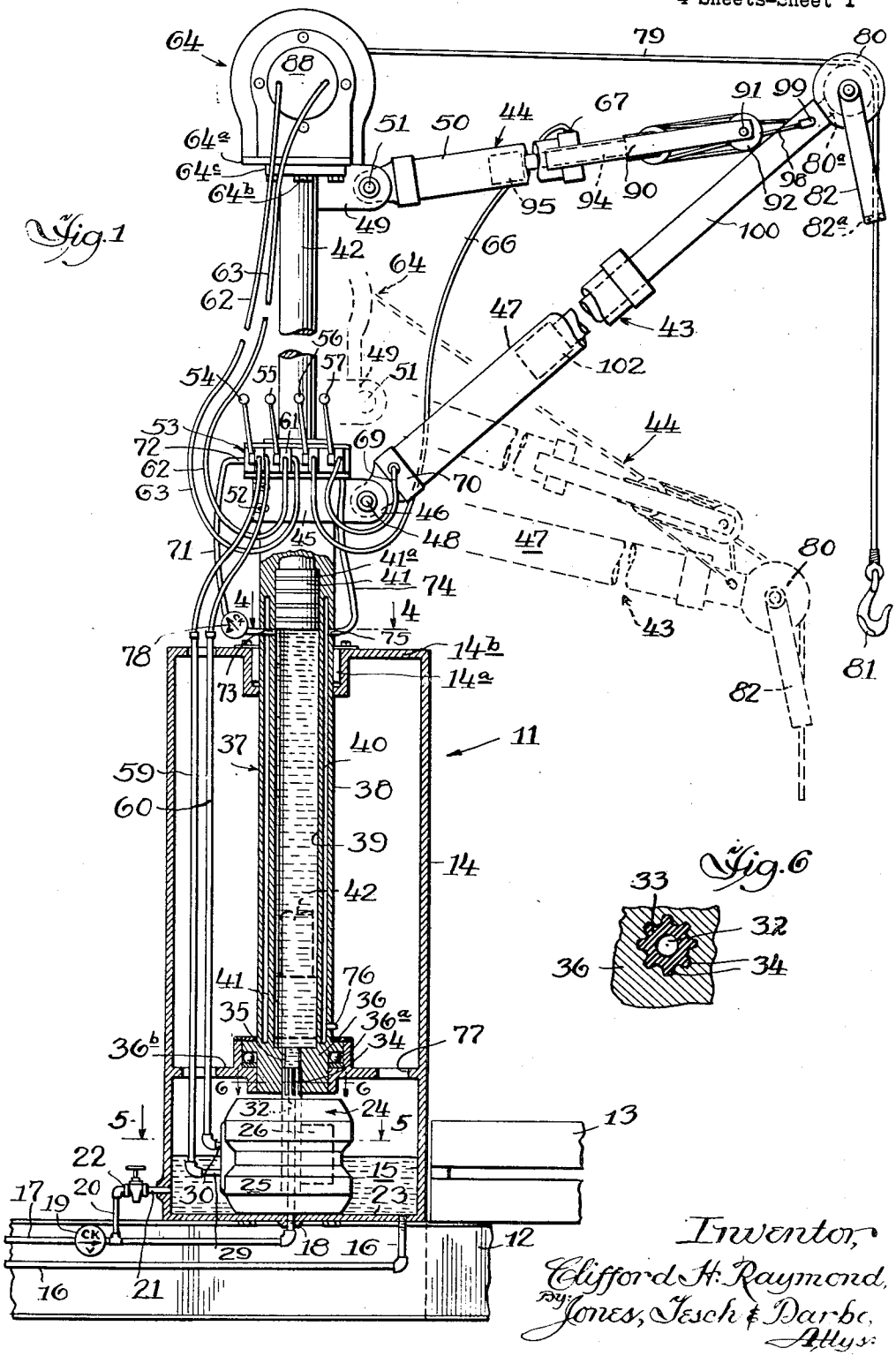
Dec. 18, 1956 C. H. RAYMOND 2,774,483

HYDRAULIC CRANE DEVICE

Filed Sept. 11, 1953 4 Sheets-Sheet 1

Fig. 1



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Clifford H. Raymond,
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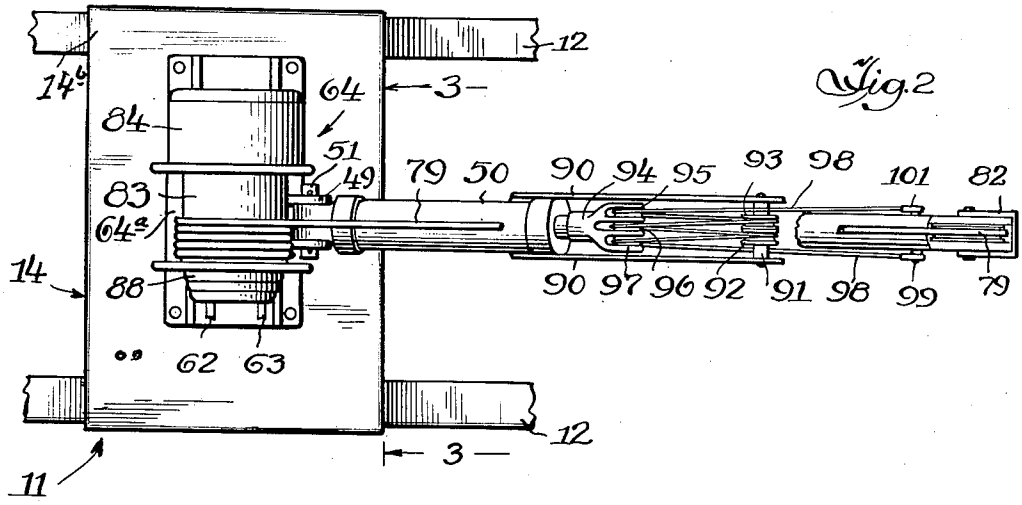


Fig. 2

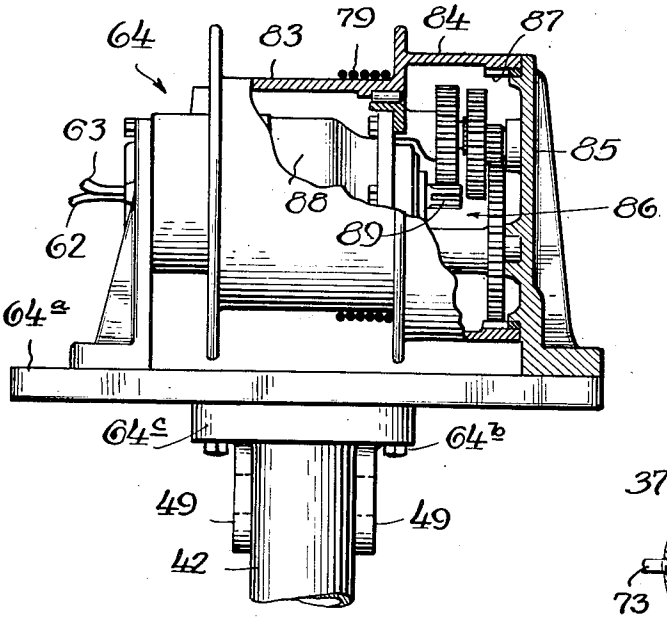


Fig. 3

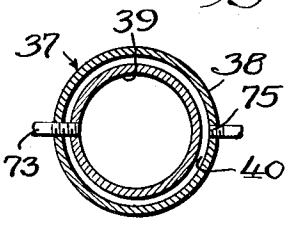


Fig. 4

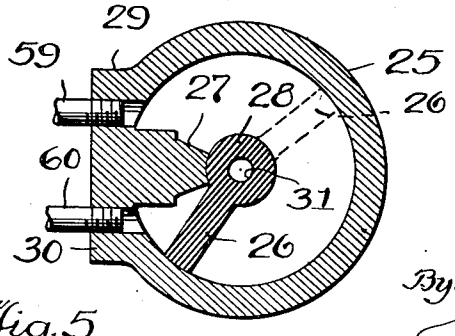


Fig. 5

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HYDRAULIC CRANE DEVICE

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Fig. 14

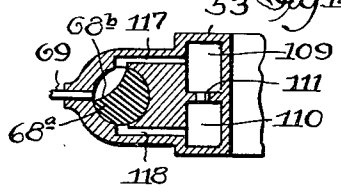


Fig. 13

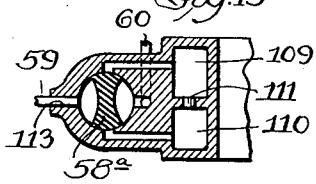


Fig. 11

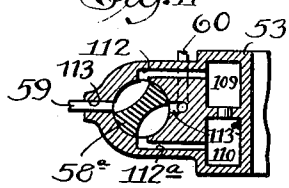


Fig. 15

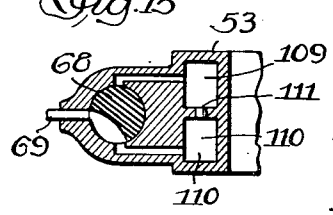


Fig. 7

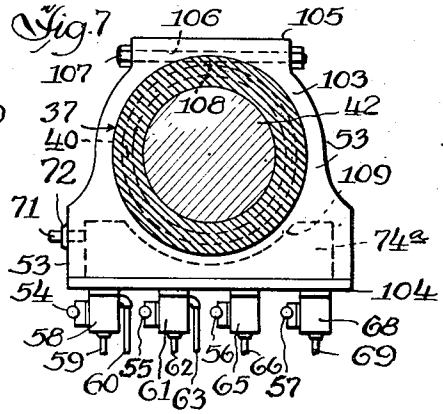


Fig. 12

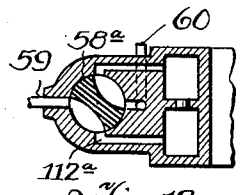


Fig. 16

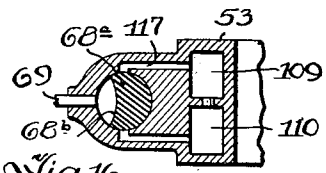


Fig. 9

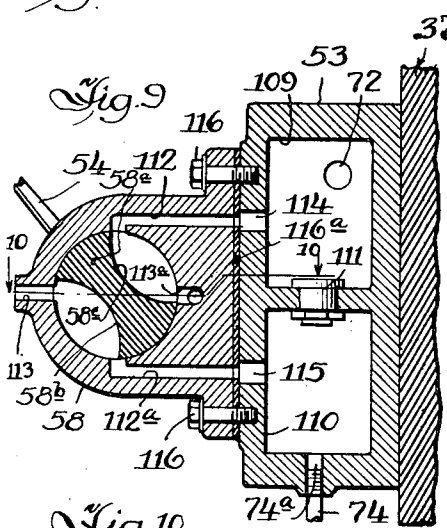


Fig. 8

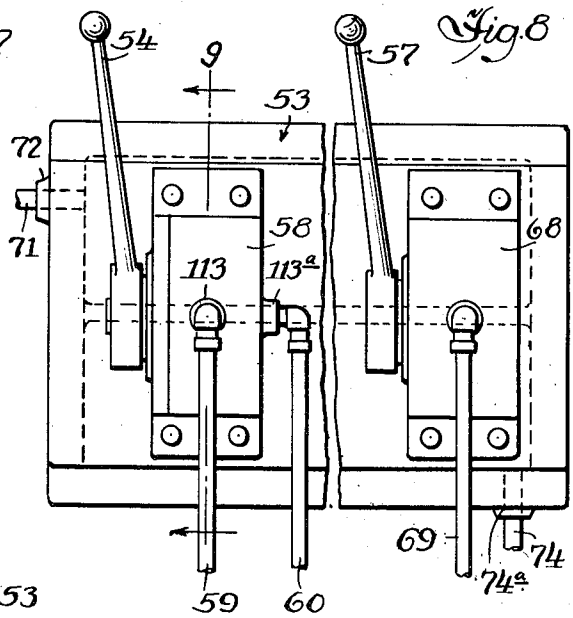
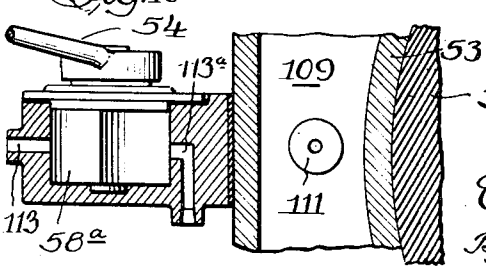


Fig. 10



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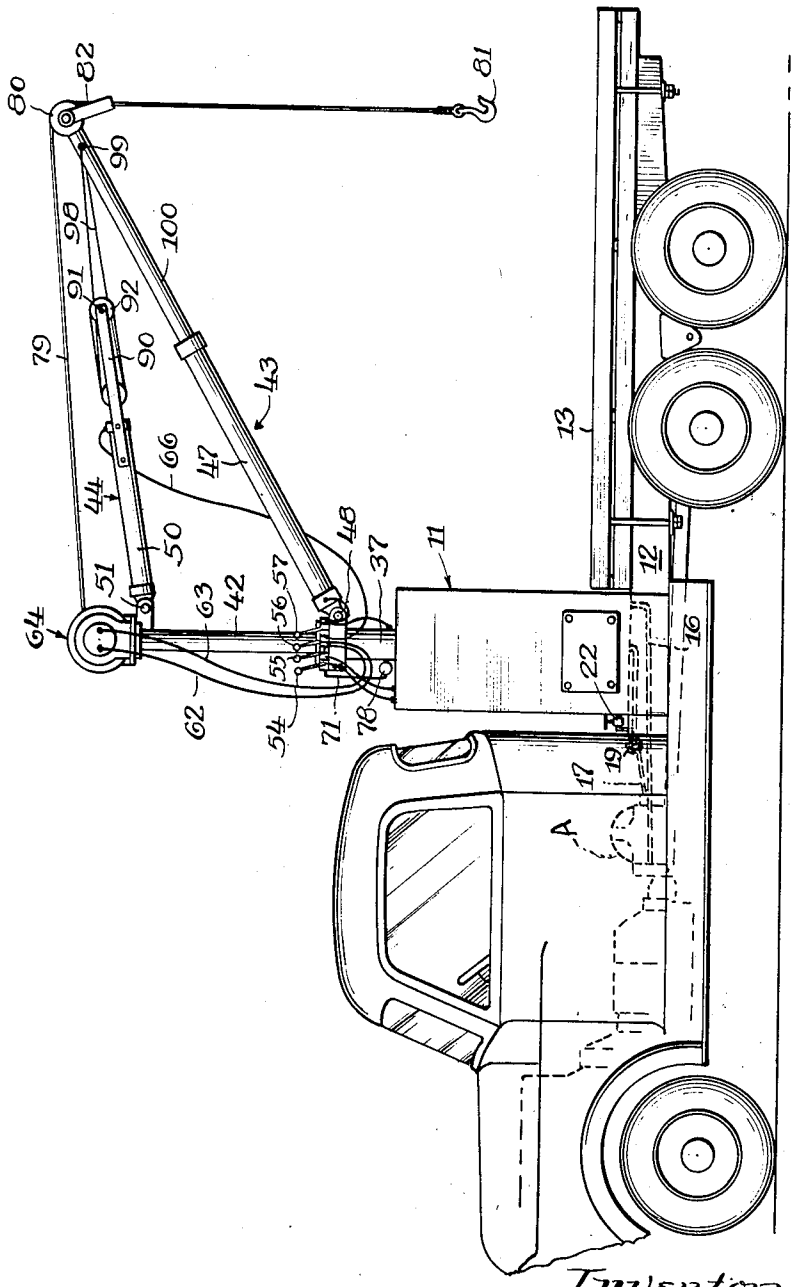
Dec. 18, 1956 C. H. RAYMOND 2,774,483

HYDRAULIC CRANE DEVICE

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Fig. 17



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United States Patent Office 2,774,483 Patented Dec. 18, 1956

2,774,483

HYDRAULIC CRANE DEVICE

Clifford H. Raymond, Iron River, Mich.

Application September 11, 1953, Serial No. 379,661

17 Claims. (Cl. 212—35)

This invention relates to hydraulic crane devices adaptable for use on trucks, truck loaders, tractors, barges, or even for stationary installation.

Crane devices of the class here referred to have frequently been complicated in structure and operation, not readily adaptable to different locations or installations and have lacked versatility of operation. It is here shown adapted for a truck loader.

The present invention aims to provide a device of this class which has marked simplicity of design and which employs substantially standard parts which can be readily adapted to a particular installation by eliminating the necessity of being close to power transmission by mechanical means, since the present device is operated substantially entirely by hydraulic means.

A further object of the present invention is the provision of such a crane device in which the lifting hook can be accurately spotted over the load and particularly when lifting an object close to the location of the device.

The invention has particular adaptability to a loader to be carried by a truck for handling logs and the like where a telescoping construction is desirable to avoid excessive clearance, whereby the mast, and even the boom itself may be lowered to reduce the vertical clearance required, by a mechanism for which may be operated hydraulically and advantageously from a common control panel, from which also hydraulic control of the boom is possible, whereby to localize and concentrate all of the controls on one panel readily accessible to a single operator.

These and other objects and advantages will be apparent from the following description, taken together with the accompanying drawings showing an illustrative embodiment of the invention, and in which drawings—

Figure 1 is an elevational view of the device, parts being shown in section, and showing in full lines an elevated, extended, position of the parts with the mast elevated for normal operation, and in dotted lines an alternative retracted position of the parts, with the mast lowered to reduce the required clearance;

Figure 2 is a top view of the device, parts being broken away to save space;

Figure 3 is an enlarged elevational view taken from the right hand side of Fig. 2, parts being broken away and shown in section;

Figure 4 is a partial enlarged cross-section taken on the line 4—4 of Fig. 1;

Figure 5 is an enlarged partial cross-section taken on the line 5—5 of Fig. 1;

Figure 6 is an enlarged partial cross-section taken on the line 6—6 of Fig. 1;

Figure 7 is an enlarged plan view of the control panel shown in Fig. 1;

Figure 8 is a further enlarged fragmentary front view of the panel;

Figure 9 is a cross-section taken on the line 9—9 of Fig. 8;

Figure 10 is a fragmentary plan section taken on the line 10—10 of Fig. 9;

Figure 11 shows diagrammatically one position of one of the four-way valves;

Figure 12 is a view somewhat similar to Fig. 11 showing an alternative position of the four-way valve;

Figure 13 is another view showing the four-way valve in locked position;

Figure 14 is a view similar to Fig. 11 of the two-way valve;

Figure 15 is a view similar to Fig. 12 of the two-way valve; and

Figure 16 is a view, similar to Fig. 13, of the two-way valve, showing the latter in locked position; and

Figure 17 shows a general view of a truck loader with the invention applied thereto.

Referring in detail to the illustrative construction shown in the drawings, the device indicated generally by the numeral 11 is shown for purposes of exemplification mounted on a truck chassis 12 at a location which may conveniently be just behind the driver's cab of the truck (Fig. 17) so as to be in position to function with respect to the body platform 13 of the truck.

In accordance with the present invention, the device 11 embodies a rectangular tower or tank 14 firmly secured in any suitable manner to the truck chassis 12, the details of securement of which need not be here shown. The tank 14 provides a housing for parts later described. The lower part of the tank 14 constitutes a sump 15 and may also form an auxiliary reservoir for the circulating hydraulic fluid, such as oil, and into which at its lower end is connected an outlet pipe 16 that may lead to the usual hydraulic pump A that may be operated by the power plant of the truck as is well known and need not be here shown. From such pump may also lead the inlet pipe 17 for the hydraulic fluid for the device and which enters through a fitting 18 at the center of the tank 14 as presently more particularly described. In the pipe 17 is located a check valve 19 which passes fluid only in the direction towards the tank. Also connected across the pipe and tank, by a fitting 20 to the pipe and a fitting 21 to the tank, is a hand valve 22. The fitting 20 is downstream of the check valve 19. When the valve 22 is manually closed, fluid entering the tank through the pipe 17 must pass thereinto through the fitting 18. When the valve 22 is manually opened, fluid may pass therethrough from the pipe 17 directly into the sump 15.

Secured centrally of the floor 23 of the tank 11 is the hydraulic motor or torque actuator 24 which may be of a type manufactured by Hydromotor Incorporated, Orrville, Ohio, and which, as best seen in Fig. 5, includes a cylinder 25 in which is rotatably or swingably located a vane 26 that rotates in either direction from a stationary abutment 27 that, together with the vane 26 divides the interior of the cylinder 25 into two compartments. The vane hub 28 constitutes the driver shaft of the motor. Rotation of the vane 26 with its shaft 28 through an arc of approximately 280° is permitted and is actuated by admission of the hydraulic fluid under pressure to one side or the other of the vane 26, hollow bosses 29 and 30 on the cylinder 25 providing therefor, as later more particularly described, each communicating with one side of the vane 26.

The shaft 28 is bored as at 31 to provide a passageway communicating with the fitting 18 for the passage of hydraulic fluid under pressure from the pipe 17 upwardly through the torque actuator 24 and through a similar registering bore 32 in the upper end 33 of the motor shaft 28 which is splined as at 34 and is keyed in the fluted bore 35 of the rotatable cylinder head 36, from which integrally rises the cylinder 37, having an outer wall 38 and an inner wall 39 providing between them an

annular passageway 40. The cylinder head 36 and cylinder 37 are rotatably carried, on anti-friction or ball bearings 36*a*, on a secondary floor 36*b* in the tank 14. The rotatable cylinder 37 provides both a support and means for operation of the boom and mast as later described. At its upper end it is rotatably supported by a roller bearing 14*a* in the upper wall 14*b* of the tank 14.

Further in accordance with the present invention, in the cylinder provided by the inner wall 39 of the double cylinder 37 plays a piston 41 limited in its upward movement by an abutment or shoulder 41*a* in the upper end of the cylinder 37. From the piston 41 extends upwardly the piston rod or mast extension, 42, which, together with the cylinder 37, constitutes the mast of the crane device.

The cylinder 37 is rotatable through the influence of the hydraulic fluid, functioning by means of the torque actuator 24, to rotate, with the mast extension 42, the boom 43, and the guy mechanism 44. To secure the boom to the mast, a collar 45 surrounds the upper part of the cylinder 37, and has laterally extending mounting lugs 46 to and between which the cylinder 47 comprising the inner or proximal member of the telescoping boom is pivotly connected as at 48, for movement of the boom in a vertical plane on this pivot while also being swingable with the mast through a lateral arc of approximately two hundred and eighty degrees.

For mounting the guy mechanism 44, the mast section 42 (which it is to be remembered is the piston rod of the piston 41) has integral lugs 49 at its upper end to which the cylinder 50 constituting the inner or proximal member of the telescoping guy mechanism 44 is pivotally secured as at 51, in the same vertical plane as the pivot 48 so that the guy mechanism can also move in an arc in the same plane as the boom but on vertically spaced apart pivots. Also since the mast section 42 is carried by the cylinder 37 the two will rotate together while swinging laterally not only the boom but also its guy mechanism. The collar 45 may be adjustably secured to the cylinder 37 as by screws 52, and this collar 45 with the boom 43 may be lowered to a limited extent on the mast.

Above the boom collar 45 there is fixed to the upper end of the cylinder 37 and thus to the mast the hydraulic control panel 53 which carries a number of manually operable levers such as 54, 55, 56 and 57, the operation of which will later be more particularly described (Figs. 7 to 16).

As here shown, the lever 54 controls a four-way valve structure 58 which is in command of a pair of hose connections 59 and 60 that connect the hollow bosses 29 and 30 respectively, of the actuator 24, hydraulically with the valve 58. The lever 55 controls a four-way valve structure 61 that is in command of a pair of hose connections 62 and 63 that extend between the valve 61 and the motor winch mechanism 64 mounted on the upper end of the piston or mast extension 42. The lever 56 controls a two-way valve structure 65 that is in command of a hose connection 66 that is in communication with the distal end 67 of the guy mechanism cylinder 50. The lever 57 controls a two-way valve structure 68 that is in command of a hose connection 69 that communicates with the proximal end 70 of the boom cylinder 47.

Hydraulic fluid for operating purposes is propelled to the control panel 53 through the hose connection 71 that enters the panel at 72 and that by the port 73 is in communication with the inner cylinder 39 of the cylinder 37 just below the uppermost position of the piston 41 therein. Return fluid from the control panel 53 may pass through the hose connection 74 which leaves the control panel at 74*a* and which at 75 enters the annular space 40 between the cylinders 38 and 39 and from there may run through the outlet 76 in the cylinder 37 lower end and through the hole 77 in the secondary bottom wall 36*b* and into the sump 15. In the hose connection 71 is located a metering valve 78 which opens at a predetermined pressure, of say 100 pounds per square inch, to admit fluid to the control panel 53, when the piston 41 has been raised to its uppermost position by fluid pressure in the cylinder 39 to uncover the port 73, that being the minimum pressure necessary in the cylinder 39 to keep the piston up. The metering valve 78 passes fluid only in a direction toward the control panel 53 and prevents the passage of fluid in the hose connection toward the cylinder 39.

Further in accordance with the present invention, the motor winch mechanism 64 located at the upper end of the piston or mast section 42 has wound thereon the load-lifting cable 79 that passes over the sheave 80 carried by the usual universal mounting at the outer end of the boom 43 and the cable terminates in the lifting hook 81. The motor winch mechanism is carried on a platform 64*a* that is bolted at 64*b* to an integral enlargement 64*c* of the mast extension 42. The customary bail 82 depends from the bearing of the sheave 80 and has a perforation 82*a* in its bight to guide the cable 79 and cause the sheave to swivel on knuckle support 80*a* to accommodate the direction of the pull.

As best seen in Figs. 2 and 3, the winch mechanism 64 for the hoisting cable 79 embodies a rotatable drum 83 about which the cable 79 is wound, the drum having an integral gear box extension 84 which together with the end plate 85 houses a train of planetary reduction gearing 86 that includes an internal gear 87 in the extension 84 driven by the gearing 86 to turn the drum. The gearing 86 is desirably driven by an oil power motor 88 of the type including a wobbler plate such as is manufactured by Sunstrand Machine Tool Co., Rockford, Illinois. As is well known in the art, rotation of the winch drum 83 in one direction is caused by admission of hydraulic fluid under pressure, by means of valve lever 55 and four-way valve 61 to one of and in this instance say the hose connection 62 which communicates with the interior of the fluid motor 88, at which time the valve 61 is open to relieve the hose connection 63 of pressure. For rotation of the drum 83 in the opposite direction, the lever 55 is actuated to place the valve 61 in position to admit fluid under pressure through the hose connection 63 and to relieve the hose connection 62 of pressure. The output shaft 89 of the motor 88 is thus rotated in one direction or the other as the case may be, to drive the gear train 86 to take up or let out cable 79.

As best seen in Figs. 1 and 2, the guy device 44 includes a pair of extension arms 90 rigidly extending from the cylinder 50. At the outer end of the extension arms 90 is fixed an arbor 91 upon which are journaled a pair of independently rotatable pulley wheels 92 and 93. Between the arms 90 and movable longitudinally thereof is the piston rod 94 of the piston 95 reciprocable in the cylinder 50. At its outer end the piston rod 94 is trifurcated to carry three independently rotatable pulley wheels 95, 96 and 97. A flexible stranded wire 98 is anchored at one end 99 adjacent the outer end of the boom section 100, and then passes rearwardly over the pulley 97, forwardly over the pulley 92, rearwardly over the pulley 96, forwardly over the pulley 93, rearwardly over the pulley 95, and again forwardly to its other termination which is secured as at 101 also adjacent the outer end of the boom extension 100 abreast of the connection 99. The pulley and strand mechanism just described is such as to give a four to one movement, that is to say, for a movement of one inch of the piston rod 94 inwardly of the cylinder 50 the over-all length of the guy device (from its pivot 51 to its connection 99—101 with the boom) will be decreased four inches, and, conversely for every one inch movement of the piston rod 94 outwardly of the cylinder 50 the over-all length of guy device 44 will be increased four inches. In this operation the distance between the pulleys 92—93 and the pulleys 95—96—97 is varied in one instance to increase this distance to shorten the over-all length of

the guy device and in the other instance to decrease this distance to increase the over-all length of the guy device.

The boom extension **100** of the boom **43** is also the piston rod of a piston **102** which plays within the cylinder **47** of the boom.

It is to be understood that the return hose connection **74** is so related to the control panel **53**, and to the valves **58**, **61**, **65** and **68** that pressure is maintained up to these valves whenever the piston **41** is hydraulically actuated to uncover the port **73** and the pressure is 100 pounds per sq. in. or more, as next described.

Turning now to a description in detail (Fig. 7) of the control panel **53**, this includes a collar portion **103** that encircles the cylinder **37** at its upper end and just above the boom mounting collar **45**, the collar extension **103** extending rearwardly from the control panel portion proper **104** of the part **53**. The collar **103** has a transverse sleeve portion **105** that receives in its bore **106** a locating pin **107** that also enters notch **108** in the mast cylinder **37** that intersects the bore **106** of the collar sleeve portion **105**, thus both locating the control panel **53** vertically on the mast and also insuring that the panel will turn with the mast.

As best seen in Fig. 9, the panel portion proper **104** of the control panel **53** is divided into upper and lower oil chambers respectively. Upper chamber **109** communicates through fitting **72**, hose connection **71** and fitting port **73** with the high pressure side of the pump, and lower chamber **110** communicates through fitting **74***a* and hose connection **74** with the low pressure side of the pump through the passage **40**, the sump **15** and return pipe **16**. A relief valve **111** in the wall between the two chambers **109** and **110** may be loaded to any predetermined pressure, say 110 pounds per square inch, to pass fluid directly from the chamber **109** into the chamber **110** when the pressure exceeds that given, so that oil may by-pass the control valve when not there in use. The valve structures may be secured to the panel **104** as by screws **116** and gasket **116***a*.

Considering the valve **58** as typical of the two four-way valves **58** and **61**, it will be seen from Fig. 9 that the valve **58** includes a valve proper **58***a* which is recessed on its opposite faces as at **58***b* and **58***c* and which is rotatable by the valve lever **54** to place the valve duct **112** in communication with the port **113***a* and valve duct **112***a* in communication with the port **113**. The valve duct **112** communicates through the orifice **114** with the high-pressure side **109** of the control panel. In a reverse position of the lever **54**, as seen in Fig. 11, the valve **58***a* may be rotated to a position so as to place the valve duct **112***a* in communication with the port **113***a* and the duct **112** in communication with the port **113**. The duct **112***a* communicates through the orifice **115** with the low-pressure side or chamber **110** of the control panel.

In the position of the four-way valve shown in Fig. 11 the hose connection **59** is placed in communication with the high-pressure side of the control panel so that oil under pressure flows into the hydraulic torque actuator **24** in a direction to move the torque vane **26** in one direction. As shown in Fig. 12, the hose connection **60** is in communication with the high-pressure side of the control panel so as to move the torque vane **26** in the opposite direction. When the valve is in the position shown in Fig. 11 the hose connection **60** is in communication with the low-pressure side or chamber **110** of the control panel so that oil from the torque actuator on the low-pressure side thereof may flow to the low-pressure side of the control panel. Similarly when the valve is in the position shown in Fig. 12 the hose connection **59** is placed in communication with the low-pressure side.

It will be understood that the four-way valve **61** functions similarly to the valve **58** with respect to the hose connections **62** and **63** of the hydraulic motor **88** of the motor winch mechanism **64**.

In each case, as may be, the valve levers **54** and **57** may be manipulated to actuate the torque motor **24** to rotate the mast and to swing the boom or to actuate the hydromotor **88** to vary the length of the cable, or both.

With respect to the two-way valves **65** and **68**, of which valve structure **68** may be taken to be typical, as seen in Fig. 14, the valve proper **68***a* of the valve **68** is recessed on only one side as at **68***b* so as to place the hose connection **69** in communication either with the valve duct **117** to the high-pressure side of the control panel, or with the duct **118** to the low-pressure side. If the valve handle **57** is placed in position to locate the valve **68***a* as shown in Fig. 14, fluid under pressure will flow through the hose connection **69** to the proximal side of the piston **102** in the boom cylinder **47**, to move the boom extension **100** outwardly.

When the boom is desired to be reduced in length, the valve **68** is placed in the position shown in Fig. 15 in which the hose connection **69** is in communication with the low-pressure side or chamber **110** of the control panel.

At the same time, the length of the guy mechanism **44** is decreased by admitting fluid under pressure through the conduit **66** to the distal end of the cylinder **50** of the guy mechanism. This may be accomplished by manipulating the valve lever **56** to place the valve **65** in position similar to that of the valve **68** in Fig. 14, and, to reverse the action, in a position similar to that of the valve **68** as shown in Fig. 15. Thus it will be understood that the telescoping boom **43** and the telescoping guy mechanism **44** work together in the sense that when one is extended under pressure of fluid in its cylinder the other is extended automatically without fluid pressure in its cylinder, and, conversely when one is reduced in length under pressure of fluid in its cylinder, the other is reduced in length without fluid pressure in its cylinder. In each case when one of these elements is changed in length without fluid pressure, the fluid in its cylinders may return to the sump.

As seen in Fig. 13 for the four-way valve and in Fig. 16 for the two-way valve, the valve in each case may be placed in position by its valve handle so as to be in a locked position, that is, to hold the fluid in the pressure delivering hose connection static and to cut off communication between the valve both with the high pressure and the low pressure side of the control panel to maintain the parts in the position in which they have been last placed by action of the hydraulic fluid. Thus even if the pump should stop, the boom and other parts would remain stationary and would not drop.

At the end of the day, say, when it is desired to garage the crane device, if it be mounted on a truck, or the like, the lever **54** is manipulated to center the boom over the truck, the lever **55** to retract the cable, the lever **56** to shorten the guy mechanism, and the lever **57** to permit shortening of the boom. Then the valve **22** is opened to relieve the pressure in the cylinder **39**, whereupon the piston **41** will drop, closing the port **73**, and the parts will assume the position shown in dotted lines in Fig. 1, the mast and boom being lowered.

The invention is not intended to be limited to details of construction shown for purposes of exemplification of the invention nor to the various mechanical and hydraulic expedients illustrated as means for performing in the claimed combinations the functions novel thereof. Furthermore, it may not be essential in all uses of the invention, to employ all features thereof conjointly, since at times various combinations or subcombinations may be advantageously availed of. An illustrative disclosure having been made, in compliance with the statute, changes can be made within the scope of the appended claims without departing from the invention.

What is here claimed is:

1. A hydraulic crane device comprising a vertical cylinder, a piston therein, a boom pivoted on said cylinder, a piston rod extending upwardly from the piston, a guy device pivoted on said piston rod and connected with the outer end of the boom, a first hydraulic motor for rotating said cylinder and with it said boom and guy, a second hydraulic motor carried by said piston rod adjacent said guy, a winch associated with a said second motor and driven thereby, a cable wound on said winch and passing over the outer end of said boom, and separate hydraulic means for extending and contracting said boom and guy device respectively.

2. The structure of claim 1 wherein the cylinder carries also a control panel for said hydraulic motors and means.

3. The structure of claim 2 wherein the cylinder provides a passageway for the hydraulic fluid to said control panel.

4. The structure of claim 2 wherein the cylinder provides a passageway for the hydraulic fluid to said control panel and there is a port in said cylinder communicating with the control panel when the piston is moved by the hydraulic fluid to its uppermost position.

5. The structure of claim 1 wherein the said first motor is concentric with said cylinder and the motor shaft is bored to provide a passageway for the hydraulic fluid into said cylinder.

6. The structure of claim 1 wherein the cylinder is double walled and provides a passageway between said walls for return fluid from said motors and said means.

7. The structure of claim 1 wherein the cylinder is rotatably supported in upright position by a tank which also serves as a housing for said first motor.

8. The structure of claim 7 wherein the tank also serves as an auxiliary reservoir for the hydraulic fluid.

9. The structure of claim 1 wherein the first motor is of the hydraulic torque actuator type having a swingable vane.

10. The structure of claim 4 wherein the second motor is of the type comprising a wobbler plate.

11. A hydraulic crane device comprising a rotatable cylinder, a piston therein, an extensible boom pivoted for vertical movement on said cylinder, a piston rod extending upwardly from the piston, an extensible guy device pivoted for vertical movement on said piston rod and connected with the outer end of the boom, hydraulic means for rotating said cylinder, hydraulic means for actuating said piston, separate hydraulic means for extending and contracting said boom and guy device respectively, and common means including said cylinder for delivering fluid under pressure to all of said hydraulic means.

12. In a hydraulic crane device, a vertical rotatable cylinder, a piston therein, a boom carried on said cylinder, a piston rod extending upwardly from said piston, a guy member connected at one end with said piston rod and at its other end with said boom, a hydraulic motor below said cylinder and having a hollow vertical shaft keyed to said cylinder to rotate the cylinder and with it said boom and guy member, said hollow shaft communicating with the interior of said cylinder to admit fluid under pressure to the underface of the piston, fluid communication means between said motor and cylinder responsive to movement of the piston to its upper position, and means for delivering fluid under pressure to said cylinder and motor through said hollow shaft and communication means.

13. A hydraulic crane device comprising a cylinder, a boom pivoted for vertical movement on said cylinder, a piston rod extending from said cylinder, a guy device pivoted for vertical movement on said piston rod, said guy device including a cylinder and a piston rod, a pair of arms extending from the guy device cylinder, pulleys mounted on the outer ends of said arms, other pulleys mounted on said guy device piston rod, and a wire strand connected at each end to said boom and passing back and forth between and over said pulleys to vary the length of said guy device by increments greater than a given movement of said guy device piston rod.

14. A hydraulic crane device comprising a cylinder, a boom pivoted for vertical movement on said cylinder, a piston rod extending from said cylinder, a guy device pivoted for vertical movement on said piston rod, said guy device including a cylinder and a piston rod, pulley support means extending from the guy device cylinder, pulleys mounted on the outer ends of said pulley support means, other pulleys mounted on said guy device piston rod, and a wire strand connected at each end to said boom and passing back and forth between and over said pulleys to vary the length of said guy device by increments greater than a given movement of said device piston.

15. In a hydraulic crane device, a hollow rotatable cylinder, a piston therein, a boom carried on said cylinder, a piston rod extending upwardly from said piston, a guy member connected at one end with said piston rod and at its other end with said boom, a hydraulic motor below said cylinder and having a hollow vertical shaft keyed to said cylinder for rotating the cylinder, said hollow shaft communicating with the interior of said cylinder to admit fluid under pressure to the underface of said piston, and fluid communication means between said motor and cylinder responsive to movement of the piston, said communication means including a port in said cylinder uncovered by movement of said piston to elevate the guy member.

16. In a hydraulic crane device, a hollow rotatable cylinder, said cylinder having a double wall providing an annular passageway, a piston within the inner wall, a boom carried on said cylinder, a piston rod extending upwardly from said piston, a guy member connected at one end with said piston rod and at its other end with said boom, a hydraulic motor below said cylinder and having a hollow vertical shaft keyed to said cylinder for rotating the cylinder, said hollow shaft communicating with the interior of said cylinder to admit fluid under pressure to the underface of said piston, fluid communication means between said motor and cylinder responsive to movement of the piston to its upper position, said communication means including a port in said cylinder uncovered by said piston movement, a fluid control panel said port communicating with said control panel, and fluid communication means between said control panel and said annular passageway for return movement of the fluid.

17. In a hydraulic crane device, a hollow rotatable cylinder, said cylinder having a double wall providing an annular passageway, a piston within the inner wall, a hydraulically extensible boom carried on said cylinder, a piston rod extending upwardly from said piston, a hydraulically extensible guy member connected at one end with said piston rod and at its other end with said boom, a hydraulic motor below said cylinder and having a hollow vertical shaft keyed to said cylinder for rotating the cylinder, said hollow shaft communicating with the interior of said cylinder to admit fluid under pressure to said piston, fluid communication means between said motor and cylinder responsive to movement of the piston to its upper position, said communication means including a port in said cylinder uncovered by said piston movement, a fluid control device, said port communicating with control device fluid communication means between said control device and said boom and guy device respectively, and fluid communication means between said control device and said annular passageway for return movement of the fluid.

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