Sept. 15, 1970 J. COOPER 3,528,195

TOY BOAT AND SIMULATED ELECTRIC OUTBOARD MOTOR

Filed July 30, 1968 2 Sheets-Sheet 1

FIG. 1

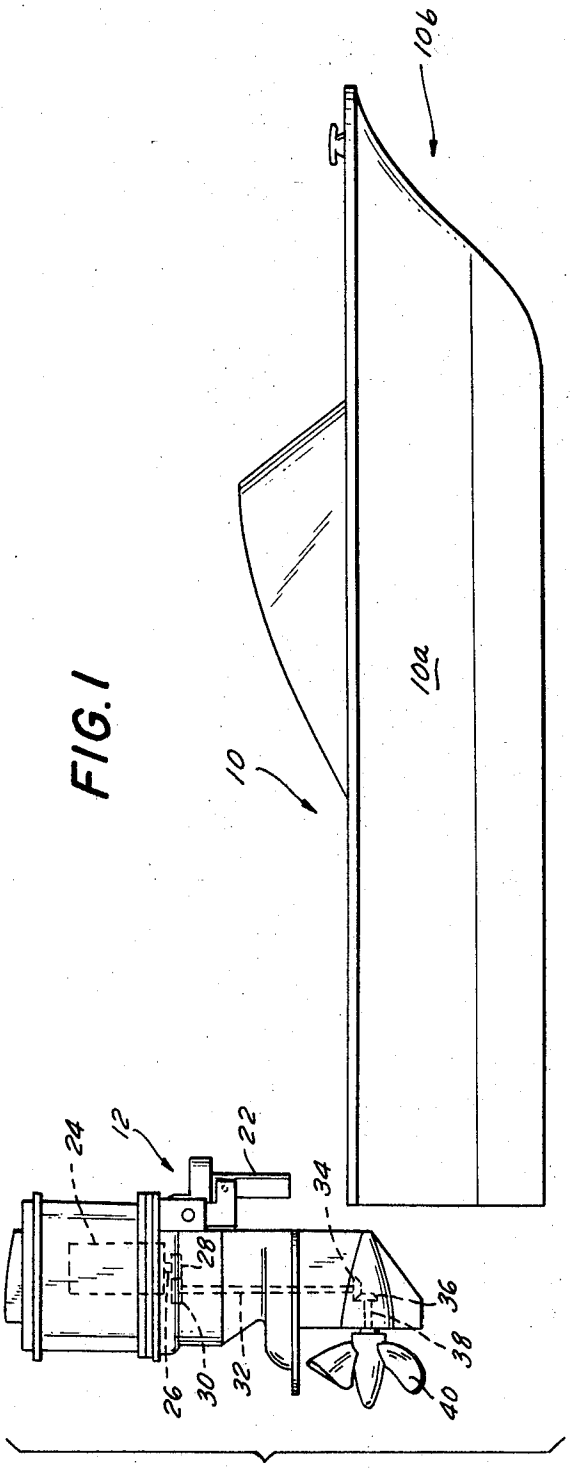
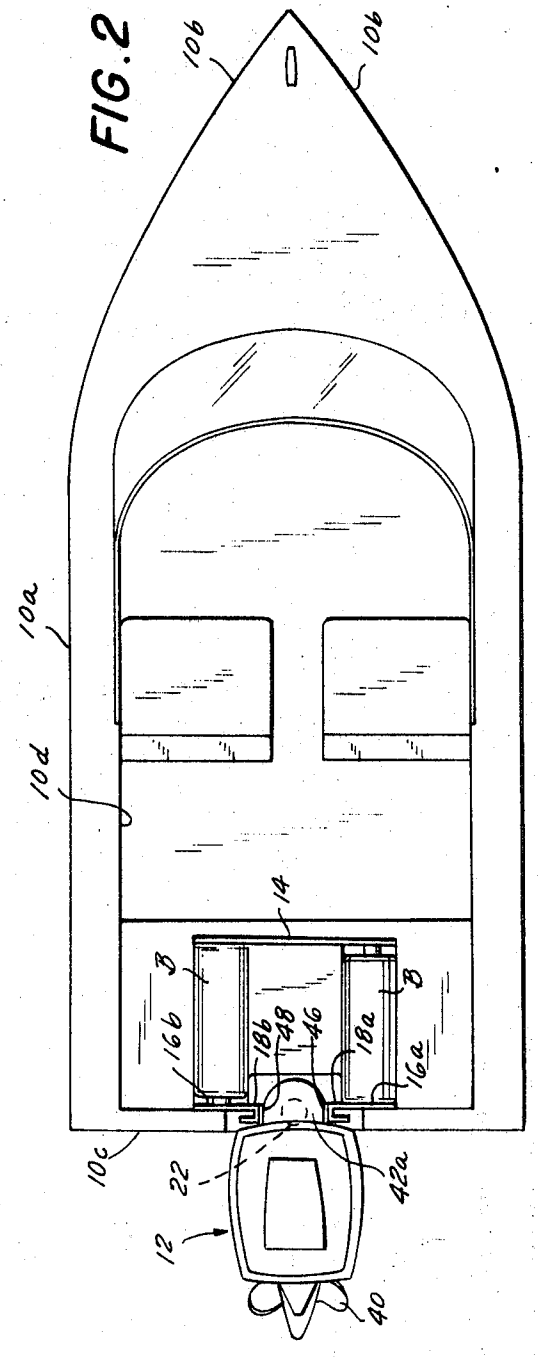


FIG. 2



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Filed July 30, 1968 2 Sheets-Sheet 2

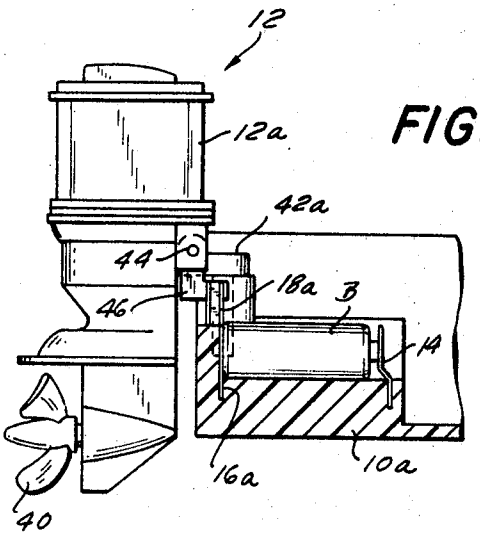


FIG. 3

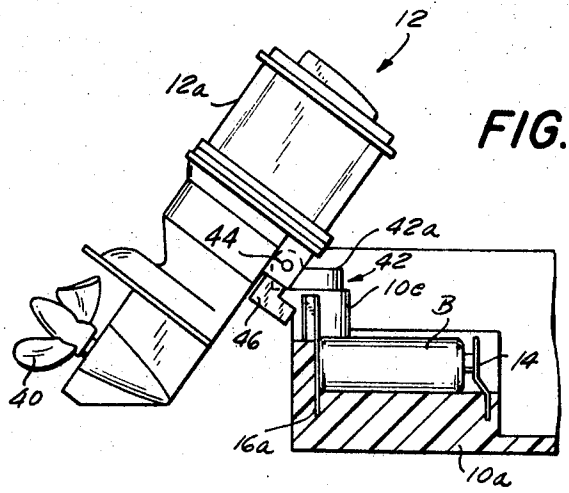


FIG. 4

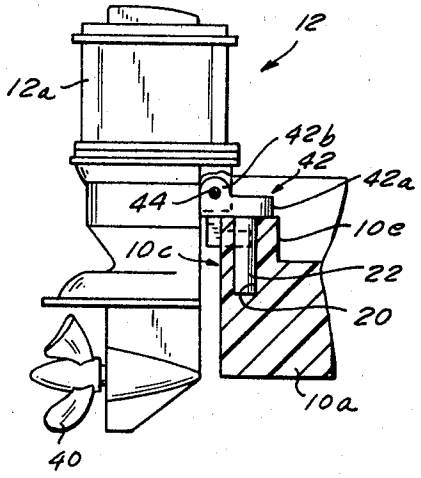


FIG. 5

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TOY BOAT AND SIMULATED ELECTRIC OUTBOARD MOTOR

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U.S. Cl. 46—243 8 Claims

ABSTRACT OF THE DISCLOSURE

A toy boat with a simulated outboard motor tiltable between a boat-powering position and a raised clearance position, the energization circuit for the motor being completed only when the motor is in its boat-powering position.

The present invention relates generally to toys, and more particularly to an improved battery-operated toy boat.

Battery-operated toys, particularly boats, have such established play value as to constitute staples in the product line of many manufacturers. As such, there is a continuing effort by those in the toy industry to provide improvements which increase the realism and thus the play value of the toy boat or which decrease the costs of production. Rarely can both objectives be achieved since realism in the toy invariably involves molding the boat with current, popular structural features and this, in turn, requires correspondingly complicated production equipment.

Broadly, it is an object of the present invention to provide an improved toy boat overcoming the foregoing and other shortcomings of the prior art, wherein the improvements contribute both to realism of the toy and also lessen production costs. Specifically, it is an object to provide a toy boat in which the usual main switch of the battery energization circuit is eliminated, a feature which obviously has no counterpart in actual boat (at least not in the size scale found on toy boats) and which, by its omission, reduces production costs.

A toy boat demonstrating objects and advantages of the present invention includes a hull serving as a battery storage compartment and having an energization circuit formed with a normally open pair of switch contacts. The boat motor is pivotally mounted on the hull in a position relative to the switch contacts such that a switch-closing member thereon is operatively effective, in a boat-powering position of the motor, to close the switch contacts, complete the energization circuit and thereby result in operation of the motor so as to power the boat in motion. In a clearance position of the motor, however, the energization circuit is opened and the operation of the motor terminated.

The above brief description, as well as further objects, features and advantages of the present invention, will be more fully appreciated by reference to the following detailed description of a presently preferred, but nonetheless illustrative, embodiment in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is an exploded elevational view of a toy boat and simulated outboard motor;

FIG. 2 is a plan view of the toy boat and motor in assembled condition;

FIG. 3 is a partial elevational view, in section, of the motor in its assembled position on the boat hull illustrating further structural features, particularly of the battery energization circuit for the motor;

FIG. 4 is a partial sectional view similar to FIG. 3 but illustrating the motor in a raised tilted position relative to the boat hull; and

FIG. 5 is a partial sectional view similar to FIG. 3, with portions broken away to illustrate further structural features.

Reference is now made to the drawings wherein there is shown a toy boat **10** to which there is attached a battery-operated motor **12** having an external appearance simulating a conventional outboard motor. As may be readily appreciated from a consideration of FIGS. 1 and 2, motor **12** is readily mounted or assembled to the rear wall of the boat **10** and in its assembled condition, all as clearly illustrated in FIGS. 3–5, can occupy an essentially vertical position, as illustrated in FIGS. 3, 5, in which it effectively powers the boat **10** in motion, or it can occupy a tilted or inclined position, as illustrated in FIG. 4, in which it is not operated by its battery power source. The significance of the two motor positions will soon be apparent.

Boat **10** is advantageously provided with an external appearance of any one of numerous conventional outboard motor boats and includes a conventional hull **10***a* having an appropriately shaped bow **10***b* and a rear wall **10***c* at its stern which supports the motor **12**. The hull **10***a–c*, in the illustrated embodiment, bounds a compartment **10***d*, the rear portion of which adjacent the wall **10***c* is advantageously used for storage of batteries B which serve as the power source for the motor **12**. Specifically, in the portion of compartment **10***d* adjacent the wall **10***c* there is provided a battery cradle consisting of an elongated battery contact **14** appropriately secured to the bottom wall of the hull **10***a*, as by having the lower end forced fit in an opening provided in this wall. Opposite this battery contact **14** are a pair of spaced apart left and right battery contacts **16***a* and **16***b* which each are appropriately secured to the inner surface of the rear wall **10***c* and which each terminate in upper switch contacts **18***a* and **18***b*, respectively. As best understood from a comparison of FIGS. 2 and 5, the hull rear wall **10***c* has a medial section **10***e* which is located between the switch contacts **18***a*, **18***b* and has a mounting hole **20** of an appropriate size to accommodate in a sliding fit therein a depending mounting pin **22** of the motor **12** to thereby complete the assembly of the motor **12** to the rear wall **10***c*. The sliding fit between the pin **22** and the hole **20** allows the motor **12** to be pivoted about a vertical axis so that the boat can be steered in the manner normal for an outboard motor boat.

Referring now specifically to the construction of the motor **12**, this component, as already noted, has an outer casing, generally designated **12***a*, which is appropriately moulded so as to have an appearance simulating the appearance of a conventional full-sized outboard motor. For brevity sake, the internal construction of the motor **12** will only be generally described since it is conventional and only the structural features which contribute to the invention will be described in detail. Motor **12** includes within the upper portion of the outer casing **12***a* an appropriately mounted motor **24** of the type normally powered by batteries B. Depending from the motor **24** is a drive shaft **26** having a gear **28** thereon in meshing engagement with an upper gear **30** of a driven shaft **32**. A lower gear **34** on the driven shaft **32** meshes with a gear **36** of a propeller shaft **38** appropriately journaled for rotation in the lower portion of the motor housing **12***a* and having on its laterally extending end a propeller **40** which, when driven in rotation, functions in a well undetrstood manner to power the boat in motion.

It will be noted that the previously noted mounting pin **22** depends from a horizontally oriented leg **42***a* of an L-shaped member **42**, the other leg **42***b* of which is pivoted, as at **44**, to the motor outer casing **12**. As a consequence, the motor **12** is pivotal about the axis **44** through a range of positions, one extreme position being the vertical posi-

tion illustrated in FIGS. 3, 5 which is the boat-powering position of the motor **12**, and the other extreme position of which, as illustrated in FIG. 4, is a raised tilted position in which the motor is inoperative and the propeller **40** is not powered in rotation.

Specifically, to achieve the foregoing selective powering of the motor **12** only when it is in its just noted boat-powering vertical position there is provided a pair of spaced electrically conductive elements **46** and **48** which will be understood to be electrically connected to the motor **24** and each of which is further supported on the motor housing **12***a* so that each is strategically located relative to each of the switch contacts **18***a* and **18***b*. That is, element **46** is operatively arranged on the motor casing **12***a* so that in the boat-powering position of the motor **12** physical contact is made by element **46** with the switch contact **18***a*. Similarly, at this same time element **48** also makes contact with switch contact **18***b*. As a consequence, the electrical circuit is completed between the batteries B and the motor **24** such that the batteries effectively serve as a power source resulting in operation of the motor **24** which in turn produces rotation of the propeller **40**. As may be seen in FIG. 2, the contact arrangements are such that the completed electrical circuit is maintained when the motor **12** is turned to vary the steering of the boat **10**.

Upon movement of the motor **12**, however, from its boat-powering position into the raised tilted position of FIG. 4, the elements **46**, **48** are moved out of contact with the switch contacts **18***a* and **18***b*; thus this switch is opened and the motor **24** disconnected from the batteries B. This naturally results in termination of the operation of the motor **24** and of the propeller **40**. In this manner, positions of movement of the motor **12** control its operation and the motor is operative only when it occupies an essentially vertically oriented position such as is required to effectively power the boat in movement.

A latitude of modification, change and substitution is intended in the foregoing disclosure and in some instances some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

What is claimed is:

1. A toy boat comprising a hull including a rear wall defining a battery storage compartment for at least one battery, a normally open pair of switch contacts of an electrical circuit electrically associated with said battery operatively disposed adjacent said rear wall, a battery operated motor assembly including an electric motor movably mounted on said rear wall for movement between a raised inoperative position and a lowered boat-powering position, and switch-closing means carried by said motor assembly and electrically connected to said electric motor operatively effective to electrically close said switch contacts and complete an electric circuit between said battery and said electric motor when said motor assembly is moved to its lowered boat-powering position.

2. A toy boat as defined in claim **1** wherein said switch contacts are arranged in spaced relation on said rear wall and said motor assembly is pivotally connected to a support adapted to be accommodated in an opening in said rear wall located between said switch contacts.

3. A toy boat as defined in claim **2** wherein said switch-closing means on said motor assembly comprises an electrically conductive means so located thereon as to make physical contact with said switch contacts.

4. A toy boat as defined in claim **1** wherein said motor assembly is movable about a substantially vertical axis with said switch closing means effectively maintaining said electric circuit for powering said toy boat in selected variable directions.

5. A toy boat comprising a hull including a rear wall defining a battery storage compartment for at least one battery, a normally opened pair of switch contacts of an electrical circuit electrically associated with said battery operatively disposed adjacent said rear wall, a battery operated motor assembly including an electric motor pivotally mounted on a depending support operatively assembled to said wall, said assembled motor assembly being movable through a pivotal traverse between a raised inoperative position and a lowered boat-powering position, and an electrically conductive means carried by said motor assembly electrically connected to said electric motor and operatively effective to electrically close such switch contacts and complete an electric circuit between said battery and said electric motor in said boat-powering position of said motor assembly.

6. A toy boat as defined in claim **5** wherein said switch contacts are arranged in spaced relation on said rear wall and said support is accommodated in an opening in said wall located between said switch contacts.

7. A toy boat as defined in claim **6** wherein said electrically conductive means on said motor assembly comprises a pair of spaced contacts so located thereon that each said contact makes physical contact with one of said switch contacts.

8. A toy boat as defined in claim **5** wherein said motor assembly is pivotable about a substantially vertical axis while maintaining said electric circuit to power said boat in variable directions.

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U.S. Cl. X.R.

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