PERSONAL LOADER

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ABSTRACT

A three or four wheeled miniature personal loader device driven by an engine or motor and provided with a powered drive unit having a simplified hydrostatic differential which allows the device to turn quickly within its own wheel base. The personal loader is provided with a front pair of drive wheels and a pair of rear steerable wheels or a single rear steerable wheel. The loader may be provided with the rear wheel or wheels being directly steered via known steering linkages and power assist steering mechanisms or in the alternative either a single or pair of castor type wheels which are not directly steered but are indirectly steerable by the operators manual maneuvering of the loader. The engine is also connected a hydraulic pump for providing appropriate regulation of a hydraulic system operating the hydraulically controlled loader mechanisms. An operator walking or standing behind the machine and within reach of the control handle may control the vehicle speed and steering as well as the hydraulic system mechanism manipulation via a series of manual controls on a control handle.
Fig. 2
PERSONAL LOADER

FIELD OF THE INVENTION

[0001] The present invention relates to a personal loader device, essentially a compact self-propelled personal construction vehicle for performing construction and landscape tasks. The personal loader, which may be controlled by an individual operator in either a walk behind or ride along mode, can push, lift, move, load and unload, in both horizontal and vertical directions, hundreds of pounds of materials as necessary. For instance, heavy snow, dirt, and other landscape and construction materials can be handled and maneuvered through tight spaces. The loader is extremely manipulable and dexterous with heavy material in small areas and can be quickly and radically changed through numerous attachment accessories such as dozer blades, sweepers, rakes, buckets, grapples and pallet forks.

BACKGROUND OF THE INVENTION

[0002] Skid-steer loaders, well known in the construction industry, are versatile, powerful machines used extensively for material handling purposes. Skid-steer loaders, the term “skid-steer” refers to the loader’s steering, utilize four hydrostatically driven wheels and allow the machine to turn within its own wheel base by breaking or counter-rotating each side-similar to a military tank track control.

[0003] There are known in the industry a number of different types of light-duty, skid steer loaders called mini-loaders. These machines are significantly smaller than typical construction skid-steer loaders but may not be correspondingly less expensive. Attachment products are also available for landscaping, ground maintenance, turf, light industrial, small contracting and small farming industries. These machines are somewhat of a scaled-down version of a skid-steer device designed to work in confined construction areas.

[0004] The known mini-skid-steer devices accommodates the small contractor and rental market and although these light-duty, skid-steer loaders are smaller, they are still too large and expensive for personal home use, storage or easy transportation. The skid-steer wheel control acts in general like a tank track, i.e. one side is locked up, or skidded, while the others continue to rotate. This steering control tends to tear up the turf or ground on which the skid-steer vehicle is operating making such vehicles impracticable for personal home use in a garden, lawn or anywhere that the surface or ground should remain relatively undisturbed. Additionally, skid-steer drive and steering systems are expensive to service and repair must be performed generally by skilled experts.

[0005] Garden tractors are also well known in the art and can be designed for use with a front blade for light dozing work, for instance with snow and/or a snow thrower for the same purpose. Larger garden tractors have substantial horsepower and sturdy frames for such ground engaging attachments as tillers, dozer blades, small backhoes and other useful accessories. While garden tractors offer substantial abilities to mow and do light garden work, they do not have any vertical lifting capability and are not useful as a loader, or a digger and have poor ground clearance, large turning radii and cumbersome attachment methods.

[0006] OBJECT AND SUMMARY OF THE INVENTION

[0007] Wherefore, it is an object of the present invention to overcome the above mentioned shortcomings and drawbacks associated with the prior art.

[0008] An object of the present invention is to provide an efficient and economical device for personal and home landscape and construction use which augments the operator’s ability to perform relatively heavy earth and materials moving projects around the home or workplace.

[0009] Another object of the present invention is to provide such device at substantially lower cost than the products currently available on the market.

[0010] A further object of the invention is to provide an easily controllable and maneuverable loader work device which enables a operator to maneuver in tight spaces and perform intricate maneuvers with heavy material handling capability.

[0011] An even further object of the present invention is to provide extreme maneuverability with loads without significantly disturbing the surface or ground over which the loader device is operating for instance during turning and maneuverability operations.

[0012] Yet another object of the present invention is to provide a plurality of attachments which can be easily removed or attached to the personal loader in order to facilitate the undertaking of numerous projects.

[0013] A still further object of the present invention is to provide a personal contracting or home gardening device which is capable of not only horizontally moving material, but also vertical material handling specifically for loading or dumping purposes.

[0014] The present invention also relates to a personal loader for assisting an operator in materials handling tasks comprising a frame supported by at least three wheels, at least one of the wheels being a powered drive wheel and at least one of said other wheels being a steerable wheel, an engine supported on the frame for driving a hydraulic pump and the at least one powered drive wheel, a hydraulic control regulating the hydraulic pump actuation of at least a first hydraulic circuit powering a vertically moveable primary accessory control means and a second hydraulic circuit providing angular rotational capability to a secondary accessory control means, and a control handle for steering the loader, the control handle having manual actuable inputs for operation of the hydraulic control and the at least one powered drive wheel.

[0015] The present invention also relates to the personal loader as set forth above wherein the at least one powered drive wheel is a pair of fixed position drive wheels, each of the pair of drive wheels being driven by an associated first and second wheel motor which may be one of individually braked and driven relative to the other wheel motor.

[0016] The personal loader is generally a three or four wheeled device driven by an engine or motor and provided with a 2-wheel drive unit having a simplified hydrostatic differential transmission which allows the device to turn quickly within its own wheel base without the inherent high cost of skid-steer technology. Other drive trains for instance
individual wheel motors which can be driven or braked individually relative to one another may also be used. The personal loader can be provided with a front pair of drive wheels and a pair of rear steerable wheels or a single rear steerable wheel. The loader may also be provided with the rear wheel or wheels being directly steered via known steering linkages and power assist steering mechanisms or in the alternative either a single or pair of castor type wheels which are not directly steered but are indirectly steerable by the operators maneuvering of the loader. The loader includes a frame supported by the wheels and a control handle for providing operational control over the loader. The control handle is located within easy reach of an operator riding or walking substantially directly behind the loader.

[0017] The engine is separately connected to the differential transmission unit for drive and a hydraulic pump for providing appropriate pressurization and de-pressurization to a hydraulic system operating the hydraulically controlled loader mechanism system. An operator walking or standing behind the machine and within reach of the control handle may cooperatively control the vehicle speed and steering as well as the hydraulic system mechanism manipulation via a series of manual controls on the control handle. Alternatively, or in combination therewith, a series of pedals can also be provided for the operator to utilize.

[0018] A number of different work tool attachments, for example a bucket loader, may be readily attached to the front end of the loader. Specifically a desired work tool attachment is connected with a pair of hydraulically controlled loader arms, and the work tool attachment is controlled in both a vertical and horizontal direction, as well as in a leveling function via the operators actuation of the hydraulically controlled loader arms. Balancing of the work tool attachment and any load therein is provided with respect to the loader about a rotational axis of the front drive wheels. In essence a fulcrum point is established substantially about the front drive wheels to ensure that maximum traction is provided to the drive wheels at all times and an appropriate balance point is provided for safely and effectively balancing the loader and any load applied through operation of the attachment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The invention will now be described, by way of example, with reference to the accompanying drawings in which:

[0020] FIG. 1 is a side elevational view of the personal loader showing the loader mechanism in an upper and an alternative lower positions;

[0021] FIG. 2 is a block diagram of the hydraulic control system;

[0022] FIG. 3 is a side elevational view of another embodiment of the personal loader device;

[0023] FIG. 4 is a top planar view of the 4-wheel personal loader device;

[0024] FIG. 5 is a top planar view of the 3-wheel personal loader device;

[0025] FIG. 6 is a top planar view of a bucket attachment for the personal loader device;

[0026] FIG. 7 is a rear view of the bucket attachment disclosing the attachment mechanism;

[0027] FIG. 8 is a close up view of the accessory attachment mechanism connected to the hydraulically operated loader arm; and

[0028] FIG. 9 is a side cross-sectional view of the accessory attachment matingly engaged with the attachment mechanism.

DETAILED DESCRIPTION OF THE INVENTION

[0029] Turning now to FIG. 1, a brief description concerning the various components of the present invention will now be briefly discussed. As can be seen in this embodiment, the personal loader 1 is described in general.

[0030] The personal loader 1 is comprised generally of a frame 10 supported by a pair of front drive wheels 2 and, as will be discussed in further detail below, either a single or a pair of rear steerable wheels 8. The loader 1 is guided via a control handle 12 by the operator for purposes of steering, drive and hydraulic control over the personal loader 1. The operator may stand on a support platform if provided in certain embodiments, or may walk behind the personal loader 1 as shown to provide guidance for the loader 1.

[0031] The frame 10 supports an engine 50 connected to a differential transmission 54 and a hydraulic pump 52. The differential transmission 54 is connected to a main power take off of the engine 50 to provide a power drive to the front wheels 2 of the personal loader 1. The engine 50 powers the hydraulic pump 52 through a secondary power take off which operates the mechanical hydraulic system 60 to be described in further detail below.

[0032] The frame 10 is provided with a pivot axis P about which loader arm or arms 30 are controlled. The loader arms 30, of which there are usually provided a pair, although a single loader arm is also a viable option, each have a pivot end 32 which are each attached to the main pivot axis P of the frame 10 and controlled in their rotation about the pivot axis P via the hydraulic system 60 as demanded by the operator through the control handle 12. Each loader arm 30 also has a free end 34 which is provided with a universal attachment mechanism 20. The attachment mechanism 20 is pivotally attached to the loader arms 30 and pivots about a rotational axis PA defined by the relative alignment of the separate free ends 34 of the pair of loader arms 30.

[0033] It is to be appreciated that the hydraulic system 60 can be provided with a self balancing or leveling feature which automatically controls the free ends 34 of the loader arms in order to provide relative leveling of a load supported by the arms 30 with respect to the ground upon which the loader 1 is operating. In other words, rotational axis PA is adjusted relative to the ground to remain substantially parallel with respect to a constant horizon line. In embodiments without such a automatic self leveling feature, in some instances the operator may have to provide leveling of the attachment load by separately controlling the loader arms 30. As the necessity for leveling and mechanics of performing such operations are well known in the art, no further discussion is provided.

[0034] The elevation control of the free end 34 of the loader arms 30 and the relative rotation of the attachment
mechanism 20 are both controlled via the hydraulic system 60 through the operator’s operation of the control handle 12. In combination with the steering and drive control, such vertical and horizontal control is necessary over any attachment 80 to the loader 1 to provide for balancing, dumping, scooping, cutting, drilling, sweeping or scraping and other tasks as required in small loader and light construction use.

[0035] The critical function of balancing the loader 1 with respect to a variable load being applied to the work tool attachment accessory 80 at the free ends 34 of the loader arms 30 is accomplished by providing a fulcrum or balance point about the front drive wheels 2 of the loader 1. With the fulcrum or balance point being substantially co-linear with the front wheel rotational axis 4, the center of mass of the loader 1 is thus provided between the front and rear wheels. This fulcrum or balance point is accomplished by the relative rearward locating of the center of mass of the loader 1 with respect to the rotational axis 4 of the front wheels 2, and the relative frontwards application of any load applied through the accessory 80 relative to the rotational axis 4 of the front wheels 2.

[0036] With the balancing effect of the loaders rearward center of mass and any frontwards applied load to the attachment 80 about the balancing point or fulcrum, as can be appreciated, the front wheels 2 are thus provided with a maximum amount of traction due to both the frontward load and rearward center of mass having a vertical force component acting relatively downwards through the fulcrum balance point and via the front wheels 2 provides such a maximum traction force to the front wheels 2.

[0037] Certain attachment tools 80, such as the bucket loader attachment 80 shown, may be directly controlled through hydraulic control of the loader arms 30 and the relative rotation of the attachment mechanism 20. Certain other attachment tools, for instance a rotating sweeper or an auger must be provided with an auxiliary hydraulic line from the loader 1 for powering an attachment tool motor which is generally integral with the attachment tool to provide for instance such rotational capability to the attachment as necessary. A further description of such an auxiliary attachment control is provided below.

[0038] A first embodiment of the present invention will now be discussed in greater detail. The steering and maneuverability of the personal loader 1 is of critical importance, and therefore, the loader 1 must be capable of substantially turning within a particularly tight radius of curvature. The front wheels 2 are, as discussed above, driven via a simplified hydrostatic differential transmission. This type of transmission allows for relative rotational speed differences between the front drive wheels to facilitate turning of the loader 1. This type of transmission can also allow different relative rotational directions between the front drive wheels to provide even further facilitation of reduced turning radius.

[0039] The rear wheels 8 are the steering wheels for the loader and capable of rotation about a vertical axis VA relative to the front drive wheels 2. These wheels 8 may be essentially what are known as turf wheels having a less aggressive tread so that in combination with the steerable rear wheel feature significantly minimize damage to the ground from steering operations.

[0040] The rear wheels 8 of the first embodiment are castor wheels. Each rear wheel 8, whether a single wheel or a pair is utilized, is provided with an individual horizontal axle which is connected to and supports the frame 10 about a vertical axis VA. The horizontal axle of course provides for conventional horizontal wheel rotation thereby to permit loader movement along the ground. The vertical axis VA to which the horizontal axle is attached permits a full 360 degree vertical rotation of the wheel or wheels about the vertical axis VA, independent from one another where a pair of wheels 8 are provided, thus allowing the rear wheels 8 to rotate into any angular position relative to the front drive wheels 2. The castor wheels design provides extreme maneuverability in tight spaces and difficult locations as is often found in construction sites and personal residences.

[0041] In the present embodiment where castor wheel or wheels 8 are provided it is to be appreciated that in order to provide steering control the loader 1, the operator must walk on the ground behind the loader and steer the loader through a fixed position control handle 12. The control handle 12 is rigidly affixed to the frame and does not require steering control, and linkage is provided between the rear caster wheel(s) 8 and the control handle 12. Thus, an operator in the walk behind embodiment could manipulate and manually steer the loader 1, including the frame, hydraulic system and attachments via the relative positioning attained by appropriate maneuvering of the loader 1 via the rear caster wheel(s) 8 and the front wheels 2, well within the loader’s own wheel base. This maneuvering is made easier due to the fulcrum or balance point of the loader 1 being about the front wheels 2 and thus the castor wheel or wheels can be more easily aligned to maneuver the loader 1.

[0042] FIG. 2 diagrammatically shows the control handle 12 which in addition to providing steering control may also provide a series of inputs for instance a manual throttle 3 for controlling the speed and drive of the front wheels 2, and a series of loader arm controls including at least an elevational control 5, and an attachment accessory mechanism angle control 7 which through the hydraulic control 60 operates the mechanical loader arms 30 and the attachment mechanism 20 for the cutting, pushing, dumping, loading and unloading operations as required by the operator. An automatic self leveling feature may be provided or a manual control 9, and an auxiliary attachment control 13 may also be provided on the control handle 12 for such a feature.

[0043] Thus, is readily apparent to those of ordinary skill in the art, in either the walk behind mode or the operator supported mode embodiment, the operator can thus provide via the control handle 12 directional control of the loader 1 and mechanical hydraulic control, i.e. vertical and angular control over the loader arms 30 and accessory attachment control via the auxiliary work tool attachment control 13 as well as horizontal control via the loader speed control throttle 3. All these operator inputs may be provided through conventional control mechanisms such as twist throttles, knobs, buttons or levers associated with the control handle 12.

[0044] Turning to FIG. 3 the hydraulic control system 60 of the present invention is generally described. Each loader arm 30 is controlled by the hydraulic system 60 which comprises, for each loader arm 30, an elevation control hydraulic cylinder 62 and an attachment mechanism control cylinder 72. The elevation control hydraulic cylinder 62 is
pivotally attached at a first end 63 to the frame 10 and at a second end 64 to a pivot point on the loader arm 30. The operator controls the pressure to the elevation control hydraulic cylinder 62 through the corresponding input 5 of the control handle 12 where an increase in pressure to the elevation control hydraulic cylinder 62 extends the hydraulic cylinder 62 thus elevating the loader arm 30.

[0045] The attachment mechanism 20 rotatably connected to the free ends 34 of the loader arms 30 is controlled in its rotation relative to the loader arm 30 via an angle linkage 70 which is controlled by the attachment angle control hydraulic cylinder 72 having a first end 73 connected to the linkage 70 and a second end 74 attached to a portion of the loader arm 30 substantially adjacent the connection of the elevation control hydraulic cylinder 62 first end 64. The attachment angle control hydraulic cylinder 72 is also controlled via input 7 by the operator at the control handle 12 where the increase or decrease in pressure as demanded by the operator and applied via the hydraulic pump 52 varies the angle A of the attachment mechanism 20 and thus the attachment 80 on the personal loader 1 relative to the loader arms 30.

[0046] As set forth above angular control over the accessory attachment 20 is provided via the accessory attachment hydraulic cylinder 72 acting through the accessory attachment linkage 70. The linkage 70 includes a second pivot point PA2 on the accessory attachment 20 which is spaced from the pivot point PA. A double link 75 having a first end connected to the second pivot point PA2 and a second end connected to the control arm 30 are connected at a middle joint 77 to the first end 73 of the attachment hydraulic cylinder 72 which when actuated provides substantial mechanical advantage to control the rotation of the accessory attachment 20 about the pivot point PA.

[0047] It is to be appreciated that any number of attachment accessories 80 can be quickly attached to and detached from the personal loader 1 via the attachment mechanism 20. In particular, a primary attachment accessory 80 could be a bucket as shown for scooping, moving and handling heavy bulk materials. Numerous other attachment accessories are contemplated as well, dozer blades for cutting and scraping, forks for moving pallets or boxes, etc.

[0048] Other work tool attachment accessories, for instance an auger or a rotating sweeper brush (not shown) may also be attached to the loader arms via the attachment mechanism 20. These attachment accessories are usually provided with a hydraulic motor 63, see FIG. 2, to supply the necessary rotation or power to the work tool attachment. The hydraulic motor 63 of these work tool accessories is provided with power via an auxiliary hydraulic control line 61 which connects between the hydraulic motor 63 of the work tool accessory and hydraulic pump 52. This auxiliary control line 61 is diagrammatically shown in FIG. 2 and is controlled via the hydraulic control 60 by the auxiliary attachment control 13 on the control handle 12. Therefore an operator in coordination with the other series of hydraulic controls on the control handle can also control the auxiliary attachment control when necessary.

[0049] As shown in FIGS. 3 and 4, the rear caster wheel or wheels 8 shown in the first embodiment, may in other embodiments be replaced with directly steerable wheels 8. The steering and maneuverability of the personal loader 1 is of critical importance, and therefore, the loader 1 must be capable of substantially turning within a particularly tight radius of curvature. Alternatively to the provision of steerable castor wheels which are not directly but indirectly steered, the rear wheels 8 may be directly controlled via a conventional mechanical advantage tie rod steering mechanism 11. Each rear wheel 8 is provided with an individual rear axle supported on the frame and connected to the control handle 12 via the tie rod mechanism 11. The tie rod mechanism 11 and the individual axles of each rear wheel 8 provide at least full 180 degree pivot angle for the rear wheels 8. The full 180 degree rotation allows the rear wheels 8 to rotate to a position perpendicular with respect to the front drive wheels 2, which provides extreme maneuverability in tight spaces and difficult locations as is often found in construction sites and residences. Additionally, with such a full rotation and pivot angle of the steerable wheel or wheels relative to the drive wheels, no harm is done to the surface upon which the loader 1 is turning.

[0050] The control handle 12 can be made to be rotatable relative to the frame and connected with the steering linkage 11. As there are many types of steering linkages which could readily directly connect the control handle 12 with the rear wheels 8, no further description is provided. However, it is also to be appreciated by those skilled in the art that a power assisted steering mechanism could also be provided. For instance, a hydraulic power steering assist can be provided by a conventional rotary pump driven by the loader engine 50, and through a rotary valve providing the necessary hydraulic power assist to the operator when the appropriate turning force on the control handle 12 is provided. The rotary pump and valve provides an output which assists the operator in rotation of for instance a worm gear of the steering gear communicating with the axles. As such hydraulic power steering systems are also well known in the art, no further discussion is provided herein.

[0051] With such a direct steering method, it is also possible to have an operator ride on a platform 14 as shown in FIG. 4. The operator has the choice of either riding on the platform 14 or walking behind the loader, whichever way the operator can provide the best control over the loader 1. Furthermore, any size tires may be provided for either the front or the rear wheel or wheels. In some instances for instance for work on grass, smaller, soft tires might be necessary to decrease damage to the grass or turf. At muddy construction sites it might be necessary to have the drive wheels provided with a large aggressive tread design. Such decisions are made by those of ordinary skill in the art based on terrain, weather and required use and as such no further discussion is provided.

[0052] Additionally, it is possible to have different combinations of drive and steerable wheels, for instance the rear wheels 8 could be provided to drive the loader and the front wheels being steerable, or in other cases a 4 wheel drive differential might be provided to supply drive to all wheels, with either the front or the back wheel(s) being steerable.

[0053] FIG. 5 depicts another embodiment of the present invention namely a personal loader 100 comprised generally of a frame 110 supported by a pair of front wheels 102 connected via front axle 104 and a pair of rear wheels 106 connected via rear axle 108. The frame 110 includes an operator support platform 114. The operator may stand on the platform 114 or in some instances may walk behind the personal loader 100 with the
platform 114 folded up out of the way or removed from the frame 110. Also, alternatively to the differential transmission 54, the front wheels 102 may be driven by individual wheel motors 154 connected with each front wheel 102 as shown in FIG. 5. The individual wheel motors 154 can be each individually controlled, i.e. braked and/or driven, either forward or reverse by the operator to facilitate turning of the loader.

[0054] The frame supports an engine 150 connected to a hydraulic pump 152 and the individual wheel motors 154. The engine 150 powers the hydraulic pump 152 which operates the mechanical hydraulic system 160 to be described in further detail below. The individual wheel motors 154 may be hydraulically driven and are connected between hydraulic pump 152 and the front wheels 102 to provide an individual wheel power drive to the front wheels 102 of the personal loader 100.

[0055] FIGS. 6 and 7 show one type of accessory attachment 80, namely a bucket loader, having a back plate 71 designed to matchingly engage with and being supported by the attachment mechanism 20, 120 at the free end 34, 134 of the loader arms 30, 130. A further description of the back plate 71 will be provided below.

[0056] Turning to FIG. 7, the attachment mechanism 20, 120 attached to the loader arms 30, 130 is provided with a face plate 21 having a front side 22 and a back side 23, the back side 23 supporting a pair of manually actuated levers 24, although it is conceivable that a single lever could be utilized as well. The levers 24 operate via a common mechanical link pin mechanism having an adjustment link 25 and an engagement pin 26. Engagement pin 26 is operable in an engaged and a disengaged position via actuation of the levers.

[0057] In the engaged position an attachment accessory having the back plate 71 is mounted to the front side 22 of the face plate 21 as will be described below, and an operator, during engagement and disengagement operations, rotates the handles or the levers 24 and thus moves the engagement pins either into or out of holes 27 provided in the face plate 21 to engage respective holes in the back plate 71. The face plate 21 is provided with the hole or passage 27 therethrough which the engagement pin 23 is moved via actuation of the levers. In the disengaged position, the pin 23 is removed from the hole 27 and in the engaged position extends all the way therethrough to affix the attachment accessory 80 to the face plate 21.

[0058] Observing FIG. 8, each attachment accessory 80 is provided with the matching back plate 71 designed to matchingly engage with the front side 22 of the face plate 21 of the attachment mechanism 20. The back plate 71 is provided with an upper lip 73 which is intended to engage an upper edge 28 of the face plate 21. A matching hole or orifice 77 is provided in a matching lower portion of the back plate 71 through which the engagement pin 26 extends when the lever is rotated into the engaged position. Thus, as can be readily observed by one of ordinary skill in the art, the attachment accessory 80 is held in both vertical and horizontal privity with the face plate 21. Such attachment mechanisms are well known and capable of being constructed in numerous ways. The importance of the present invention being that it is simple and may be manufactured to be readily compatible with any number of different accessories to be used in conjunction with the personal loader 1.

[0059] Since certain changes may be made in the above described improved personal loader device, without departing from the spirit and scope of the invention herein involved, it is intended that all of the subject matter of the above description or shown in the accompanying drawings shall be interpreted merely as examples illustrating the inventive concept herein and shall not be construed as limiting the invention.

Wherefore, I/we claim:

1. A personal loader for assisting an operator in materials handling tasks comprising:
   a frame supported by at least three wheels, at least one of the wheels being a powered drive wheel and at least one of said other wheels being a steerable wheel;
   an engine supported on the frame for driving a hydraulic pump and the at least one powered drive wheel;
   a hydraulic control regulating the hydraulic pump actuation of at least a first hydraulic circuit powering a vertically moveable primary accessory control means and a second hydraulic circuit providing angular rotational capability to a secondary accessory control means; and
   a control handle for steering the loader, the control handle having manual actuatable inputs for operation of the hydraulic control and the at least one powered drive wheel.

2. The personal loader as set forth in claim 1 wherein the at least one powered drive wheel is a pair of fixed position drive wheels, each of the pair of drive wheels being driven by an associated first and second wheel motor which may be one of individually braked and driven relative to the other wheel motor.

3. The personal loader as set forth in claim 1 wherein the at least one powered drive wheel is a pair of fixed position drive wheels connected to the engine via a hydrostatic differential transmission and the at least one steerable wheel is a castor which is freely rotatable about a horizontal axis to facilitate conventional circumferential ground surface engagement and also freely rotatable about a vertical axis about which the at least one steerable wheel vertically rotates relative to the fixed position drive wheels.

4. The personal loader as set forth in claim 3 further comprising an accessory attachment mechanism supported and manipulated by the primary accessory control means and the secondary accessory control means, the accessory attachment mechanism being capable of coupling with a variety of different accessories for performing different material handling tasks.

5. The personal loader as set forth in claim 3 wherein the at least one steerable wheel comprises a first and second steerable rear wheels.

6. The personal loader as set forth in claim 1 wherein the control handle is directly connected to the at least one steerable wheel by a steering linkage.

7. The personal loader as set forth in claim 4 wherein the pair of drive wheels are front wheels and the at least one steerable wheel is a rear wheel and the center of mass of the loader is horizontally located between the pair of front drive wheels and the at least one rear steerable wheel.

8. The personal loader as set forth in claim 7 wherein the primary accessory control means is a pair of front loader
arms each having a first end attached to the frame at a main pivot point and a second free ends supporting the accessory attachment mechanism.

9. The personal loader as set forth in claim 8 wherein the secondary accessory control means is a mechanical linkage substantially supported at the free end of each front loader arm providing angular rotation to the accessory attachment mechanism.

10. The personal loader as set forth in claim 8 wherein the main pivot point for the pair of front loader arms is located horizontally between the front drive wheels and the at least one steerable wheel.

11. The personal loader as set forth in claim 10 wherein any load applied to the accessory attachment mechanism is horizontally maintained forward of the front drive wheels to establish a fulcrum point defined by a rotational axis of the front drive wheels between the applied load and the center of mass of the loader about the front drive wheels.

12. The personal loader as set forth in claim 11 wherein the control handle is provided with at least a manual throttle for drive control over the front drive wheels and separate manual control devices for regulating the first hydraulic and the second hydraulic.

13. The personal loader as set forth in claim 12 wherein the hydraulic control regulates the hydraulic pump actuating an auxiliary hydraulic for powering an accessory drive motor of a loader accessory.

14. The personal loader as set forth in claim 13 wherein the control handle is further provided with an auxiliary hydraulic control device providing the operator with manual control over the accessory drive motor.

15. The personal loader as set forth in claim 14 wherein the hydraulic control regulates the hydraulic pump actuating a self leveling function for maintaining a secondary pivot axis defined by the free ends of the loader arms substantially level with respect to a horizon line.

16. A manually steerable loader having a hydraulic system for controlling a loader mechanism provided with a universal attachment device for coupling with a plurality of different accessories for assisting an operator in a multitude of different materials handling tasks, the manually steerable loader comprising:

- a frame supported by a pair of powered drive wheels and at least one steerable wheel;
- an engine supported on the frame for driving a hydraulic pump and the pair of powered drive wheels;
- a hydraulic control regulating the hydraulic pump actuation of a first hydraulic circuit powering a vertically moveable primary accessory control means and a second hydraulic circuit providing angular rotational capability to a secondary accessory control means;
- a control handle having manual actuatable inputs for providing hydraulic control of the hydraulic pump actuation of the first hydraulic and the second hydraulic and control over the steerable wheel and the powered drive wheel; and
- wherein said first hydraulic circuit regulates vertical lifting and lowering capability of a pair of loader arms pivotally attached to the frame, said second hydraulic circuit angularly regulates an accessory attachment mechanism supported by the loader arms by said second hydraulic circuit.

17. The personal loader as set forth in claim 16 wherein the pair of powered drive wheels is a pair of fixed position drive wheels and the at least one steerable wheel is a castor which is freely rotatable about a horizontal axis to facilitate conventional circumferential ground surface engagement and also freely rotatable about a vertical axis about which the at least one steerable wheel vertically rotates relative to the fixed position drive wheels.

18. The personal loader as set forth in claim 17 wherein the control handle is immovably fixed to the frame of the loader and the operator turns the loader in a desired direction by manually maneuvering the loader frame about a wheel base defined by the pair of drive wheels and relative vertical angulation of the at least one castor wheel relative to the pair of drive wheels.

19. The personal loader as set forth in claim 18 wherein the drive wheels are provided as the front wheels of the loader.

20. A method of controlling a personal loader mechanism provided with a universal attachment device for coupling with a plurality of different accessories for assisting an operator in a multitude of different materials handling tasks, the manually steerable loader comprising the steps of:

- supporting a frame with a pair of powered drive wheels and at least one steerable wheel;
- providing an engine supported on the frame for driving a hydraulic pump and the pair of powered drive wheels;
- regulating the hydraulic pump actuation of a first hydraulic circuit powering a vertically moveable primary accessory control means and a second hydraulic circuit providing angular rotational capability to a secondary accessory control means;
- using a control handle having manual actuatable inputs for regulating the hydraulic pump actuation of the first hydraulic circuit and the second hydraulic circuit and control over the steerable wheel and the powered drive wheel; and
- regulating a vertical lifting and lowering capability of a pair of loader arms pivotally attached to the frame by said first hydraulic circuit and angularly regulating an accessory attachment mechanism supported by the loader arms by said second hydraulic circuit.