June 13, 1950 Q. L. BRIGGS ET AL 2,511,323

JET PROPELLED TOY BOAT

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FIG. 1

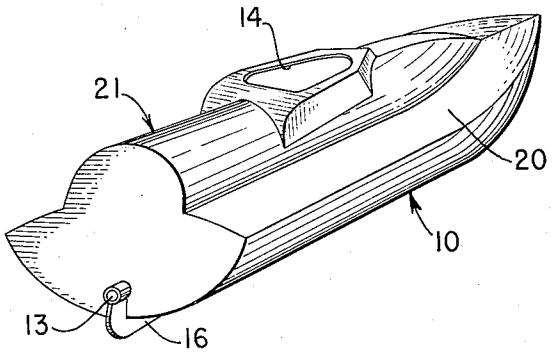


FIG. 2

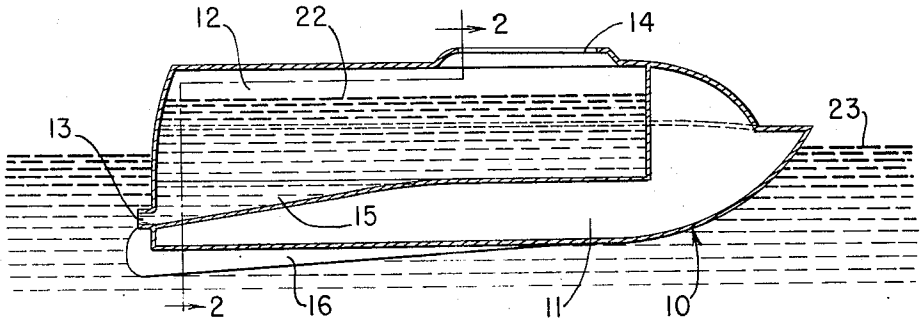
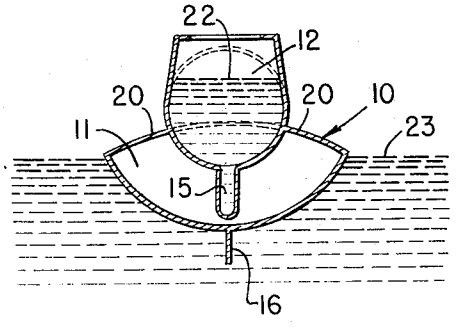


FIG. 3



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JET PROPELLED TOY BOAT

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8 Claims. (Cl. 46—95)

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The invention relates generally to floating toys and more particularly to a floating toy which is self-driven.

The general object of the invention is to provide a novel toy adapted to be floated in a body of water and to be self-driven without the use of any moving parts.

Another object is to provide a novel self-driven floating toy which utilizes the jet action of a stream of water to produce the driving action and which is provided with a tank for such water, held by the buoyancy of the toy in such position as to produce a stream of this character.

A further object is to provide a novel self-driven floating toy in the form of a boat which is caused to be propelled merely by first submerging it in a body of water and then releasing it.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a toy boat embodying the features of the invention.

Fig. 2 is a longitudinal sectional view of the boat shown in Fig. 1.

Fig. 3 is a transverse sectional view taken on the line 2—2 of Fig. 3.

A floating toy of the character herein disclosed is adapted to be self-driven without the use of any moving parts to effect the driving action. In the preferred embodiment, the toy has the form of a boat, but the invention is not limited to a boat but may be embodied in other forms. The toy is adapted to be floated in a body of water and comprises generally a water tank preferably adapted to be filled with water by submergence therein, and buoyant means to support the tank so that the level of water therein is higher than the level of the body of water. The water tank is provided with a jet outlet positioned below the level of the body of water so that the water in the tank will flow therefrom and by a jet action will drive the toy. The tank has an opening at its top which permits filling thereof by submergence in the body of water and also permits air to readily enter the tank as the water flows therefrom through the jet outlet.

When the invention is embodied in a boat, the hull is so formed as to provide a water tank portion and a buoyant portion, here shown as being in the form of a closed air chamber to maintain the tank and consequently the level of the water therein in a position above the level of the water outside of the hull. The jet outlet of the tank, of course, is directed rearwardly through the stern

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of the boat at such level that it is always below the level of the body of water, to produce a jet action causing the boat to be propelled forwardly.

To illustrate the invention, we have shown in the drawings one embodiment which is in the form of a boat comprising a hull, indicated generally at 10. The hull 10 may be given any desired external appearance and shape but comprises a buoyant means in the form of an air chamber portion 11 and a tank portion 12. The air chamber portion 11 is completely closed to cause the boat to float on the surface of a body of water. The air chamber portion 11 is also so related to the tank portion 12 that the latter is held in a position such that when water is placed therein the level of the water will be a substantial distance above the level of the body of water in which the boat floats. Thus, the air chamber portion may generally be said to be located in the lower portion of the hull while the water tank portion is located in the upper part thereof, and in the embodiment illustrated in the drawing the air chamber 11 extends under the water tank 12, as shown in Figs. 2 and 3.

To effect propulsion of the boat, the water tank 12 is provided with a jet outlet 13 opening rearwardly from the hull and at a low point therein so that it will, preferably at all times regardless of the quantity of water in the tank 12, be below the surface of the outside water. Water may thus flow from the tank 12, since the level thereof is held above the level of the outside water, through the jet outlet 13 and thereby propel the boat forwardly.

The tank 12 is preferably filled with water merely by submerging the boat in the body of water in which it is to float. To this end, I provide an opening 14 in the top of the tank. The opening 14 is preferably of quite substantial size so that the tank may be quickly filled merely by holding the boat submerged for a few seconds. When the boat is floating, the opening 14, of course, serves to permit air to enter the tank 12 as the water flows therefrom through the jet outlet 13. In the particular construction herein shown, the tank 12 is provided with a drain portion 15 extending downwardly therefrom to the jet outlet 13 so that the major water carrying portion of the tank is substantially above the bottom of the boat. The hull may be provided with a keel 16, if desired, to assist in preventing the boat from tipping. The air chamber 11 is also so proportioned as to assist in maintaining the boat on even keel, by extending laterally be-

yond the sides of the water tank 12, as clearly shown in Fig. 3.

The external appearance of the boat may obviously be widely varied. In the present instance, the air chamber portion 11 extends laterally to provide sloping decks 20. The tank 12 in this instance, while extending partly below the level of the decks 20, also extends thereabove and is given an external appearance simulating the cabin or trunk structure of a speedboat or the like, as indicated at 21 in Fig. 1.

In using the toy, the entire boat is submerged in the body of water in which it is to float, to such an extent that the opening 14 is below the level of the body of water. Thus, the tank 12 may be quickly filled. As soon as such filling has taken place, the boat is released, and the air chamber portion 11 causes the boat to rise to the surface of the body of water, such position being indicated in Fig. 2. The level of the water in the tank 12, as indicated at 22, is substantially above the level, indicated at 23, of the body of water outside of the hull. Thus, the water within the tank 12 will flow outwardly through the jet outlet 13 to produce a jet action propelling the boat forwardly. As the water flows from the tank 12, the level 22 therein is, of course, lowered but the buoyancy compensates for such lowering of level by causing the boat to ride higher in the outside body of water, thus maintaining a sufficient difference in level between the water in the tank and the outside water to cause a continued flow through the jet outlet 13. In the particular boat illustrated in the drawings, the buoyancy of the air chamber 11 is sufficient to cause the water level in the tank 12 at all times to be above the level 23 of the outside water. The tank 12 will thus drain completely with its maximum capacity of water entirely utilized for propulsion of the boat, except, of course, for the small quantity of water remaining in the drain portion 15.

From the foregoing description, it will be apparent that I have provided a self-driven toy in which the driving action is effected without the use of any moving parts. The boat is conditioned for propulsion merely by submerging it to fill the tank 12 and then releasing it, the buoyancy of the boat causing it to rise to the surface. When the boat reaches the surface after release, the level of the water in the tank 12 is substantially above the level of the body of water in which the boat is floating, so that the water in the tank flows therefrom through the jet outlet to propel the boat forwardly.

We claim:

1. A self-propelling toy boat having a hull comprising a water tank and a completely closed air chamber positioned below said water tank so that the buoyancy of the air chamber supports the water tank with the level of water therein above the outside water, said tank having a jet outlet at its bottom and an air opening at its top to permit flow of water from the tank through said jet outlet to effect propulsion of the boat.

2. A self-propelling toy boat having a hull comprising a water tank and a completely closed air chamber, the latter projecting laterally beyond the sides of the tank and thereby tending to maintain the boat on even keel, and said air chamber also extending under said water tank to support the tank so that the level of water therein is above the level of the outside water, said tank having an air opening, and a jet outlet at its bottom adapted to extend below the level of the outside water whereby the flow of water through said jet outlet effects propulsion of the boat.

3. A self-propelling toy boat having a hull comprising a water tank and a completely closed air chamber, the latter being located chiefly in the lower part of the hull and the tank being located chiefly in the upper part of the hull above said air chamber whereby the buoyancy of the air chamber maintains the level of water in the water tank above the level of the outside water, said tank having an air opening and a jet outlet at its bottom adapted to extend below the level of the outside water whereby flow of water through said jet outlet effects propulsion of the boat.

4. A self-propelling toy boat having a hull comprising a completely closed air chamber and a water tank, both extending lengthwise of the hull, the air chamber being positioned below the water tank whereby to maintain the level of water in the tank above the level of the outside water, said tank having a jet outlet at its bottom extending downwardly and rearwardly from the tank and opening adjacent the stern of the boat, whereby water will flow from said tank through said jet outlet below the level of the outside water to propel the boat forwardly.

5. A self-propelling toy boat having a hull comprising a water tank and a completely closed air chamber disposed under said water tank, the air chamber having sufficient buoyancy to cause the boat to float with the level of the water in the tank being maintained above the level of the outside water, said tank having an air opening at its top and a jet outlet at its bottom to permit water to flow from the tank through said jet outlet and thereby effect propulsion of the boat, the buoyancy of said air chamber causing the boat to rise in the water as the water flows from the tank, thereby tending to compensate for the lowering of level of water in the tank.

6. A self-propelling toy boat having a hull comprising a completely closed air chamber and a water tank provided with an air opening at its top and a jet outlet at its bottom, said air chamber extending laterally beyond the water tank and thereby tending to hold the boat on even keel, said air chamber also extending under said water tank to position the tank so that the level of water therein when filled is above the level of the outside water, the buoyancy of said air chamber being sufficient to raise the boat so that the bottom of the tank is above the level of the outside water when the tank is empty whereby the entire quantity of water in said tank will flow therefrom.

7. A self-propelling toy boat having a hull comprising a completely closed air chamber and a water tank provided with an opening at its top, said air chamber extending below said water tank to hold the level of water in the tank above the level of the outside water, said tank having a drain portion at its bottom extending downwardly in the air chamber and terminating in a jet outlet at the stern of the boat, whereby water flowing from said tank will effect propulsion of the boat, the buoyancy of said air chamber being sufficient to raise the boat so that the bottom of the tank is above the level of the outside water when the major portion of the water is discharged therefrom whereby the entire quantity of water in said tank will be utilized for propulsion.

8. A self-propelling toy boat having a hull comprising a buoyant portion and a water tank having a jet outlet at its bottom adapted to extend below the level of the outside water, said buoyant portion being positioned under said water tank whereby to hold the level of water in the tank above the level of the outside water to produce a flow from the tank through said jet outlet and thereby effect propulsion of the boat, the tank having an opening at its top permitting filling of the tank by holding the boat submerged, the buoyant portion being completely closed to prevent access of water thereto so that upon release of the boat after filling the buoyant portion raises the boat to a position where said flow occurs.

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