

April 12, 1955

R. H. VOIGT

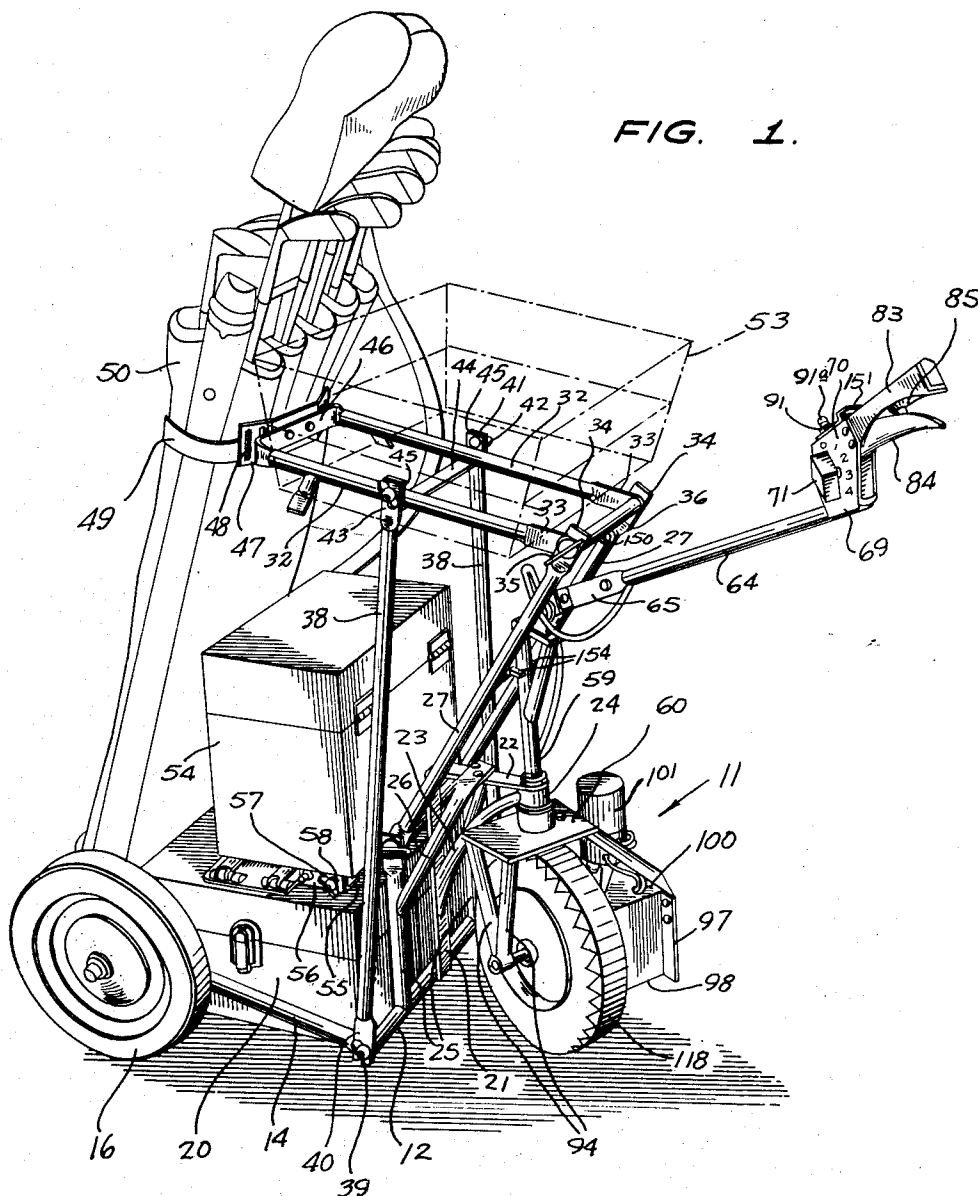
2,706,008

POWERED GOLF BAG CARRIER

Filed May 14, 1954

3 Sheets-Sheet 1

FIG. 1.



INVENTOR.
ROBERT H. VOIGT,

BY

McMurray, Berman & Davidson

ATTORNEYS.

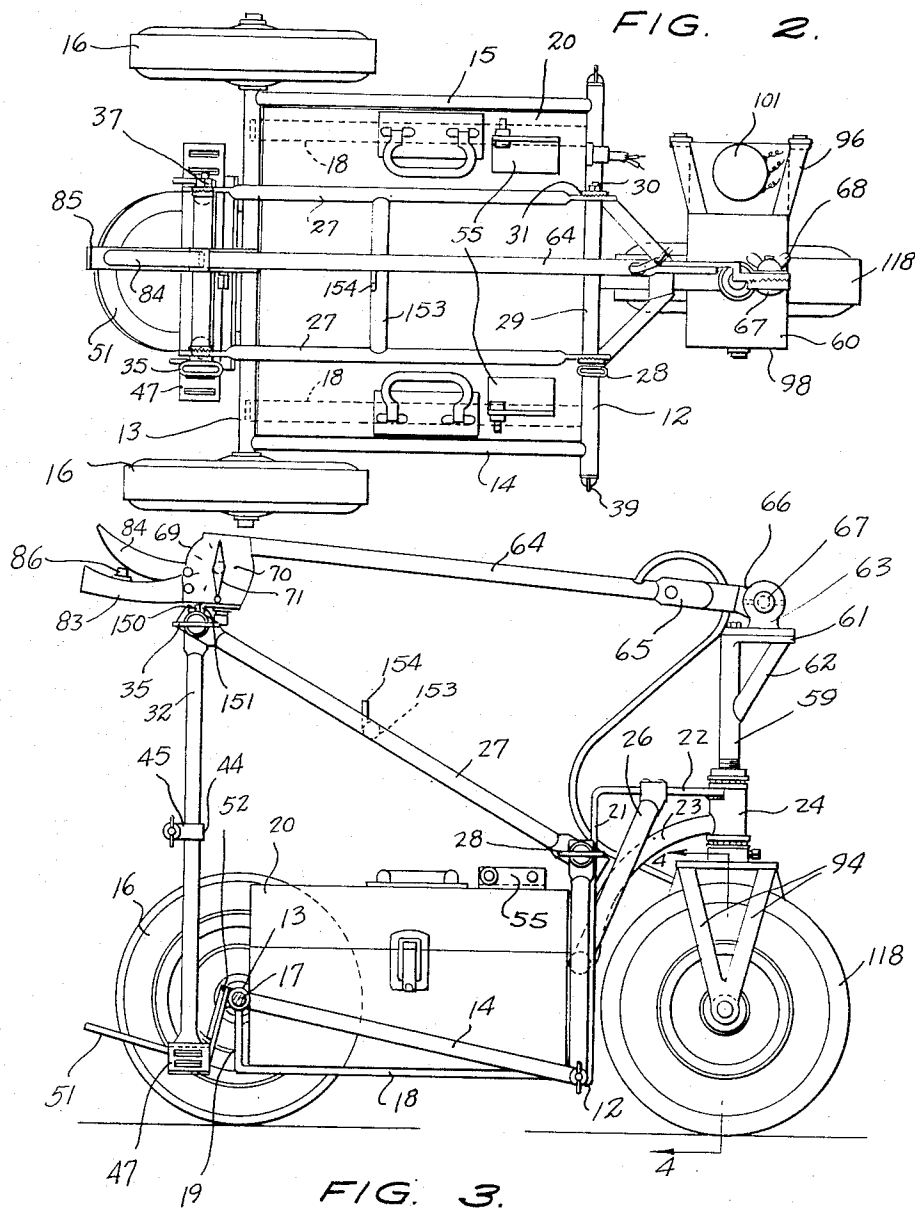
April 12, 1955

R. H. VOIGT
POWERED GOLF BAG CARRIER

2,706,008

Filed May 14, 1954

3 Sheets-Sheet 2



INVENTOR.
ROBERT H. VOIGT,
BY

McMorrow, Berman & Davidson
ATTORNEYS.

April 12, 1955

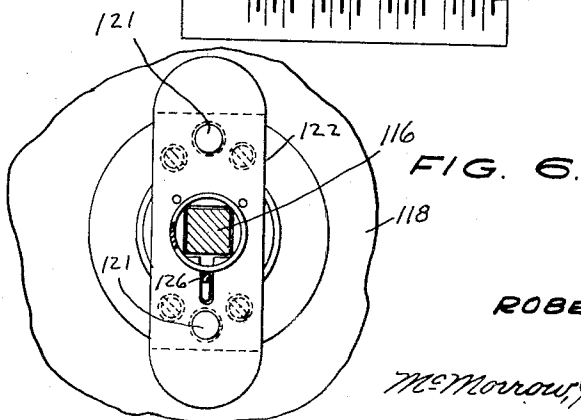
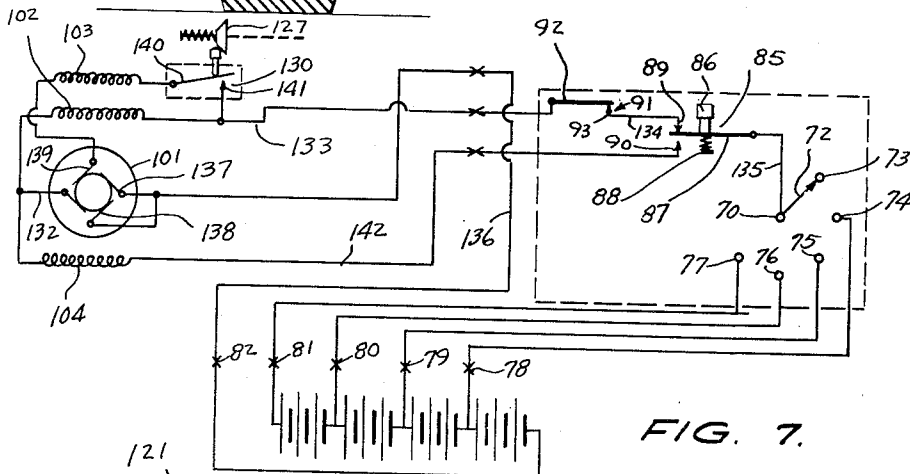
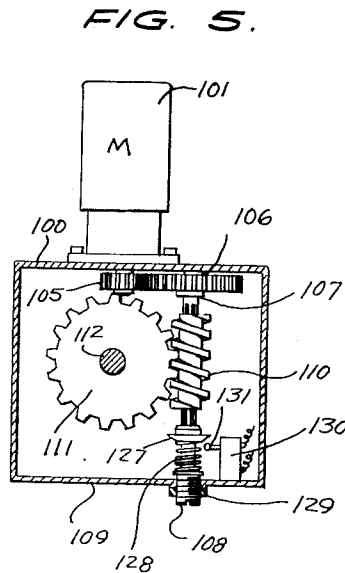
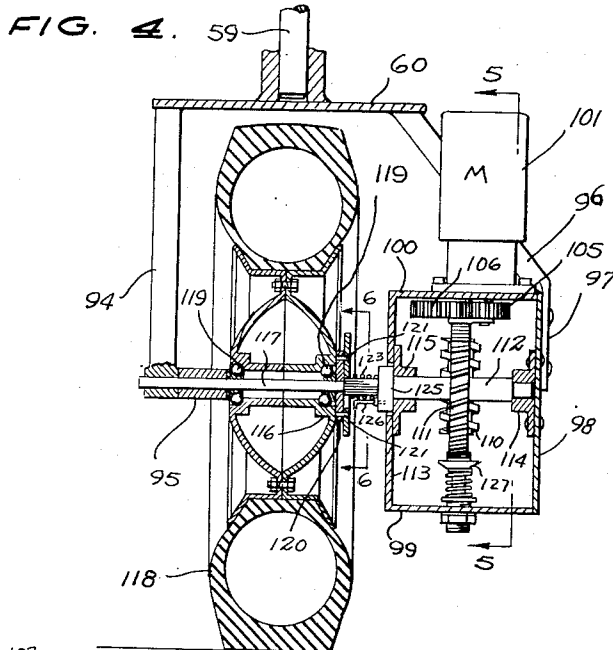
R. H. VOIGT

2,706,008

POWERED GOLF BAG CARRIER

Filed May 14, 1954

3 Sheets-Sheet 3



INVENTOR.
ROBERT H. VOIGT,
 BY
McMorrow, Berman & Davidson
 ATTORNEYS.

1

2,706,008

POWERED GOLF BAG CARRIER

Robert H. Voigt, Milford, Mich.

Application May 14, 1954, Serial No. 429,843

3 Claims. (Cl. 180—19)

This invention relates to powered vehicles, and more particularly to an improved golf bag carrier.

A main object of the invention is to provide a novel and improved powered golf bag carrier which is simple in construction, which is easy to operate, and which may be driven at any speed desired by the user, in accordance with the user's taste and which is arranged to carry not only the user's golf bags, but accessory objects, such as a beverage cooler, a basket, and the like.

A further object of the invention is to provide an improved powered golf bag carrier which may be easily folded to a compact condition, which is easy to set up for use, which is provided with braking means to secure the carrier in a stationary position when the motor thereof is deenergized, and which is provided with means to automatically increase the torque of the driving motor thereof under unusually heavy loading conditions, such as in going up a steep incline.

A still further object of the invention is to provide an improved powered golf bag carrier which is relatively inexpensive to manufacture, which is light in weight, which is rugged in construction, which is provided with means for accurately controlling the speed thereof, and with additional means for reversing the direction of movement thereof when desired, the carrier device being easy to steer and being arranged so that its speed can be adjusted to match the walking pace of the user thereof.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a perspective view of an improved powered golf bag carrier constructed in accordance with the present invention.

Figure 2 is a top plan view of the golf bag carrier of Figure 1 shown with the handle thereof folded rearwardly to an inoperative position.

Figure 3 is a side elevational view of the powered golf bag carrier in the position thereof of Figure 2.

Figure 4 is an enlarged transverse vertical cross sectional detail view taken on the line 4—4 of Figure 3.

Figure 5 is a vertical cross sectional detail view taken on the line 5—5 of Figure 4.

Figure 6 is an enlarged cross sectional detail view taken on the line 6—6 of Figure 4.

Figure 7 is a schematic wiring diagram of the electrical circuit employed in the powered golf bag carrier of Figures 1 to 6.

Referring to the drawings, the powered golf bag carrier is designated generally at 11. The carrier 11 comprises a wheeled frame, said frame comprising the front bottom transverse tubular member 12, the rear transverse bottom tubular member 13, and the tubular longitudinal side members 14 and 15 rigidly connected to the transverse tubular members 12 and 13, as shown in Figure 2, the rear transverse tubular member 13 containing a rear axle on the ends of which are rotatably mounted the respective rear ground-engaging supporting wheels 16, 16. Said rear axle is designated at 17 in Figure 3.

As is shown in Figure 3, the longitudinal side members 14 and 15 are inclined downwardly and forwardly from the transverse tubular sleeve member 13 toward the transverse tubular member 12. Rigidly secured to said transverse members inwardly adjacent the respective longitudinal tubular side members 14 and 15 are the respective, generally L-shaped carrier bars 18, 18 having horizontal main body portions and vertical rear end portions connected to the transverse tubular member 13, said vertical rear end portions being shown at 19. The carrier bars 18 are adapted to support a battery box 20, as shown in Figure 3.

Rigidly secured to the mid portion of the front trans-

2

verse tubular member 12 is the vertical upstanding support bar 21, to the top end of which is secured the horizontal, forwardly extending arm 22. Arm 22 is rigidly braced to arm 21 by an arcuate, upwardly and forwardly extending arm 23 secured at its rear end to the intermediate portion of vertical bar 21 and provided at its upper end with the bushing member 24 which is rigidly secured to the end of the horizontal arm 22. Designated at 25, 25 are additional vertical upstanding frame members rigidly secured to the transverse member 12 on opposite sides of the bar member 21. The forwardly extending arm 22 is further braced by being connected to the bight portion of a U-shaped brace bar 26 whose arms are respectively rigidly connected to the respective vertical upstanding frame members 25, 25.

Designated at 27, 27 are respective tubular bars having flattened ends. The lower ends of the tubular bars 27, 27 are pivotally connected to the flattened top ends of the vertical frame bars 25, as by a transversely extending bolt 28 which extends through the flattened ends of the members 25 and 27 and through a spacer tube 29 interposed between the joined flattened ends of the members on the opposite sides of the frame, as shown in Figure 2. The bolt 28 is threadedly engaged through a nut 30 welded on the flattened end 31 of the vertical bar member 25 on the right side of the frame, as viewed in Figure 1, whereby tightening of the bolt 28 will lock the bars 27, 27 in pivotally adjusted positions with respect to the frame bars 25, 25. The abutting surfaces of the flattened ends of the bars 25 and 27 are preferably serrated, as shown in Figure 2, to frictionally lock the members 25 and 27 in pivotally adjusted positions.

Designated at 32, 32 are respective tubular frame members having flattened ends 33, 33 which are pivotally connected to the flattened top ends 34, 34 of the members 27, 27, as by a transverse bolt 35 engaged through the ends 33 and 34 of the members 27 and 32 and through a spacer tube 36 disposed between the respective pairs of superimposed flattened ends 33 and 34. A nut 37 is welded on the flattened end 34 of the member 27 at the right side of the carrier frame, as viewed in Figure 1, through which the bolt 35 is threadedly engaged, the abutting surfaces of the flattened portions 33 and 34 being serrated, as shown in Figure 2, so that by tightening the bolt 35, the members 27 and 32 will be locked in adjusted positions relative to each other.

Designated at 38, 38 are respective tubular brace bars which are employed to connect the intermediate portions of the respective bar members 32, 32 to the ends of the transverse bottom forward tubular frame member 12, as by wing screws 39, 39 engaged through the flattened lower ends 40 of the strut bars 38, 38 and threadedly engaged in the ends of the transverse bottom frame member 12, and by bolts 41 and wing nuts 42 engaged through the flattened top ends 43 of the strut bars 38 and through upstanding end lugs on a transverse bar 44 rigidly connecting the intermediate portions of the members 32, 32, said upstanding end lugs being shown at 45, 45.

The rear ends of the tubular members 32, 32 are rigidly connected by a transversely extending bight element 46 to which is secured a concave bracket plate 47. The respective side portions of the bracket plate 47 are formed with vertical slots 48 adapted to receive a fastening strap 49 for securing a golf bag 50 in the concave bracket 47, as shown in Figure 1.

Designated at 51 is a generally semicircular, forwardly and downwardly inclined bottom, bag-supporting bracket which is rigidly secured to the transverse rear tubular frame member 13, as by forwardly and upwardly inclined rigid supporting straps 52 formed on the respective ends of the bracket 51 and welded or otherwise rigidly secured to the transverse tubular frame member 13.

The supporting plate 51 is adapted to support the bottom of a golf bag 50 in a position wherein the upper portion of the golf bag may be secured to the concave bracket member 47 by means of the fastening strap 49, above described.

As will be seen from Figure 1, the longitudinal members 32, 32, the transverse element 46, the spacer tube

36, and the transverse intermediate supporting strap member 44 define a rectangular receptacle adapted to receive a basket or the like, shown in dotted view at 53 in Figure 1, whereby miscellaneous articles may be supported by the carrier along with the golf bag 50.

As will be also apparent from Figure 1, the space between the basket 53 and the battery box 20 may be employed to support other objects, for example, a beverage cooler 54. As illustrated in Figure 1, the battery box 20 may be provided on its top cover with a pair of angle brackets 55 to which may be secured depending securing flanges 56 carried by the beverage cooler 54, as by bolts 57 and wing nuts 58.

Designated at 59 is a substantially vertical steering shaft which is suitably journaled in the bushing member 24 and which has secured to its bottom end the plate member 60. The steering shaft 59 is formed at its top end with the horizontal arm 61, said arm being braced to the shaft 59 by the inclined stud 62. The top arm 61 has secured thereto the apertured pivot lug 63. Designated at 64 is a tubular handle bar which is formed with a flattened end portion 65 to which is secured the offset pivot bracket 66, said pivot bracket being pivotally connected to the apertured pivot lug 63 by a bolt 67 and wing nut 68, the abutting surfaces of the pivot bracket 66 and the pivot lug 63 being serrated so that said elements may be rigidly secured in adjusted angular relation relative to each other by tightening the wing nut 68.

The end of the handle bar 64 carries a U-shaped bracket plate 69 in which is mounted a multiple position selector switch 70 which has an operating shaft projecting from a side of the bracket 69 and which is provided with a control handle 71 which may be rotated to bring the pole 72 of the switch, shown in Figure 7, selectively into contact with any one of the stationary contact elements 73 to 77 of the switch.

As shown in Figure 7, the battery box 20 contains a battery unit which is suitably tapped to define a series of positive battery terminals 78 to 81 providing successively increasing battery voltage relative to the negative terminal 82 of the battery unit. The taps 78 to 81 are connected respectively by conductors in a suitable cable to the respective switch contacts 74 to 77. Thus, by operating the control knob 71 of the switch 70, the pole 72 may be brought into contact with any selected one of the switch contacts 74 to 77, and may thus connect the pole 72 to a desired voltage tap 78, 79, 80 or 81 of the battery unit. The switch terminal 73 is unconnected, and therefore when the pole 72 engages said switch terminal, the pole is disconnected from the battery.

Secured to the top portion of the bracket member 69 is a forwardly extending, downwardly facing, channel-shaped handle element 83, and pivoted to said handle element 83 adjacent the rear end of the handle element is a movable grip member 84, said grip member being receivable in the handle element 83. Suitable spring means, not shown, are provided inside the handle element 83, biasing the grip element 84 downwardly. Mounted in the handle element 83 is a reversing switch 85 having a depending actuating button 86 which extends toward the grip element 84 but which is normally spaced therefrom. The button element 86 is secured to the pole 87 of the switch 85, said switch being provided with a biasing spring 88 which normally causes the pole 87 to engage a first stationary contact 89. When the grip element 84 is moved upwardly relative to the handle element 83, as by exerting a squeezing pressure on the grip element 84 relative to the handle element 83, the grip element 84 engages the button 86 and moves said button away from the stationary contact 89 and into conductive engagement with a second stationary contact 90. As will be presently described, this causes the driving motor of the device to reverse its direction of rotation, whereby the device will move rearwardly instead of forwardly.

Mounted on the rear portion of the top of bracket member 69 is a push button switch 91 which has the pole 92 and the stationary contact 93, the pole 92 being normally disengaged from contact 93 but being engageable therewith when the operating button 91a of the switch, shown in Figure 1, is depressed.

Secured to the plate 60, above described, are the depending supporting arms 94, 94 at one side of the plate, said supporting arms converging downwardly and being

rigidly connected at their lower ends to a journal sleeve 95 extending horizontally, as shown in Figure 4. Rigidly secured to the opposite side marginal portions of the plate 60 are the downwardly and outwardly inclined supporting arms 96 having the flattened vertical lower ends 97 to which is secured the side wall 98 of a gear box 99. Vertically mounted on the top wall 100 of said gear box is the electric motor 101, said motor having a pair of forward field windings 102 and 103 and a reverse field winding 104.

The shaft of the motor extends through the top wall 100 of the gear box and has secured thereon the gear 105 which meshes with a gear 106 secured on the end of a shaft 107 journaled in the gear box, one end of said shaft being journaled in a suitable manner to the wall 100 and the other end of said shaft being journaled in an adjustable bushing 108 which is threadably engaged through the wall 109 of the gear box opposite the wall 100. Keyed to the shaft 107 for rotation therewith and for longitudinal sliding movement thereon is a worm 110 which meshingly engages a worm gear 111 secured on a shaft 112. The shaft 112 is suitably journaled to the respective vertical walls 98 and 113 of the gear box at 114 and 115, as shown in Figure 4. The shaft 112 is formed with an external squared portion 116 which merges with a reduced cylindrical portion 117. Said cylindrical portion 117 extends through the sleeve 95 and rotatably carries the forward traction wheel 118, said traction wheel being supported on suitable bearings 119. Secured to the hub of the traction wheel is a plate member 120 which is formed at its opposite ends with apertures receiving pins 121, 121 carried by a clutch plate 122 which is slidably mounted on the squared shaft portion 116 but which is keyed to said squared portion for positive rotation therewith. A coiled spring 123 surrounds the squared portion 116 and bears between the plate 122 and a collar member 124 rigidly secured on the squared shaft portion 116 and being employed as a means for connecting the outer portion of the shaft of the traction wheel 118, including reduced portion 117 and squared portion 116 to the inner portion of said shaft, contained in the gear box, said inner portion having the connection flange 125 which is fastened to the collar 124, as by a removable screw member 126. A plurality of connecting screws 126 may be employed to provide a rigid connection between the collar 124 and 125, it being understood that any suitable fastening means may be employed to provide a driving connection between the inner portion of the shaft 112 contained in the gear box and the external portion of said shaft including the reduced element 117 on which the traction wheel 118 is mounted.

As will be readily apparent from Figure 4, the coiled spring 123 biases the plate 122 to the left, as viewed in Figure 4, causing the pins 121 to engage the apertures in the plate 120, and providing a driving connection between shaft 112 and the traction wheel 118 under normal conditions.

Slidably keyed to the shaft 107 is a conical cam member 127 which is engageable by the end of worm 110 when said worm is moved longitudinally along shaft 107, as when the traction wheel 118 encounters an unusually heavy load, such as when the carrier ascends a steep slope. The conical cam 127 is engaged by a coiled spring 128 which surrounds the shaft 107 and which is positioned between the cam 127 and the end of the adjustable bushing member 108. Thus, the force required for the cam to be moved against the spring 128 may be regulated by adjusting the position of the bushing 108, the bushing being locked in position by a lock nut 129 engaged thereon and being tightened to lock said bushing in adjusted position. Designated at 130 is a switch which is mounted inside the gear box and which has an actuating arm 131 disposed inwardly adjacent the conical cam element 127, the arm 131 being engageable by the cam 127 in response to the aforesaid unusually heavy loading condition to cause the switch 130 to be closed, said switch being normally open, as shown in Figure 7.

As shown in Figure 7, the normal energizing winding 102 of the motor 101 has one terminal thereof connected to a first brush 132 of the motor. The other terminal of the energizing winding 102 is connected by a conductor 133 to the pole 92 of switch 91. The contact 93 of switch 91 is connected by a wire 134 to the upper con-

5

tact 89 of switch 85, which is normally engaged by the pole 87 of switch 85. Pole 87 is connected by a wire 135 to the pole 72 of the multiple position selector switch 70. Thus, when the pole 72 engages one of the contacts 74 to 77 of switch 70, said pole 72 is connected to one of the positive voltage taps 78 to 81 of the battery unit of the device. The negative terminal 82 of the battery unit is connected by a wire 136 to the remaining main motor brush 137. Also connected to wire 136 is the motor brush 138 associated with the auxiliary forward energizing winding 103. Cooperating with the auxiliary brush 138 is the opposite auxiliary brush 139 connected to one terminal of the winding 103. The other terminal of the winding 103 is connected to the pole 140 of the switch 130. The stationary contact 141 of switch 130 is connected to wire 133. Thus, when the traction wheel 118 encounters an unusually heavy load, such as ascending a steep grade, the switch 130 closes, connecting the auxiliary energizing winding 103 in parallel with the normal energizing winding 102, providing an increase in the power output of the motor 101, as would be required to take care of the increase in loading on the traction wheel 118.

One terminal of the reversing winding 104 is connected to the motor brush 132, and the other terminal of said winding 104 is connected by a wire 142 to the lower contact 90 of reversing switch 85.

From Figure 7 it will be seen that when the pole 72 of the multiple position switch 70 engages one of the contacts 74 to 77, the motor 101 will be energized to drive the traction wheel 118 in a forward direction by a circuit which includes brush 137, wire 136, the negative terminal of the battery unit, one of the positive terminals 78 to 81 of the battery unit, one of the contacts 74 to 77 of the switch 70, the pole 72 of said switch, wire 135, pole 87 of switch 85, upper contact 89 of said switch, wire 134, the switch 91 in the closed position, which is obtained by depressing the switch button 94, the wire 133, the energizing winding 102, and the remaining motor brush 132. If the operator desires to reverse the direction of movement of the carrier, he applies squeezing force between handle member 83 and grip element 84, causing the pole 87 of switch 85 to be moved downwardly into contact with the stationary contact element 90, whereby the reversing winding 104 of the motor is connected to the battery unit in place of the normal, forward driving winding. The energizing circuit for reversing winding 104 includes the brush 137, wire 136, negative terminal 82 of the battery unit, one of the positive terminals 78 to 81 of said battery unit, one of the contacts 74 to 77 of the switch 70, the pole 72 of the switch, the wire 135, the pole 87 of the reversing switch 85, the lower contact 90 of said switch, wire 142, the reversing winding 104 and the brush 132 of the motor.

Referring now to Figures 2 and 3, it will be seen that the carrier may be folded, when not in use, to a relatively compact condition, by removing the members 38, 38 and rotating the frame members 27, 27 counterclockwise, as viewed in Figure 1, to rotate the members 32, 32 and the bracket element 47 downwardly to a position wherein the bracket element 47 engages the bottom rest 51. The handle bar 64 may similarly be rotated counterclockwise, as viewed in Figure 1, to a position wherein the handle element 83 engages the spacer sleeve 36. The spacer sleeve 36 is provided with a fastening loop 150 at its intermediate portion which is lockingly engageable with a hook element 151 carried on the handle element 83, the loop 150 being rotatable into locking engagement with the hook element 151 by rotating the spacer sleeve 36 to the position thereof shown in Figure 3.

With the parts folded and interlocked, as above described, the respective transverse bolts 35 and 28 may be tightened to lock the carrier in its folded condition.

The arms 27, 27 are connected at their intermediate portions by a transverse bar member 153 which is provided at its intermediate portion with a pair of spaced lug elements 154, 154 arranged to receive the vertical steering shaft 59 therebetween when the device is in its assembled position, shown in Figure 1.

As above explained, when the carrier is being operated under normal conditions in its forward direction of movement, when an unusually heavy load is placed on

6

the motor 101, such as when a steep grade is encountered, the worm 110 is moved axially on the worm shaft 107 and engages the conical cam 127 to cause said cam to operate switch 131 and connect the auxiliary motor winding 103 in parallel with the main winding 102 thereof, to allow the motor to assume to additional load without drawing excessive current through any of its windings. When the motor circuit is opened, as by releasing the push button element 94 of the switch 91, the motor 101 will become deenergized, but since the worm 110 remains in mesh with the worm gear 111, the carrier will be secured in a stationary position since the engagement of the worm with the worm gear functions as a brake to prevent undesired slipping of the carrier down a grade and retains the carrier in any position in which it is desired to park same.

While a specific embodiment of an improved powered golf bag carrier has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A powered golf bag carrier comprising a wheeled frame, a vertical steering shaft journaled to said frame, a traction wheel journaled to said steering shaft, a motor secured to said steering shaft, means drivingly coupling said motor to said traction wheel, said means including a worm gear connected to said traction wheel, a worm meshing with said worm gear, means slidably keyed to said worm and connected to said motor, whereby the worm may move axially under different loading conditions, an auxiliary driving winding in said motor, an auxiliary switch operated by said worm, and an auxiliary motor circuit including said battery, auxiliary driving winding and auxiliary switch.

2. A powered golf bag carrier comprising a wheeled frame, means on one side of said frame for supporting a golf bag in an upright position, a vertical steering shaft journaled to said frame on the side thereof opposite said means, a traction wheel journaled to said steering shaft, a motor secured to said steering shaft adjacent said traction wheel, a worm gear connected to said traction wheel, a worm slidably coupled to said motor and meshing with said worm gear, said worm being movable axially under different loading conditions, a main control switch carried by said steering shaft, a battery mounted on said frame, an energizing circuit connected to said motor including said battery and main control switch, an auxiliary electrical drive winding in said motor, an auxiliary switch operated by said worm, and an energizing circuit for said auxiliary drive winding including said battery and said auxiliary switch.

3. A powered golf bag carrier comprising a wheeled frame, means on one side of said frame for supporting a golf bag in an upright position, a vertical steering shaft journaled to said frame on the side thereof opposite said means, a traction wheel journaled to said steering shaft, a reversible electrical motor secured to said steering shaft adjacent said traction wheel, a worm gear connected to said traction wheel, a worm slidably coupled to said motor and meshing with said worm gear, said worm being movable axially under different loading conditions, a main control switch carried by said steering shaft, a battery mounted on said frame, an energizing circuit connected to said motor including said battery and main control switch, a reversing switch carried by said steering shaft, a reverse energizing circuit connected to said motor and controlled by said reversing switch, an auxiliary electrical drive winding in said motor, an auxiliary switch operated by said worm, and an energizing circuit for said auxiliary drive winding including said battery and said auxiliary switch.

References Cited in the file of this patent

UNITED STATES PATENTS

2,448,992	Love et al. -----	Sept. 7, 1948
2,463,972	Jackson -----	Mar. 8, 1949
2,513,718	Gfrorer -----	July 4, 1950
2,523,893	Williamson -----	Sept. 26, 1950

FOREIGN PATENTS

Great Britain -----	Apr. 11, 1939
---------------------	---------------