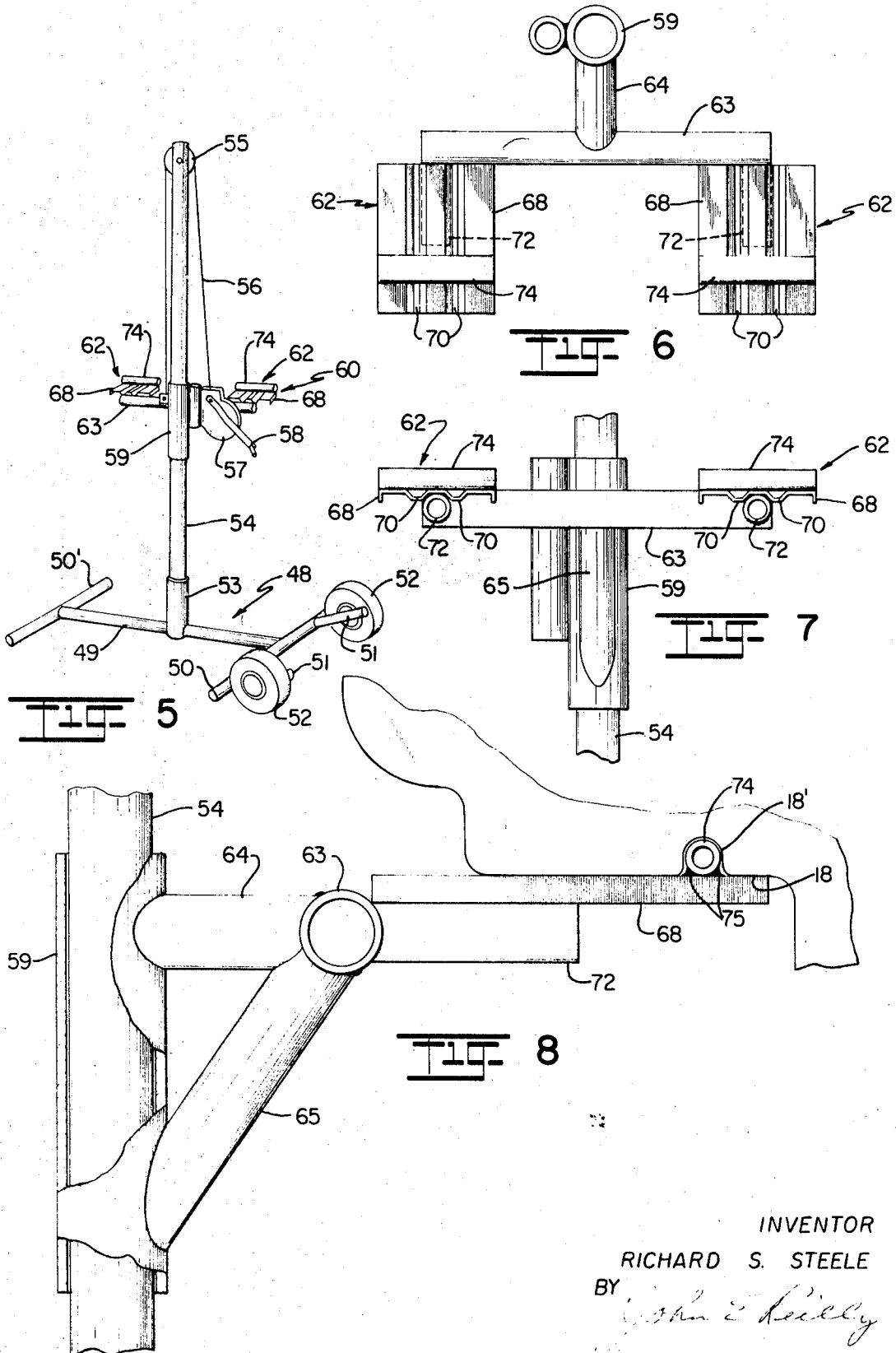
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1

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LIFT BRACKET ASSEMBLY FOR CAMPERS

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5 Claims

ABSTRACT OF THE DISCLOSURE

In a camper jack assembly, permanent brackets or braces are secured in load balanced relation to opposite sides of the camper in such a way as to reinforce the camper body in lifting and lowering the camper onto and from a truck bed. The permanent brackets are adapted to be engaged by conventional jacks for direct lifting, or to work in cooperation with spaced temporary brackets forming part of a separate jack assembly in which the temporary brackets straddle the permanent brackets and the camper body is once again reinforced by the permanent brackets in lifting and lowering the camper.

This invention relates to novel and improved jack assemblies; and more particularly relates to an improved form of bracket being adaptable for lifting and lowering campers, trailers and the like either by means of conventional jack assemblies in direct engagement with the brackets or in cooperation with auxiliary brackets forming a part of a separate jack assembly.

In the installation and removal of camper bodies it is desirable from the standpoint of economy and convenience to be able to lift and lower the camper at the least number of points. For example, in Patent No. 3,314,655, entitled "Lift Jack Assembly for Campers and the Like," lifting is accomplished by sets of three jack assemblies with two stationed along one side of the camper and a single jack stationed on the opposite side in load-balanced relation. According to the invention expressed in the patent, the jack assemblies may be alternately lifted or lowered by a single person.

In the design and construction of campers, the trend has been to increase the size and capacity of the campers without unduly increasing their unladen weight. As a result, it is becoming increasingly difficult to lift and lower campers merely with a set of three or four jack assemblies because of localized stresses and strains developed at each lift point and particularly because of the load concentration along the outer lift surfaces or wings of the camper body. Ordinarily, the load-engaging bracket is mounted at the upper extremity of each jack and is either removably or permanently connected to the lift surface wings on opposite sides of the camper. Very often, the weight of the camper is such that in lifting the bracket will deform and greatly weaken the lift surfaces and walls of the camper because of undue load concentrations. In the past, to overcome this, various lift assemblies have been devised in order to more evenly distribute the load, but have been found to be relatively expensive, cumbersome and difficult to use in practice, and also have presented difficulties in storing either outside or inside of the camper when not in use.

In order to overcome the foregoing disadvantages and difficulties, there has been devised in accordance with the present invention a vastly improved form of bracket which may be either permanently or removably attached to the raised, horizontal and vertical side-supporting surfaces of a camper body in such a way as to reinforce the side-supporting surfaces, to more evenly and widely distribute the load, and further to transmit a portion of

2

the load away from the primary lift surfaces. An additional feature of the present invention is to so design the bracket as to permit interchangeable use in association with different forms of conventional jack devices which can be conveniently stored along the outside of the camper; and further to permit its use in cooperation with a special form of portable jack assembly provided with spaced-apart auxiliary brackets movable into load-supporting, straddling relation to the permanent bracket such that a portion of the load is transmitted to and absorbed by the permanent brackets. In this relation, the auxiliary bracket members are so designed as to permit secure engagement with the lift-supporting surfaces on the camper without necessitating direct or positive connection thereto and therefore can be easily moved into and away from engagement with the camper; and further may be used either individually or in cooperation with the permanent brackets for lifting and lowering the camper body.

It is therefore an object of the present invention to effect lifting and lowering of camper bodies and the like in load-balanced relation at the least number of lifting points on the camper without development of localized stresses resulting from heavy load concentrations at the lifting points; further, to accomplish the foregoing by means of a novel and improved bracket which may be permanently attached to the camper body at the lifting points and in such a way as not to interfere with placement of the camper on a truck bed.

It is another object of the present invention to provide for novel and improved load-engaging means adapted to be secured at selected points on a camper body to facilitate lifting and lowering of the camper by means of a jack assembly and wherein said means are so constructed and arranged as to be readily conformable for mounting on different types and sizes of campers and which in use will serve to reinforce the camper body at the lifting points and to transmit at least a portion of the load away from the lifting points.

It is a further object of the present invention to provide for a novel and improved bracket being adapted for attachment to the lift supporting surfaces of a camper body for use either individually with conventional jack devices or in cooperation with auxiliary brackets on a portable jack device to effect lifting and lowering of a camper body in a dependable and highly effective manner.

It is a still further object of the present invention to provide for a novel and improved jack assembly provided with load-engaging means being adapted for use in lifting and lowering camper bodies of the type having ribbed or channeled lift-supporting surfaces wherein the load-engaging means is movable into firm, non-slipping, load-engaging relation to the lift-supporting surface at different selected points on the camper body to effect lifting and lowering of the body in load-balanced relation.

In accordance with the present invention, a novel and improved lift bracket assembly has been devised and being specifically adaptable for use in lifting and lowering a camper body onto and from a truck bed. In particular, the lift bracket assembly is characterized by having angle brackets defined by rigidly interconnected vertical and horizontal flange portions adapted for permanent attachment to intersecting horizontal and vertical wall surfaces disposed in inwardly stepped relation along opposite sides of the camper body. In each angle bracket, the angle formed between the horizontal and vertical flange portions is slightly less than the angle formed between the horizontal and vertical wall surfaces so that when the vertical flange is attached to the vertical wall surface the horizontal flange is spaced from the horizontal wall surface of the camper; and further, the horizontal

3

flange is provided with a lift jack-receiving portion so that when engaged by a lift jack unit in lifting and lowering a camper body the weight of the camper body will cause outward displacement of the vertical wall surface with the vertical flange to a degree sufficient to permit the horizontal flange to be displaced into load-bearing relation against the horizontal wall surface. In this way, the vertical wall surface is prestressed to bear a portion of the load transmitted through the brackets and to minimize distortion or bending of the horizontal wall surface. Furthermore the bracket may include an inwardly directed horizontal continuation at the lower end of the vertical flange to bear against a lower horizontal wall surface and to further reinforce and more uniformly distribute the load. Additionally, a compact, portable jack apparatus may be utilized in combination with the permanent angle brackets described in lifting and lowering the camper body, and the portable jack apparatus having spaced auxiliary brackets movable into engagement with a horizontal lift surface of the camper with each of the spaced brackets straddling one of the angle brackets. The spaced brackets are provided with retention members insertable in a longitudinal groove in the lift supporting surface as a temporary means of engagement and to prevent accidental slipping or shifting of the brackets with respect to the lift surface. In this relation the portable jack apparatus may be used either in cooperation with the permanent angle brackets or independently thereof to accomplish installation and removal of the camper body.

The above and other objects, advantages and features of the present invention will become more readily understood and appreciated from a consideration of the following detailed description of preferred and alternate forms of the present invention when taken together with the accompanying drawings, in which:

FIG. 1 is a perspective view of a preferred form of permanent lift bracket in accordance with the present invention.

FIG. 2 is a side elevational view of the preferred form of lift bracket in attached relation to a side of a camper body.

FIG. 3 is a bottom plan view of the preferred form of lift bracket.

FIG. 4 is a front elevational view of the preferred form of lift bracket.

FIG. 5 is a perspective view of a preferred form of portable lift jack assembly adapted for use in cooperation with the permanent lift fixture shown in FIGS. 1 to 4.

FIG. 6 is a top plan view in detail of the spaced bracket assembly forming a part of the portable lift jack of FIG. 5.

FIG. 7 is a front elevational view of the bracket assembly shown in FIGS. 5 and 6; and

FIG. 8 is a side elevational view, enlarged, illustrating the portable lift jack assembly of FIG. 5 in lift-supporting relation to one side of a camper.

Referring in more detail to the drawings, there is shown by way of illustrative example in FIGS. 1 to 4 a preferred form of lift bracket assembly 10 which, as best seen from FIG. 2, is adapted for attachment to the underside of a camper body C. In the preferred form, the camper body C is shown as having an outer vertical sidewall 13 terminating at its lower end in a series of inwardly stepped wall surfaces being dimensioned to conform to the bed of a pickup truck. For the purpose of illustration, the portion of camper body shown is the Gold Line camper manufactured by Coons Custom Manufacturing, Inc. of Oswego, Kans. The Gold Line camper is composed of a tough, outer plastic molded skin which is shaped to more closely conform to the pickup bed of a truck, specifically the Ford Model F-250 and F-250 Camper Special trucks. To this end, the outer sidewall 13 has a lower bevelled edge 14 curving into a ribbed undersurface 15 of limited extent, and the undersurface 15 in turn curves downward-

4

ly and gradually into a vertical wall 16 which with the under-surface 15 forms a limited clearance space along the outside lower edge of the camper body. Vertical wall 16 continues into a relatively wide, horizontal lift surface 18, the latter intersecting with a ribbed or convoluted vertical wall surface 19; and at the lower edge of the wall surface 19 a lower horizontal wall surface 20 and an inner wall surface 21 are stepped inwardly therefrom. The lift surface 18 is raised to allow clearance for positioning of the camper body on one side of the pickup bed and the lower wall surface 20 is adapted to fit over the tire well on the side of the truck bed. The outer raised surfaces 15 and 16 form limited clearance spaces on opposite sides of the camper to facilitate mounting and storage of the camper jack assemblies without interfering with installation and placement of the camper body on the truck. Of course the camper body as described is given more as environment for the present invention, and it is to be understood that the forms of bracket assemblies hereinafter described have useful application to various sizes and forms of campers and like vehicle bodies.

Typically, a series of camper jack units are disposed in spaced, load-balanced relation along opposite sides of the camper body for the purpose of lifting and lowering the body for installation on and removal from a pickup truck. For example, a set of three lift jack units may be positioned in load-balanced relation to the body with a pair of jack units disposed in spaced relation to one another and adjacent to opposite ends of one side of the camper body and a single jack unit being located intermediately between the ends of the lighter side of the body, all as set forth and described in more detail in copending application for patent Ser. No. 572,591, filed Aug. 15, 1966 and entitled "Lift Jack Apparatus"; or a set of four lift jack units may be utilized, each unit being stationed at a corner of the camper body. In said application Ser. No. 572,591 there is described preferred and alternate forms of camper jacks, each jack unit being essentially comprised of a collapsible tripod serving as a base support for a screw jack assembly having an upper load-engaging end portion for removable connection to a lift bracket which is attached to a lift surface on the camper body, and the jack unit as described is representative of a number of commercially available camper jacks designed for installation and removal of camper bodies.

Because of the increasing sizes and capacities of modern day campers, such as, the Gold Line camper described, and the desirability and convenience of lifting and otherwise supporting the camper at the least number of points it is important that the lift bracket employed to effect engagement between each jack unit and the camper body be capable of distributing the weight or load of the camper over the widest possible area; and further, to be capable of avoiding undue localized stresses and load concentrations while lifting at the least number of points. For this purpose, each lift bracket 10 is of a size and configuration to conform to the inwardly stepped wall surfaces along opposite sides of the camper body. Thus in the preferred form the lift fixture 10 is defined by an angle bracket member 22 being dimensioned for disposition against the wall surfaces 16-20 with a housing 24 being located to project outwardly from the upper end of the bracket and within the clearance space formed beneath the outer sidewall 13 for the purpose of receiving the upper load-engaging end of the lift jack unit. Here the housing 24 includes an elongated socket 25 being welded to or otherwise suitably cast with the bracket portion 22 and with upper web-supporting plates 26 above the socket being interconnected by a plate 28. Preferably the web-supporting plates 26 are provided with aligned openings 30 for horizontal insertion of the upper cylindrical end of the load-engaging member in order to store the camper jack in the limited clearance space formed beneath the undersurface 15 of the camper body. As a result the camper jacks can be stored under the camper body when the camper is placed

5

on a truck bed. If desired, the load-engaging member may be left in the stock 25 and the jack assembly pivoted upwardly about the axis of the cylindrical end into a horizontal stored position beneath the camper body.

Considering in more detail the construction of the angle bracket 22, a horizontal flange 32 of relatively wide flat configuration is dimensioned for disposition along the horizontal lift-supporting surface 18 and has an upwardly projecting lip 33 at its outer end for disposition along the vertical wall surface 16 and also serves as a means of connection of the inner vertical edges of the web-supporting plates 26. At its inner edge, the horizontal flange 32 intersects a vertical flange 35, and the latter as best seen from FIGS. 3 and 4 is suitably ribbed or convoluted to conform to the external configuration of the vertical wall surface 19, or in other words, to fit within the convolutions formed in the vertical wall surface 19. The vertical flange terminates at its lower end in a horizontal flange 36 disposed along the lower horizontal wall surface 20. The interconnecting horizontal and vertical flanges 32 and 35 are reinforced by triangular brace members 38, there being a series of three braces disposed in spaced relation across the width of the bracket and the outer braces being provided with square or rectangular apertures 39 in reinforcing portions 40, the apertures 39 being aligned with bolt holes extending through the thickness of the vertical flange and adapted to receive bolt members 42 for permanent attachment of the bracket 22 to the camper body. Moreover, connecting bolts 43 may be inserted through apertures in the lower horizontal flange into the thickness of the camper body.

An important feature of the present invention resides in the manner in which the bracket is formed to more evenly distribute the load of the camper in lifting and lowering same and specifically to transfer a portion of the load away from the horizontal lift surface 18 through the vertical flange 35 and into the vertical wall surface 19 of the camper. This is accomplished by making the angle formed between the horizontal and vertical flanges 32 and 35 slightly less than 90°, i.e. less than the angle formed between the horizontal and vertical surfaces 18 and 19, so that upon attachment of the vertical flange 35 through the wall surface 19 a slight clearance space 32', as best seen from FIG. 2, is formed between the horizontal flange 32 and the lift surface 18. As a result, when the camper jack is brought into engagement with the lift bracket and the camper is lifted from the ground, the vertical wall 19 is necessarily distorted or displaced outwardly in order for the horizontal flange 32 to be raised against the horizontal lift surface 18. Stated another way, the reinforced angular bracket is more rigid than the outer wall of the camper body and thus the wall of the camper body must yield and effectively be prestressed to permit the horizontal flange to bear against the horizontal lift surface 18. Once the load of the camper is sufficient to displace the horizontal flange into flush relation to the wall surface 18, connecting bolts 45 may be inserted through bolt holes 46 in the flange for permanent attachment to the camper body. In this way, the camper body will remain in a prestressed condition along the vertical wall surface 19 at all times and serve to more effectively distribute and absorb the load of the camper body.

When the lift jacks are not in use, the units may be stored for example in the manner described in the hereinbefore referred to copending application for patent, Ser. No. 572,591 with the upper end of the screw jack assembly being inserted in the aligned openings 30 of the plates 26 and the base of the jack unit being supported by a storage bracket in collapsed relation beneath the upper section of the camper body. Moreover it will be apparent that the jack unit may utilize a lift arm adaptor as described and illustrated in FIGS. 4 and 6 of copending application, Ser. No. 572,591 with the inwardly projecting shaft portions being sized for axial insertion through the socket 25 so as to be freely rotatable within

6

the socket, and as illustrated may be secured within the socket by insertion of a pin through a transverse opening at the inner exposed end.

From the foregoing, it will be apparent that the permanent lift bracket 10 is readily conformable for use with other camper body styles. For example, in campers provided with single lift-supporting surfaces or wings, the lower horizontal flange 36 may be eliminated and attachment made solely to the vertical flange and the inwardly stepped vertical wall surface of the camper.

The lift fixture 10 as shown in FIGS. 1 to 4 may further be effectively used as a reinforcing bracket in lifting a camper by means of portable jack apparatus as illustrated in FIGS. 5 to 9. There is shown in FIG. 5 a novel form of portable jack assembly including a wheeled base frame 48, the frame being of tubular construction and consisting of a main cross member 49 extending intermediately between opposite side members 50 and 50'. One side member 50 is provided with upwardly inclined tubular wheel support portions 51, each being spaced inwardly from one end of the side member 50 for the purpose of mounting a pair of wheels 52 at the upper free ends of the support portions 51 and inwardly of opposite ends of the side member 50. By positioning the wheels inwardly of the ends of the member 50 the effective width of the frame is reduced resulting in a more compact jack assembly which can be easily stored and also advanced through narrow or restricted spaces. A sleeve 53 rises vertically from the midsection of the cross member 49 for insertion of the lower end of a standard 54, the latter being defined by a heavy-walled tubular member or cylindrical post which is provided at its upper extremity with a pulley 55 for a winch line 56. A conventional winch drum 57 is controlled by crank arm 58, the winch including a brake member, not shown, and being attached to a sleeve or carrier 59 which is vertically displaceable along the standard 54 as the winch line is reeled in or paid out of the drum housing.

A lift bracket assembly 60 is attached to one side of the sleeve 59 and includes a pair of horizontally spaced brackets 62 attached to a common transverse support 63 having a horizontal base member 64 and angular member 65 mounted in vertically spaced relation to one side of the sleeve 59. Each bracket 62 consists of a relatively broad rectangular plate 68 having intermediate, generally U-shaped rib portions 70 mounted on a thick-walled pipe member 72 which projects forwardly from opposite ends of the support member 63. Preferably, a retention bar in the form of relatively thick-walled pipe member 74 is attached to the lift bracket by suitable means, such as, by welding with reinforcing fillets, 75 transversely across the upper surface of the bracket relatively near the forward end and away from the rearward connecting end of the bracket. The retention bar 74 is dimensioned for insertion within a longitudinal groove 18' in the horizontal lift surface 18 of the camper body so as to establish positive but releasable engagement between the spaced bracket members and the lift surface.

The brackets 62 are preferably spaced apart a sufficient distance to straddle one of the lift brackets 10 so that in lifting and lowering the camper, a portion of the load will be carried into the lift bracket 10 thereby minimizing the risk of buckling or bending the horizontal lift surface. In use, the H-shaped frame 48 provides a broad base support and increased stability for lifting purposes. In turn, the wheels, being positioned inwardly of opposite ends of the frame, not only will enable the unit to be easily wheeled through narrow spaces but also to be wheeled into an out-of-the-way position beneath the camper body with the entire weight of the camper body resting upon the base frame.

It will be evident that the portable jack device as shown may be used independently of the permanent lift brackets, and to this end may be utilized in sets of three or four to engage the lift-supporting surfaces 18 of the

7

camper body and in evenly distributed load-balanced relation. It will be apparent that other types of lift jack units may be employed in association with the spaced bracket assembly 60, and a particular advantage of each bracket assembly 60 is that it will effect positive engagement with the lift surface without requiring attachment to the camper; also, the entire jack assembly can be easily moved into and out of position without interfering with installation and removal of the camper body.

It is therefore to be understood from the foregoing that various modifications and changes may be made in the construction and arrangement of parts comprising the preferred forms of lift bracket members and portable jack apparatus of the present invention without departing from the spirit and scope thereof as defined by the appended claims.

What is claimed is:

1. A lift jack assembly for camper bodies and the like having raised, horizontal lift-supporting surfaces along opposite sides thereof, said lift jack assembly comprising:
 a vertically displaceable, load-lifting carriage, said carriage including an upright post and an outer concentric sleeve being slidable on said post,
 a transversely extending support member affixed to said sleeve,
 a pair of horizontal bracket members disposed in horizontally spaced relation to one another on said carriage for displacement into load bearing engagement with a horizontal lift-supporting surface on the camper body, said horizontal bracket members projecting laterally in a common direction from opposite ends of said transversely extending support member including brace members interconnecting said brackets and said sleeve, and

upwardly facing retention means on the upper surface of each of said horizontal brackets defined by transversely extending projections disposed in spaced coaxial relation to one another for insertion in a longitudinal

8

groove on the horizontal lift-supporting surface of the camper body.

2. A lift jack assembly according to claim 1, each of said brackets defined by relatively wide, rectangular plates having intermediate, generally U-shaped rib portions, and supporting members projecting forwardly from opposite ends of said transversely extending support member for disposition between the rib portions on each of said rectangular plates at opposite ends of said transversely extending support member.

3. A lift jack assembly according to claim 1 further including a wheeled base frame, said frame having a pair of upwardly inclined wheel support portions on one side of said frame beneath said bracket members, and

a wheel member mounted on each of said wheel support portions inwardly of opposite ends of said frame.

4. A lift jack assembly according to claim 3, said base frame being H-shaped to include opposite side members and a cross member interconnecting said side members, and

an upright sleeve on said cross member to receive the lower end of said carriage.

5. A lift jack assembly according to claim 1, said horizontal bracket members being spaced apart to straddle a lift bracket attached to the lift-supporting surface on the camper.

References Cited

UNITED STATES PATENTS

3,130,956	4/1964	Mandelko	254—2
3,158,354	11/1964	Ward	254—47

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