April 2, 1957 G. E. BOCK ET AL 2,787,065

CONVERTIBLE PUMP MOUNT AND LUBRICATION ARRANGEMENT

Filed Nov. 30, 1953 4 Sheets-Sheet 1

Fig. 1.

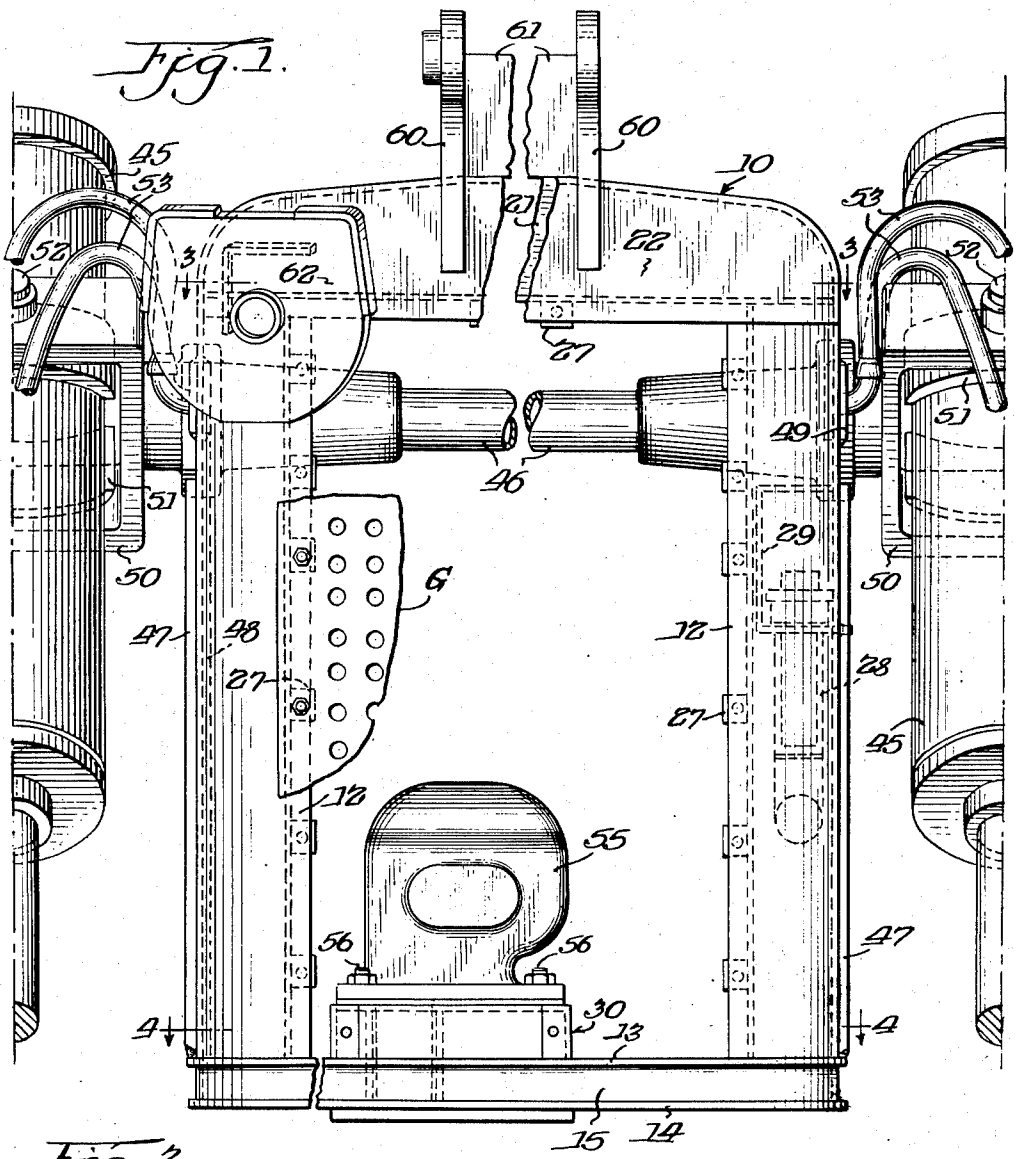
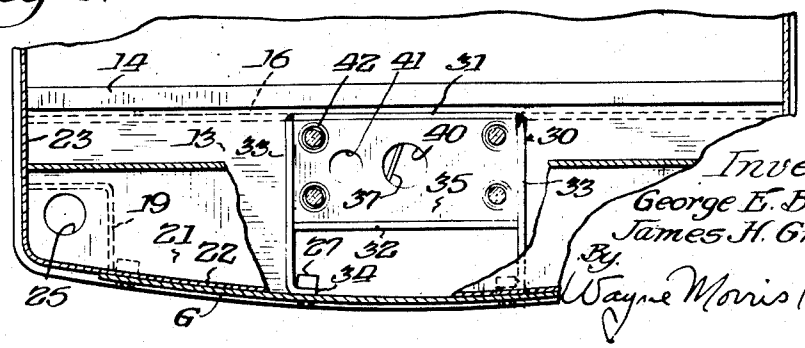


Fig. 3.



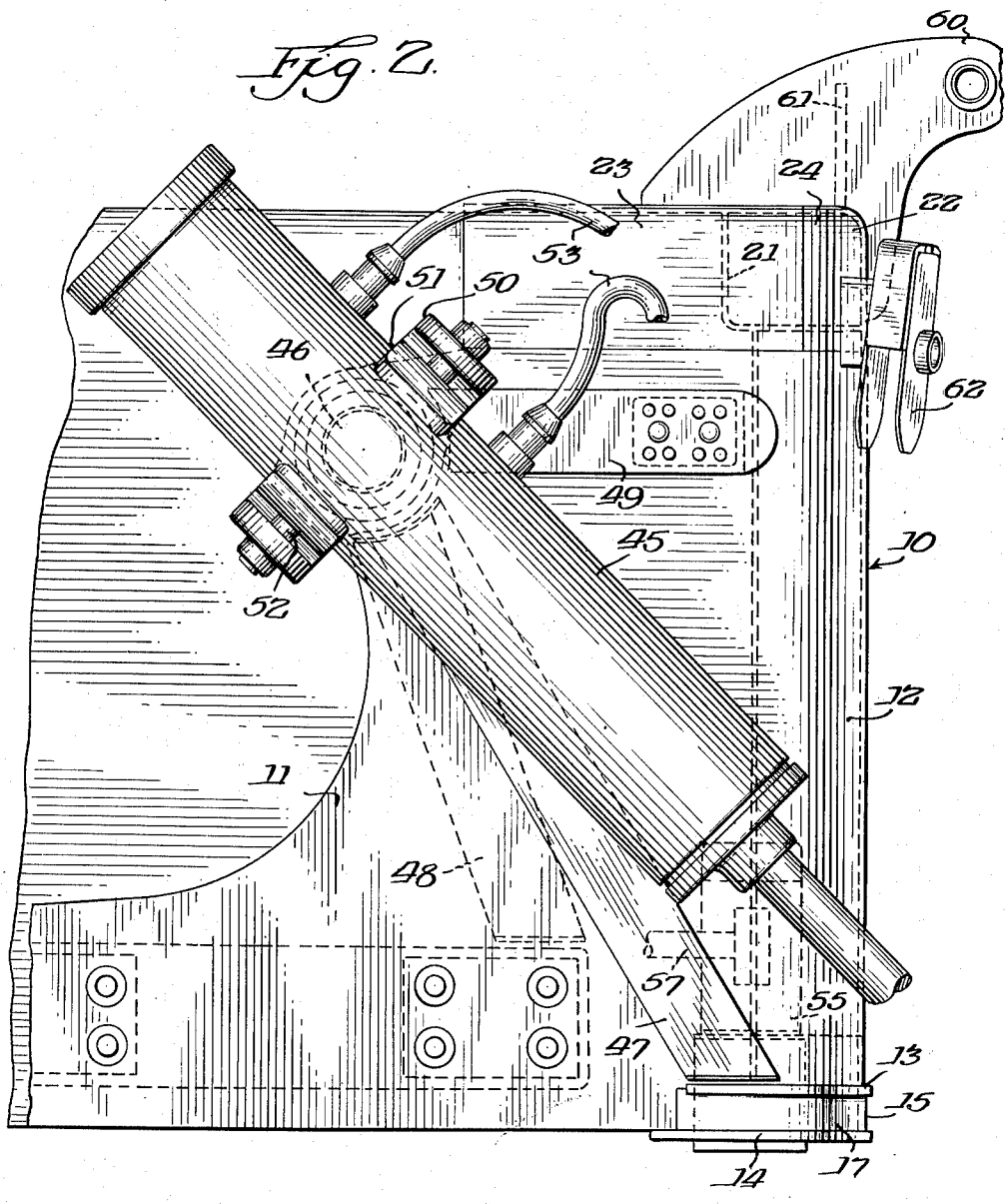
Inventors
George E. Bock, &
James H. Graas.
By
Wayne Morris Russell.
Atty.

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Fig. 2.



Inventors.
George E. Bock, &
James H. Graas.

By. Wayne Morris Russell.
Atty.

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CONVERTIBLE PUMP MOUNT AND LUBRICATION ARRANGEMENT

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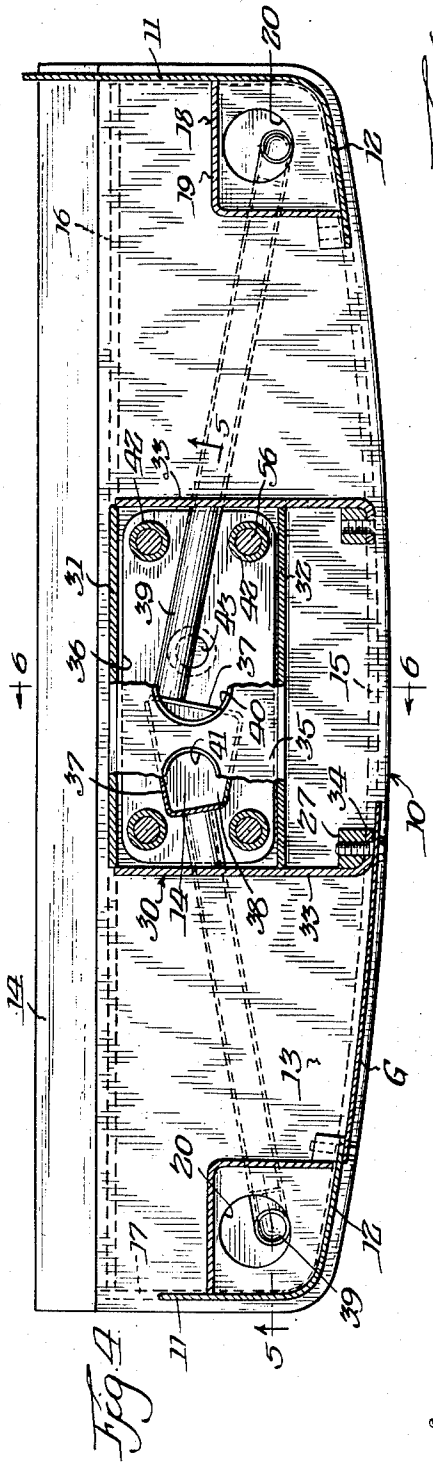


Fig. 4

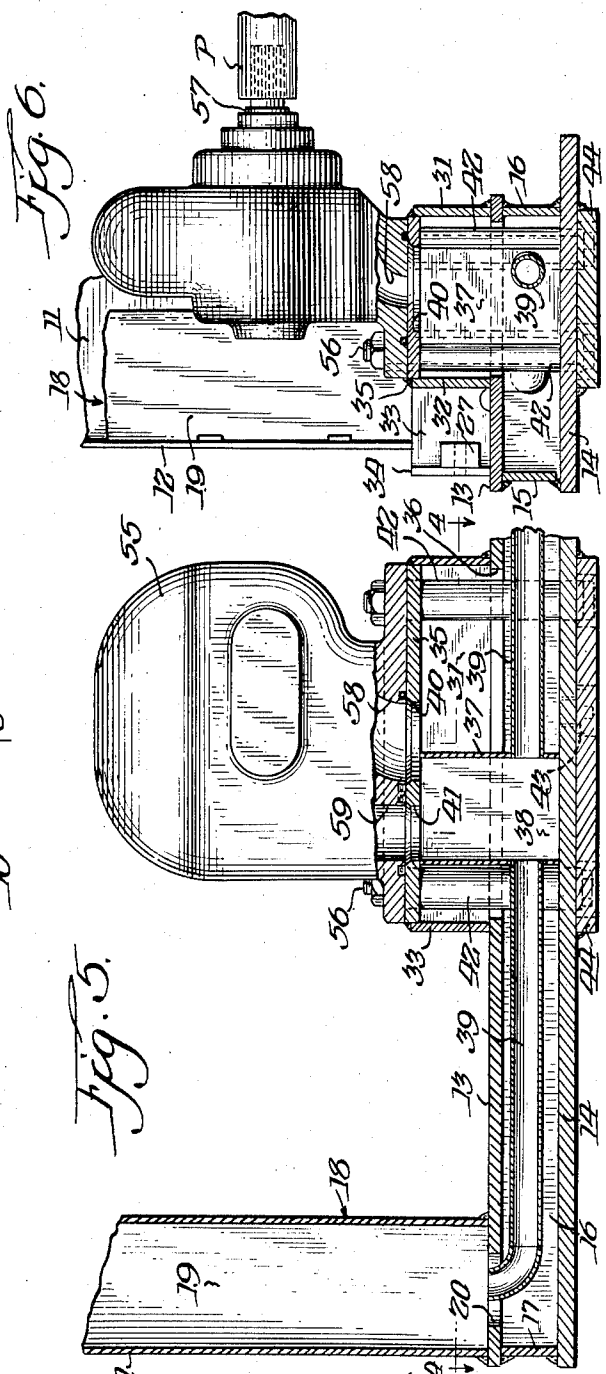


Fig. 6.

Fig. 5.

Inventors.
George E. Bock, &
James H. Graas.
By Wayne Morris Russell
Atty.

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CONVERTIBLE PUMP MOUNT AND LUBRICATION ARRANGEMENT

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Fig. 7.

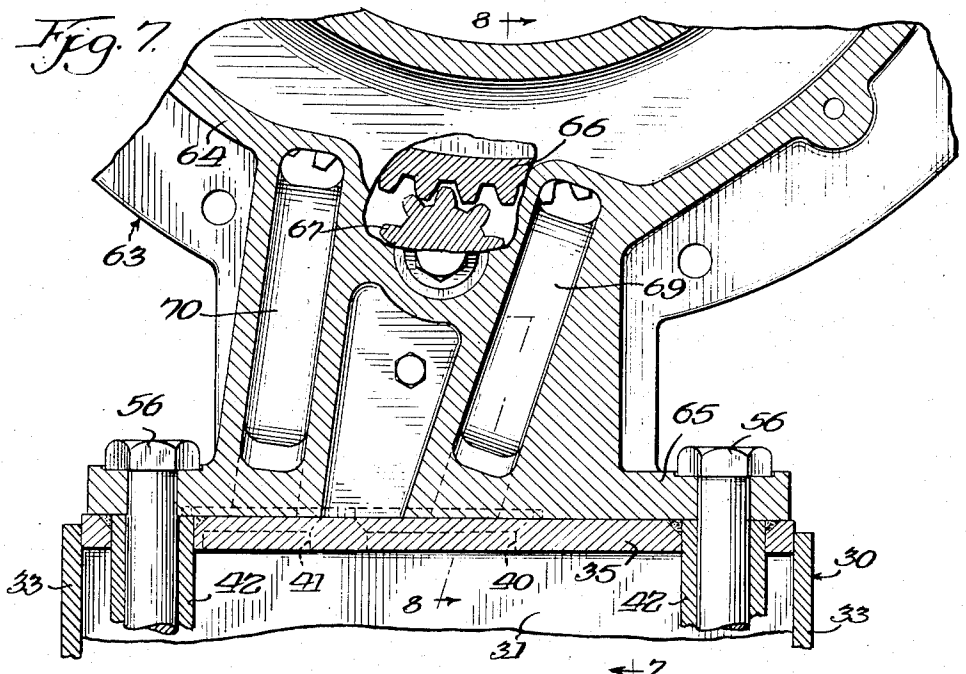
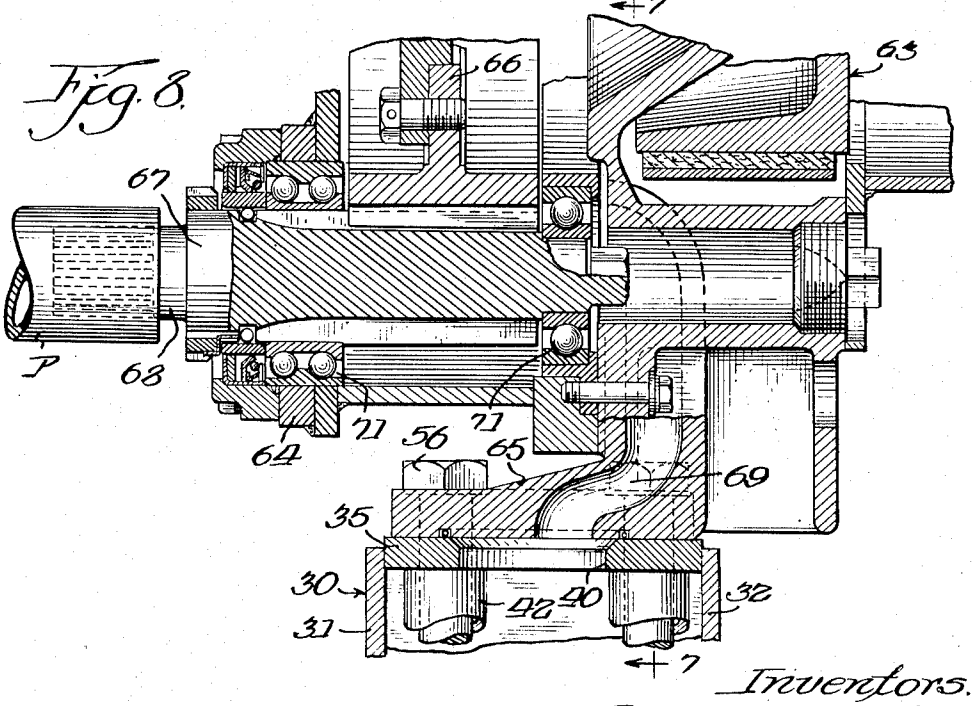


Fig. 8.



Inventors.
George E. Bock, &
James H. Graas.
By Wayne Morris Russell.
Atty.

United States Patent Office

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CONVERTIBLE PUMP MOUNT AND LUBRICATION ARRANGEMENT

George E. Bock, Munster, and James H. Graas, Griffith, Ind., assignors to Pullman-Standard Car Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application November 30, 1953, Serial No. 395,123

11 Claims. (Cl. 37—144)

The present invention relates to a convertible mounting for a pump and lubrication arrangement, and more particularly to such a mounting arrangement in a lift frame of a bulldozer or the like adapted for use with either hydraulic or winch-operated means for actuating the bulldozer moldboard.

In the illustrated embodiment of the invention, a lift frame having its forward portion formed of hollow base, side, and top frame parts in communication with each other to provide an oil reservoir at the lower portion thereof and an air cushion at the upper portion is adapted for securement on a tractor or other vehicle carrying a blade or moldboard swingable in a vertical plane. Hydraulic means such as cylinders may be utilized to lift the moldboard, a pump being provided to supply oil from the reservoir to such means under pressure for operation thereof. Winch-operated lifting means may be employed instead of the hydraulic means to operate the moldboard by means of a cable windable on the winch, and a driving pinion and a gear of the winch meshing therewith, by which the winch is driven, serve also as gear pump means to circulate oil to the bearings from the reservoir. Either the hydraulic or the winch-operable lifting means may be mounted on the same frame, so that only one type or construction of lift frame is required regardless of the type of lifting means to be employed. The reservoir is provided with a hollow mounting pad having outlet and return means for communication with correspondingly disposed intake and exhaust passages or ports of the pump means mounted thereon as by bolts or the like, the mounting pad having a bolting pattern to which correspond the bolting patterns of the different pump means, so that proper location of the parts is assured. Within the oil reservoir there is provided a closed chamber from which conduits extend to the side frame members, and to which the return means provides communication, so that heated oil returned to the tank from the lifting means by the particular pump means is led to the side frame members to rise by convection and flow downwardly as it cools, and is kept from mixing with already cooled oil. This also allows for settling or deposition of dirt and other impurities from the oil on the bottom of the reservoir. The outlet means communicates primarily with the portion of the reservoir outside of the chamber, so that the cooler oil is drawn out by the pump means, but to a minor extent communicates also with the closed chamber, so that if for any reason a sufficient volume of oil to prevent vacuum gaps in the flow is not drawn from the remainder of the reservoir, oil will be drawn directly from the chamber to supply the deficiency.

One great advantage of the present invention is the ample lubrication for the winch parts resulting from

the utilization of the oil reservoir in conjunction with winch-operable moldboard lifting means, prior constructions being deficient in this respect. Another is the reduction of time, labor, and cost effected in manufacturing by the employment of only one type of lift frame for bulldozers with either hydraulic or winch-operable lifting means. Further, the invention provides for the cooling of the oil and the removal of impurities therefrom, and the supply of cool, clean oil to the lifting means for most efficient operation thereof, whether of the hydraulic or winch type. Avoidance of the development of vacuum in the operation of the pump means is assured by the construction. Proper location of either pump means relative to the reservoir is provided for.

It is an object of the present invention to provide a lift frame for bulldozers or the like equally applicable for use with hydraulic or winch-operable lifting means for the bulldozer moldboard.

Another object is the provision of a lift frame for bulldozers or the like incorporating an oil reservoir and on which hydraulic and winch-operable means for lifting the bulldozer moldboard are alternatively mountable.

Another object is the provision of a lift frame for bulldozers or the like incorporating an oil reservoir and adapted for mounting either hydraulic means for lifting the bulldozer moldboard operable by oil from the reservoir or winch means for lifting the moldboard lubricated by the reservoir oil.

Another object is the provision of a lift frame for bulldozers or the like incorporating an oil reservoir and equally adapted for mounting hydraulic or winch-operable moldboard lifting means by utilization of the reservoir to supply oil for operation of hydraulic means or oil for lubrication of winch means.

It is another object of the invention to provide a lift frame for bulldozers or the like incorporating a reservoir for oil to operate hydraulic lifting means for a bulldozer moldboard or to lubricate winch-operable moldboard lifting means, in which circulation of oil is controlled to assure the supply of cool oil to the lifting means, avoid vacuum locks, and allow settling of impurities from the oil.

Another object is the provision of means to assure ample lubrication of winch-operable moldboard lifting means in a bulldozer or the like for efficient operation thereof.

A further object is the provision of a hollow frame support for either hydraulic means or winch means affording reservoir of oil for operation of the hydraulic means or lubrication of the winch means.

Other and further objects, advantages, and features of the invention will be apparent to those skilled in the art from the following description, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a front elevational view of the lift frame of this invention, showing hydraulic moldboard lifting means mounted thereon and also showing portions of winch-operable lifting means thereon;

Fig. 2 is a side elevational view of the construction shown in Fig. 1;

Fig. 3 is a fragmentary horizontal sectional view through the upper portion of the lift frame, taken substantially as indicated by the line 3—3 of Fig. 1;

Fig. 4 is a horizontal sectional view through the lower portion of the lift frame, somewhat enlarged, taken substantially as indicated by the line 4—4 of Fig. 1;

Fig. 5 is a vertical sectional view through the lower

portion of the lift frame and the pump mounted thereon, taken substantially as indicated by the line 5—5 of Fig. 4;

Fig. 6 is a vertical sectional view through the lower portion of the lift frame and the pump mounted thereon, taken substantially as indicated by the line 6—6 of Fig. 4;

Fig. 7 is an enlarged fragmentary sectional view taken substantially as indicated by the line 7—7 of Fig. 8, similar to Fig. 5, but showing the pump means of winch-operable lifting means; and

Fig. 8 is a sectional view taken substantially as indicated by the line 8—8 of Fig. 7.

Referring first to Figs. 1 and 2 of the drawings, there is shown a lift frame generally designated 10 for securement on a tractor or other vehicle carrying a moldboard (not shown) to mount lifting means for the moldboard. The frame 10 comprises a pair of vertical side plates 11 extending rearwardly from a front frame portion which is of hollow construction, the forward ends 12 of the side plates being bent inwardly toward each other, as best shown in Figs. 3 and 4, to form parts of the front frame portion. The front frame portion comprises a hollow base defined by top and bottom plates 13 and 14, a front wall 15, a rear wall 16, and end walls 17, suitably welded or otherwise secured together in oil-tight relation, the forward end portions 12 of the side plates 11 engaging on and being secured to the ends of the top plate 13. Hollow side frame members 18 extending vertically from the base are defined by the forward portions 12 and the adjacent portions of the side plates and by vertically extending angularly bent plates 19 the edges of which are welded to the rearwardly extending side plate portions and the inwardly extending side plate portions 12 to define generally rectangular hollow columns. An aperture 20 is provided adjacent each end of the base top plate 13 for communication between the side frame members and the base. A hollow top frame member connects the upper ends of the side frame members 18, being defined by an angle plate 21 extending between the top edges of the side plates 11 to form the bottom and rear wall of the top member. The front is formed by a plate 22 flush with the side plate forward portions 12 flanged at its top and ends as at 24 to form part of the top and ends of the top member, the ends extending flush with the side plates 11. A cover plate 23 of inverted U shape flush with the flanged portions of the front plate provides the remainder of the top and ends of the top member and extends rearwardly beyond the rear wall defined by the angle plate 21 to connect the upper ends of the side plates. Apertures 25 are formed in the bottom of the top member to provide communication with the side frame members 18.

The front end of the lift frame 10 is thus formed of hollow members in substantially rectangular relation and in communication with each other, defining a central opening through which cooling air may pass to the radiator of a tractor motor disposed rearwardly thereof. The margins of the side plate portions 12 and of the front plate 22 project respectively inwardly of the plates 19 and plate 21 and at intervals have threaded apertures backed by tapping blocks 27 to receive bolts or the like for the securement of a foraminous guard plate G which is preferably disposed across the opening. The front end of the frame may be bowed forwardly as shown, the base front wall 15, side plate portions 12, front plate 22, and guard plate G being appropriately curved. The lower portion of the hollow frame serves as a reservoir or tank for oil, which may be introduced through a filler pipe 28 having a strainer, disposed in one of the hollow side frame members and opening into a recess 29 formed in the frame member to allow access to the pipe and its closure cap from outside of the frame. The filling recess 29 is defined by suitable plates of such size and arrangement as to leave the upper and lower portions of the hollow frame member in communication with each other.

On the top wall 13 of the frame base and centrally thereof, a mounting pad 30 is formed by a rear plate 31 substantially in the plane of the rear wall 16 of the base and a parallel forward plate 32 disposed between the front and rear edges of the top wall, with a pair of vertical side plates 33 extending substantially across the top wall at the ends of the front and rear plates and having inturned flanges 34 at their forward ends lying substantially in the plane of the front wall 15 of the base and backed by tapping blocks 27 to secure the guard plate G. A flat horizontal top or mounting plate 35 is secured to the upper edges of the plates 31, 32, and 33. An aperture 36 in the top wall 13 substantially corresponding to the dimensions of the mounting pad 30 leaves the hollow pad and base open to each other. Suitable partition means, in this instance a pair of bent plates 37, extend from the mounting plate 35 to the bottom wall 14 to enclose a space therebetween, defining a chamber 38 from the remainder of the reservoir. The partition need not have a tight fit or seal with the mounting plate and bottom wall, and may merely engage thereagainst, being tack-welded to the bottom wall so as to be held in place. Pipes 39 or similar means extend from the closed chamber 38 to the apertures 20 to afford communication between the chamber and the hollow side frame members 18, having orifices directed upwardly through the apertures and shown as provided by elbows on the pipe ends welded to the edges of the apertures. The apertures 20 are of a size considerably greater than the pipe ends. An outlet aperture 40 is provided in the mounting plate 35 for withdrawal of oil from the tank or reservoir, and is so located as to be crossed by one of the partition plates 37, or in other words so that a portion of its area lies within the plan projection of the chamber 38. The major portion of the aperture 40, however, lies outside the projection of the chamber, so that the aperture is primarily in communication with the portion of the reservoir outside of the chamber 38, and only to a minor extent with the chamber itself. An aperture 41 is also formed in the mounting plate for return of withdrawn oil to the reservoir, this return aperture being located wholly within the plan projection of the chamber 38 so as to afford communication with the chamber only and not with the remainder of the reservoir. A plurality of tubular stools 42 extend vertically from the upper face of the mounting plate 35 through and below the bottom wall 14, to both of which they are welded in oil-tight relation, providing means for locating parts to be mounted on the mounting pad and receiving therethrough bolts or the like by which such parts are secured. A drain opening is provided in the bottom wall 14, normally closed by a suitable plug 43. To guard the drain plug and the lower ends of bolts extending through the stools 42 below the bottom wall against damage, a protecting plate 44 is welded to the lower face of the bottom wall 14 directly below the mounting pad 30. The plate 44 is formed with apertures to accommodate the drain plug and the projecting ends of the stools, and is of such thickness that the plug and ends of bolts in the stools are in effect disposed in protecting recesses.

In Figs. 1 to 6 inclusive, hydraulic lifting means for raising and lowering the bulldozer moldboard are shown as mounted on the lift frame 10. The hydraulic means comprise a pair of double-acting cylinders 45 at opposite sides of the lift frame, the piston rods of which extend downwardly and forwardly for connection in any suitable manner to the moldboard (not shown). A cross tube 46 is supported at the rear portion of the lift frame, which is suitably reinforced by diagonal braces 47 and 48 and horizontal braces 49 on the outer and inner faces of the side plates 11 to withstand the stresses resulting from operation of the cylinders 45. A yoke 50 is suitably swiveled in each end of the cross tube, and opposed arcuate members 51 between which the cylinder is secured are pivoted in the arms of the yoke

by pins 52 normal to the yoke swivel axis. Each cylinder is thus allowed at least a certain amount of swinging movement in any direction. Oil under pressure is supplied to the cylinders 45 through flexible conduits 53 by a pump 55 of any suitable type from the oil reservoir provided by the lift frame. The pump has a mounting base with a bolting pattern corresponding to the locations of the stools 42, and is secured on the mounting pad 30 by bolts 56 or the like extending through the stools. The pump shaft 57 projects rearwardly through the pump casing for splined or other suitable connection with a power takeoff shaft P of the tractor motor to provide for operation of the pump. The pump 55 has an intake passage 58 opening through its base in such location that it communicates through the aperture 40 with the interior of the frame base when the pump is secured on the mounting pad, so that oil may be drawn from the tank or reservoir and delivered under pressure to the cylinders 45 as required by the pump. Any suitable valve means, not shown, are interposed between the pump and the cylinders to control the delivery and return of oil to and from the cylinders, and a return passage 59 leads from such valve means through the base of the pump, opening at a point such that it overlies the return aperture 41 of the mounting pad when the pump is secured in place, so that it is in communication with the chamber 38 and oil returning from the valve means flows into the chamber.

Instead of hydraulic moldboard-operating means such as just described, winch-operable cable means may be mounted on the lift frame 10 for lifting the moldboard of the bulldozer. The braces, cross tube, yoke structures with the cylinders carried thereby, conduits, valve means, and pump are then omitted. A pair of pulley block bracket plates 60 are welded on the upper forward portion of the lift frame, reinforced by a brace plate 61 welded therebetween, and a side sheave bracket 62 is weldedly secured on the upper front portion of the frame at one side thereof, as shown in Figs. 1 and 2. Although these parts are illustrated as secured on the lift frame along with the hydraulic lifting means, for convenience, it will be understood that they are omitted when the hydraulic means are employed. The bracket plates 60 support a pulley block, and the bracket 62 a pulley, through which is reeved a cable for operating the moldboard, windable on a winch 63 mounted on the frame and projecting forwardly thereof through the guard plate G. To avoid confusion, cable and pulleys are not shown, and the winch is shown only in Figs. 7 and 8, but such means and their arrangement are well known so that specific illustration is not required. The winch is disposed with its rotational axis extending longitudinally of the tractor or bulldozer, and the cable extends from the winch about the side sheave in the bracket 62 through the block supported by the bracket plates 60 and a similar block connected to the moldboard, so that as the cable is wound on the winch the moldboard is raised. Lowering is accomplished by gravity upon allowing the cable to unwind from the winch. This is in contrast to the operation of the hydraulic lifting means, in which the cylinders 45 both raise and lower the moldboard. The winch 63 comprises a casing 64 of generally cylindrical form with an integral mounting flange 65 at its lower portion provided with bolt holes in the same pattern as the stools 42 of the mounting pad 30 and the bolt holes of the base of pump 55. The winch 63 is located and mounted on the mounting pad 30 in the same manner as the pump 55 of the hydraulic lifting means, being secured by the bolts 56. The winch is driven by means of a main gear 66 in mesh with a driving pinion 67 within the casing, the shaft 68 of the pinion projecting rearwardly from the casing for connection with the power take-off shaft P of the tractor motor as in the case of the pump shaft 57. Extending from the interior of the casing 64 at one side of the pinion 67 through the mounting flange 65 is an intake passage 69 which has its opening in the bottom of the flange located to communicate with the outlet aperture 40 of the mounting pad 30, and a generally similar return passage 70 extends from the casing interior adjacent the other side of the pinion and through the mounting flange. The bottom opening of this passage 70 is located to extend over the return aperture 41 of the mounting pad when the winch 63 is mounted thereon. The gear 66 and pinion 67, while primarily designed and intended for driving the winch, also serve as a gear pump efficient enough to circulate oil through the casing for lubricating the bearings of the winch structure, as for example the bearings 71 of the pinion 67. The oil is drawn from the reservoir provided by the lift frame 10 through aperture 40 and the passage 69 by the pinion and main gear acting as pump means, and after circulation through the casing flows back to the reservoir through the return passage 70 and return aperture 41.

Thus the lift frame of this invention may be employed in a bulldozer or the like, without change, to mount either hydraulic or winch-operable moldboard lifting means. Simplification of assembly, reduction of the number of parts, and savings in manufacturing are some of the advantages afforded by this construction. Much more efficient and trouble-free operation of winch-operated lifting means also results from the provision of an oil tank outside of the winch, increasing the volume of oil available for lubrication thereof and allowing oil circulation to prevent undue heating. Heretofore, the winches on bulldozers have been lubricated only by oil contained within the casing, and since there are definite limits on the size of the winches and a compact construction is necessary, only a limited volume of oil could be employed. This resulted in inadequate lubrication and undesirable heating of the oil and winch parts, with consequent inefficient operation. By the present invention, ample lubrication and cooling of the parts and the oil is provided.

The closed chamber 38 within the hollow frame base substantially isolates the oil returned through the aperture 41 from the lifting means, which has been heated by contact with the moving winch parts or by its operation of the hydraulic cylinders. The warmed return oil is conducted from the chamber 38 by the pipes 39 to the apertures 20 to rise by convection in the hollow side frame members 18. The oil of course is cooled by radiation and conduction, and as it cools it moves downwardly to the hollow base through the apertures 20, and in its cooled condition is drawn out of the tank or reservoir through the outlet aperture 40 by the pump means of the hydraulic or winch-operable lifting means for operation or lubrication thereof, as the case may be, in the manner described, so that relatively cool oil is supplied to the lifting means by the pump means. The circulation of the oil in the tank or reservoir is relatively slow and gentle, affording opportunity for dirt and other foreign particles that may be entrained therein to settle to the bottom wall 14 of the base, leaving the oil in substantially clean condition for delivery to the lifting means. The arrangement of the outlet aperture 40 in communication mainly with the portion of the tank outside of the chamber 38, but also in minor degree with the interior of the chamber, assures that the intake passage 58 of the pump 55 or the intake passage 69 of the winch 63 will be substantially filled by oil during operation of the respective pump means, so that no vacuum spaces or locks will develop to interfere with proper flow or delivery of oil through the pump means. This results from the fact that if for any reason under abnormal conditions, insufficient oil is drawn from the remainder of the tank, oil just returned to the tank will be drawn from the chamber 38 to make up the deficiency and assure the flow of the required volume of oil to and through the pump means. Oil

drawn through the outlet aperture **40**, at least partly because of the elevated location of the mounting pad **30**, causes no appreciable disturbance of the sediment deposited on the bottom wall **14**, so that dirt or other impurities are not drawn through the pump means with the oil. The level of the oil in the tank or reservoir provided by the lower portion of the hollow frame is substantially above the level of the mounting plate **35** of the mounting pad, the volume of oil being substantially constant in the case of the winch-operable lifting means. The total volume of oil is also substantially constant when the hydraulic lifting means are employed, but the quantity of this oil in the reservoir necessarily varies as more or less oil is passed into the cylinders **45** for desired operation thereof. Sufficient oil is provided, however, to assure maintenance of the oil level in the reservoir above the level of the mounting pad at all times. The air in the upper portion of the hollow front portion of the frame **10** serves to cushion hydraulic lifting means against shocks due to sudden changes in the flow of oil or surges resulting therefrom.

What is claimed is:

1. A bulldozer lift frame adapted to mount either hydraulically operable or winch-operable lifting means for the moldboard of the bulldozer each including pump means, comprising a hollow frame base, spaced hollow frame members extending upwardly from said base, apertures in said base providing communication with each of the frame members, a hollow top member connecting and providing communication between the upper ends of said frame members, a hollow mounting pad fixed on said base and communicating with the interior thereof and including a mounting plate, said base, mounting pad, and the lower portions of the frame members providing a reservoir for oil and said top member and the upper portions of the frame members providing a cushioning air compartment, partition means extending from the mounting plate to the opposed wall of said base to define therewith a chamber closed from the remainder of said reservoir, conduits leading from the chamber to each of the apertures between the base and frame members, an outlet aperture in the mounting plate located with a minor portion of its area within the plan projection of the chamber for communication with both the chamber and the remainder of the reservoir, a return aperture in the mounting plate located entirely within the plan projection of said chamber for communication therewith, and means carried by said frame base for locating on the mounting plate in operative communication with said outlet and return apertures the pump means of lifting means mounted on the lift frame.

2. A bulldozer lift frame construction adapted for assembly with either hydraulic or winch-operable lifting means for the moldboard thereof, comprising a hollow base, spaced vertical hollow frame members extending from said base and communicating with the interior thereof to provide an oil reservoir therewith, a hollow mounting pad fixed on said base and open to the interior thereof, partition means enclosing a space within said base and mounting pad to define a closed chamber therein, a plurality of conduit means each extending from one of said hollow frame members to said chamber to provide communication therebetween, an outlet opening in said mounting pad in communication with both said chamber and the interior of the pad and base, a return opening in said mounting pad communicating with the interior of the chamber only, driving means extending adjacent the lift frame, hydraulic moldboard lifting means mountable on the lift frame including a pump mountable on said mounting pad for supplying oil under pressure thereto from the oil reservoir operable by said driving means and having an intake port overlying said outlet opening and an exhaust port overlying said return opening, winch-operable moldboard lifting means mountable on the lift frame including a winch structure having a driving pinion operable by said driving means and a gear meshing with the driving pinion adjacent said mounting pad providing a gear pump to circulate oil for lubrication of the winch structure bearings from the oil reservoir and also having inlet and return passages extending from adjacent the pinion respectively to said mounting box outlet and return openings, means on the lift frame for mounting said hydraulic means, and means on the lift frame for mounting said winch-operable means, said hydraulic and winch-operable lifting means for the moldboard being selectively mounted on said lift frame construction.

3. A bulldozer lift frame for alternatively mounting hydraulic or winch means for lifting the bulldozer moldboard, comprising an oil reservoir, partition means in the reservoir defining a closed chamber therein, means placing said chamber in communication with a portion of the reservoir remote therefrom, an outlet aperture in a wall of the reservoir communicating with both said chamber and the remainder of the interior of the reservoir, a return aperture in a wall of the reservoir communicating with said chamber only, driving means disposed adjacent the reservoir, hydraulic lifting means and winch lifting means selectively mountable on the lift frame to raise and lower the moldboard, said hydraulic lifting means including a pump to supply oil under pressure thereto from the reservoir for operation thereof upon mounting on the lift frame operatively connected to said driving means and having intake means communicating with said outlet aperture and also including discharge means communicating with said return aperture, and said winch lifting means including a winch structure with a driving pinion upon mounting on the lift frame operatively connected to said driving means and with a gear meshing with the driving pinion to provide a gear pump for circulation of oil from the reservoir to the winch structure bearings for lubrication thereof and having an inlet passage and a return passage each extending from adjacent said pinion respectively to said outlet and return apertures means on the lift frame for mounting said hydraulic means, and means on the frame for mounting said winch means.

4. A bulldozer lift frame adapted to mount either hydraulically operable or winch-operable lifting means for the bulldozer moldboard each including pump means, comprising a hollow frame portion forming an oil tank, partition means defining a closed chamber in the oil tank, means providing communication between the chamber and a portion of the oil tank remote therefrom, outlet means providing communication from the interior to the exterior of the tank, return means providing communication from the exterior of the tank to the chamber only, and means on the lift frame for selectively mounting thereon hydraulic lifting means with the pump means thereof disposed in communication with said outlet to supply oil from the tank under pressure for operating the hydraulic means and discharge means thereof in communication with said return means and mounting winch lifting means with the pump means thereof disposed in communication with said outlet and return means to supply oil from the tank for lubricating the winch bearings.

5. A bulldozer lift frame adapted to mount either hydraulically operable or winch-operable lifting means for the bulldozer moldboard, comprising a hollow frame portion forming an oil tank, outlet and return means each providing communication between the interior and exterior of the tank for circulation of oil from the tank and back thereinto, and means on said lift frame for selectively mounting thereon hydraulic lifting means and winch lifting means each having pump means and intake and exhaust means located in correspondence to and upon mounting communicating respectively with said outlet and return means for circulating oil from and to the tank through the respective lifting means to provide operating

hydraulic pressure for the hydraulic means and to provide bearing lubrication for the winch means.

6. A bulldozer lift frame adapted to mount either hydraulic or winch-operated lifting means for the bulldozer moldboard, comprising a substantially horizontal hollow frame base, hollow frame members extending upwardly from said base, apertures in said base providing communication with said frame members, a hollow top member connecting and placing in communication the upper ends of said frame members, a hollow mounting pad fixed on the upper surface of said base and communicating with the interior thereof having a flat horizontal mounting plate, the base, mounting pad, and frame members providing a reservoir for oil, partition means extending from the mounting plate to the bottom of the base to define therewith a chamber closed from the remainder of the reservoir, conduits leading from the chamber to each of the apertures between the base and frame members, an outlet aperture in the mounting plate located with a minor portion of its area within the plan projection of the chamber for communication with both the chamber and the remainder of the reservoir, a return aperture in the mounting plate located entirely within the plan projection of said chamber for communication therewith, and bolt-receiving means on said frame base arranged in a fixed pattern for selectively locating on the mounting plate in operative communication with said outlet and return apertures intake and discharge means of hydraulic lifting means mounted on the lift frame having pump means for supplying oil from said reservoir under pressure to operate the hydraulic lifting means and pump means of winch-operable lifting means mounted on the lift frame circulating oil from said reservoir to lubricate bearings of the winch lifting means, each of said pump means having a bolting pattern corresponding to that of said bolt-receiving means.

7. A bulldozer lift frame adapted to mount either hydraulic or winch-operated lifting means for the bulldozer moldboard, comprising a hollow base, spaced vertical hollow frame members extending from said base and communicating with the interior thereof to provide an oil tank therewith, a hollow mounting pad fixed on said base and open to the interior thereof, partition means defining a closed chamber within the base and mounting pad, conduit means extending from said chamber to each of said hollow frame members to provide communication between the chamber and frame members and therethrough with the interior of said base, an outlet aperture in said mounting pad communicating with both said chamber and the remainder of the interior of the base, a return aperture in said pad communicating with said chamber only, and means carried by said base for selectively locating on the pad in operative communication with said outlet and return apertures respectively, an intake port of pump means supplying oil under pressure from said oil tank to hydraulic lifting means for operation thereof and discharge means of the hydraulic means and, also respectively, intake and discharge ports of pump means of winch-operated lifting means to lubricate bearings thereof by circulating oil from said tank.

8. An arrangement for alternatively mounting hydraulic or winch power-applying means, comprising a hollow mounting support defining an oil tank, oil outlet means for the tank, oil return means for the tank, hydraulic power-applying means and winch power-applying means selectively mountable on the support, said hydraulic means including pump means for supplying oil from the tank thereto under pressure for operation thereof mounting on said support and also including discharge means communicating with said return means, and said winch means including pump means for circulating therethrough for lubrication the oil from the tank upon mounting on said support and also including intake and discharge means communicating respectively with said outlet and return means, means on said support for mounting said hydraulic means, and means on the support for mounting said winch means.

9. In a bulldozer lift frame adapted to mount either hydraulically operated or winch-operated lifting means for the bulldozer moldboard, a hollow frame base and hollow side frame members together defining an oil reservoir, a hollow mounting pad on said base open to the interior thereof, and having a top mounting plate, partition members defining from the remainder of the tank a closed chamber in said base, means providing communication between said chamber and each of said frame members, tank outlet means extending through said mounting plate and communicating with said remainder of the tank to a major extent and also with said chamber to a minor extent, tank return means extending through the mounting plate and communicating with said chamber alone, hydraulic lifting means mountable on the lift frame having pump means to supply oil under pressure for operation thereof, winch lifting means mountable on the lift frame having pump means for circulating oil to lubricate parts thereof, each of said lifting means having intake and exhaust ports for communication respectively with said outlet and return means for circulation of oil by the pump means from and to the tank through the respective lifting means, means on the frame for mounting said hydraulic means, means on the frame for mounting said winch means, and means carried by said frame for selectively locating the hydraulic means and the winch means on the mounting pad with the ports thereof communicating with the outlet and return means upon selective mounting of the hydraulic and winch lift means on the lift frame.

10. In a bulldozer lift frame adapted to mount either hydraulicaly operated or winch-operated lifting means for the bulldozer moldboard, a hollow frame portion forming an oil tank, outlet and return means each providing communication between the interior and exterior of the tank for circulation of oil therefrom and back thereinto, hydraulic lifting means mountable on the lift frame having pump means for supplying oil from the tank under pressure for operation of the hydraulic means, winch lifting means mountable on the lift frame having pump means for supplying oil from the tank to lubricate parts of the winch means, each of said lifting means having intake and exhaust ports cooperable with said outlet and return means respectively for drawing and returning oil from and to the tank by the pump means thereof, means on the frame for mounting said hydraulic lifting means, means on the frame for mounting said winch lifting means, and means carried by said frame for selectively locating the hydraulic means and the winch means with the ports thereof communicating with the outlet and return means upon selective mounting of the hydraulic and winch lift means on the lift frame.

11. Apparatus for lifting the moldboard of a bulldozer or the like, comprising a lift frame mountable on the bulldozer including a hollow frame portion defining a reservoir for oil, a closed chamber within the reservoir defined from the remainder thereof, means providing communication between said chamber and a portion of the reservoir remote therefrom, oil outlet means for the reservoir communicating in minor degree with said chamber and in major degree with the remainder of the reservoir, oil return means for the reservoir communicating with said chamber only, winch-operable moldboard lifting means mountable on said frame having oil circulating means including pump means for circulating oil from and back to said reservoir through the winch for lubrication thereof, intake and discharge means for said lifting means communicating respectively with the intake and discharge sides of said circulating means and having exterior ports located in correspondence to the locations of said outlet and return means for respective communication therewith upon mounting of the lifting means on the frame, and means carried by said frame for mounting

the lifting means on said frame with the ports of the intake and discharge means located in communication with said outlet and return means.

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