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(54) A GOLF CART

(57) A golf cart, especially an electric golf cart, is comprised of a bottom frame, which has a front wheel on the lower front end, two rear wheels on the rear end and an upright frame thereon. The two rear wheels are driven by a motor. A handle is provided on the upright frame. A front support is provided on the upper front end of the bottom frame and a rear support is provided on the upright frame adjacent to the upper end. A one-way clutch is provided in the center of the hub of the said rear wheel. A shaft hole is provided in the center of the one-way clutch. The output end of the motor is engaged with the shaft hole of the one-way clutch. The advantages of the gold cart are simply structure and easily operation

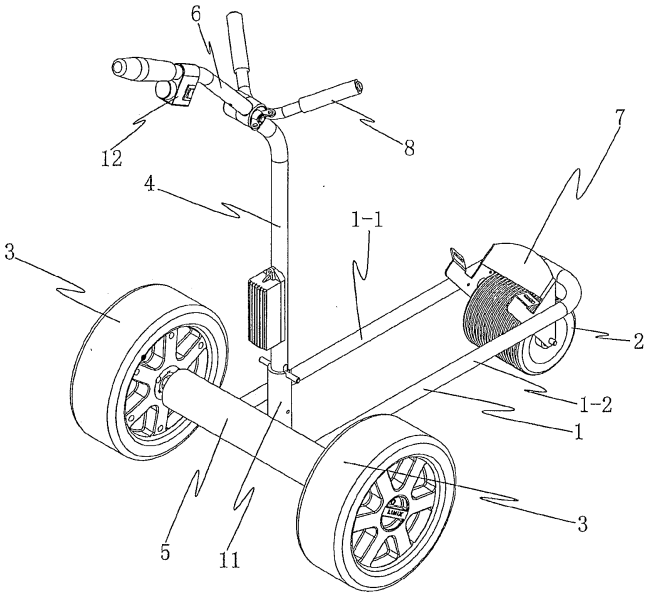

FIG. 1

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Description

Field of the Technology

[0001] The present invention concerns a golf cart, and particularly concerns a motorized golf cart which is simple in construction and convenient in operation.

Background of the Technology

[0002] Existing golf carts are difficult to use no matter what motors or engines are used as a power source because of the configuration of the axle of the cart wheels and the output shaft of the motor or engine. This means when the cart is being manually pushed the rotation of the cart wheels will drive the output shaft of the power source to rotate together. When going up a slope the cart wheels are liable to slip if there is no power source to assist in pushing. This therefore makes it more difficult when pushing the cart manually, such as when the cart is being pushed over a short distance or when the electric energy of the accumulator battery has been exhausted. When a motor is employed for the golf cart as a power source to drive two wheels the rotor shaft of the motor, after speed reduction through the gear box, rotates the wheel axle thereby driving the two wheels. Construction of conventional golf carts means that the motor is not able to be at the same axial line as the wheel axle. It is therefore necessary to prepare other position to attach the motor, which makes the construction as a whole more detailed and complicated.

[0003] For existing golf carts, the height of its handle is typically fixed. During operation it is frequently necessary to regulate the height of the handle because of the differences in the height of the operators, therefore, problems of inconvenience in operation currently exist. Moreover, most of the existing handles of golf carts are straight,which makes them difficult to use for some people. This results in further problems of inconvenience in operation.

Summary of the Invention

[0004] An object of the present invention is to provide a motorized golf cart with simple construction and convenient operation, which solves problems of complicated construction, inconvenient operation, etc. of existing golf carts.

[0005] The object of the abovementioned technology of the present invention is to be solved by a golf cart including a bottom supporting frame, a front wheel located at the front lower end of bottom supporting frame, two rear wheels located at rear end of bottom supporting frame and a vertical supporting frame located on the bottom supporting frame, wherein the two rear wheels are driven by a driving motor. At the upper end of the vertical supporting frame is positioned a handle. At the front upper end of the bottom supporting frame there is fitted a front bag frame, and near the upper end of the vertical supporting frame there is fitted a rear bag frame. The centre of the hubs of the rear wheels include a one-way clutch, the center of the one-way clutch includes an axle hole, and the output end of the driving motor is mated-driven with the axle hole of the one-way clutch. When the golf cart wheels are driven through motor, etc. power source, the one-way clutches in cart wheels are mated, the cart wheel axle are driven by the power source thereby driving the corresponding wheel to move the golf cart across the ground. When no power source is being used, and the cart is being manually pushed, the wheels and the wheel axles are in a disengaged state of relative rotation, thus the cart can be pushed by the user. When the cart is pushed to go up a slope, its wheels can only turn in the upslope direction and its wheel axles are obstructed to turn by the friction of the motor in the downslope direction, thereby prevent its wheels from rolling downwardly, i.e. preventing the golf cart from slipping down the slope, while making it easy to push the cart up the slope.

[0006] As optimization, the one-way clutch includes an outer ring fixed with hub and inner ring set in the outer ring, the axle hole is set in the centre of the inner ring, the surface of the inner ring is equipped with several inclined flutes. In each inclined flute there is a roller, one side face of the inclined flute is a inclined plane which is inclined to one side along the turning direction of the outer ring and extended to the surface of the inner ring, the other side face is a straight plane approximately coinciding with the rotational face of the inner ring, the surface of the roller is equipped with friction teeth. When the roller is rolling to the surface of the inclined fillister, it takes the role of transferring the torque between the inner ring and the outer ring of the one-way clutch so as to make the hub fixed by the outer ring of the one-way clutch and the wheel axle fixed by the inner ring of the one-way clutch drive each other and then the power source of motor, etc. drives the wheels to roll and make the golf cart move. When the roller is located at the bottom end of the inclined flute, between the roller and the outer ring of the one-way clutch there is no touching or slipping thereby making the inner ring and the outer ring of the one-way clutch turn relatively. It is therefore easy for the use to cause the wheels to roll thereby making the cart easy to push.

[0007] As optimization, the driving motor (5) approximately coaxially alignes with two rear wheels (3) and includes a motor proper (51), rotor shafts (52) and tubular outer housing (53), the rotor shafts (52) respectively extended out of both ends of the tubular housing (53), and at both ends of the rotor shafts are respectively set gear boxes (55), each gear box is equipped with output shaft (54), the output shaft (54) mated with the axle hole (91) of one way clutch (9). At both ends of the motor are respectively fitted gear boxes wherein there are simultaneously two output ends which can be directly connected with wheels to drive wheels to turn. The motor can be coaxially set with wheels. Therefore, the arrangement of

the motor becomes simpler when it is made as power source.

[0008] As optimization, the gear box includes a box body, box cover and counter shaft combination gear on the counter shaft, there are gear hobbings at the end of the rotor shaft which is engaged and driven with the combination gear of the counter shaft through the gear hobbings. The counter shaft gear hobbings are placed on the counter shaft which is engaged and are driven with the combination gears of the output shaft through the gear hobbings. In the gear box there are gears and gear hobbing transmission to make the arrangement of the gear box more compact so as to make the arrangement of the motor simple.

[0009] As optimization, a braking mechanism is fitted on the output shaft of one of the two gear boxes, the braking mechanism includes a rotational claw which is fixed with the output shaft to each other, a sliding claw which covers the outer surface of the output shaft and can make relative movement axially with the output shaft and the braking handle which can make the sliding claw move axially. The rotational claw and the sliding claw can be mated by means of the end face teeth. The smooth end of the output shaft near the sliding claw is covered with a ring block. Outside of the sliding claw and the ring block there is a braking seat. Between the sliding claw and the braking seat there is a reset spring. On the ring block is provided with a thread hole. After having mated with the thread of the braking seat, the braking handle enters into the thread hole of the ring block. There is approximately an elliptical hole between the sliding claw and the circular ring. In the elliptical hole there is a spheroid which is axially moved with the sliding claw relative to the ring block. When the handle is connected with the ring block through thread, the ring block is operated by the radial pressure from the end of the handle so as to make the steel ball in the circular hole positioned between the ring block and the sliding claw pressed toward outside surface of the ring block thereby pressing the sliding claw relative to the ring block, then occurs axial movement and mated with turning claw to prevent the output shaft from turning. When the radial pressure acting on the end of the handle is removed, the sliding claw resets as a result of the action of the reset spring, the sliding claw then is disengages with the turning claw, which allows free turning of the output shaft.

[0010] As optimization, a regulating mechanism is situated between the handle and a vertical frame. The regulating mechanism comprises the first end face gear which is fixed at the upper end of the vertical frame and the second end face gear which is fixed at the lower end of the handle. The end face teeth of the two end face gears are relatively set and connected together by means of a positioning pillar mated with a locking knob. The second end face gear is of hollow construction. In the chamber formed by the hollow construction of the second end face gear and the first end face gear there is a spring. The spring is covers the positioning pillar. Loosen the locking knob to make two end face gears in the state of relatively turning, turn the second end face gear to regulate the mating position of the end face gear of two end face gear, i.e. regulate the height of the handle fixed together to meet the requirement of different height operators. Easy in operation, it makes the design of the golf cart have more versatile. When regulating the height of the handle, loosen the locking knob. At function of the spring, the end faces of two end face gears are disengaged automatically, making it is easy in operation.

[0011] As optimization, a hinged support is set between the vertical supporting frame and the bottom supporting frame . The hinged support is of hollow circular pipe construction. At the upper end of the front side opening of the hinged support there is fillister. The lower end of the vertical supporting frame which is situated in front side opening of the hinged support is hinged with the hinged support. In the fillister near the upper end of the hinged support is arranged a sliding pin, which can be moved up and down with a tendency of moving downward due to the action of the spring. When the sliding pin is positioned in the fillister at the upper end of the hinged seat, the vertical supporting frame and hinged seat will be locked, the vertical supporting frame is vertically set on the bottom supporting frame of the golf cart. By pulling and moving the sliding pin upwardly the sliding pin disengages from the fillister at the upper end of the hinged seat. The vertical supporting frame can then be turned over so as to fold the vertical frame for convenient packing, transportation, and storage.

[0012] As optimization the front bag frame is of a compact construction. The handle, the vertical supporting frame, the bottom frame and the rear covered frame is of hollow circular pipe construction. The bottom supporting frame is constructed by a left longitudinal supporting frame and right longitudinal supporting frame left/right-symmetrical and parallel-aligned at a same level. The arrangement makes the golf cart as a whole simple in construction.

[0013] As optimization, a switch box is provided on the handle which is composed of a vertical handle and a transverse handle. The vertical handle is connected with the vertical supporting frame. It is more convenient to operate for the switch box setting on the handle. The handles are designed into a vertical handle and a transverse handle which is in a T-shaped configuration for grasping easily by left/right hands to meet the habits of different operators.

[0014] Therefore, this present invention has features of simple construction and convenient operation. When the golf cart wheels are driven through motor, etc. power source, the one-way clutches in cart wheels are mated, the cart wheel axle is driven by power source thereby rotating the wheels to move the golf cart. When no power source is used and the cart is pushed manually the wheels and the wheel axles are in a disengaged state of relative rotation, thus the cart can be pushed manually by the operator. When the cart is pushed to go up a slope,

its wheels can only turn in the forward upslope direction and its wheel axles are obstructed from turning in the downslope direction by the friction of the motor, thereby preventing its wheels from rolling in a down slope direction, i.e. the configuration prevents the golf cart from slipping down the slope, while making it easy to push the cart up the slope. The tubular motor is adopted, such that at both ends of the motor are respectively fitted gear boxes wherein there are simultaneously two output ends which can be directly connected with wheels to drive wheels to turn. The motor can be coaxially aligned with wheels. Therefore, the arrangement of the motor becomes compact when it is made as the power source.

Brief Description of the Drawings

[0015]

Fig.1 is a constructional view of this present invention;
Fig.2 is a three dimensional view of rear wheel of this present invention;
Fig.3 is a plane constructional view of rear wheel of this present invention;
Fig.4 is a disassemble constructional view of a one-way clutch of rear wheel;
Fig.5 is a section constructional view of rear wheel of this present invention;
Fig.6 is B-B view of Fig.5;
Fig.7 is a constructional view of driving motor of this present invention;
Fig.8 is a constructional view of an alternate driving motor of this present invention;
Fig.9 is a partially amplifying view of Fig.8;
Fig.10 is a partial amplifying view of regulating orientation between the handle and vertical supporting frame of this present invention;
Fig.11 is a disassemble constructional view of regulating orientation between the handle and vertical supporting frame;
Fig.12 is a connecting construction view between the vertical supporting frame and the bottom supporting frame of this present invention;
Fig.13 is position C partially amplifying view of Fig 12;
Fig. 14 is a constructional view of the front bag frame of this present invention;
Fig.15 is a constructional view of an alternate embodiment of this present invention;
Fig.16 is a operating state view of this present invention; and
Fig.17 is an alternate operating state view of this present invention.

Optimum Method to Implement the Present Invention

[0016] The following is further explanation of the technical features of the present invention by means of implementation examples with attached drawings.

[0017] Implementation example 1: As shown in Fig. 1, the golf cart includes a bottom supporting frame 1, front wheel 2 positioned at the front lower end of bottom supporting frame, two rear wheels 3 positioned at rear end of bottom supporting frame 1 and a vertical supporting frame 4 positioned on bottom supporting frame. The bottom supporting frame is constructed by a left longitudinal supporting frame 1-1 and right longitudinal supporting frame 1-2 which are left/right-symmetrical and parallel-aligned at a same level. Two rear wheels 3 are driven by driving motor 5 which is of tubular construction and coaxially aligned with two rear wheels 3. At the upper end of the vertical supporting frame 4 there is a handle 6 on which is situated switch box 12, at front upper end of the bottom supporting frame is fitted a front bag frame 7, the vertical supporting frame 4 near the upper end with rear bag frame (8). Front bag frame (7) is of a compact construction (as shown in Fig.14). The handle (6), vertical supporting frame (4), bottom frame (1) and rear covered frame (8) are of hollow circular pipe construction.

[0018] As shown in Fig.2, Fig.3, Fig. 4, Fig.5 and Fig. 6, in the centre of the hub 31 of the rear wheel 3 there is a one-way clutch 9 which contains an outer ring 92 fixed with hub 31 and inner ring 93 set in outer ring 92. In the centre of the inner ring 93 there is axle hole 91 for mating with the output shaft of the driving motor, on the surface of inner ring 93 there are five inclined flutes 931. In each inclined flute 931 there is a roller 94, one side face of the inclined flute 931 is a inclined plane 9311 which is inclined to one side along the turning direction of the outer ring and extended to the surface of the inner ring, the other side face is a straight plane 9312 approximately coincides with the rotational face of the inner ring, the surface of the roller is equipped with friction teeth 941 which extend axially along the roller. Inside the outer ring there is circular inner boss 921. At inner end of the inner ring 93 there is a small end 932 with its outer diameter mated with the inner diameter of circular inner convex boss 921. On the surface of the small end 932 which is located at inner end of the circular inner boss 921 there is a circular convex flute 9321 in which there is shaft-used elastic check ring 95 which is inlaid in circular convex flute 9321 of the small end of the inner ring, it is higher than the small end surface thereby retaining the inner ring within the outer ring. On the surface of the outer ring there are three locating keys 15 extending axially, on hub 31. There are three key slots 311 mated with three locating keys. The hub 31 and the one-way clutch 9 are mated and fixed to each other by locating keys and key slots.

[0019] As shown in Fig.7, driving motor (5) approximately coaxially aligns with the two rear wheels (3) and includes the motor proper (51), rotor shafts (52) and tubular outer housing (53). The rotor shafts (52) respectively are extended out of both ends of the tubular housing (53), and at both ends of the rotor shafts are respectively set gear boxes (55). Each gear box is equipped with output shaft (54), the output shaft (54) mated with the axle hole (91) of one way clutch (9). The gear box (55) includes

a box body (551), box cover (552) and counter shaft combination gear (553) engagement driving, on the counter shaft (554) there are gear hobbing (5541), the counter shaft (554) is engaged and driven with the combination gear (555) of output shaft.

[0020] As shown in Fig.10 and Fig.11, a regulating mechanism (10) is situated between the handle (6) and a vertical frame (4). The regulating mechanism (10) comprises the first end face gear (101) which is fixed at the upper end of the vertical frame (4) and the second end face gear (102) which is fixed at the lower end of the handle (6). The end face teeth of two end face gears are relatively set and connected together by means of a positioning pillar (103) mated with a locking knob (104) the second end face gear (102) is of hollow construction. In the chamber formed by the hollow construction of the second end face gear (102) and the first end face gear (101) there is a spring (105). The spring (105) covers the positioning pillar (103). There is elastic retaining ring 36 between ends of locking knob 104 and positioning pillar. On the locking knob 104 there are lugs 1041, 1042 for grasping

[0021] As shown in Fig.12 and Fig. 13, a hinged support is set between the vertical supporting frame and the bottom supporting frame. The hinged support is of hollow circular pipe construction. At the upper end of the front side opening of the hinged support there is a fillister. The lower end of the vertical supporting frame which is situated in front side opening of the hinged support is hinged with the hinged support. In the fillister near the upper end of the hinged support is arranged a sliding pin, which can be moved up and down with a tendency of moving downward, due to the action of the spring. When the sliding pin is positioned in the fillister at the upper end of the hinged seat, the vertical supporting frame and hinged seat will be locked, the vertical supporting frame is vertically set on the bottom supporting frame of the golf cart. The sliding pin can be pulled and moved upwardly to make the sliding pin disengaged from the fillister at the upper end of the hinged seat. The vertical supporting frame can then be turned over so as to fold the vertical frame for convenient packing, transportation, and storage.

[0022] As shown in Fig.16, in operation, the front end of bag 16 is placed onto the front bag frame 7 which supports the weight of the bag, the rear part of the bag is then propped against the rear bag frame 8, and the user grasps the handle 6 with their hand. By means of operating the switchbox 12 the user can operate the motor of the golf cart. When the cart is driven by the motor, etc. power source, the one-way clutch of respective cart wheels are mated with it and the wheels are driven to thereby move the cart. When no power source is used, and the cart is simply pushed manually by the user, the cart wheels and the wheel axles are in a disengaged state of relative rotation, thus the cart can be easily pushed. The stepless regulation for the height of the handle is realized by regulating the orientation to meet the differences in the height of the operators or operating habits. It is therefore convenient in operation.

[0023] Implementation example 2: As shown in Fig.15, the golf cart includes a bottom supporting frame 1, front wheel 2 positioned at the front lower end of bottom supporting frame, two rear wheels 3 positioned at rear end of bottom supporting frame 1 and a vertical supporting frame 4 positioned on bottom supporting frame. The bottom supporting frame is constructed by a left longitudinal supporting frame 1-1 and right longitudinal supporting frame 1-2 which are left/right-symmetrical and parallel-aligned at a same level. The two rear wheels 3 are driven by driving motor 5 which is of a tubular construction and coaxially aligned with two rear wheels 3. At the upper end of the vertical supporting frame 4 there is handle 6 on which is situated switch box 12. At front upper end of the bottom supporting frame there is fitted a front bag frame 7, and the near the upper end of the vertical supporting frame 4, there is fitted a rear bag frame 8. Front bag frame (7) is of a compact construction (as shown in Fig.14). The handle (6), the vertical supporting frame (4), the bottom frame (1) and the front bag-supporting frame and rear bag frame (8) are of hollow circular pipe construction.

[0024] As shown in Fig.2, Fig.3, Fig. 4, Fig.5 and Fig. 6, in the centre of the hub 31 of the rear wheel 3 there is located a one-way clutch 9 which contains the outer ring 92 fixed with hub 31 and inner ring 93 set in outer ring 92. In the centre of the inner ring 93 there is an axle hole 91 for mating with the output shaft of the driving motor, on the surface of inner ring 93 there are five inclined fillisters 931. In each inclined fillister 931 there is a roller 94, one side face of the inclined fillister 931 is an inclined plane 9311 which is inclined to one side along the turning direction of the outer ring and extended to the surface of the inner ring, the other side face is a straight plane 9312 approximately coinciding with the rotational face of the inner ring, the surface of the roller is equipped with friction teeth 941 which extend axially along the roller. Inside the outer ring there is a circular inner boss 921. At inner end of the inner ring 93 there is a small end 932 with its outer diameter mated with the inner diameter of circular inner convex boss 921. On the surface of the small end 932, which is located at inner end of the circular inner boss 921, there is circular convex fillister 9321 in which there is a shaft-used elastic retaining ring 95 which is inlaid in circular convex fillister 9321 of the small end of the inner ring. It is higher than the small end surface thereby retaining the inner ring within the outer ring. On the surface of the outer ring there are three locating keys 15 extending axially, on hub 31 there are three key slots 311 mated with three locating keys. The hub 31 and the one-way clutch 9 are mated and fixed to each other by locating keys and key slots.

[0025] As shown in Fig.7, driving motor (5) approximately coaxially aligns with two rear wheels (3) and includes the motor proper (51), rotor shafts (52) and tubular outer housing (53). The rotor shafts (52) respectively are

extended out of both ends of the tubular housing (53), and at both ends of the rotor shafts are respectively set gear boxes (55), each gear box is equipped with output shaft (54) mated with the axle hole (91) of one way clutch (9). The gear box (55) includes a box body (551), box cover (552) and counter shaft combination gear (553) engagement driving. On the counter shaft (554) there are located gear hobbing (5541), the counter shaft (554) is engagable with and driven by the combination gear (555) of output shaft.

[0026] A braking mechanism is fitted on the output shaft of one of the two gear boxes. The braking mechanism includes a rotational claw which is fixed with the output shaft, a sliding claw which covers the outer of the output shaft and can make relative movement axially with the output shaft and the braking handle which can make the sliding claw move axially. The rotational claw and the sliding claw can be mated by means of the end face teeth. The smooth end of the output shaft near the sliding claw is covered with a ring block. Outside of the sliding claw and the ring block there is a braking seat. Between the sliding claw and the braking seat there is a reset spring. The ring block is provided with a thread hole. After having mated with the thread of the braking seat, the braking handle enters into the thread hole of the ring block. There is approximately an elliptical hole between the sliding claw and the circular ring. In the elliptical hole there is a spheroid which is axially moved with the sliding claw relative to the ring block. When the handle is connected with the ring block through thread, the ring block is operated by the radial pressure from the end of the handle so as to make the steel ball in the circular hole, positioned between the ring block and the sliding claw press toward the outside surface of the ring block, thereby pressing the sliding claw relative to the ring block, this results in axial movement and mating with turning claw to prevent the output shaft from turning. When the radial pressure acting on the end of the handle is removed, the sliding claw resets as a result of the action of the reset spring. The sliding claw is then disengages from the turning claw, which allows free turning of the output shaft.

[0027] As shown in Fig.10 and Fig.11, a regulating mechanism (10) is situated between the handle (6) and a vertical frame (4). The regulating mechanism (10) comprises the first end face gear (101) which is fixed at the upper end of the vertical frame (4) and the second end face gear (102) which is fixed at the lower end of the handle (6). The end face teeth of two end face gears are relatively set and connected together by means of a positioning pillar (103) mated with a locking knob (104). The second end face gear (102) is of hollow construction. In the chamber formed by the hollow construction of the second end face gear (102) and the first end face gear (101) there is positioned a spring (105). The spring (105) covers the positioning pillar (103). There is an elastic retaining ring 36 between ends of locking knob 104 and positioning pillar. On the locking knob 104 there are lugs 1041,1042 for grasping.

[0028] As shown in Fig 12 and Fig.13, a hinged support is set between the vertical supporting frame and the bottom supporting frame.. The hinged support is of hollow circular pipe construction. At the upper end of the front side opening of the hinged support there are fillisters. The lower end of the vertical supporting frame which is situated in front side opening of the hinged support is hinged with the hinged support. In the fillister near the upper end of the hinged support is arranged a sliding pin which can be moved up and down with a tendency of moving downward due to the action of the spring. When the sliding pin is positioned in the fillister at the upper end of the hinged seat, the vertical supporting frame and hinged seat will be locked, the vertical supporting frame is vertically set on the bottom supporting frame of the golf cart. The sliding pin can be pulled and move upward to make the sliding pin disengage from the fillister at the upper end of the hinged seat. The vertical supporting frame can then be turned over so as to fold the vertical frame for convenient packing, transportation, and storage.

[0029] As shown in Fig.16, in operation, the front end of bag 16 is placed upon the front bag frame 7, the rear part of the bag is propped against the rear bag frame 8, and the user grasps the handle 6. By means of operating the switchbox 12 the user can operate the motor of the golf cart. When the cart is driven by motor, etc. power source, the one-way clutch of respective cart wheels are mated with it and the wheels are driven to thereby move the cart forward. When no power source is used, and the cart is simply pushed manually by the user, the cart wheels and the wheel axles are in a disengaged state of relative rotation, thus the cart can be easily pushed. The stepless regulation for the height of handle is realized by regulating the orientation to meet the differences in the height of the operators or operating habits. The present invention is therefore convenient in operation.

Claims

1. A golf cart, including a bottom supporting frame (1), a front wheel (2) located at the front lower end of the bottom supporting frame (1), two rear wheels (3) located at the rear end of the bottom supporting frame (1) and a vertical supporting frame (4) located on the bottom supporting frame, the two rear wheels (3) being driven by a driving motor (5), the upper end of the vertical supporting frame (4) including a handle (6), the front upper end of the bottom supporting frame including a front bag frame (7), the vertical supporting frame (4) near the upper end including a rear bag frame (8), **characterized by** the centre of the hubs (31) of said rear wheels having a one-way clutch (9), and the center of said one-way clutch (9) having an axle hole (91), the output end of said driving motor (5) being mated-driven with the axle hole (91) of the one-way clutch (9).

2. The golf cart according to claim 1, **characterized by** said one-way clutch (9) including an outer ring (92) fixed with said hub (31) and an inner ring (93) located in the outer ring (92), said axle hole (91) located in the centre of the inner ring (93), the surface of said inner ring (93) being equipped with several inclined flutes (931), each inclined flute (931) includes a roller (94), one side face of said inclined flute (931) being an inclined plane (9311) that is inclined to one side along the turning direction of the outer ring and extended to the surface of the inner ring, the other side face being a straight plane (9312) approximately coinciding with the rotational face of the inner ring, the surface of said roller being equipped with friction teeth (941).

3. The golf cart according to claim 1 or claim 2, **characterized by** said driving motor (5) approximately coaxially aligning with two rear wheels (3) and including a motor proper (51), rotor shafts (52) and tubular outer housing (53), said rotor shafts (52) respectively extending out of both ends of the tubular housing (53), and at both ends of the rotor shafts are respectively located gear boxes (55), each gear box is equipped with output shaft (54), said output shaft (54) mated with the axle hole (91) of said one way clutch (9).

4. The golf cart according to claim 3, **characterized by** said gear box (55) including a box body (551), box cover (552) and counter shaft combination gear (553) engagement driving, said counter shaft (554) including gear hobbings (5541), the counter shaft (554) being engagable with and driven by the combination gear (555) of said output shaft.

5. The golf cart according to claim 4, **characterized by** a braking mechanism (56) fitted onto the output shaft (54) of one of said gear boxes, said braking mechanism (56) including a rotational claw (561) which is fixed with the output shaft, a sliding claw (562) which covers the output shaft (54) and can be make relative movement axially with the output shaft (54) and a braking handle (563) which can make the sliding claw move axially, the rotational claw (561) and the sliding claw (562) mated by means of the end face teeth, the smooth end of said output shaft (54) near the sliding claw being covered with a ring block (564), the outside of the sliding claw (562) and the ring block (564) including a braking seat (565), between the sliding claw (562) and the braking seat (565) there being located a reset spring (568), the ring block (564) including a thread hole (5641), wherein after having passed through the braking seat (565), the said braking handle (563) is thread-connected with the thread hole (5641) of the ring block (564), the surface of said ring block (564) in contact with the sliding claw (562) including a semi-circular hole (566) inside of which there is a spheroid (567) which is axially moved with the sliding claw (562) relative to the ring block (564).

6. The golf cart according to claim 1 or 2, **characterized by** a regulating mechanism (10) situated between said handle (6) and a vertical supporting frame (4), said regulating mechanism (10) comprises the first end face gear (101) fixed at the upper end of the vertical frame (4) and the second end face gear (102) fixed at the lower end of the handle (6), the end face teeth of two end face gears are relatively positioned and connected together by means of a positioning pillar (103) mated with a locking knob (104).

7. The golf cart according to claim 6, **characterized by** said second end face gear (102) being of hollow construction, within the chamber formed by the hollow construction of the second end face gear (102) and the first end face gear (101) there is located a spring (105), said spring (105) covering the positioning pillar (103).

8. The golf cart according to claim 1 or 2, **characterized by** a hinged support (11) being positioned between said vertical supporting frame and the bottom supporting frame (1), the hinged support (11) being of hollow circular pipe construction, at the upper end of the front side opening of said hinged support (11) there is located a fillister (111), the lower end of the vertical supporting frame (4) situated in front side opening of the hinged support (11) being hinged with the hinged support (11), in the fillister (111) near the upper end of the hinged support (11) there is arranged a sliding pin (112), which can be moved up and down and is biased downwardly.

9. The golf cart according to claim 1 or 2, **characterized by** said front bag frame (7) being of a compact construction, wherein the handle (6), the vertical supporting frame (4), the bottom frame (1) and the rear bag frame (8) are of hollow circular pipe construction, said bottom supporting frame (1) being constructed by a left longitudinal supporting frame (1-1) and right longitudinal supporting frame (1-2) left/right-symmetrical and parallel-aligned at a same level.

10. The golf cart according to claim 1 or 2, **characterized by** a switch box (12) being provided on said handle (6), said handle being composed of a vertical handle (61) and a transverse handle (62), said vertical handle (61) being connected to a vertical supporting frame (62).

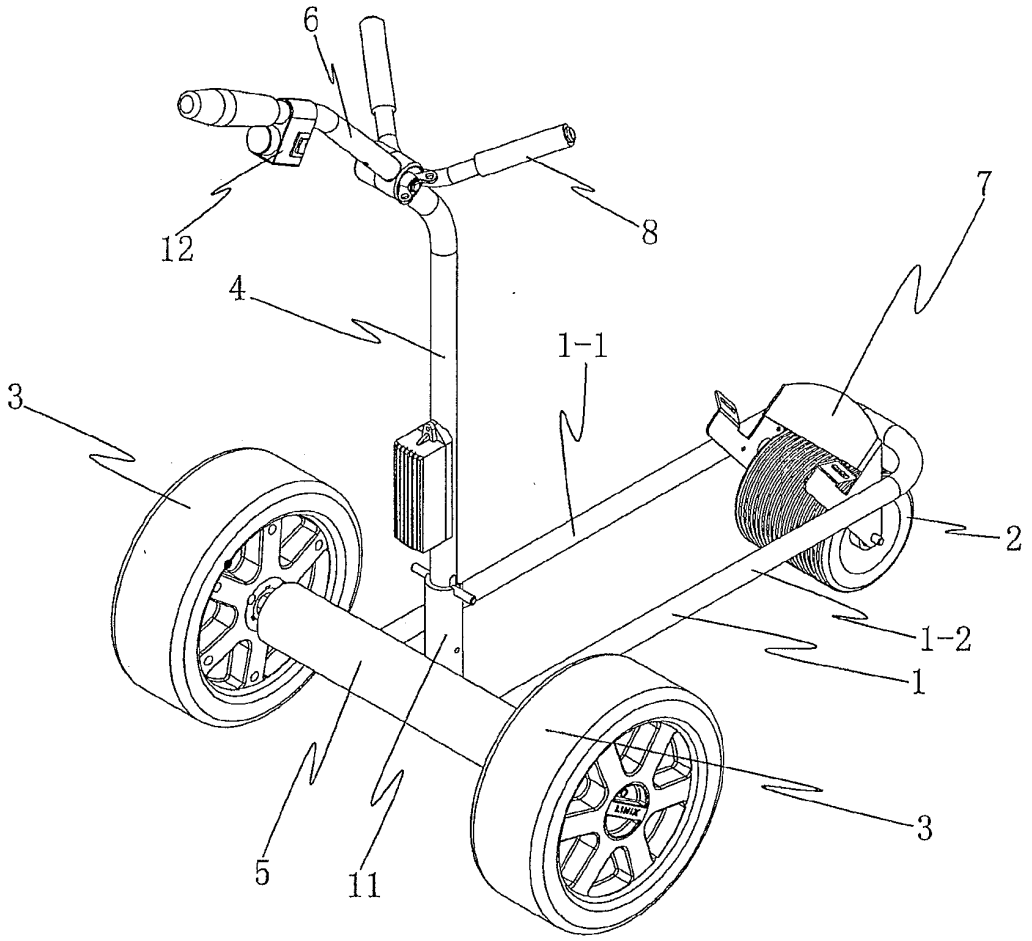

FIG. 1

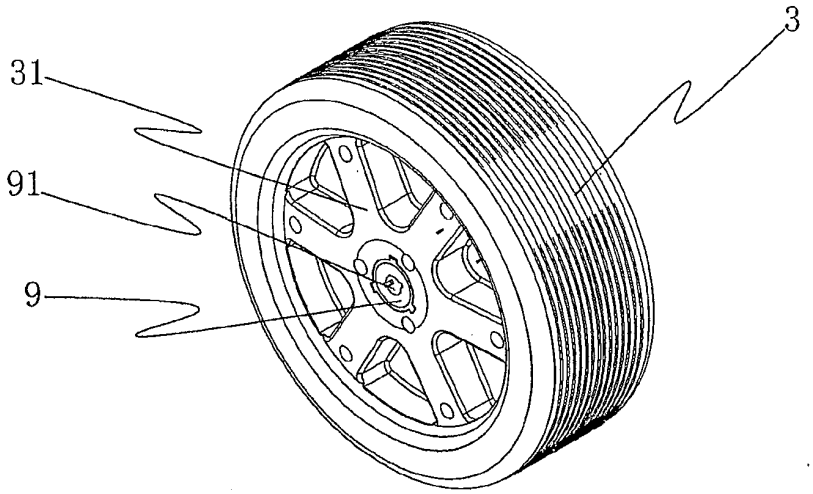

FIG. 2

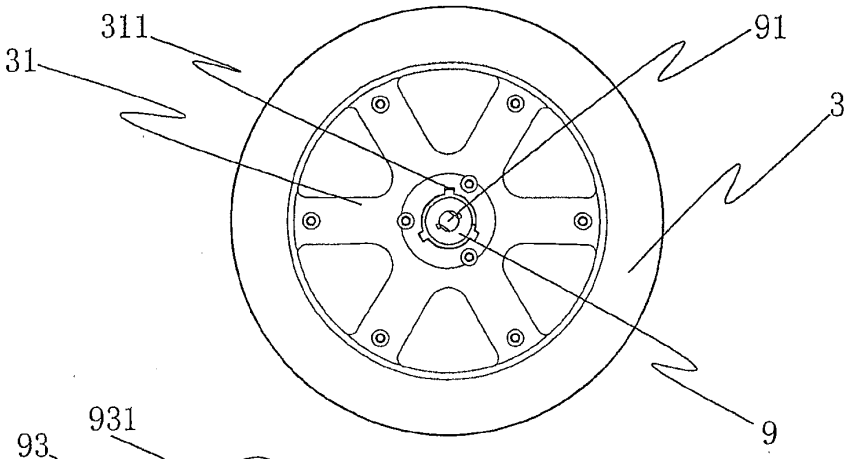

FIG. 3

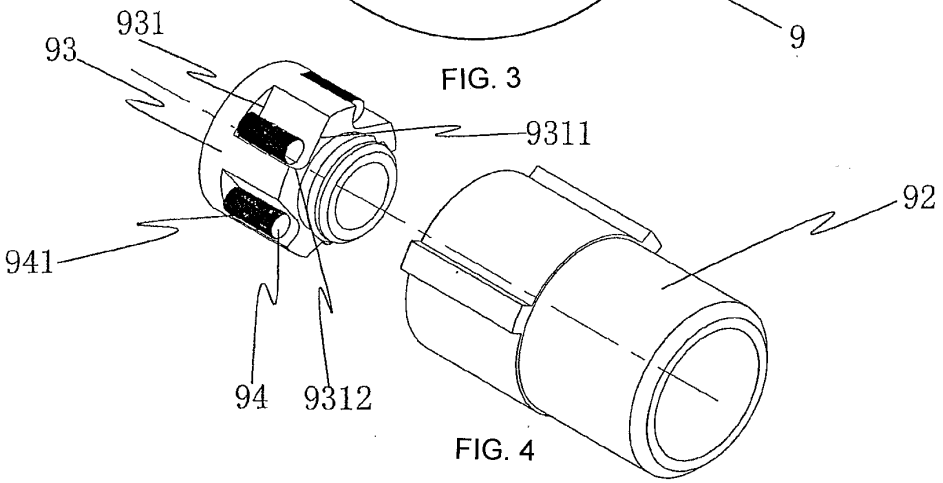

FIG. 4

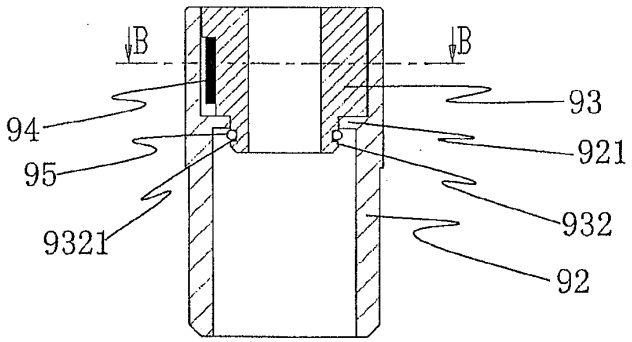

FIG. 5

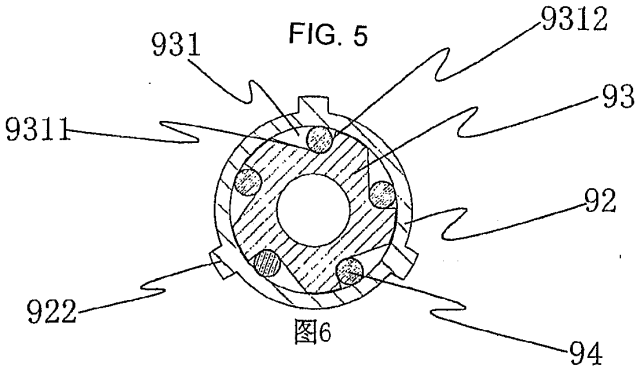

图6

FIG. 6

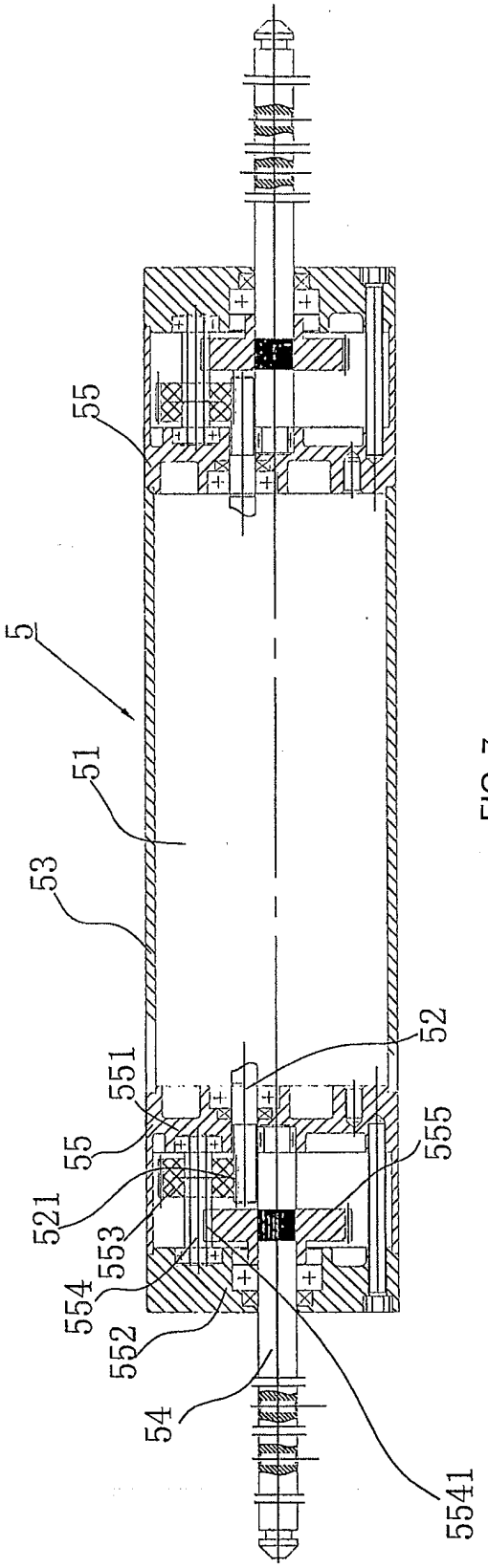
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FIG. 7

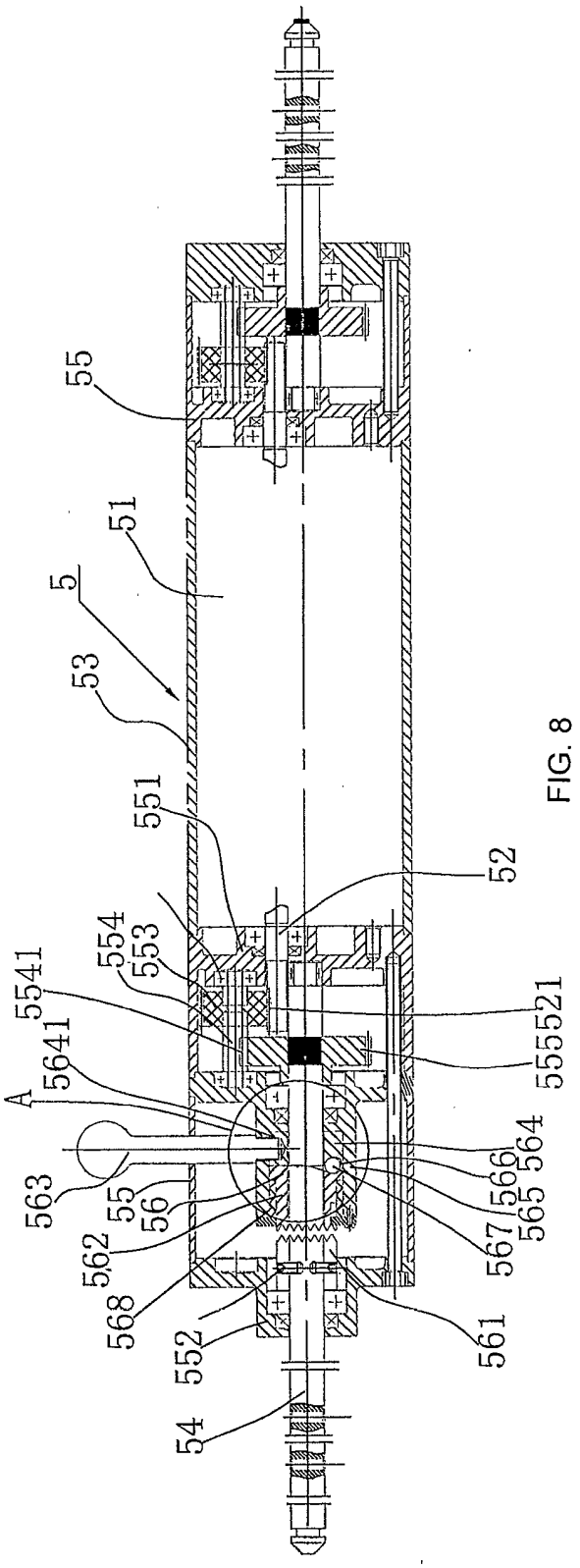
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FIG. 8

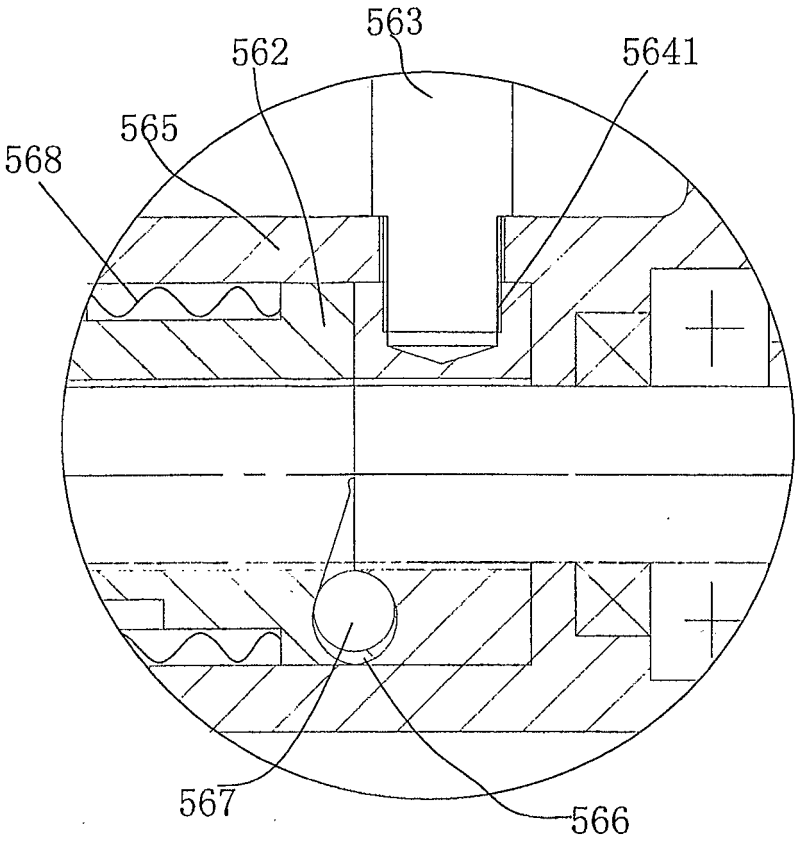

FIG. 9

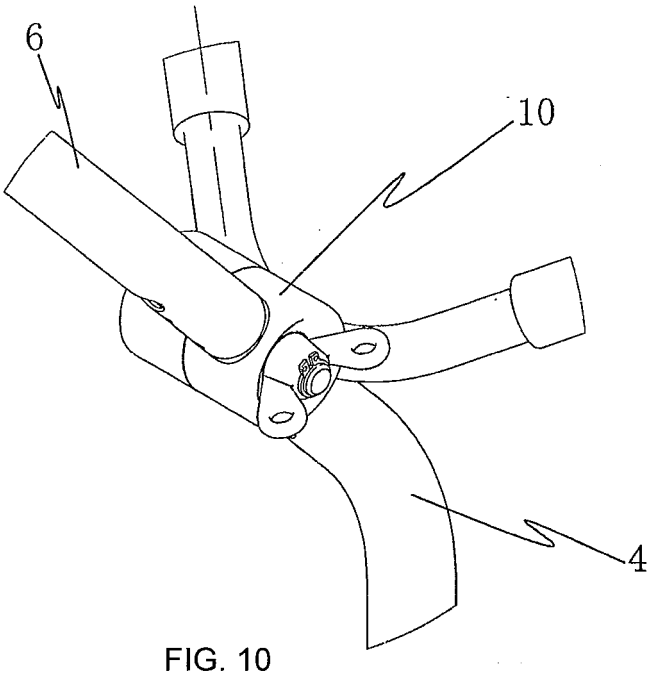

FIG. 10

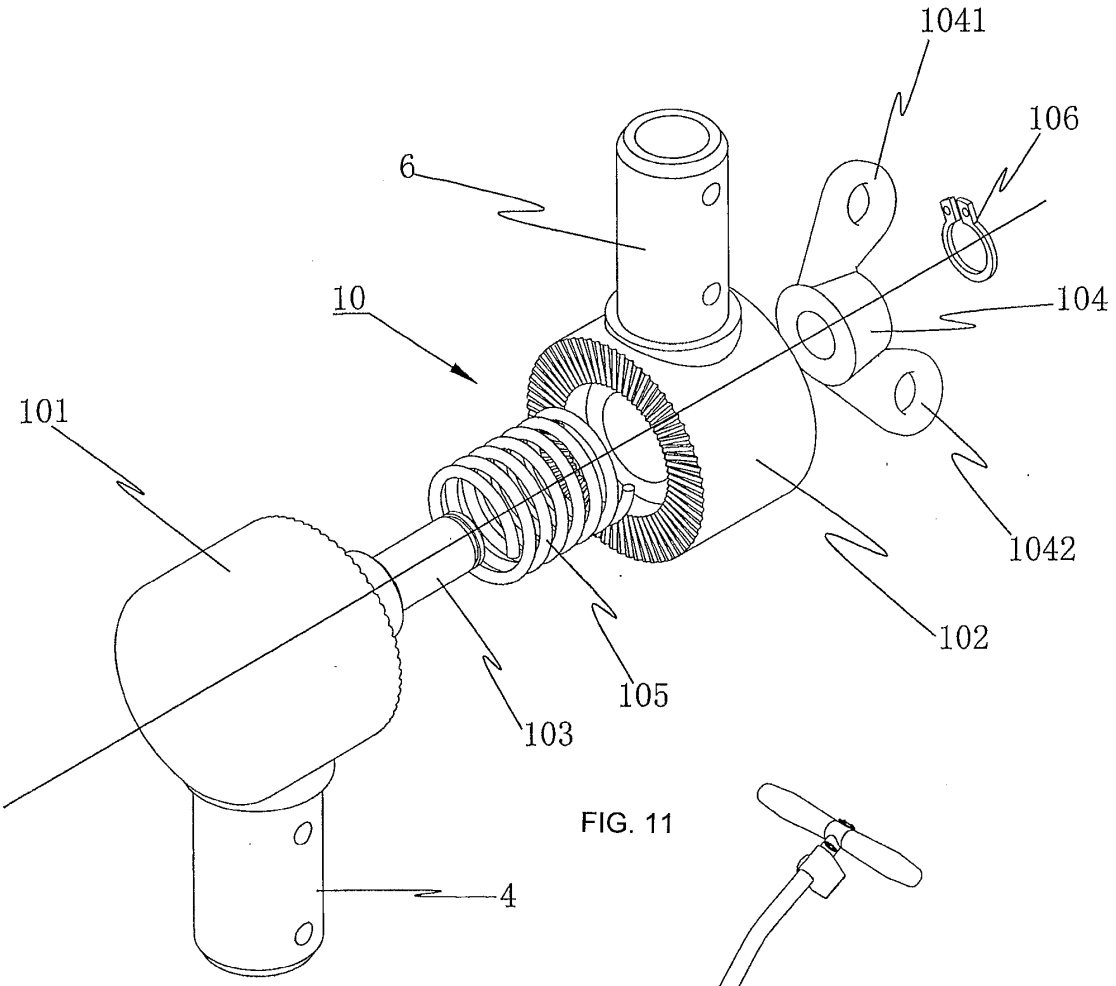

FIG. 11

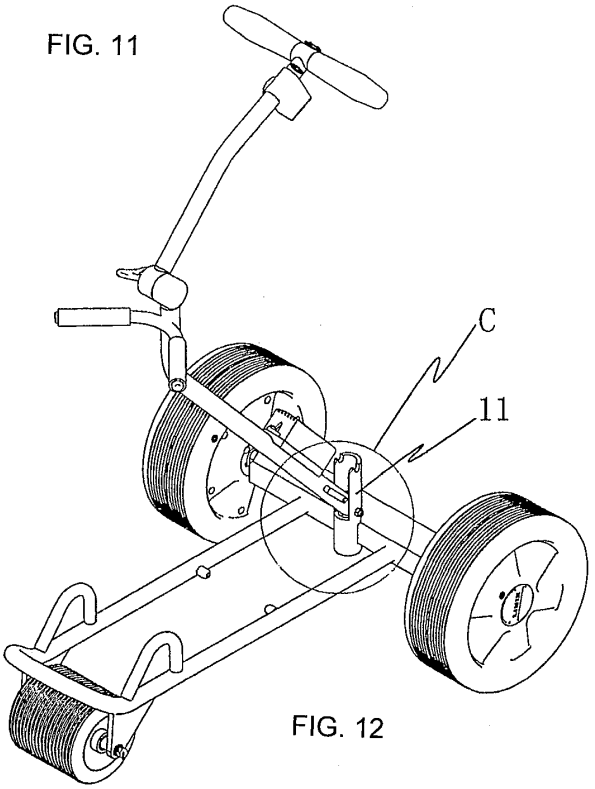

FIG. 12

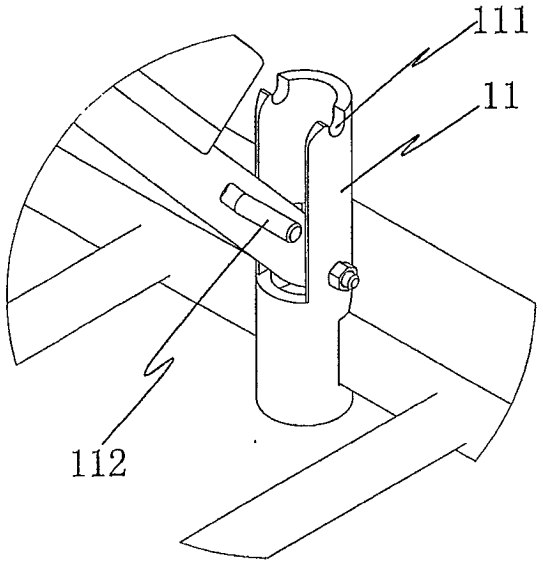

FIG. 13

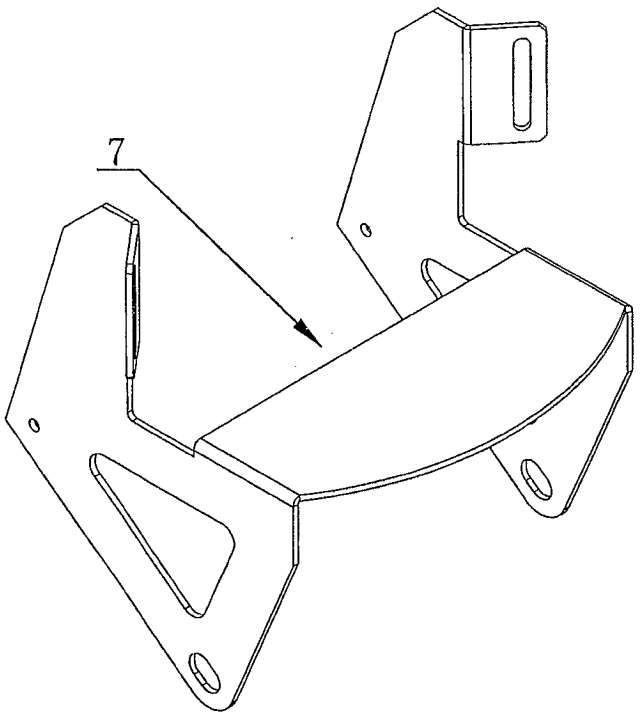

FIG. 14

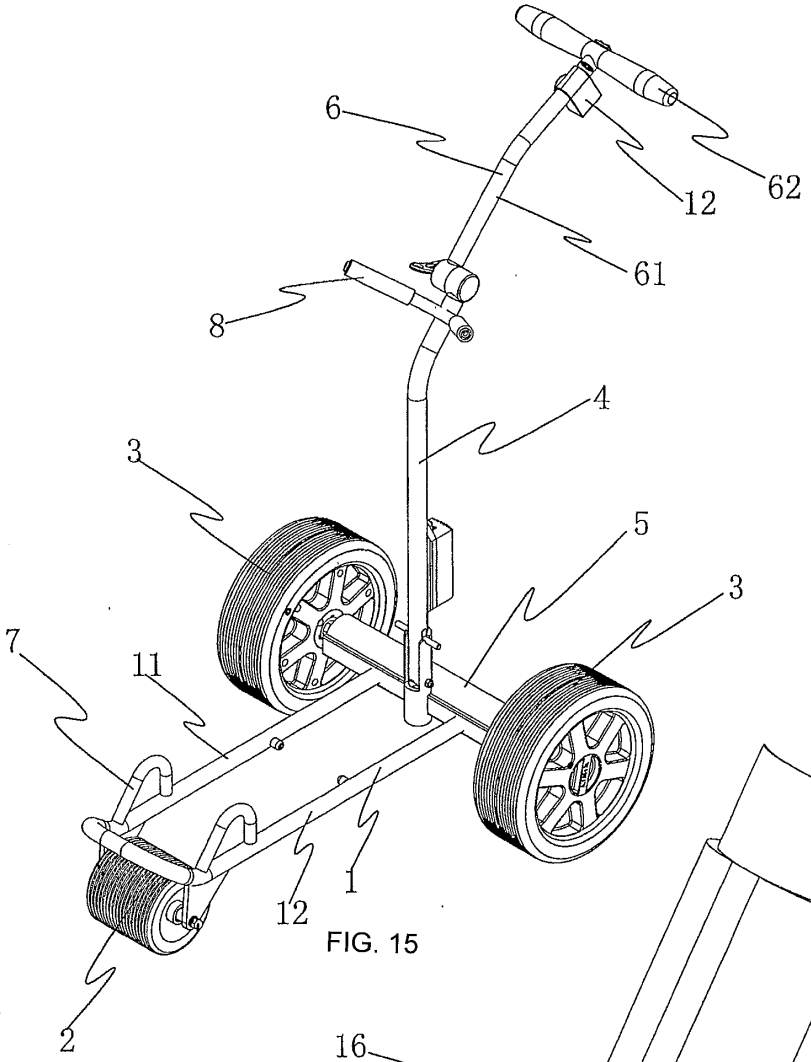

FIG. 15

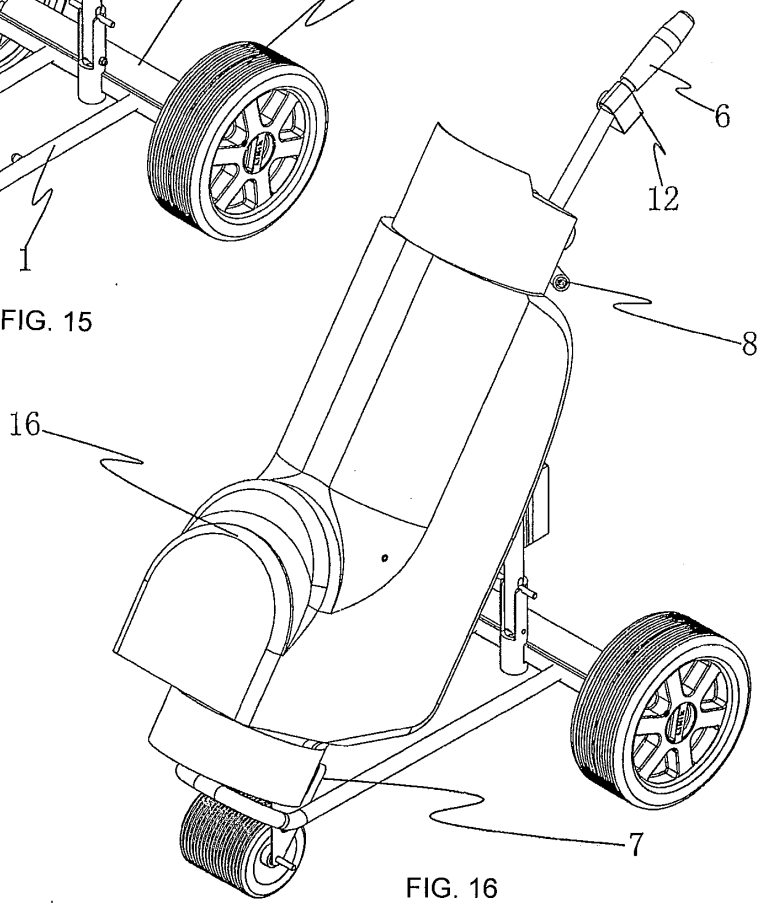

FIG. 16

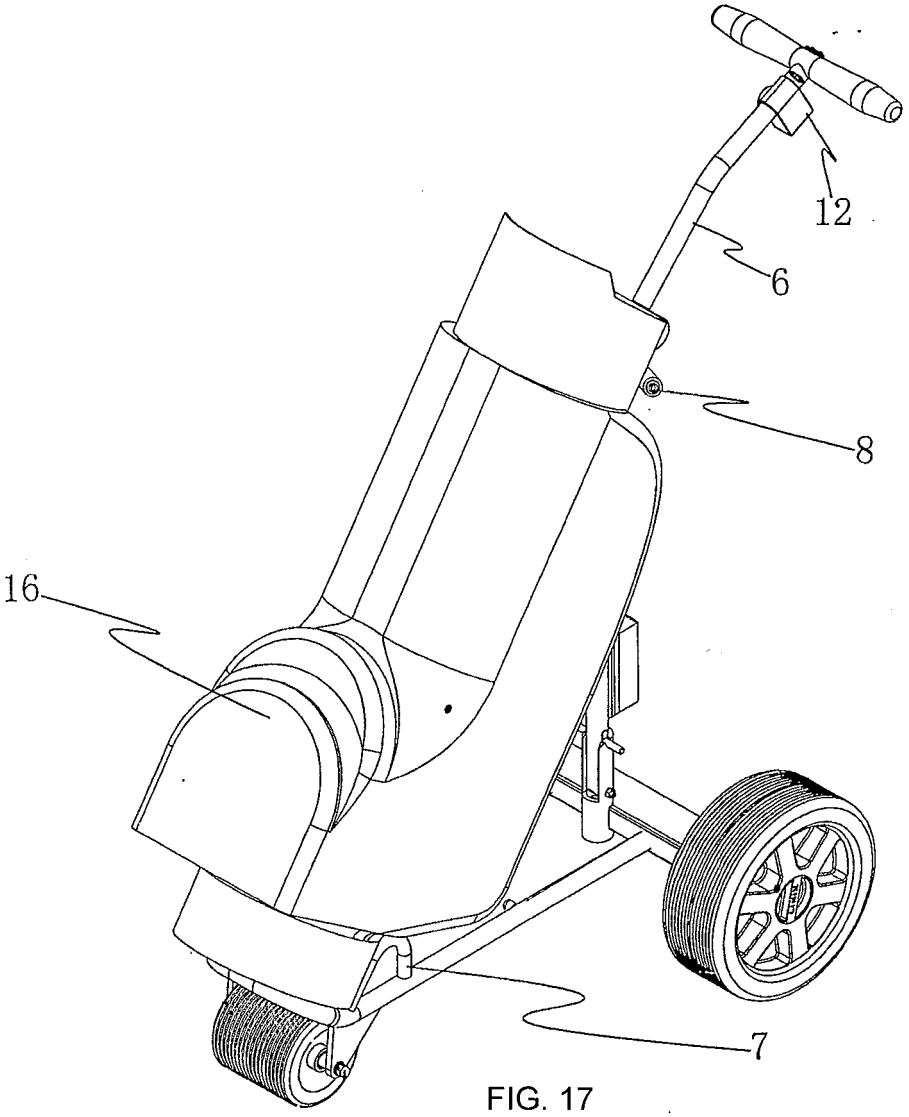

FIG. 17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2005/002238

A. CLASSIFICATION OF SUBJECT MATTER

A63B 55/08 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC8: A63B 55/08 B60L 11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Chinese invention patents, Chinese utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC,WPI,PAJ,CNPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,4427084 (Golf-Eze) 24 Jan. 1984 (24.01.1984) See the whole document	1-10
A	CN,Y,2191013 (LIN, chuncheng) 08 Mar. 1995 (08.03.1995) See the whole document	1-10
A	CN,Y,2699952 (WU,changjin) 18 May 2005 (18.05.2005) See the whole document	1-10
A	CA,A,1179275 (Golf-Eze) 11 Dec. 1984 (11.12.1984) See the whole document	1-10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 Jun.2006 (21.06.2006)	13 · JUL 2006 (13 · 07 · 2006)
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer YANG Guoxin Telephone No. (86-10) 62085433

Form PCT/ISA /210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2005/002238

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
US,A,4427084	24 Jan.1984 (24.01.1984)	None	
CN,Y,2191013	08 Mar. 1995 (08.03.1995)	None	
CN,Y,2699952	18 May 2005 (18.05.2005)	None	
CA,A,1179275	11 Dec. 1984 (11.12.1984)	None	

Form PCT/ISA /210 (patent family annex) (April 2005)