May 5, 1931. F. V. ANDRE ET AL 1,804,075

AQUATIC AMUSEMENT APPARATUS

Filed May 8, 1930 5 Sheets-Sheet 1

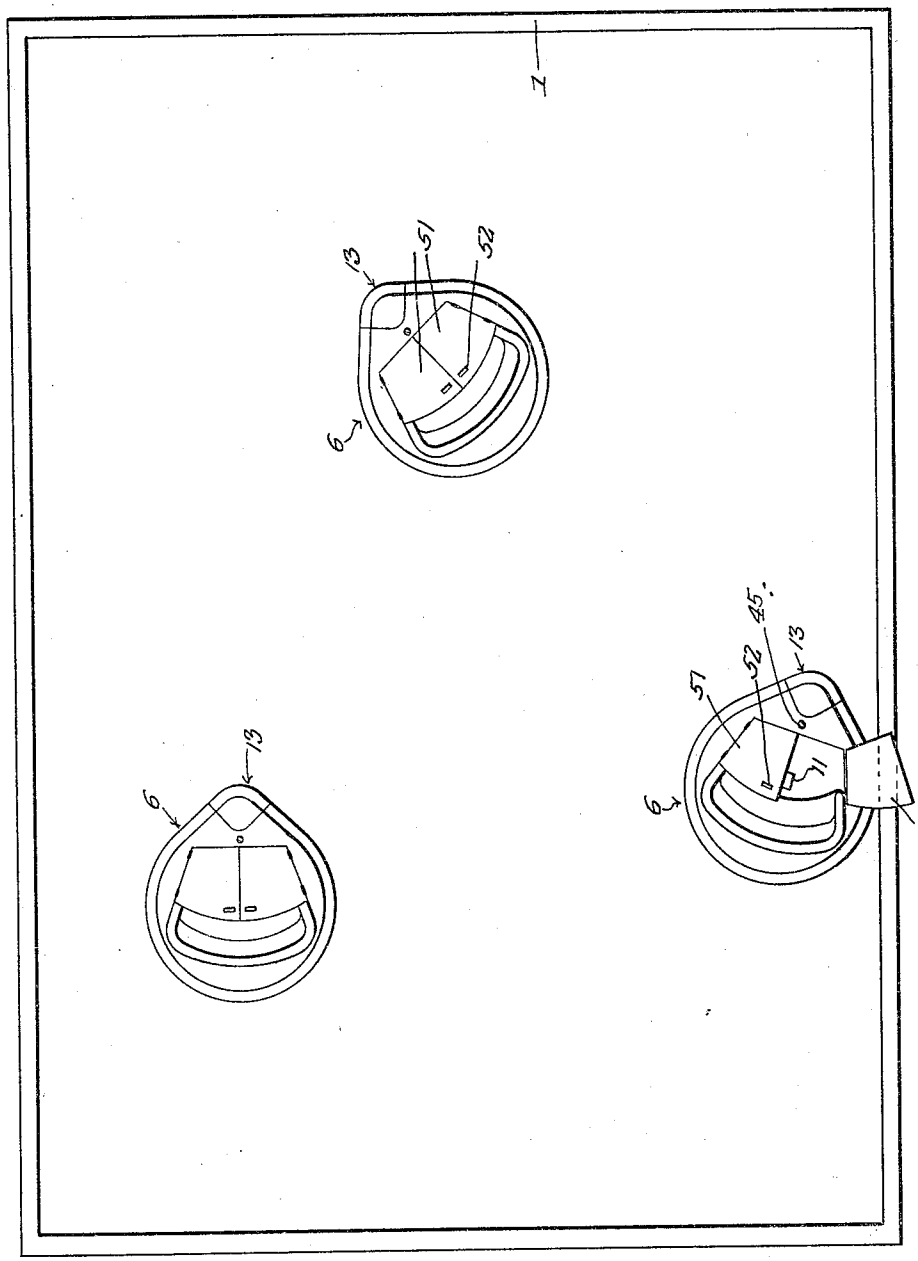

Fig. 1.

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Filed May 8, 1930 5 Sheets-Sheet 2

Fig. 2.

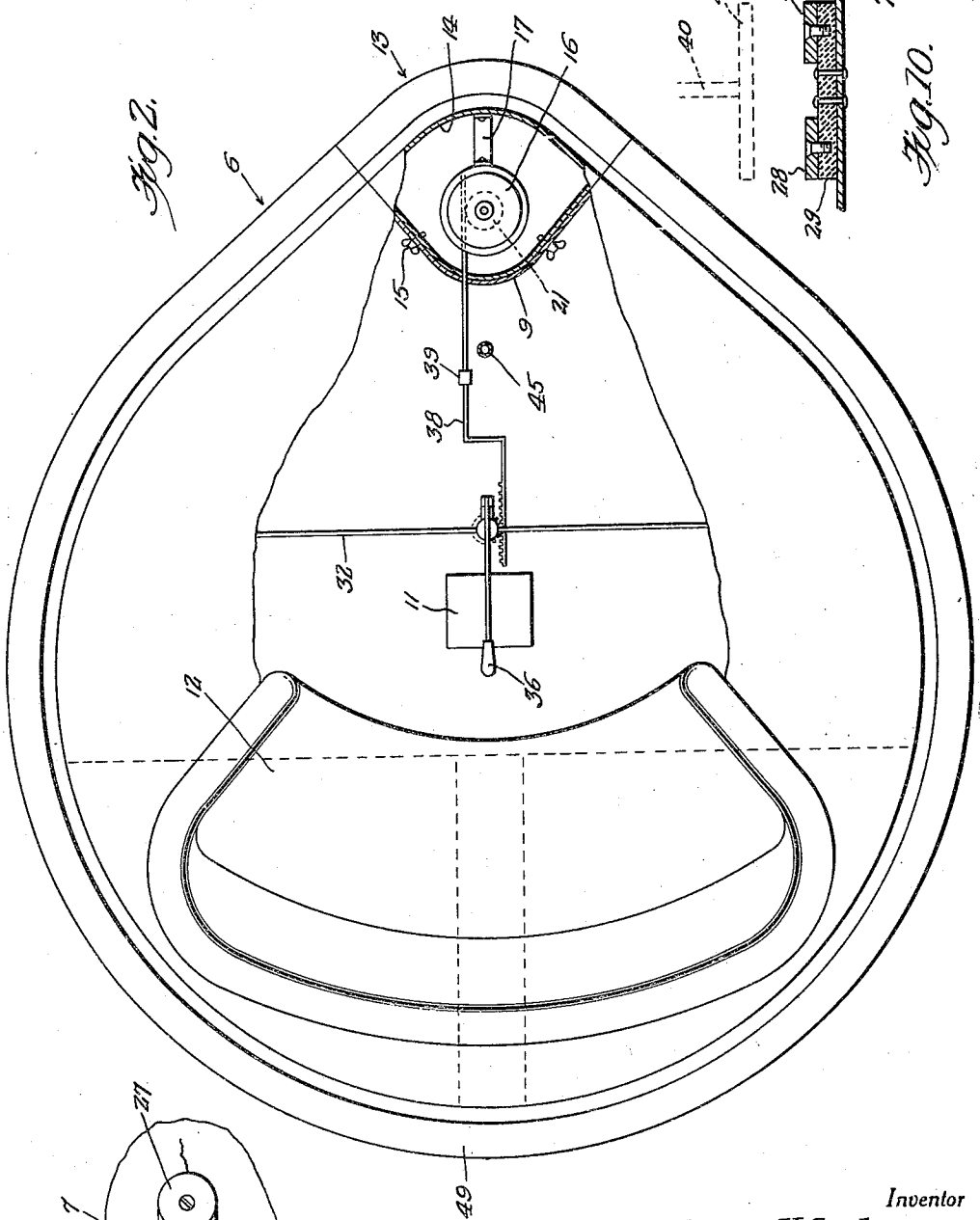
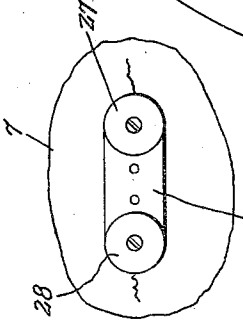


Fig. 10.

Fig. 9.



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Filed May 8, 1930 5 Sheets-Sheet 3

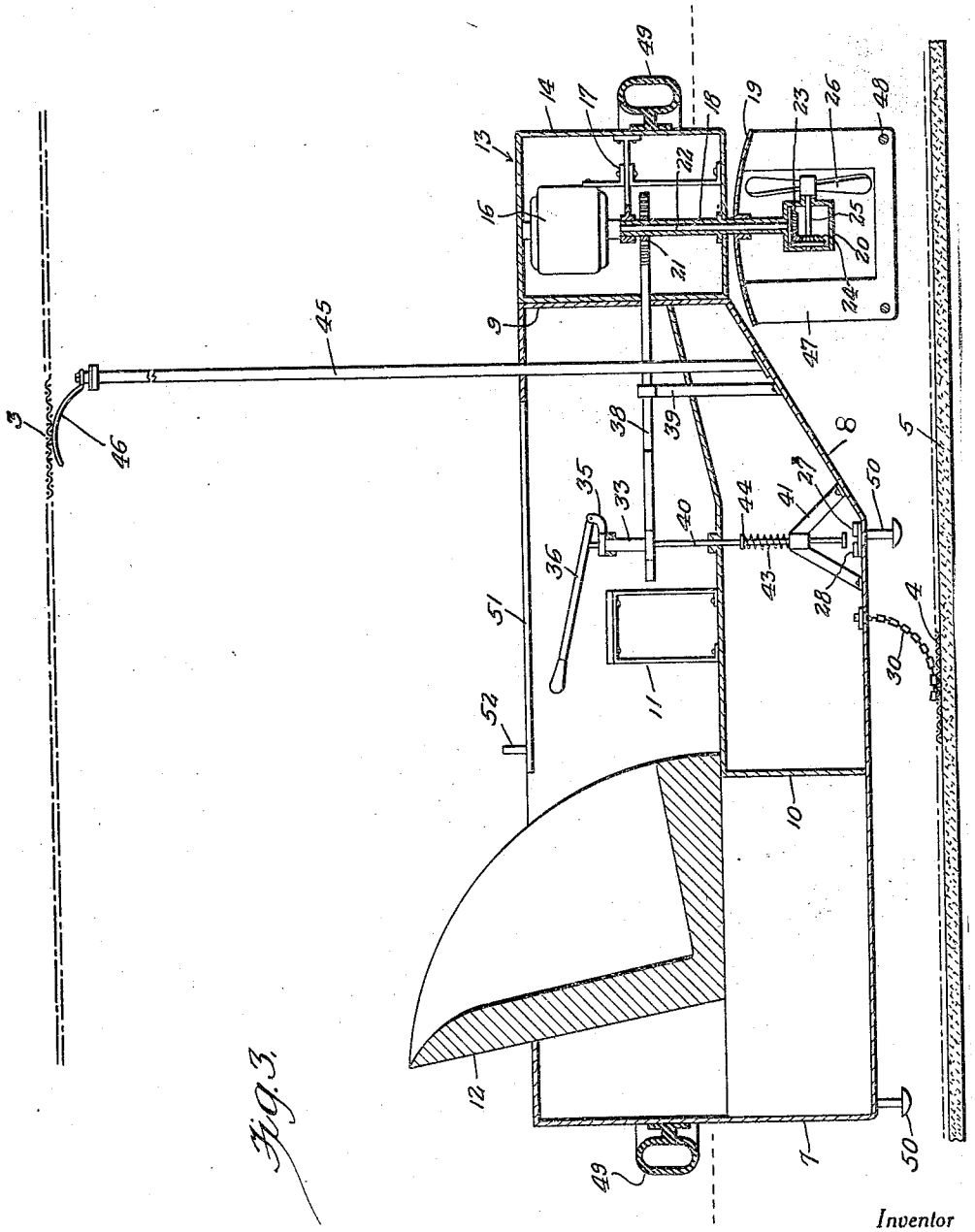

Fig. 3.

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AQUATIC AMUSEMENT APPARATUS

Filed May 8, 1930 5 Sheets-Sheet 4

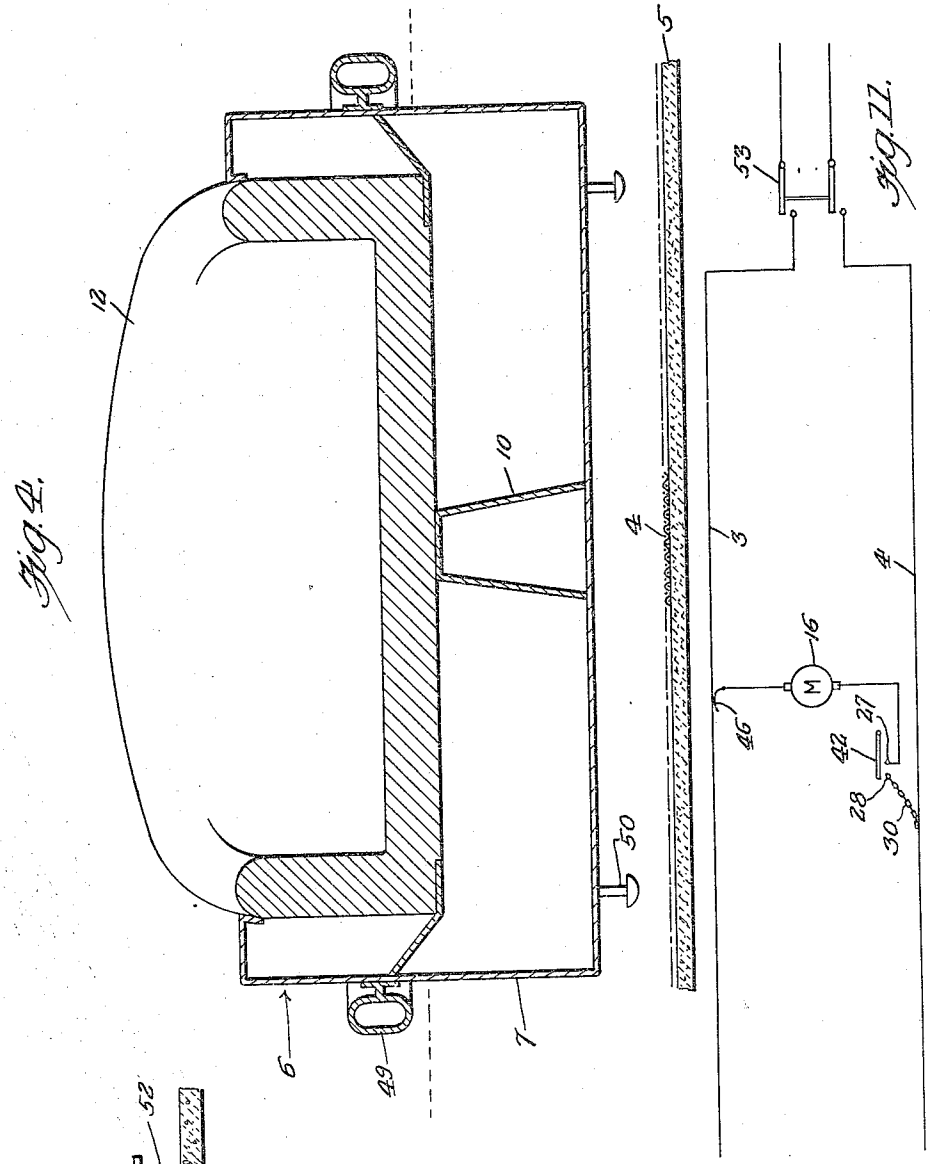

Fig. 4.

Fig. 11.

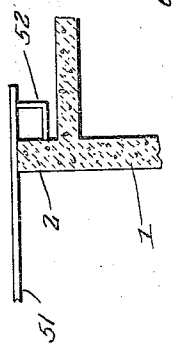

Fig. 12.

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AQUATIC AMUSEMENT APPARATUS

Filed May 8, 1930 5 Sheets-Sheet 5

Fig. 7.

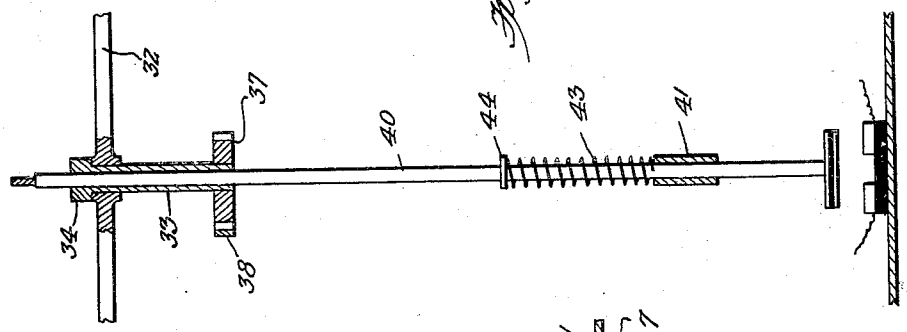


Fig. 8.

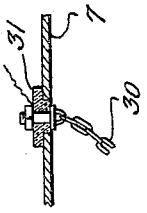


Fig. 5.

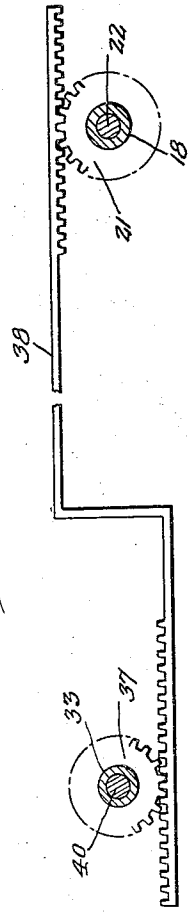
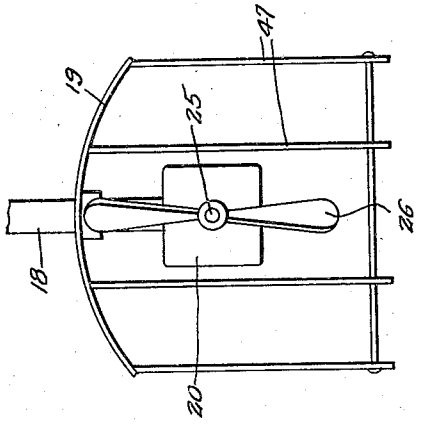


Fig. 6.



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UNITED STATES PATENT OFFICE

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AQUATIC AMUSEMENT APPARATUS

Application filed May 8, 1930. Serial No. 450,791.

This invention relates to an aquatic amusement apparatus and has for its primary object to provide, in a manner as hereinafter set forth, an apparatus of this character which includes an artificially constructed tank which is filled to a predetermined level with water in which are placed any desired number of novel self propelled vessels or boats which are under the control of a person occupying the same, said boats being driven through the medium of electric motors, the tanks having associated therewith means cooperable with a trolley carried by each of the boats for supplying electric current to the motors to propel the boats.

Another important object of the invention is to provide an amusement apparatus of the character described which includes a boat having novel propelling and steering means embodied therewith for operation by a person occupying said boat.

Other objects of the invention are to provide, in a manner as hereinafter set forth, an aquatic amusement apparatus which will be comparatively simple in construction, in which the danger of injury is reduced to a minimum and which will provide considerable amusement to persons using the apparatus.

All of the foregoing and still further objects and advantages of the invention may become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in top plan showing an apparatus constructed in accordance with this invention.

Figure 2 is a view principally in top plan and partly broken away in horizontal section of one of the boats.

Figure 3 is a view in vertical longitudinal section through one of the boats and showing the means for supplying electric current to the motor therein.

Figure 4 is a vertical transverse sectional view through one of the boats.

Figure 5 is a detail view in top plan showing the steering rack bar and the gears with which said bar is operatively engaged.

Figure 6 is a detail view in front elevation of the propelling and steering unit.

Figure 7 is a detail view partially in cross section showing the circuit controlling switch and the supporting means therefor.

Figure 8 is a fragmentary detail view in section showing the means for connecting the ground conductor to the bottom of the boats.

Figure 9 is a detail view in top plan showing the contacts of the switch which controls the current to the driving motor.

Figure 10 is a detail view in longitudinal section showing the contacts of the switch which controls the current to the driving motor.

Figure 11 is a diagrammatic view of the electric circuit.

Figure 12 is a fragmentary detail view in section showing the means for anchoring the boats to the side of the tank when the same are not in use or for loading or unloading passengers.

Referring to the drawings in detail, it will be seen that the reference numeral 1 designates a comparatively large tank which may be formed of any suitable material, preferably cement, and which also may be of any desired configuration. As illustrated to advantage in Figure 12 of the drawings, the upper edge of the tank 1 is formed to provide an upstanding integral rib 2 which preferably extends entirely around said tank on the inner marginal portion of the walls thereof. The purpose of the upstanding rib 2 will be more fully hereinafter set forth. A metal current conducting screen 3 is disposed above the tank 1 (see Figure 3) and a ground screen 4 extends over the bottom 5 of said tank 1. As before stated, the tank is filled to any desired level with water.

Disposed in the tank for travel on the water therein is any number of boats designated generally by the reference numeral 6. Each of the boats 6 comprises a hull 7 of the configuration illustrated to advantage in Figures 1, 2 and 3 of the drawings. The hull 7 includes an upwardly directed bottom

section 8 which extends upwardly and forwardly to the recessed plow portion 9 of the boat. The hull 7 further includes a longitudinally extending bulk head 10 upon which is mounted a step 11 to facilitate the entrance or exit of a person using the device.

A seat 12 is mounted in the rear portion of the hull 7.

A driving and steering unit designated generally by the reference numeral 13 is detachably mounted in the recessed prow portion 9 of the hull 7 and comprises an appropriately shaped housing 14 which is secured in position through the medium of the elements 15 (see Figure 2). A vertically disposed electric motor 16 is mounted for operation in the housing 14 on suitable supporting brackets 17. A vertically disposed tubular shaft 18 extends rotatably through the lower wall of the housing 14 and has fixed thereon below the housing a hood or shield 19. Spaced below the hood or shield 19 and on its lower end, the tubular shaft 18 is formed to provide a casing 20. Fixed on the tubular shaft 18 within the housing 14 is a pinion gear 21, the purpose of which will be presently set forth. A shaft 22 is operatively connected to the electric motor 16 for actuation thereby and extends rotatably through the tubular shaft 18 and has fixed on its lower end within the casing 20 a gear 23 which is operatively engaged with a complementary gear 24 fixed on the propeller shaft 25 which projects forwardly through said casing 20 and has fixed thereon the propeller 26.

A pair of spaced electric contact elements 27 and 28 are rigidly mounted in spaced relation on the insulated base 29 on the bottom of the hull 7 within the bulk head 10 and the contact 27 is electrically connected with the motor 16 (see Figure 11) and the contact 28 is electrically connected with the ground conductor 30 which, as illustrated in detail in Figure 8, is anchored in the insulating bushing 31 mounted in an opening provided therefor in the bottom of the hull 7.

A horizontally disposed, transversely extending bar 32 extends between the side walls of the hull 7 in forwardly spaced relation from the seat 12 and constitutes means for rotatably supporting a sleeve 33 having an integral flange 34 on its upper end in abutting engagement with the bar 32 for supporting said sleeve rotatably on said bar. A bracket 35 projects forwardly from the flange 34, said bracket being formed preferably integrally with said flange and pivotally supporting on its free end a rearwardly extending manually operable lever 36. A pinion gear 37 is fixed on the lower end portion of the sleeve 33 and is in operative engagement with the teeth on one end portion of a rack bar 38 which extends slidably through the guide bracket 39 and which projects into the housing 14 and is operatively engaged with the pinion gear 21 on the tubular shaft 18.

An elongated vertically disposed rod 40 extends slidably through the sleeve 33 and projects into the bulk head 10 and has its lower end portion slidably disposed through a substantially inverted V-shaped bracket 41 and has fixed on its lower end an insulated current conducting disk 42 adapted for engagement with the contact elements 27 and 28 in a manner to electrically connect the same. A coil spring 43 is mounted on the rod 40 and has one end engaged on the bracket 41 and its opposite end engaged with a flange 44 fixed on said rod 40 in a manner to normally maintain the contact disk 42 out of engagement with the elements 27 and 28. The rod 40 projects outwardly beyond the flange 34 of the sleeve 33 for engagement with the lever 36 for actuation thereby. As will be apparent, the ground conductor 30 is in contact with the ground screen 4 on the bottom 5 of the tank 1.

Each of the boats is provided with a vertically projecting trolley pole 45 upon the upper end of which is swivelly mounted a resilient contact member 46 which is engaged with the electric current supply screen 3, as clearly illustrated in Figure 3 of the drawings. As illustrated diagrammatically in Figure 11 of the drawings, current flows through the contact member 46 and the trolley pole 45 to the electric motor 16 for energizing the same.

Depending from the hood or shield 19 on opposite sides of the gear casing 20 is a plurality of longitudinally disposed, spaced, parallel substantially U-shaped plates 47 through the front and rear lower end portions of which extends the rods 48. The plates 47 constitute rudders for steering the boat in any direction. It will further be seen that the plates 47 also constitute a guard for the propeller 26.

A resilient bumper 49 extends entirely around the boat just above the water line to absorb the shock of collision. Projections 50 depend from the bottom of the hull 7 on the opposite side thereof for engagement with the bottom of the tank in a manner to limit the extent to which the boat may be rocked and thus prevent capsizing of said boat.

Hinged cover plates 51 are mounted for swinging movement on the deck structure of the boat and are provided, adjacent their free ends, with the handles 52 which are in the form of hooks which are engageable with the upstanding rib 2 which extends around the tank 1 in a manner to anchor the boats to the side of the tank as illustrated to advantage in Figures 1 and 12 of the drawings.

Referring again to Figure 11 of the drawings, it will be seen that the reference nu-

meral 53 designates what may be termed a master switch for controlling the flow of current to the supply screen 3.

In use, the plates 51 are swung to open position and the passenger takes his place in the seat 12. The plates 51 are then swung to closed position and the passenger is thus prevented from standing or falling out. When the plates 51 are swung to open position, the handles or hooks 52 are engaged with the upstanding rib 2 of the tank 1 and thus, in addition to serving as means for anchoring the boat to the side of the tank, said plates may be utilized as a gang plank upon which the passenger may step when entering the boat. From the open plate 51 the passenger may step on the step 11 and from there to the bottom of the boat. With the master switch 53 closed, the operator then swings the lever 36 downwardly to close the switch constituted by the contact elements 27 and 28 and the disk 42 on the lower end of the rod 40. Electric current then flows from the supply screen 3 through the resilient contact device 46 and from there to a suitable conductor in the trolley pole 45 to the motor 16 and from said motor the current passes through a suitable conductor wire to the contact 27, through the contact disk 42 to the contact 28 which is electrically connected with the ground conductor 30 engaged, as before stated, with the ground screen 4. The motor 16 actuates the propeller 26 in a manner to pull the boat through the water in the tank. For steering the boat in any direction, the operator swings the lever 36 in a horizontal plane in a manner to rotate the sleeve 33 with the pinion gear 37 thereon, thus actuating the rack bar 38 which is engaged with the pinion gear 21 on the tubular shaft 18 which carries the propeller 23 and the rudder plates 47. It will thus be seen that the propeller 26 and the rudder plates 47 swing in unison and may be disposed at any desired angle.

It will thus be seen that we have provided a novel amusement apparatus which will provide considerable amusement both for persons operating and riding in the boats and for persons looking on. In addition to serving as shock absorbing means for preventing injury to the boats and occupants thereof from collision, the bumpers 49 also effectively prevent splashing of the water over the boats when said boats collide with each other. The resilient contact element 46 is of a construction and arrangement which will compensate for the rocking of the boats and maintains a good contact with the screen 3 at all times and the flexible ground conductor 30 will also maintain a good contact with the ground screen 4 at all times. As before stated, the depending members 50 serve to limit the rocking of the boats.

It is believed that the many advantages of an aquatic amusement apparatus constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

What is claimed is:—

1. An aquatic amusement apparatus of the character described comprising, in combination, a tank adapted to contain water, an electric current conducting supply screen disposed above the tank, an electric current ground screen disposed over the bottom of the tank, a boat disposed for travel in the water in the tank, an electric motor mounted in the boat, a propeller operatively connected to the motor for actuation thereby, means for electrically connecting the motor with the current supply screen, means for electrically connecting said electric motor with the ground screen, the last named means comprising a chain suspended from the boat and engaged with the screen, a conductor wire connecting the chain to the motor and a manually operable control switch interposed in the conductor wire.

2. An aquatic amusement apparatus of the character described comprising, in combination, a tank adapted to contain water, an upstanding rib formed on the tank, a boat disposed for travel in the water in the tank, means for propelling the boat, a seat disposed in the boat, guard plates mounted for swinging movement on the boat and associated with the seat, and hooks rigidly mounted on the guard plates and engageable with the rib on the tank in a manner to anchor the boat thereto, said guard plates constituting gang planks when engaged with the rib.

3. An aquatic amusement apparatus of the character described comprising a boat, a housing detachably mounted on the forward end portion of the boat, an electric motor operatively mounted in the housing, a tubular shaft rotatably mounted in the housing and extending downwardly therefrom, a propeller supported for operation on the lower end portion of the tubular shaft for rotary movement therewith, means operatively connecting the propeller to the electric motor for actuation thereby, a rudder fixed on the lower portion of the tubular shaft, switch controlled means for energizing the motor, and manually operable means for rotating the tubular shaft in a manner to rotate the rudder and the propeller as a unit.

In testimony whereof we affix our signatures.

FRANK V. ANDRE.
HARRY A. DAVIS.