

April 23, 1957

S. F. ARMINGTON

2,789,377

DOLLY FOR DIGGING AND CARRYING SCRAPER

Filed Sept. 16, 1952

2 Sheets-Sheet 1

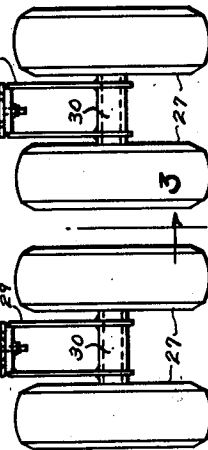
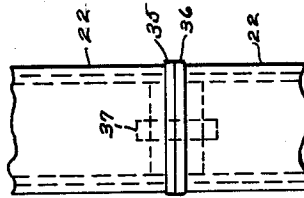
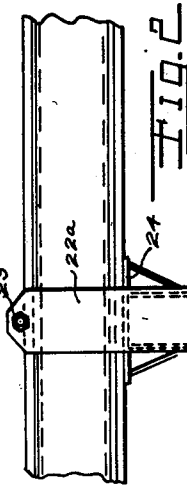
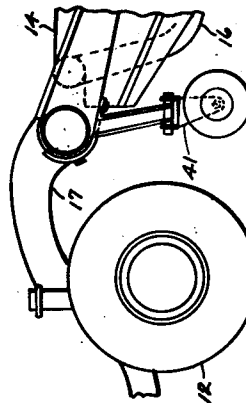
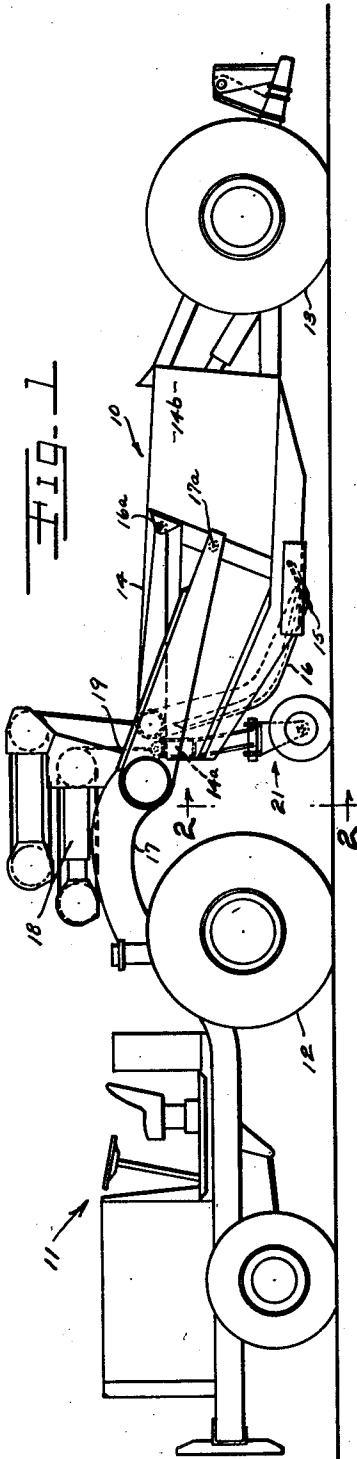


Fig. 6

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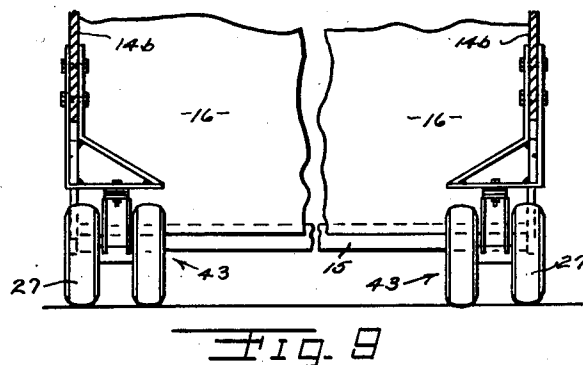
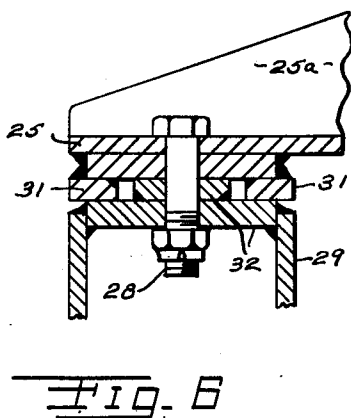
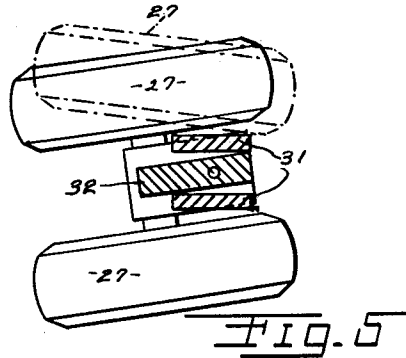
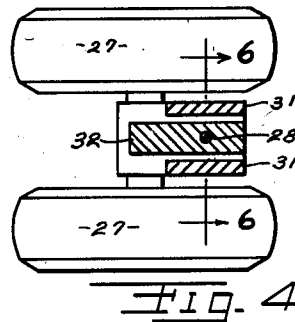
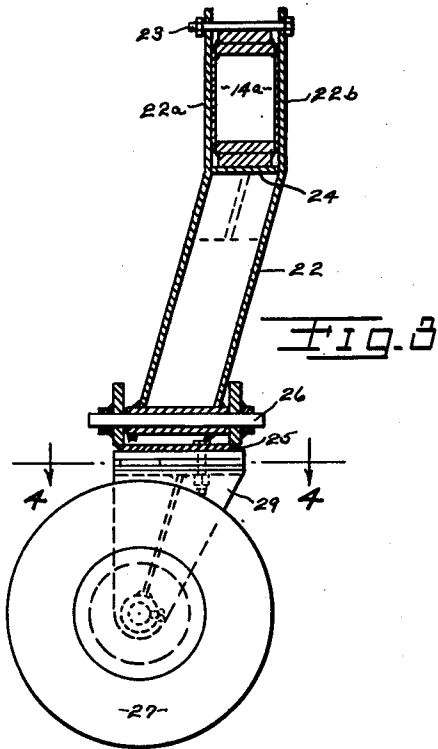
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2 Sheets-Sheet 2



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2,789,377

DOLLY FOR DIGGING AND CARRYING SCRAPER

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Application September 16, 1952, Serial No. 309,827

16 Claims. (Cl. 37-126)

This invention relates to improvements in weight-supporting dollies, but more particularly to a weight-supporting dolly for a digging and carrying scraper.

One of the objects of the present invention is to provide a weight-supporting dolly for a digging and carrying scraper for reducing the weight on the front and rear wheels of the scraper to an allowable limit for over-the-highway travel.

Another object of the present invention is to provide a ground-engaging dolly for detachable securement to a digging and carrying scraper bowl.

Another object of the present invention is to provide a ground-engaging dolly secured to the bowl or drawbar of a digging and carrying scraper wherein said bowl and drawbar are hinge-joined so that the dolly will support part of the scraper weight.

Another object of the present invention is to provide a ground-engaging dolly for a digging and carrying scraper having a vertical float to allow for bumps encountered in the road wherein such float is provided by the scraper bowl raising and lowering mechanism of the digging and carrying scraper.

Another object of the present invention is to provide a ground-engaging dolly for a digging and carrying scraper detachably secured to a scraper bowl which can be raised and lowered so that the bowl and dolly can be raised to lift the dolly out of ground engagement for easy assembly and disassembly with the bowl.

Other features of this invention reside in the arrangement and design of parts for carrying out their appropriate functions. Other objects and advantages of this invention will be apparent from the accompanying drawings and description and the essential features will be set forth in the appended claims.

In the drawings,

Fig. 1 is a side elevational view of a tractor-drawn digging and carrying scraper equipped with a ground-engaging, weight-supporting dolly for supporting a portion of the scraper weight to reduce the load on the wheels supporting the front of the scraper (the rear wheels of the tractor), the rear wheels of the scraper and the front wheels of the tractor;

Fig. 2 is a front view of the dolly, enlarged, taken along the line 2-2 of Fig. 1 with its upper end secured to the lift beam of the scraper bowl (shown fragmentally);

Fig. 3 is a longitudinal vertical sectional view enlarged through the scraper dolly and the lift beam of the bowl taken along the line 3-3 of Fig. 2;

Fig. 4 is a horizontal sectional view taken along the line 4-4 of Fig. 3 through one of the pair of wheels on the dolly;

Fig. 5 is a sectional view similar to Fig. 4 but showing the two extreme limited pivot positions of a pair of wheels in solid line and dot-dash line positions;

Fig. 6 is a vertical sectional view enlarged taken along line 6-6 of Fig. 4 through the limited pivot connection;

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Fig. 7 is a fragmental front view of a modification of the dolly supporting post structure of Fig. 2;

Fig. 8 is a side elevational view of a portion of Fig. 1 but showing the weight-supporting dolly detachably secured to the pull yoke instead of to the bowl lift beam; while

Fig. 9 is a front view of the scraper bowl with two dollies detachably secured to the scraper bowl in a different manner than that shown in Figs. 1, 2 and 3.

While my invention might be adapted to various types of machines and various types of digging and carrying scrapers, I have chosen to show the same as applied to a specific digging and carrying scraper as shown in Fig. 1 of the drawings. It will also be apparent, as this description proceeds, that the ground-engaging weight-supporting dolly of this invention can readily be used with the digging and carrying scraper disclosed in the U. S. patent application Ser. No. 111,496, filed August 20, 1949, by William J. Adams, entitled "Scraper," now Patent No. 2,674,815, and U. S. patent application Ser. No. 287,772, filed May 14, 1952, by Edward R. Fryer and William J. Adams entitled "Digging and Carrying Scraper."

The digging and carrying scraper in the above mentioned applications and in the present disclosure have many structural features in common that should be described before the present invention in a dolly is set out in detail. The digging and carrying scraper, shown generally at 10, is pulled by a tractor 11 having rear drive wheels 12 serving also as supporting wheels for the front of scraper 10. Then, the weight of the scraper is carried by the front wheels 12 and the rear wheels 13, of course. It should be understood that the front of the scraper may be supported by other types of wheels than the rear drive wheels 12 of the tractor 11, if the scraper is driven forwardly by other power means.

The load-carrying member of the scraper is the scraper bowl 14 having spaced side walls 14b, 14b, having a digging blade 15 at its lower edge and having an open front with an apron 16 movable about a pivot at axis 16a between a raised and lowered position for opening and closing said open front.

Means are provided for supporting the bowl 14 in a suspended position between the front and rear wheels 12 and 13. The rear of the scraper bowl 14 is secured to the axle for rear wheels 13. A pull yoke 17 is pivotally connected at its front end by a hitch to the front supporting wheels 12. The pull yoke 17 extends rearwardly therefrom and divides into two pull arms straddling the opposite lateral sides 14b, 14b of the scraper bowl 14 with each pull arm having its rear end connected on a transverse pivotal axis 17a to one of the scraper bowl side walls 14b. The scraper bowl 14 is movable between a lower digging position with the scraper blade digging into the ground and a higher carrying position with the blade 15 in an elevated position. The pull yoke 17 and bowl 14 move up and down together since they have a common pivot 17a. This provides a hinge joint between the pull yoke and bowl.

Means is provided for raising and lowering the bowl between these positions. In the present disclosure and in the aforementioned U. S. patent applications, this means takes the form of a hydraulic hoist means 18 comprising one or more hydraulic hoist members. This hydraulic hoist means 18 is connected to the front of the scraper bowl 14 by a flexible cable 19 for permitting a limited amount of vertical up-float of scraper bowl 14 when the scraper blade 15 is digging while the bowl 14 is in its lowered position. The aforementioned U. S. patent application Ser. No. 287,772, entitled "Digging and Carrying Scraper," filed May 14, 1952, by Edward

R. Fryer and William J. Adams, presents a slightly different type of hydraulic hoist means for raising and lowering the scraper bowl by a lever and connecting links wherein the links have elongated slots to permit a similar type of up-float. The hydraulic hoist means in any of the aforementioned structures is connected to a pressure fluid supply for expanding or contracting said hydraulic hoist means for controlling raising or lowering said scraper bowl 14. This pressure fluid supply can take the form of the structure shown in the copending U. S. patent application Ser. No. 309,514, filed September 13, 1952, by William J. Adams and Edward R. Fryer, entitled "Hydraulic Power Unit."

Means is provided for controlling the flow from the supply to the hydraulic hoist means 18 with said control means being preferably located near the scraper operator on the tractor 11 for easy manipulation. This control means has a control position wherein the hydraulic fluid will (1) expand the hydraulic hoist means to raise the bowl 14, (2) be prevented from leaving or entering the hydraulic hoist means for maintaining the bowl at a given level and (3) will freely flow into or out of the hydraulic hoist means 18 depending upon the force exerted upon it by the scraper bowl 14 in moving vertically up or down and will drain and contract the hydraulic hoist means 18 to lower the scraper bowl 14.

The modern day digging and carrying scraper is a large, heavy piece of machinery and its heavy weight has created problems. When the scraper is transported over the highway from one job location to another, it is of course generally empty, but even though it is empty, the axle loads are excessive and frequently are larger than a number of States will permit on their highways. Many States will not permit loads over 18,000 pounds per axle while a large scraper of the type shown in Fig. 1 may have a 22,000 pound load on the axle of tractor drive wheels 12 and a 16,800 pound load on the axle of rear wheels 13. When a weight-supporting ground-engaging dolly is secured to the scraper between the front and rear wheels 12 and 13, it supports a portion of the scraper weight to reduce the load on the wheels 12 and 13. This scraper dolly divides the empty scraper weight over more road wheels and tires while having other desirable advantages to be brought out more in detail hereinafter. The load in the above-mentioned instance then becomes 15,600 pounds on the axle of tractor drive wheels 12 and 11,800 pounds on the axle of the rear wheels 13 while the scraper dolly 21 carries 12,200 pounds. Of course, the front axle of the tractor now carries 11,970 instead of the 12,000 pounds it carried before. This solves the load limit problem in many States.

The dolly is readily detachable from the scraper so that it will not interfere with the digging operation when the scraper is used for its normal purpose. The vertical float of the dolly 21 permits it to move vertically out of an in-line or even-level position with the wheels 12, 13 when bumps are encountered, or when the dolly is to be assembled onto or removed from the scraper. This floating action is made possible by the connection between the hydraulic hoist means 18 and the bowl taking the form of a flexible cable 19, a slotted link, or other lost motion connection and by the control means for the hydraulic hoist means 18 when the hydraulic fluid can freely flow into or out of the hydraulic hoist.

The preferred form of scraper dolly construction is shown in Figs. 1 to 6 inclusive. In Fig. 2, the dolly 21 has a supporting post 22 of box beam construction with a connection at its top end for removable attachment to the bowl lift beam 14a, also of box beam construction, extending across the front upper edge of the scraper bowl 14. The front and rear walls of the post 22 extend upwardly to form front and rear plates 22a, 22b adapted to be squeezed into engagement with the front and rear walls of the lift beam 14a by clamp bolt 23. A supporting ledge 24 is secured to the post 22 to engage the

lower face of the lift beam 14a for insuring that the post 22 will not be tilted too far from the vertical in Fig. 2 when the bowl weight is applied to the dolly.

A wheeled carriage 25 has a cross beam 25a pivotally attached at 26 to the lower end of post 22 with the pivot permitting oscillation about the horizontal axis to allow for unevenness in a road surface. The carriage 25 has two pairs of wheels 27, 27 with each pair pivotally mounted on opposite sides of the carriage cross beam 25a for limited movement about a vertical axis. The pivotal mounting for one pair is shown in Fig. 6 wherein a pivot bolt 28 secures a yoke 29 to the carriage cross beam 25a. The lower ends of the yoke 29 have secured thereto an axle housing 30 in Fig. 2 for supporting the pair of wheels 27 having tires thereon. Surrounding the pivot bolt 28 in Figs. 4, 5 and 6 are spaced apart side retaining plates 31, 31 welded or otherwise secured to the carriage cross beam 25a and a central tongue member 32 welded or otherwise secured to the yoke 29. This structure permits only limited arcuate swing of each pair of wheels 27 around the approximately vertically extending pivot bolt 28, as shown in Figs. 4 and 5, since tongue member 32 can only pivot until it engages one or the other of the side retaining plates 31, 31. The whole carriage 25 cannot swivel about a vertical axis. This limited pivot construction of each pair of wheels 27 is necessary for the following reasons. First, if both pairs of wheels 27, 27 were "toed in" when the dolly first engages the ground, the forward movement of the scraper would tend to toe them in still farther against each other so that side drag or scuffing of the scraper dolly tires would result. Second, if wheel carriage 25 were permitted to swing about a 360° vertical pivot with respect to post 22, the laterally outermost tires would probably strike the front of apron 16 in view of the limited clearance between the parts, as shown in Fig. 1.

The operation and advantages of the scraper dolly should be readily apparent. Not only does the dolly solve the highway load limit problem in many States by supporting a portion of the scraper weight to reduce the load on the front and rear scraper wheels, but also the dolly cooperates with the conventional scraper parts for giving a floating action for following an uneven or rough road surface while continuing to support its share of the scraper weight and for making the assembly and disassembly of the dolly to the scraper an easy task.

In the form just described, the dolly 21 clamps directly to the lift beam 14a at the front end of the scraper bowl 14. Installing the dolly is a very simple procedure since it is merely necessary to raise the scraper bowl 14 in the usual manner by the conventional hydraulic hoist means for raising the scraper bowl until the bowl is just high enough to slip the dolly in place, as shown in Figs. 2 and 3, before tightening the clamp bolt 23. The bowl then can be lowered until its weight rests on the scraper dolly 21. The scraper bowl 14 is lowered by merely contracting the length of the hydraulic hoist means 18 by means of the conventional hydraulic fluid control. Then, the forward part of the scraper bowl 14 is secured to the scraper dolly 21 so that the total empty scraper weight is divided over more axles and wheels or tires contacting the road surface. As the scraper travels along the highway, the bowl can float up and down if the dolly 21 encounters uneven or rough road surfaces so that the dolly can readily follow the road surface while supporting its portion of the scraper weight.

The vertical float of bowl 14 and dolly 21 is obtained by two different structural features in the scraper construction. First, the lost motion connection between the hydraulic hoist means 18 and the scraper bowl 14 for permitting up-float of the scraper bowl during digging. This lost motion means may take the form of the flexible cable 19 in Fig. 1 or in the aforementioned U. S. patent application Ser. No. 111,496, now Patent No. 2,674,815, may take the form of the elongated slot in the lifting link

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in the aforementioned U. S. patent application No. 287,772, or may take the form of some other suitable lost motion connection. Any of these lost motion connections mentioned permit limited vertical float either up or down, to the scraper bowl 14 and the dolly 21 to suit minor road surface variations without any movement of the scraper lift hoist 18. Second, additional vertical float is obtained by hydraulic fluid freely flowing into and out of the hydraulic hoist means 18. The conventional scraper has a pressure fluid supply through the hydraulic hoist means 18 with means for controlling the flow from said supply thereto. This control means can be moved to one position for expanding the hydraulic hoist means 18 and raising the scraper bowl, to another position for preventing the fluid from entering or leaving the hydraulic hoist means for maintaining the bowl at a given height, and to another position for contracting the length of the hydraulic hoist means 18 for lowering the scraper bowl and for permitting the hydraulic fluid to freely flow into or out of the hydraulic hoist means 18 in response to the pull exerted on the flexible cable 19 or on the slotted lift link by the bowl weight. When the scraper dolly 21 is being used, the control should be left in the last mentioned position for vertical float. If it is left in one of the other positions, the downward pull on the cable 19 or on the slotted lift link may be resisted by the resistance to compression of the fixed volume of hydraulic fluid in the cylinder. An upward push on the slotted lift link may be resisted by a vacuum pull in the opposite direction caused by an attempt to expand the hydraulic fluid therein.

When the scraper travels around a corner, the dolly wheels 27 can turn a certain amount due to the caster effect of the mountings shown in Figs. 4, 5 and 6. However, when being maneuvered in confined quarters, the bowl can be lifted slightly by expanding the hydraulic hoist means 18 so that the dolly 21 is elevated and does not touch the ground which makes it unnecessary to slide the dolly sideways to cause scuffing of the tires. Also, the hydraulic hoist means 18 can lift the dolly 21 completely off the road surface when the scraper is being transported over a high crowned railroad track which might normally cause either the front or rear scraper wheels 12 and 13 to be lifted off of the roadway if dolly 21 could not be lifted.

Also, the hydraulic means 18 can be expanded to lift the scraper bowl 14 and dolly 21 off the road surface when a destination is reached so that the weight is removed from the dolly to make its disassembly from the bowl an easy task.

Fig. 7 discloses a modified form of dolly wherein the wheel carriage 25 is pivotally supported with respect to post 22 on a vertical axis for 360° pivot or full caster. The two pairs of wheels 27, 27 and their supporting yokes 29, 29 can either be secured to the carriage cross beam 25a, or it may have a partial pivot with respect thereto as shown in Figs. 4, 5 and 6. In this construction, the post 22 is made in two sections with bearing surface plates 35 attached to the upper section and 36 attached to the lower section, with an approximately vertically extending pivot pin 37 connecting the two plates together and permitting full caster or 360° pivot. However, with this construction if clearance is needed the front apron 16 may be raised to a partially open position by its elevating hydraulic hoist means and carried in this partially open position to allow sufficient room for the full caster type scraper dolly to make a full 360° pivot without interference therewith.

It should be readily apparent that the scraper dolly 21 or a modification thereof can be readily secured to other parts of the scraper to give the floating, lifting, and weight dividing action heretofore mentioned. The dolly 21 could be secured to other parts of the scraper bowl to take advantage of the floating action; but having it secured to the front of the bowl, where bowl movement is the greatest, gives the best results. This location is near wheels 12,

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which carry the greatest load, and the dolly when so located will most effectively take the load off wheels 12. Also, since the pull yoke 17, pivotally secured to the bowl 14 at pivot 17a, moves up and down with the scraper bowl 14, the dolly 41 (shown in Fig. 8 and similar to dolly 21) could be detachably secured to the pull yoke between the front and rear scraper wheels 12 and 13. If desired, the dolly 41 could be secured back near the pivot 17a for greater vertical movement and a more sensitive mounting. However, this latter position will be farther away from the scraper wheels 12 supporting the greatest weight. The dolly 41 would not remove as much weight from the scraper wheels 12 in this position as it would if it were mounted farther forward.

Some scraper bowls do not have a lift beam 14a in which case the scraper dolly could take the form shown in Fig. 9. Here, the dolly 21 in Fig. 2 is divided into two parts 43, 43 with a separate part 43 removably secured to one of each of the opposite side walls 14b of scraper bowl 14 and with each part having a pair of dual wheels 27.

It should now be apparent that the floating action of the scraper dolly, enabling it to follow uneven or rough road surfaces while continually supporting its portion of the scraper weight to reduce the load on the front and rear scraper wheels, is obtained by the articulate construction of the scraper. This articulate construction causes the effective transfer of part of the weight to the dolly even though the road surface traversed is uneven. The articulate construction can take the form shown in the present disclosure wherein the pull yoke 17 is pivotally secured to the scraper bowl 14 by pivot 17a, or it may take the form of a rigid frame between the front and rear scraper wheels 12 and 13 with only the scraper bowl being movable vertically with respect thereto. In this latter form, the scraper dolly could be secured to the scraper bowl with some of the advantages mentioned heretofore including the floating, lifting and weight sharing action. It should be clearly understood that the invention disclosed herein in a scraper dolly can be used not only in the digging and carrying scraper structures disclosed herein but also in other scraper structure as well.

Various changes in details and arrangement of parts can be made by one skilled in the art without departing from the spirit of this invention or the scope of the appended claims.

What I claim is:

1. A digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a yoke member pivotally connected on a transverse pivotal axis adjacent its rear end to said bowl member and having its front end adapted for attachment to supporting wheels, a bowl member raising means mounted on said yoke member and having a lost motion connection with said bowl member for permitting bowl vertical float, said bowl member being movable between a lower digging position and a higher carrying position by raising or lowering said bowl member and a yoke member, a dolly detachably secured to one of said members between said wheels and movable with said bowl member and yoke member from a ground engaging position to said higher carrying position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, said dolly being utilized only when the digging and carrying scraper is in transport.

2. A digging and carrying scraper comprising supporting wheels at its front and rear ends, a scraper bowl supported between said wheels and having a digging blade at its lower edge, means for raising said bowl between a lower digging position and a higher carrying position and having a lost motion connection with said bowl for permitting bowl vertical float, and a detachable dolly to be secured to the scraper bowl between said

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front and rear wheels for supporting a portion of the scraper weight when said bowl is in an intermediate position to reduce the load on said front and rear wheels, said bowl vertical float permitting said dolly to move vertically out of an even-level position with said wheels when bumps are encountered, said dolly being utilized only when the digging and carrying scraper is in transport.

3. A digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said bowl member and having its front end adapted for attachment to supporting wheels, means mounted on said yoke member for raising said bowl member between a lower digging position and a higher carrying position, said bowl member raising means having a lost motion connection with said bowl member for permitting bowl vertical float, a dolly detachably secured to one of said members between said wheels and movable with said bowl and yoke members from a ground engaging position to said higher carrying position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, said bowl member up-float permitting said dolly to move vertically out of an in-line-position with said wheels when bumps are encountered, said dolly being utilized only when the digging and carrying scraper is in transport.

4. In combination, a tractor having rear drive wheels, a digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a pull yoke member pivotally connected adjacent its rear end to said bowl and having its front end pivotally secured to said tractor adjacent said drive wheels, a bowl member raising means mounted on said yoke member and having a lost motion connection with said bowl member for permitting bowl vertical float, said bowl being movable between a lower digging position and a higher carrying position by raising or lowering said bowl and yoke, a dolly detachably secured to one of said members between said wheels and movable with said bowl and yoke members from a ground engaging position to said higher carrying position, said dolly normally resting on the ground in an intermediate load-carrying position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, said dolly being utilized only when the digging and carrying scraper is in transport.

5. A digging and carrying scraper usable alternatively in either scraping operation or transport, comprising supporting wheels at its front and rear ends, a scraper bowl being supported between said wheels and having a digging blade at its lower edge for use in the scraping operation, means for raising said bowl between a lower digging position and a higher carrying position, said means having a lost motion connection with said bowl member for permitting bowl vertical float, and a dolly detachably secured during transport to the bowl between said front and rear wheels when said bowl is in an intermediate position for supporting a portion of the scraper weight during transport to reduce the load on said front and rear wheels, whereby said raising means will permit said dolly to raise above the normal surface of the road when a high bump is encountered during transport or can be used to raise said bowl when said dolly is to be assembled or disassembled on said bowl.

6. A digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said bowl member and having its front end adapted for attachment to supporting wheels, means mounted on said yoke member for raising said bowl member between a lower digging position and a higher carrying position, said means having a lost motion connection with said bowl member for permitting bowl

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vertical float, a dolly detachably secured to one of said members between said wheels and movable with said bowl member and yoke member from a ground engaging position to said higher carrying position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, whereby said raising means will permit said dolly to raise above the normal surface of the road when a high bump is encountered or can be used to raise said members when said dolly is to be assembled or disassembled on said one member, said dolly being utilized only when the digging and carrying scraper is in transport.

7. A digging and carrying scraper comprising supporting wheels at its front and rear ends, a scraper bowl being supported between said wheels and having a digging blade at its lower edge, hydraulic hoist means for raising said bowl between a lower digging position and a higher carrying position, a dolly detachably secured to the bowl between said front and rear wheels and engaging the ground when said bowl is in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, means for controlling the flow into said hydraulic hoist means and having a control position wherein hydraulic fluid will freely flow into or out of said hydraulic hoist means for permitting up-float and down-float of said bowl and dolly when bumps are encountered on the road surface, whereby said raising means will permit said dolly to raise above the normal surface of the road when a high bump is encountered or can be used to raise said bowl when said dolly is to be assembled or disassembled on said bowl, said dolly being utilized only when the digging and carrying scraper is in transport.

8. A digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said bowl member and having its front end adapted for attachment to supporting wheels, hydraulic hoist means mounted on said yoke for raising said bowl member between a lower digging position and a higher carrying position, a dolly detachably secured to one of said members between said wheels and movable with said bowl member and yoke member from a ground engaging position to said higher carrying position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, a pressure fluid supply for said hoist means, means for controlling the flow from said supply into said hydraulic hoist means and having a control position wherein hydraulic fluid will freely flow into or out of said hydraulic hoist means for up-float and down-float of said bowl and yoke members when bumps are encountered on the road surface, whereby said raising means will permit said dolly to rise above the normal surface of the road when a high bump is encountered or can be used to raise said members when said dolly is to be assembled or disassembled on said one member, said dolly being utilized only when the digging and carrying scraper is in transport.

9. A digging and carrying scraper comprising supporting wheels at its front and rear ends, a scraper bowl, a bowl raising means having a lost motion connection with said bowl for permitting bowl vertical float, and a dolly detachably secured to the scraper bowl between said front and rear wheels for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, said dolly comprising a supporting post, a removable connection at the top of said post for attachment to a lift beam of said scraper bowl, a wheeled carriage pivotally attached to the lower edge of said post about a horizontal axis, two pairs of wheels with each pair pivotally mounted for arcuate movement about a vertical axis on opposite sides of said carriage, said dolly being utilized only when the digging and carrying scraper is in transport.

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10. A digging and carrying scraper comprising a scraper bowl member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said bowl member and having its front end adapted for attachment to supporting wheels, a bowl member raising means mounted on said yoke member and having a lost motion connection with said bowl member for permitting bowl vertical float, said bowl member being movable between a lower digging position and a higher carrying position by raising or lowering said bowl member and yoke member, a dolly detachably secured to one of said members between said wheels and movable with said bowl member and yoke member from a ground engaging position to said higher carrying position, said dolly comprising a supporting post, a removable connection at the top of said post for attachment to said one member, a wheeled carriage pivotally attached to the lower edge of said post about a horizontal axis, two pairs of wheels with each pair pivotally mounted for limited movement about a vertical axis on opposite sides of said carriage, said dolly normally resting on the ground in an intermediate position for supporting a portion of the scraper weight to reduce the load on said front and rear wheels, said dolly being utilized only when the digging and carrying scraper is in transport.

11. A vehicle, comprising a body member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said body member and having its front end adapted for attachment to supporting wheels, means mounted on said yoke member for raising said body member between a lower position and a higher position, said body member raising means having a lost motion connection with said body member for permitting complete freedom of vertical float, a dolly detachably secured to one of said members between said wheels and movable with said members from a ground engaging position to said higher position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the vehicle weight to reduce the load on said front and rear wheels, said body member up-float permitting said dolly to move vertically out of an in-line position with said wheels when bumps are encountered, said dolly being utilized only when said vehicle is in transport.

12. A vehicle, comprising a body member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said body member and having its front end adapted for attachment to supporting wheels, hydraulic hoist means for raising said body member between a lower position and a higher position, a dolly detachably secured to one of said members between said wheels and movable with said members from a ground engaging position to said higher position, said dolly normally resting on the ground in an intermediate position for supporting a portion of the vehicle weight to reduce the load on said front and rear wheels, a pressure fluid supply for said hoist means, means for controlling the flow from said supply into said hydraulic hoist means and having a control position wherein hydraulic fluid will freely flow into or out of said hydraulic hoist means for up-float and down-float of said members when bumps are encountered on the road surface, whereby said raising means will permit said dolly to raise above the normal

surface of the road when a high bump is encountered or can be used to raise said members when said dolly is to be assembled or disassembled on said one member, said dolly being utilized only when said vehicle is in transport.

13. A vehicle, comprising a body member having wheels supporting its rear end, a yoke member pivotally connected adjacent its rear end to said body member and having its front end adapted for attachment to supporting wheels, a body member raising means mounted on said yoke member and having a lost motion connection with said body member for permitting vertical float, said body member being movable between a lower position and a higher position by raising or lowering said members, a dolly detachably secured to one of said members between said wheels and movable with said members from a ground engaging position to said higher position, said dolly comprising a supporting post, a removable connection at the top of said post for attachment to said one member, a wheeled carriage pivotally attached to the lower edge of said post about a horizontal axis, two pairs of wheels with each pair pivotally mounted for limited movement about a vertical axis on opposite sides of said carriage, said dolly normally resting on the ground in an intermediate position for supporting a portion of the vehicle weight to reduce the load on said front and rear wheels, said dolly being utilized only when said vehicle is in transport.

14. In the combination set forth in claim 11, wherein said lost motion connection is a flexible cable permitting up-float.

15. A digging and carrying scraper as defined by claim 1 wherein said dolly comprises a wheel having a castor mounting for a 360° swing around an approximately vertical pivot with respect to said scraper.

16. A digging and carrying scraper as defined by claim 2 wherein said dolly includes at least one pair of laterally spaced wheels and a castor mounting connected to said wheels for providing a 360° swing around an approximately vertical pivot with respect to said scraper.

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