SET OF INTERCHANGEABLE UTILITY APPARATUSES

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ABSTRACT OF THE DISCLOSURE

A combination set of interchangeable apparatuses comprising a fork lift two wheeler, a wheelbarrow, a snowplow, and a shopping cart, any one of which is reportedly fixed on and to a basic mobile frame for its utilizable purposes.

Background of the invention

Field of the invention.—The field of art to which the invention is most likely to pertain is generally located in the classes of apparatus relating to land vehicles, Class 298, Land Vehicles, Dumping, Class 280, Land Vehicles, and Class 37, Excavating, United States Patent Office Classification, appear to be the applicable general areas of art in which the claimed subject matter of the type involved here has been classified in the past.

Description of the prior art.—Disclosures in the art to which this invention most likely pertains are disclosed in patents whose numbers are listed after the conclusion of the claims in the Letters Patent.

Summary

This invention relates to a set of utility apparatuses, and is particularly directed to a set of interchangeable units for a basic frame that is readily maneuverable and mobile.

An object of this invention is to provide for a maneuverable mobile utility apparatus.

Another object of this invention is to provide for ready facility of a mobile frame to support any one of a set of units for moving loads required to be supported by particular structure in view of the peculiar and distinct nature of the specific load in question.

A further object of this invention is to provide for inexpensive, sturdy apparatuses by which a various number of purposes may be fulfilled efficiently by such apparatuses of the set.

These and other objects of the invention will be apparent upon a reading of the following description and claims appended thereto, taken in conjunction with the figures in the accompanying drawing in which:

FIG. 1 is a perspective view of our frame employed with one utility apparatus formed from our set of units;

FIG. 2 is a fragmentary elevational view of our apparatus shown in FIG. 1;

FIG. 3 is a full elevational view of employment of another apparatus formed from our set of units;

FIG. 4 is a view taken on line 4—4 of FIG. 3;

FIG. 5 is a view taken on line 5—5 of FIG. 3;

FIG. 6 is an enlarged fragmentary view of the apparatus shown in FIG. 3;

FIG. 7 is a full elevational view of employment of another apparatus formed from our set of units;

FIG. 8 is a top plan view of the apparatus shown in FIG. 7;

FIG. 9 is a view taken on line 9—9 of FIG. 8;

FIG. 10 is a view taken on line 10—10 of FIG. 8;

FIG. 11 is a front elevational view of the apparatus shown in FIG. 7;

FIG. 12 is a full elevational view of the employment of another apparatus formed from our set of units; and

FIG. 13 is a perspective view of the unit shown in FIG. 12.

Referring to the drawing comprising two sheets, in which reference characters refer to like numbers in the following description, our utility apparatus set 20 incorporates as structure on which interchangeable units are mounted, a frame 21 comprising a pair of spaced parallel elongated rigid tubular members 22, 23, preferably made out of black iron pipe tubing. Members 22, 23 are connected together by means of a plurality of spaced rigid ribs 24, 25, each disposed in conveniently spaced parallel relationship to each other and transversely arranged with respect to tubular members 22, 23, thereby forming rigid rectangular frame 21. Each of ribs 24, 25 is suitably joined, such as by welding, to members 22, 23 as shown in FIG. 1. Frame 21 is securely mounted transversely upon and of an axle 26 by means of a stepclimber 27. Stepclimber 27 comprises a pair of rigid generally U-shaped flat members 28, 29, each securely joined to and depending from its corresponding member 22, 23, and disposed in parallel planes perpendicular to the plane of frame 21. Each of flat members 28, 29 comprises a unitary strip having a flat pivotal base, such as 30 in FIG. 1, to each end of which an arm extends angularly therefrom, forming a general shape of a U, each arm terminating in tab 31 longitudinally extending of frame 21 and secured by bolts to their respective tubular members 22, 23 thereof. Mid-way of each of forward arms 32, 33 of each flat member 28, 29, respectively, a weld is provided to rigidly couple such flat members transversely of and to axle 26 (FIGS. 1, 2). A pair of wheels 34, 35 supports axle 26 at its ends, and is mounted thereon, exteriorly of the lateral confines of frame 21. Suitable bearing means (not shown) are provided for wheels 34, 35, whereby same are rotatable about axle 26. Thus, any of the apparatus units interchanged upon frame 21 is made mobile.

A pair of handles 36, 37 is provided for frame 21 whereby any one unit of our set of apparatuses, mounted upon frame 21, is made easily maneuverable. Each of handles 36, 37 is preferably formed out of extensions of frame members 22, 23, respectively. Such formation is fabricated by suitably bending such extensions angularly of frame members 22, 23, the results of which are shown in FIGS. 3 and 4.

The particular embodiment of an apparatus in our set of units illustrated in FIGS. 1 and 2, employs a fork lift truck unit 38 in cooperative arrangement and relationship with frame 21. Unit 38 comprises a pair of tines 39, 40 mounted to and at the base of frame 21. Tines 39, 40 may be formed as shown, as extensions of the elements compositing stepclimber 27, as shown in FIG. 1. However, fork unit 38 may be attached by other suitable connections. Each of tines 39, 40 comprises a flat, elongated and rigid member, with each tine lying generally in the same plane as does its corresponding frame member and U-shaped member of stepclimber 27. Tines 39, 40 form angles with frame members 22, 23, respectively, whereby a static load 41 (FIG. 2) mounted on fork unit 38 and supported on frame 21 is capable of being transported from one location to another. It should be understood now that the lift fork truck unit assembly mounted at the base of frame 21 not only constitutes an end to itself in our mobile set, but constitutes a means on frame 21 by which other utility apparatuses units are capable of being mounted to frame 21, as will be evident from descriptions and illustrations following hereinafter.

It will be observed from FIG. 2 that movement of static load 41 on our lift truck unit 38 and supported by frame 21, from one elevation to another, is facilitated by step-
climber 27. Pivotal bases 30, 45 of flat U-shaped members 28, 29, respectively, and being generally disposed parallel to frame members 22, 23, provide the necessary fulcrums against which loaded unit 38 and frame 21 are pivoted. As they are pivoted, the apparatus is swung from left to right, as viewed by the operator thereof who is in position to grasp handles 36, 37. Stepelimber 27 is incased across an edge of a stairway step by such swinging until wheels 34, 35 engage a step surface, or the edge between steps, whereby through frictional engagement of the wheels moving to an upper or lower stair step, apparatus unit 38 ascends or descends accordingly.

Another apparatus 55 formed from our set of units is disclosed in FIGS. 3, 4, 5, and 6. A wheelbarrow unit 57 is mountable to frame 21 and comprises four walls and a base 58, all of suitable material such as sheet metal, and which together fashion the loading tray for a load of different physical nature than that supported by the two-wheeler fork truck shown in FIGS. 1 and 2.

Means to couple wheelbarrow unit 57 and frame 21 together for cooperative action are included as part of our invention embodying a set of units interchangeable with frame 21. An engaging bar 60 is laterally disposed across frame 21 adjacent its upper end. The respective ends of bar 60 are fixed to their associated frame members 22, 23, such as by welding, or the underside thereof as shown in FIGS. 1, 3, 4, and 5. Secured to wheelbarrow unit 57 is an elongated configured tubular element 65 comprising a central portion 66, intermediate portions 67, 68 integrally formed from central portion 66, and end grip portions 69, 70 likewise formed from intermediate portions 67, 68 respectively.

Central portion 66 is horizontally and laterally disposed below the plane of base 58 of the wheelbarrow receptacle, as shown in FIG. 3, thereby providing for a space sufficiently large for the introduction of hay, sand, etc., 36, 37 and frame member 22, 23. As wheelbarrow unit 57 is thereafter slipped along said handles and frame 21, the ends of central portion 66 engage abutting ends 61, 62 of bar 60 thereby preventing further slippage of unit 57 along frame 21. By such cooperation, unit 57 and frame 21 function together to serve the useful purposes incident to the utility of a wheelbarrow.

Tubular element 65 is secured to unit 57 by means of its vertically disposed intermediate portions 67, 68 being bolted exteriorly to rear wall 72. End gripping portions 69, 70 of bar 60 are configured, by bending, from such intermediate portions 67, 68 respectively, to extend rearwardly of the apparatus, so as to provide for means to maneuver the utility wheelbarrow apparatus. As gripping portions 69, 70 are pivoted about rolling wheels 34, 35, frame 21 and handles 36, 37 are raised above their rest positions, and forward motion by the operator maintains fixed relationship between unit 57 and frame 21 in view of the cooperative action between the ends of central portion 66 and the ends of engaged bar 60.

FIGS. 7, 8, 9, 10, and 11 disclose a snowplow apparatus formed from our set of interchangeable utility units. Snowplow unit 75 comprises a blade 76, means 77 to mount the blade to frame 21 and means 78 to brace blade 76 against snow accumulation upon its face in the forward movement of the apparatus.

Blade 76 comprises a tapering concave face disposed laterally of frame 21 and in a generally vertical plane, and located forwardly of blade 21. The shorter side edge of blade 76 is disposed more forwardly of the apparatus than the larger side edge thereof, in order to more efficiently discharge snow accumulation laterally from blade 21 as the apparatus is moving forward. Means 77 to mount and hold secure blade 76 relative to frame 21 is provided in the form of a plurality of V-shaped rigid hollow sleeves 80, 81. Each sleeve 80, 81 comprises a hollow member having one leg welded to the back of blade 76, and having its other leg provided with a longitudinally disposed slot 82 extending to its free end as shown in FIG. 9. Each of such slots 82 is provided for accommodation of tines 39, 40 that might be of wider dimension than hollow sleeves 80, 81.

Means 77 are spacedly fixed, such as by welding, to the back of blade 76, and are arranged vertically and corresponding spacedly aligned from tines 39, 40, 45. Means 77 are slipped over such tines to provide for another utility in and for our set of units.

Bracing means 78 is provided for blade unit 76, and comprises a pair of rigid bracing bars 85, 86 each advantageously disposed longitudinally of frame 21 so that force of snow accumulation to bend the species of sleeve members 80, 81, thereby making inoperative the function of blade 76. As shown in FIG. 7 by way of illustration, brace bar 85 is welded between the end of the leg of sleeve 80 mounted on tine 39 and the back side of blade 76 adjacent its scraping edge. Likewise, brace bar 86 is similarly welded at its opposing position to brace bar 85.

In operation, it will now be apparent that forward motion of utility apparatus 29 about its wheels 34, 35 with assembly of snowplow unit 75 thereon, provides for collection of snow or the like within the framework of curved blade 76 and thereafter dispelled laterally as noted aforesaid.

FIGS. 12 and 13 disclose another embodiment of a utility apparatus formed from our interchangeable set of units. Mobile shopping cart apparatus 90 comprises frame 21, and a rigid lightweight cart container 91 mounted thereto. Cart unit 91 comprises a construction of wire mesh 92 to form sides, ends, and bottom of container 91, assembled together in conventional fashion, and a plurality of hooking means 93 fixedly joined, such as by welding to strips (not shown) affixed to adjacent sides of container 91. Each of hooking means 93 comprises an L-shaped element attached to bottom 94 in such a manner that the leg of the L is substantially parallel to the length of container 91, and having its open end pointing forwardly of the unit. Means 93 are grouped into an upper pair and lower pair, the upper pair engaging bar 60 and the lower pair engaging ribs 25. Conversion into shopping cart 90 is accomplished by introduction of the upper and lower pairs of hooking means 93 into cooperative relationship with their respective bar 60 and rib 25, whereby the leg of each lug element is slipped under such bars, as shown in FIG. 12. The width of container 91 is of no greater dimension than the distance between frame members 21, 22. Thus, the unit is stationarily fixed to frame 21, and is supported thereon by means of the hooking means engaged thereto.

It should now be apparent that we have provided for a novel utility set of apparatuses, any one of which through cooperative relationship with a mobile frame unit, is quickly and easily interchangeable with another for immediate utility. Any one of four purposes of transporting loads of varying physical nature is readily accomplished by our one set of utility units rather than having four different peculiarly adapted devices each specifically constructed to serve a particular or specific purpose for which it would be intended.

We have therefore fully disclosed our invention by describing and illustrating same in the aforesaid specification. And it is not to be strictly limited therein; various modifications and changes may be made and which are nevertheless comprehended within the scope of our invention. It should be clearly understood that within the scope of the following appended claims, the invention may be practiced otherwise than as specifically described and exemplified herein, by those skilled in the art, and having the benefit of this disclosure.

Therefore, what we claim as patently novel is:

1. A mobile utility set of apparatuses comprising in combination,
a frame having a base,
a set of units for said frame, said units comprising a
fork lift truck unit, a wheelbarrow unit, a snowplow unit, and a cart unit,
engangeable means including ends of a bar laterally disposed across and secured to said frame and engaged any one of said wheelbarrow and cart units,
cooperative means mounted on each of said wheelbarrow and cart units cooperatively engageable with said engaged means on said frame,
said fork lift truck unit mountable on said base of said frame, said snowplow unit mountable on said fork lift truck unit, and
means for making mobile said frame mountable to said frame, whereby each of said units is optionally mounted upon said frame and made mobile.

2. A mobile utility set of apparatuses comprising in combination,
a frame having a base,
engangeable means including ends of a bar laterally disposed across and secured to said frame mounted at the upper end of said frame,
a set of units for said frame, said units comprising a wheelbarrow unit and a cart unit,
means on said wheelbarrow unit for engaging the ends on said engaged means on said frame thereby securely mounting said unit to said frame,
means on said cart unit for engaging the bar of said engaged means on said frame thereby securely mounting said unit to said frame, and
means for making mobile frame to said frame, whereby each of said units is optionally mounted upon said frame by the cooperative relationship between said engaged means on said frame and said engaging means on each unit.

3. The set of apparatuses of claim 2 in which said wheelbarrow unit has a base and an element having a central portion in a plane below the base of said wheelbarrow unit, said element being laterally disposed of said frame and abutting the ends of said bar upon mounting said wheelbarrow unit on said frame.

4. A mobile utility set of apparatuses comprising in combination,
a frame having a base,
means for making mobile said frame mounted to said frame,
a set of units for said frame, said units comprising a fork lift truck unit and a snowplow unit,
said fork lift truck unit mounted on said frame at its base,
said snowplow unit optionally mountable to said frame by cooperative association with said fork lift truck unit,
said truck unit including at least one pair of tines,
said snowplow unit including a pair of hollow sleeve members slideably receivable on said tines thereby securely mounting said snow-plow unit to said frame through the cooperative action of said tines and sleeve members.

5. A mobile utility set of apparatuses comprising in combination,
a frame including a base and laterally disposed bars having ends secured to said frame,
means for making mobile said frame mounted to said frame,
a set of units for said frame, said units comprising a wheelbarrow unit, a fork lift truck unit, and a snow plow unit,
said wheelbarrow unit optionally mountable to said frame by cooperative association therewith, and including a base and an element having a central portion in a plane below said base of said wheelbarrow unit, said element being laterally disposed of said frame and abutting the ends of one of said laterally disposed bars upon mounting the unit to said frame, said fork lift truck unit mountable on said frame at its base,
said snowplow unit optionally mountable to said frame by cooperative association with said fork lift truck unit,
said truck unit including at least one pair of tines, said snowplow unit including a pair of hollow sleeve members slideably receivable on said tines thereby securely mounting said snowplow unit to said frame through the cooperative action of said tines and sleeve members.

6. The set of apparatuses of claim 5 including a cart unit optionally mounted on said frame, and means on said cart unit for engaging one of said laterally disposed bars on said frame thereby securely mounting said cart unit to said frame.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,350,797

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It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 32, after "mobile" insert -- said --.

Signed and sealed this 12th day of November 1968.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
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EDWARD J. BRENNER
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