

Nov. 20, 1945.

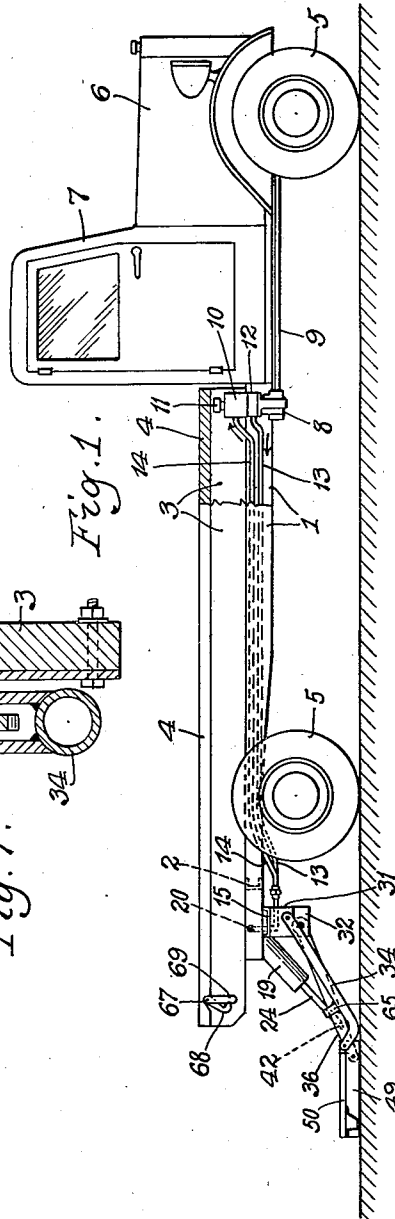
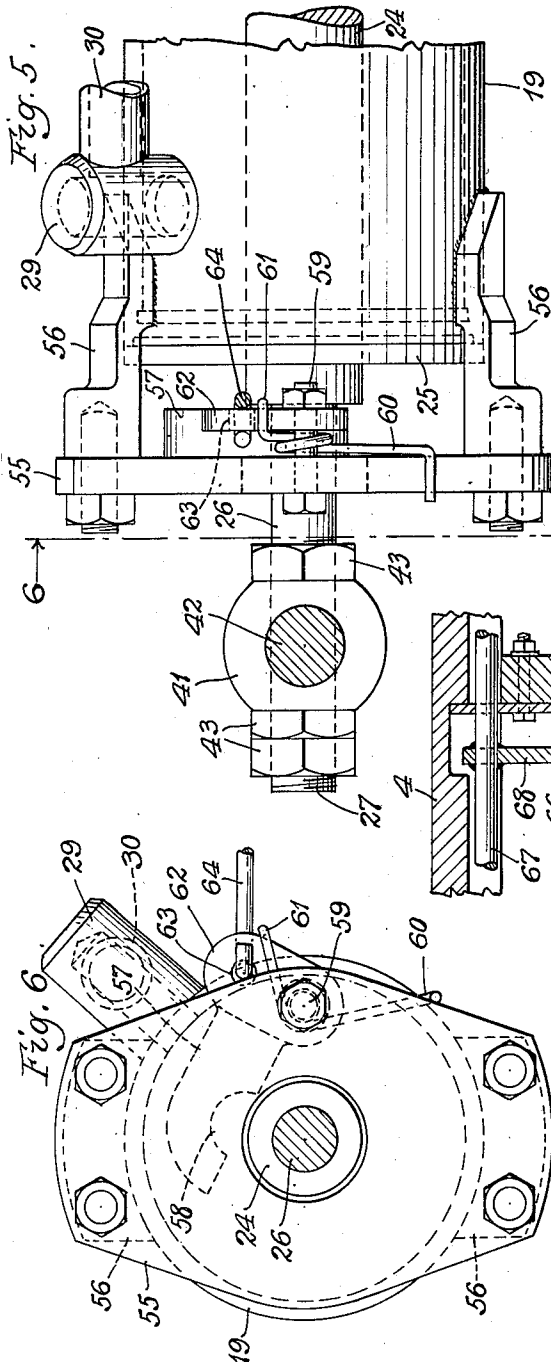
L. W. WACHTER

2,389,221

ELEVATOR

Filed Dec. 18, 1944

3 Sheets-Sheet 1



Inventor
Lester W. Wachter
by *Parker & Carter*
Attorneys.

Nov. 20, 1945.

L. W. WACHTER

2,389,221

ELEVATOR

Filed Dec. 18, 1944

3 Sheets-Sheet 2

Fig. 2.

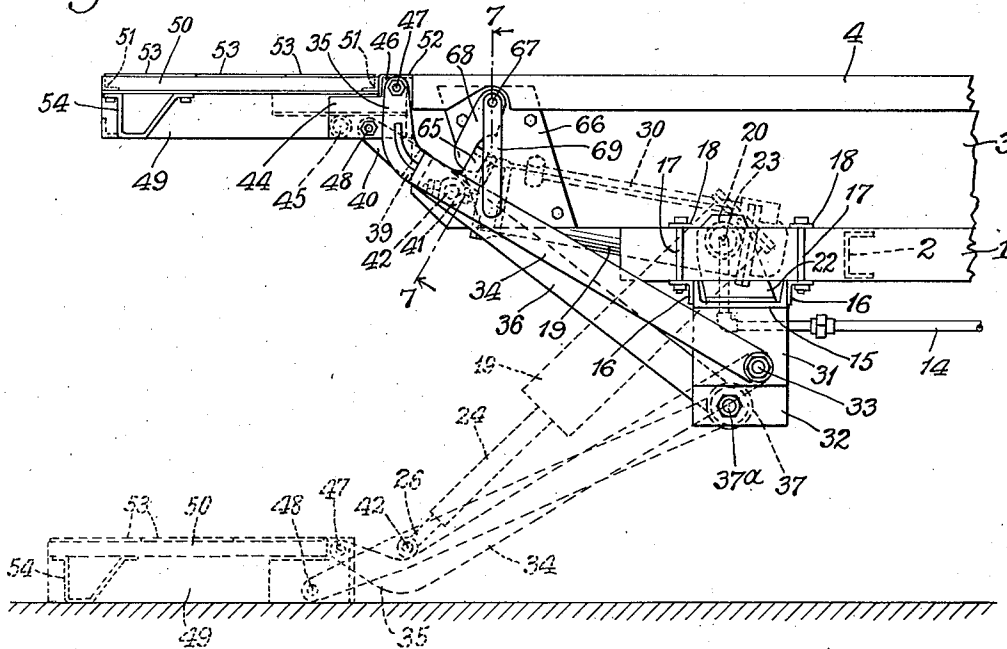
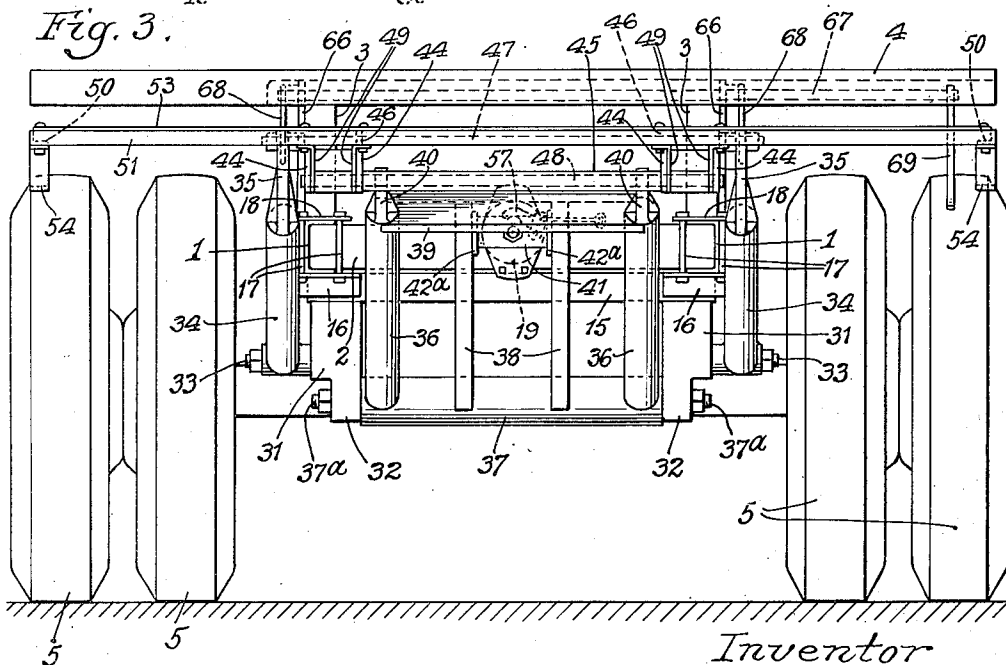


Fig. 3.



Inventor
Lester W. Wachter
by *Parke & Carter*.
Attorneys.

Nov. 20, 1945.

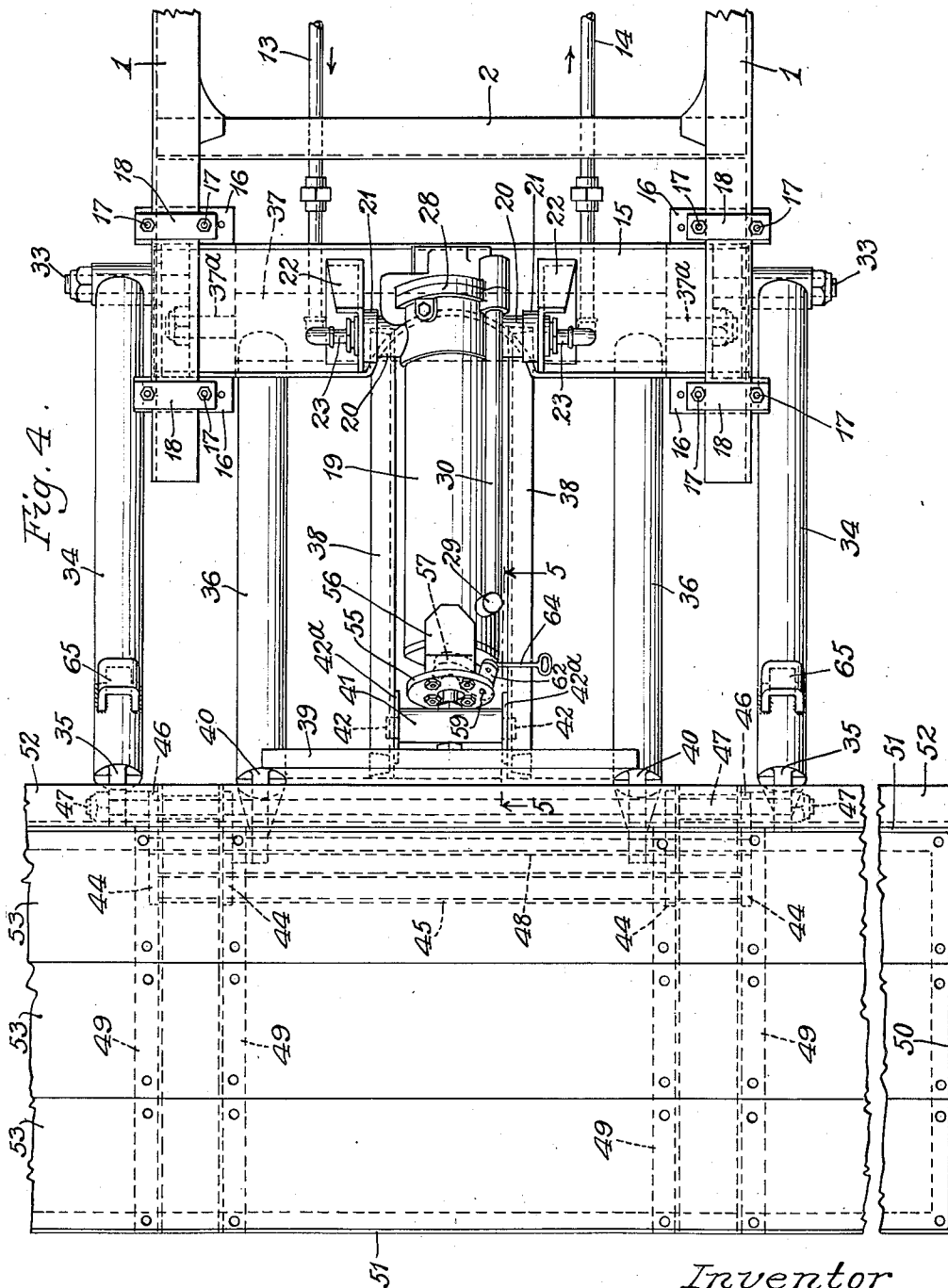
L. W. WACHTER

2,389,221

ELEVATOR

Filed Dec. 18, 1944

3 Sheets-Sheet 3



Inventor
Lester W. Wachter
by *Parker Slater*
Attorneys.

UNITED STATES PATENT OFFICE

2,389,221

ELEVATOR

Lester W. Wachter, Streator, Ill., assignor to
Anthony Company, Streator, Ill., a corporation
of Illinois

Application December 18, 1944, Serial No. 568,606

17 Claims. (Cl. 214—77)

This invention relates to an elevating apparatus and primarily to a unitary assembly suitable for raising and loading loads. It has for one object to provide a movable platform for vehicles and to provide means for raising and lowering said platform.

Another object is to provide a unitary mounting for a vehicle gate which furnishes a support for a gate and means for raising and lowering it and which may be readily attached to a vehicle body as a unit.

Another object is to provide in connection with such a mechanism means for preventing overloading.

A still further object is to provide in connection with such a mechanism latching means for latching the gate or platform in the raised position.

Other objects will appear from time to time throughout the specification and claims.

This invention is illustrated more or less diagrammatically in the accompanying drawings wherein:

Figure 1 is a side elevation with parts broken away and parts in section showing one form of the device;

Figure 2 is a side elevation taken on an enlarged scale and showing the platform;

Figure 3 is an end view of the device of Figure 2;

Figure 4 is a plan view with parts broken away;

Figure 5 is a sectional view on a still further enlarged scale, taken at line 5-5 of Figure 4, with parts in elevation showing one end of the cylinder assembly;

Figure 6 is a transverse sectional detail taken at line 6-6 of Figure 5; and

Figure 7 is a sectional detail taken on an enlarged scale at line 7-7 of Figure 2, and illustrating the latch mechanism used in one form of lock.

Like parts are indicated by like characters throughout the specification and the drawings.

As shown the platform is mounted upon a vehicle, although it might be mounted upon any other form of support. The vehicle may include any conventional form of frame and running gear. As shown there is a vehicle or chassis frame comprising longitudinal members 1, 1 and one or more transverse members 2. Ordinarily some form of body will be mounted upon the chassis frame, and as shown the body comprises side frame members 3 and a floor or other supporting surface 4. The vehicle will be supported

on wheels 5. The details of the vehicle suspension and drive are not illustrated, as they form no essential part of the invention.

The engine will generally be provided with a hood 6 and a cab 7 may be used if desired.

As a means for driving the raising mechanism a fluid pump 8 is provided, and it is driven by any suitable means, but one convenient means is by a shaft 9 which is itself driven from a power take-off of the engine. A sump or reservoir 10 is provided and it may have a member 11 which may serve as a filler and also may be open to the air wholly or in part to permit equalization of pressure within the sump as fluid is withdrawn from and returned to the sump. Intermediate the pump and the sump is provided a valve housing 12 through which fluid passes under pressure and within which a pressure release is provided, so arranged that upon the occurrence beyond a predetermined point fluid is by-passed and returned directly to the sump. This serves as an overload check and prevents overloading of the hoisting system. The details of the overload check or by-pass are not shown, as the by-pass might be omitted, and for the further reason that hydraulic overload checking means have been heretofore used in other connections.

Fluid under pressure passes from the pump and through the overload check by means of a high pressure supply pipe or line 13 and is returned to the sump by a low pressure or return line or pipe 14.

The mechanism with the exception of the pump assembly and the supply lines is mounted as a unit and may be made as a separate unit and subsequently applied to a vehicle or to another support. For this purpose a frame and support is provided to which the tail gate or platform, the links which support it, and the cylinder are attached. In the particular form shown, the unitary supporting means comprises a transverse member 15 which as shown is of channel section but may have any desired shape. One convenient means for attaching this member to a vehicle frame comprises lateral enlargements 16, attached to or formed as a part of the member 15. These enlargements are perforated to receive bolts 17 which pass upwardly on each side of the vehicle frame member 1 and engage perforated transverse members 18 which are positioned on the top of the vehicle frame members. The transverse member 15 serves as a support for the remainder of the mechanism which makes up the supporting and raising and lowering means for the platform.

19 is a hydraulic cylinder, which is provided with trunnions 20, 20. These trunnions are hollow and are received in bearings 21, 21 carried by supports 22, 22 which are secured to the transverse member 15. The trunnions and bearings are hollow and in each of them is positioned a conduit member 23 through which fluid enters and leaves the cylinder. To one of the conduits 23 the inlet or high pressure pipe 13 is secured and to the other the outlet or low pressure pipe 14 is secured. These fluid connections are of course concentric with the trunnions and bearings. Positioned within the cylinder 19 is a piston not shown, and a piston rod 24 is secured to the piston and extends outwardly through the cylinder head 25. As shown, the piston rod is provided with a reduced portion 26 adjacent its outer end and is threaded, as at 27. The piston and cylinder assembly may be of almost any desired construction.

High pressure fluid is discharged through the pipe 13 and one of the connections 23 and by valve means enclosed in the housing portion 28 may be directed to the left side of the piston as seen in Figure 2, or the valve may be positioned to permit fluid to be forced out of the cylinder by gravity when the gate is lowered. A connection 29 and a pipe 30 form part of the fluid circuit. When the platform is to be raised, pressure fluid is directed through the pipe 30 and the connection 29 to the opposite side of the piston to force the piston inwardly along the cylinder and thus to raise the platform. Adjacent its outer end the piston rod is secured to the platform carrying mechanism in a manner which will be described below.

As a means for movably supporting the platform, the transverse member 15 is provided with a pair of downwardly extensions 31, 31. Each of these extensions may be reduced adjacent its lower end, as at 32. Pivoted to each of the portions 31, as at 33, are arms 34. These arms may be of any shape but as shown are generally tubular. Adjacent the outer or free end of each of the arms is a curved portion 35.

Pivoted to the reduced portions 32 of each of the side members are arms 36. While these arms may be so pivoted in any desired manner, in the particular form here shown they are secured to a transverse member 37, which is itself pivoted, as at 37a, to the downward extensions 32 of the side members. Thus the arms 36 and the transverse member 37 form in effect a unit. Fixed also to the member 37 is a pair of generally parallel members 38. 39 is a transverse member secured adjacent the outer or free ends of the members 36, and to this member the outer ends of the members 38 are also secured. Adjacent the outer end of each of the members 36 a reduced portion 40 is secured. A transverse member 41 is supported on trunnions 42 which are received in bearings 42a positioned in or supported upon the members 38, and the reduced outer end 26 of the piston rod 24 passes through and is secured to the member 41. Nuts 43 serve to secure the parts in adjustable position.

The platform might be formed in many different shapes and might embody many different details of construction. That illustrated is one suitable design. A platform subframe comprises pairs of lateral members 44, 44 which are secured together by any desired number of transverse members 45. It will be noticed that the members 44 are extended upwardly, as at 46. A transverse shaft 47 is mounted in the upper extensions 46

of the members 44, and the members 35 which are secured to the arms 34 are pivoted upon the shaft 47. A second transverse shaft 48 is mounted in the lower portions of the members 44, and the members 40 which are secured to the arms 36 are pivoted on that shaft. One of the transverse members 45 may be tubular, as shown particularly in Figure 2.

The members 44 and 45, together with the transverse shafts 47 and 48, comprise what is in effect the "backbone" of the platform. The tail gate proper is mounted upon and supported by this "backbone," but is movable with relation to it. The tail gate proper, therefore, comprises pairs of transverse frame members 49 which are preferably spaced apart so that they can fit between the members 44. Additional end frame members 50 and side frame members 51 are provided for the tail gate itself. One of the members 51 may be provided with an extension or flange 52. Boards or other surface formed members 53 are secured to the frame which is formed of the members 49, 50 and 51. If desired, one or more ground contacting supports 54 may be positioned on the platform.

One or more latching means may be included in the assembly. The purpose of these latching means is to latch and to hold the platform in the raised position, so that once the platform has been raised, it may be held in the raised position independent of pressure conditions within the cylinder. In one form, as shown in Figures 5 and 6, this latching means includes a plate 55 secured to extensions 56 which are themselves fastened to the cylinder 19. Pivoted upon the plate 55 is a latch member 57 which may be notched, as at 58. The size of the notch is such that it embraces the reduced portion 26 of the piston rod 24. The latch 57 is pivoted, as at 59. A spring 60 bears at one end against the edge of the plate 55 and at the other end 61 against an enlargement 62, which is formed as a part of the latch. The enlargement is perforated, as at 63, to receive an operating member 64. The operating member may be of any desired shape or arrangement and may be so arranged that it can be operated from the side of the vehicle or from any other point.

Another form of latch which is here shown, particularly in Figures 2 and 3, may also be used. For this purpose a stirrup or loop-shaped member 65 is mounted on each of the arms 34. As a means for mounting and supporting this latch, a plurality of plates 66 may be used. Preferably there will be at least two of these plates, one at each side of the assembly. As shown in Figure 2, these plates are secured to the body frame members 3 and may also engage other parts of the body. A shaft 67 may extend transversely and be supported in the plates 66 or in bearings mounted on those plates on each side of the assembly. 68, 68 are latch members secured to the shaft 67. These members are mounted each to engage one of the stirrups 65. They are shown in the engaged position in Figure 2. A hand or operating lever 69 may be secured at any point on the shaft 67, preferably adjacent one side of the assembly, as shown in Figure 3. When the platform is to be raised and lowered the hand lever 69 will be operated to move the latch 68 out of engagement with the stirrups 65. When the platform is to be raised in the raised position shown in full lines in Figure 2, it will be first raised to that position by the hydraulic mechanism, and the hand lever 69 will then be moved

to rotate the shaft 67 to bring each of the latches 68 into engagement with one of the stirrups 65. When that has been accomplished, the latches and stirrups are sufficient to hold the platform in the elevated position, irrespective of any holding or raising effort which might be exerted by the cylinder and piston assembly. In fact, pressure can be entirely released from the cylinder without altering the position of the platform because the strength of the latches, stirrups and associated parts is such that they can hold the platform in the raised position. The use of the latch mechanism just described, which includes in particular the means for mounting the latch mechanism on the body frame rather than on the chassis or vehicle frame, results in transferring a large part of the load of the total assembly to the body frame, and results also in tying the body frame and chassis frame together. It is to be understood that ordinarily the plates 66 engage only the body frame, but since a part of the hydraulic mechanism is carried from that frame when the parts are latched as shown in Figure 2, and since a part of the hydraulic mechanism is also carried from the vehicle or chassis frame, this form of latch and its associated parts transfers a part of the weight of the hydraulic assembly to the body frame, while a part of the weight of the hydraulic assembly is still carried from the vehicle or chassis frame and in this sense, therefore, the latch and plate assembly ties the body and the chassis frame together. While two forms of latches have been shown, it is to be understood that both may be used in a single installation or either may be used alone.

Although I have shown an operative form of my invention, it will be recognized that many changes in the form, shape, and arrangement of parts can be made without departing from the spirit of the invention, and my showing is therefore to be taken as, in a sense, diagrammatic. In particular, the shape and arrangement of the platform might be widely varied and the particular form herewith shown is merely one suitable embodiment. Also the latches might be entirely omitted or either of them or both of them might be used. The safety overload device used in combination with the pump might be omitted or might be placed elsewhere in the system, and the device as a whole need not be mounted on an automotive vehicle. It might be mounted on any support.

This application is a continuation in part of my co-pending application No. 492,230, filed June 25, 1943, later abandoned.

The use and operation of this invention are as follows:

The device as shown is made up and may be assembled as a unit. It may thereafter be placed upon or attached to a vehicle or other support. The entire assembly is carried from a single transverse member with the exception of the pump. The pump might also be mounted on the transverse member, but where it is to be driven from the engine of an automotive vehicle, it is convenient to mount it closer to the engine.

Assuming now that the mechanism has been made and assembled on the transverse member, that member is secured to the support, in this case, the chassis frame of an automotive vehicle. The pump is also mounted on the vehicle and is connected to a source of power such as the engine of the vehicle or any other suitable source of power. Initially it may be assumed that the platform rests upon the ground or some other

surface. If now it be desired to raise the platform, the pump is operated and fluid under pressure is supplied to the cylinder. The valve control is positioned to direct the fluid to the outer side of the piston. As pressure builds up within the piston, the piston is drawn inwardly and carries with it the piston rod. The piston rod, since it is secured to a portion of the link mechanism, as it is drawn in raises that mechanism and with it raises the platform. The height to which the platform is raised is controlled of course by the movement of the piston and this may be stopped intermediate the limit at any desired point. If the platform is to be carried clear to the top of its excursion, it will ordinarily be raised to a point at which its upper surface is on a level with the upper surface of the vehicle body floor. It may be held at that point either to discharge a load which has been previously put upon it or to take on a load from the vehicle body. If it is to be lowered, the valve is reversed and the piston is allowed to move outwardly under the influence of gravity to the dotted line position of the figure. This movement may be continued to any degree between the upper and lower limits.

When the vehicle or other support is to be moved, the platform will ordinarily be raised to its upper limit. The fluid pressure within the cylinder will usually be sufficient to hold it to that point. It is frequently desirable, however, to provide other means for holding the platform in the raised position, and the latches previously described may be used for that purpose. If the piston rod latch is present and is to be used, it will be moved so that it engages the reduced portion of the piston rod. Thereafter, even if pressure is reduced within the cylinder, the piston cannot move outwardly because the latch will be in contact with the shoulder formed at the reduced portion of the piston rod. At this point the larger portion of the piston rod will bear against the latch, and the latch will bear against the plate which is secured to the outer end of the cylinder, and the piston and piston rod cannot move further out of the cylinder, and hence the parts are maintained latched in the raised position.

If the other form of latch is to be used, it will be made and assembled as shown. In that case, when the parts are in the raised position, the handle controlling the latches is manipulated, and each of the latches engages its respective stirrup-like member. Thereafter diminution of pressure within the cylinder cannot permit the platform and associated parts to move downwardly because the weight of these parts is largely taken by the latch and stirrup assembly, and these members hold the platform in the raised position. This form of latch assembly has the advantage that a substantial part of the weight of the platform and its raising means is now supported from the vehicle body or the vehicle body frame, and this reduces the proportion of the total weight which must be carried by the chassis frame, and hence reduces the forces which would otherwise be acting to cause flexure of the chassis frame.

In the particular form of platform mechanism here shown, the platform is designed also to act as a tail gate. When the parts are moved to the raised position and if desired latched in that position, the platform is raised and becomes a closed tail gate. It may be raised upwardly to a vertical position, pivoting about the rod 47 to which the outermost pair of arms or links is also

joined. Once the platform has been raised to the vertical position so that it can act effectively as a tail gate, it may be fastened, locked or latched in that position in any desired manner. Ordinarily the body will have latching means by means of which the tail gate may be latched in the vertical position. When the platform is to be lowered again, it is unlatched from the body, moved to the horizontal position and then if it is to be lowered to the ground, the latch or latches for the raising mechanism are moved into inoperative position, and the platform may be lowered by proper manipulation of the controls of the hydraulic system.

I claim:

1. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main unitary support secured to said vehicle frame, a plurality of links, each link supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder, whereby the piston is positively forced in the raising direction within said cylinder, and means for supplying fluid under pressure to said cylinder.

2. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main unitary support secured to said vehicle frame, a plurality of links, each link supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder, whereby the piston is positively forced in the raising direction within said cylinder, means for supplying fluid under pressure to said cylinder, and an overload check in said fluid supplying means adapted, upon the occurrence of pressure above a predetermined limit, to by-pass fluid away from said cylinder.

3. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main unitary support secured to said vehicle frame, a plurality of links, each link supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder, whereby the piston is positively forced in the raising direction within said cylinder, means for supplying fluid under pressure to said cylinder, and latch means for latching said platform in elevated position.

4. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main unitary support secured to said vehicle frame, a plurality of links, each link supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder,

whereby the piston is positively forced in the raising direction within said cylinder, means for supplying fluid under pressure to said cylinder, and latch means for latching said platform in elevated position, said latch means including parts secured to said body and latch means adapted to engage one or more of said links and to retain them and the platform which they carry in the elevated position without assistance from the hydraulic cylinder assembly.

5. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main support secured to said vehicle frame, a plurality of links, each link supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder, whereby the piston is positively forced in the raising direction within said cylinder, means for supplying fluid under pressure to said cylinder, an overload check in said fluid supplying means adapted, upon the occurrence of pressure above a predetermined limit, to by-pass fluid away from said cylinder, and latch means for latching said platform in elevated position, said latch means including parts secured to said body and latch means adapted to engage one or more of said links and to retain them and the platform which they carry in the elevated position without assistance from the hydraulic cylinder assembly.

6. In combination, a vehicle frame and a body frame mounted thereon, a movable platform, a main support secured to said vehicle frame, a plurality of pairs of links, each link pivotally supported at one end from said main support and pivoted at its other end to said platform, a hydraulic cylinder pivotally supported from said main support, a piston therein, a piston rod secured to said piston and secured to said links, means for directing fluid to the outer end of said cylinder, said means comprising a valve control for said cylinder, whereby the piston is positively forced in the raising direction within said cylinder, means for supplying fluid under pressure to said cylinder, an overload check in said fluid supplying means adapted, upon the occurrence of pressure above a predetermined limit, to by-pass fluid away from said cylinder, and latch means for latching said platform in elevated position, said latch means including parts secured to said body and latch means adapted to engage one or more of said links and to retain them and the platform which they carry in the elevated position without assistance from the hydraulic cylinder assembly.

7. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and means for supporting said platform assembly, said means including a main support, a plurality of pairs of links, each link being pivoted at one end upon said support and pivoted at the other end upon said platform, and a hydraulic cylinder freely swingable on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder.

8. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and means for supporting said platform assembly, said means including a main support, a plurality of pairs of links, each link being pivoted at one end upon said support and pivoted at the other end upon said platform and a hydraulic cylinder freely swingable on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder, and latch means positioned upon said body and including a latch and means for moving it to engage said links and to retain the same in the position of elevation, irrespective of pressure conditions within the cylinder.

9. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and means for supporting said platform assembly, said means including a main support, a plurality of pairs of links, each link being pivoted at one end upon said support and pivoted at the other end upon said platform, and a hydraulic cylinder on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder, and latch means positioned upon said cylinder and including a part adapted, when the platform is in the raised position, to engage the piston rod and to retain the same in the position of elevation, irrespective of pressure conditions within the cylinder.

10. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and means for supporting said platform assembly, said means including a main support, a plurality of pairs of links, each link being pivoted at one end upon said support and pivoted at the other end upon said platform, and a hydraulic cylinder on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder, and latch means positioned upon said body and including a latch and means for moving it to engage said links, and latch means positioned upon said cylinder and including a part adapted, when the platform is in the raised position, to engage the piston rod and to retain the same in the position of elevation, irrespective of pressure conditions within the cylinder.

11. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and unitary means for supporting said platform assembly as a unit, said means including a main support, a plurality of pairs of links, each link being pivoted at one end upon said support and pivoted at the other end upon said platform, and a hydraulic cylinder swingable on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, said cylinder and piston mounted to swing with said links and

a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, an overload release positioned in communication with said hydraulic system, and adjustable means in said overload release adapted, upon the occurrence of pressure above a predetermined limit within said hydraulic system, to by-pass fluid away from said cylinder.

12. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and unitary means for supporting said platform assembly as a unit, said means including a main support, a pair of downwardly depending parts secured thereto, a plurality of pairs of links, each link being pivoted at one end upon said downwardly depending parts and pivoted at the other end upon said platform, and a hydraulic cylinder swingable on said main support, a piston therein, and a piston rod extending therefrom, means for securing said piston rod to said links, said cylinder and piston mounted to swing with said links and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder.

13. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and unitary means for supporting said platform assembly as a unit, said means including a main support, a pair of downwardly depending parts fixed thereto, a plurality of pairs of links, each link being pivoted at one end upon said downwardly depending parts below said vehicle frame, and pivoted at the other end upon said platform, and a hydraulic cylinder pivoted on said main support, a piston therein, and a piston rod extending therefrom, means for pivotally securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder.

14. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and unitary means for supporting said platform assembly as a unit, said means including a main support, a pair of downwardly depending parts fixed thereto, a plurality of pairs of links, each link being pivoted at one end upon said downwardly depending parts below said vehicle frame and pivoted at the other end upon said platform, and a hydraulic cylinder pivoted on said main support, a piston therein, and a piston rod extending therefrom, means for pivotally securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, an overload release positioned in communication with said hydraulic system, and adjustable means in said overload release adapted, upon the occurrence of pressure above a predetermined limit within said hydraulic system, to by-pass fluid away from said cylinder, and means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder.

15. In combination, a vehicle frame, a body frame supported therefrom, a platform assembly for said body, and means for supporting said platform assembly, said means including a main support, a pair of downwardly depending parts secured thereto, a plurality of pairs of links, each

link being pivoted at one end upon said downwardly depending parts and pivoted at the other end upon said platform, and a hydraulic cylinder pivoted on said main support, a piston therein, and a piston rod extending therefrom, means for pivotally securing said piston rod to said links, and a hydraulic system comprising a pump and hydraulic conduits connecting said pump to said cylinder, an overload release positioned in communication with said hydraulic system, and adjustable means in said overload release adapted, upon the occurrence of pressure above a predetermined limit within said hydraulic system, to by-pass fluid away from said cylinder, and valve means associated with said cylinder and adapted to direct pressure fluid to the outer end of said cylinder, and latch means positioned upon said body and including a latch and means for moving it to engage said links, and latch means positioned upon said cylinder and including a part adapted, when the tail gate is in the raised position, to engage the piston rod and to retain the same in the position of elevation, irrespective of pressure conditions within the cylinder.

16. In combination, with a vehicle having a chassis frame and a body frame supported thereon, an elevating assembly comprising a unitary, main supporting member adapted to be attached to said chassis frame, and carrying an elevating assembly including an elevating platform, links

5 pivoted upon said supporting member and said platform, a hydraulic hoisting assembly pivoted on said main support and pivotally joined to said links, whereby the links and the platform are raised and lowered, and latch means secured to said body frame and adapted to engage said links and to support them and said platform in the raised position, and means for supplying pressure fluid to the outer end of the hydraulic cylinder, and an overload check associated with said pressure fluid supplying means and adapted, upon the occurrence of pressure above a predetermined limit, to by-pass fluid away from said cylinder.

17. In combination with a vehicle having a chassis frame and a body frame, a unitary elevating assembly, means whereby it can be removably mounted thereon as a unit and comprising a main supporting member, means for securing said supporting member to the chassis frame, the supporting assembly including also links and a movable platform, the links being pivoted upon the supporting member and to the platform, hydraulic means movably mounted on the support and attached also to the links and adapted to swing with the movement of said links, means for supplying pressure fluid to the hydraulic assembly, and latching means adapted to latch the platform in the raised position, said latching means being secured to the body frame.

LESTER W. WACHTER.