

Feb. 25, 1958

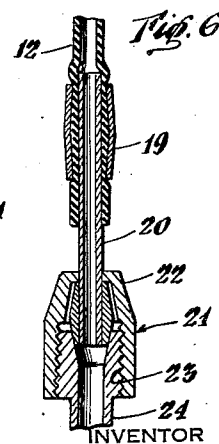
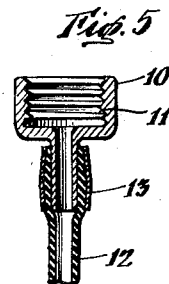
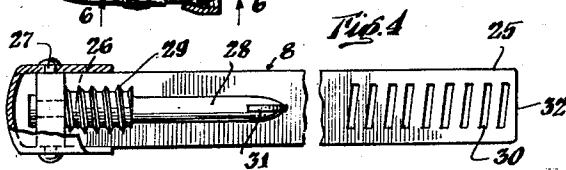
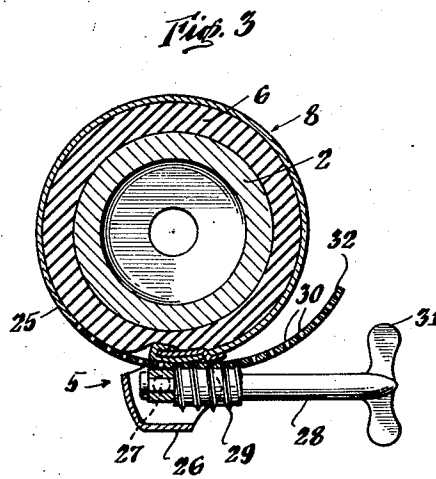
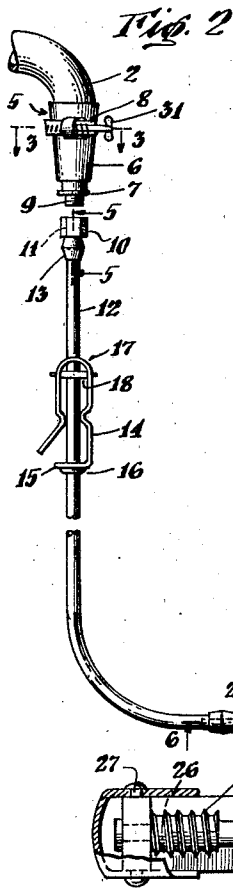
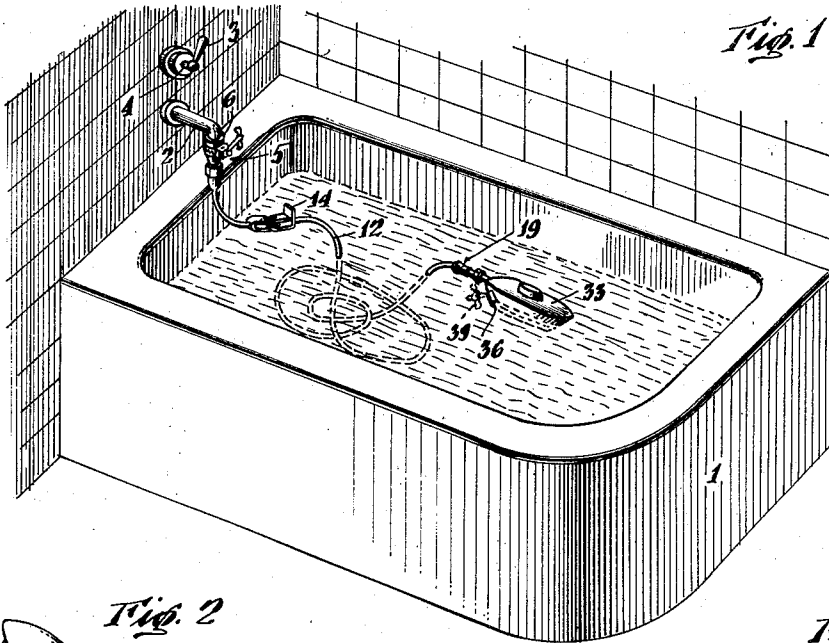
S. P. CAULEY

2,824,408

HYDRAULICALLY POWERED TOYS

Filed July 21, 1955

2 Sheets-Sheet 1



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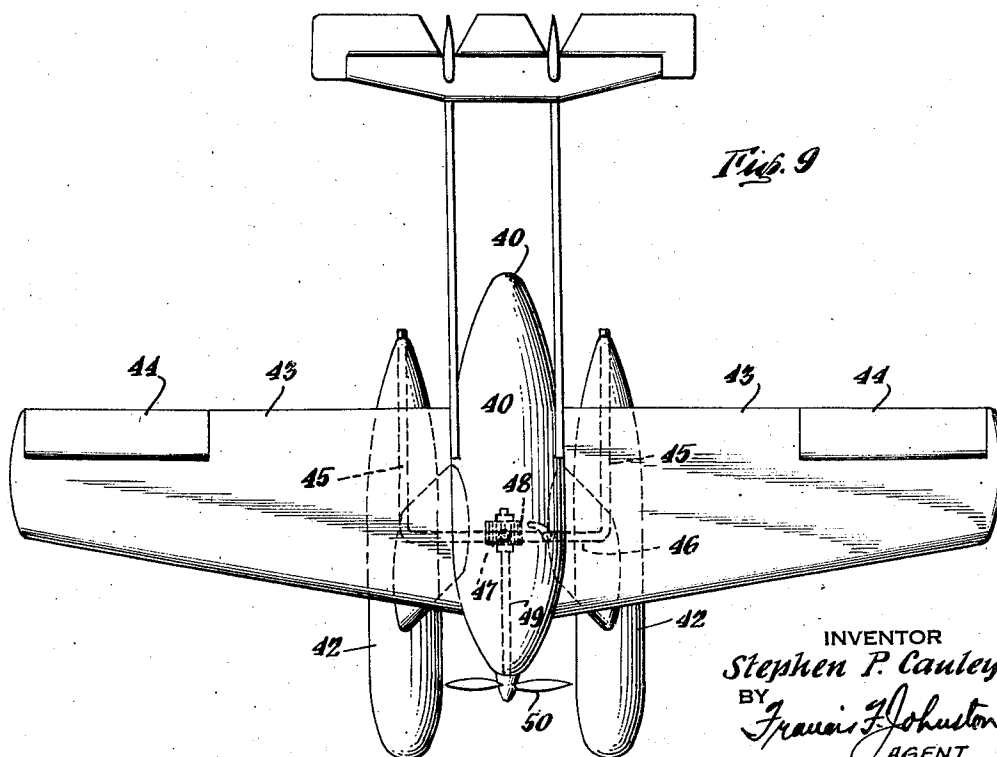
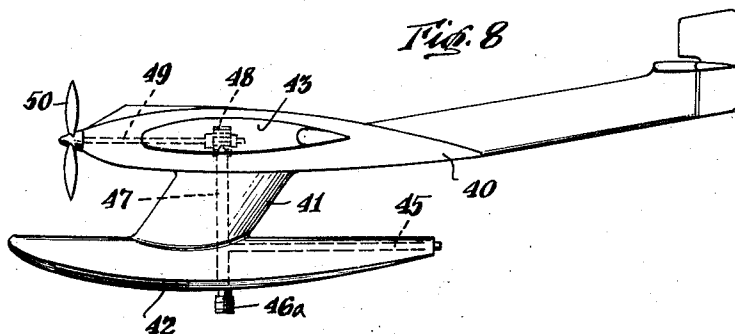
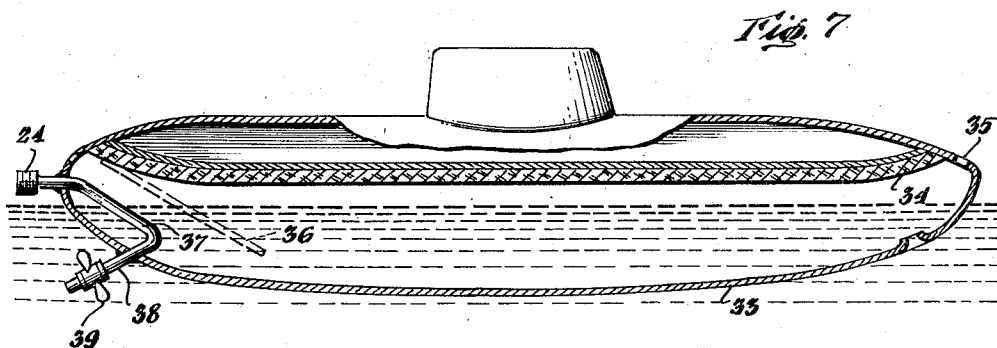
S. P. CAULEY

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2 Sheets-Sheet 2



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1

2,824,408

HYDRAULICALLY POWERED TOYS

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Application July 21, 1955, Serial No. 523,431

5 Claims. (Cl. 46—95)

The present invention relates to hydraulically powered amusement and pleasure devices which can be broadly termed toys and, more particularly, to hydraulically powered amusement and pleasure devices adapted for use in a container, such as the conventional bathtub or outdoor wading pool partly filled with water.

The prior art has suggested and provided hydraulically powered toys such as described in U. S. Patent Nos. 1,533,634; 2,331,187 and 2,506,281. Thus, the toy described in U. S. Patent No. 1,533,634 is a toy river boat propelled by the energy stored in a rubber band which is twisted before placing the toy in the body of water and then released. U. S. Patent No. 2,331,187 represents a step forward in this art. The toy there described is powered by water flowing from the municipal mains or other similar source. However, the length of a toy which has no rudder and is designed to be propelled along the walls of a conventional bathtub is critical. That is to say, if the length of the boat exceeds a maximum, there is a pronounced inability for the boat to follow the walls of the bathtub at the ends.

It has now been found when the length of the toy boat exceeds about 12 to 14 inches the boat will have the tendency to become caught at the ends of the conventional bathtub. Under such circumstances the boat must be manually guided around the ends of the conventional bathtub. This difficulty results from the fact that there is a point in the perimeter where a portion of both the bow and the stern of the boat come into contact with the wall of the bathtub or container. The resultant forces tend to force the toy laterally against the container wall rather than propel it in a forward direction. To overcome this condition in an ideal manner the length of the toy should be no greater than the radius of curvature of the ends of the container. However, many containers have ends the radius of curvature of which is such that the toy ideally would have a length which would be unattractive to the operator. It has been determined experimentally that for use in the conventional bathtub or other container of substantially the same general contour and size, that the length of a floating toy such as a submersible or river boat and the like the length of the toy should not exceed about 12 to 14 inches. This limitation provides a toy of attractive size and excellent mobility or activity at all times. However, this limitation carries with it a further limitation with respect to the size of the flexible tubing which can be used in conjunction with a toy of this size.

The use of the conventional friction faucet connectors or adapters and flexible tubing of smaller internal diameter than that of the faucet resulted in blowing off the adapter when attempts to control the activity of the toy were made. Furthermore, the conventional bathtub faucet does not provide the close regulation of the amount of water flowing to the toy required to give an activity attractive to juveniles.

The construction of the valve conventionally used to regulate the flow of water from the house piping to a

2

bathtub or a garden hose is such that when used in conjunction with conduits of much less diameter, e. g., 0.1 to 0.2 inch diameter, than that of the valve it can be said that the flow is either at full rate or substantially nil. In other words, when the conventional bathtub faucet or valve control for a garden hose is about one-eighth open, the pressure drop and rate of flow is a maximum. Therefore, when the only control of the activity of the toy is the conventional faucet or bib, the operator is unable to obtain any gradation of activity of the toy between complete inactivity and maximum activity. Finally, the prior art experts have failed to suggest the limitations present in previously recommended flexible tubings which are a source of additional disadvantages. If prior art tubings had walls thick enough to resist rupture at full line pressure the tubings were so rigid that the tubings kinked shortly after the toy made the first deviation from a straight path along the wall of the tub or container, i. e., after the toy made the first turn at the end of the container. The foregoing disadvantages have now been overcome by limiting the length of hydraulically powered surface boats and submersibles to a maximum length correlated with the angles at the ends of conventionally contoured bathtubs, by employing flexible tubing having a critical internal diameter and wall thickness correlated with the critical maximum length of the toy to be propelled and by providing an adapter or connector which will remain fixed to the conventional bathtub faucet under full line pressure up to 75 pounds per square inch (p. s. i.), and a secondary volume control between said adapter and said toy.

Accordingly, it is an object of the present invention to provide hydraulically powered toys such as surface borne and submersible boats, and seaplanes having critical dimensions correlated with the contour of the conventional bathtub or outdoor pool or other container. It is another object of the present invention to provide a faucet adapter for use in conjunction with hydraulically powered toys which will be operative at full line pressure up to at least 75 p. s. i. at the faucet. It is a further object to provide flexible tubing which tubing will not expand inoperatively under full line pressure up to 75 p. s. i. and will not kink or twist unduly in following a toy along the walls of a conventional bathtub. It is also an object of the present invention to provide a secondary volume control which provides positive incremental control of the volume of water admitted to the propulsive means of the toy between zero volume and the maximum required to provide toy activity enjoyable by the operator. It is also within the scope of the present invention to provide the foregoing adapter and a secondary volume control in a form readily manipulated by children who have not yet attained adult digital strength. These and other objects and advantages of the present invention will become apparent to those skilled in the art from the following description taken in conjunction with the drawings in which,

Figure 1 is a view of a conventional bathtub, a faucet, the novel adapter, the novel clamp, tubing, secondary volume control and a toy submersible;

Figure 2 is a side elevation (with parts cut away for clarity) of the novel adapter, tubing, floating volume control and rotatable connection joining the flexible tubing to the toy;

Figure 3 is a plan view of the novel adapter and pressure clamp taken at line 3—3 in Figure 2;

Figure 4, is a plan view of the pressure clamp showing the worm gear and the track whereby the clamp is tightened when in use;

Figure 5 is a vertical section of the connection between the novel adapter and the flexible tubing taken at 5—5 in Figure 2;

Figure 6 is a vertical section taken at 6—6 of Figure 2

3

showing the joint between the flexible tubing and the rotatable connection between the toy and the flexible tubing;

Figure 7 is a side elevation of a toy submersible (with parts cut away for clarity);

Figure 8 is a side elevation of a seaplane; and

Figure 9 is a plan view of a toy seaplane having a critical angle of at least 120 degrees between the nose of each pontoon and the tip of the wing.

While any toy such as a Ferris-wheel, a lighter with a hydraulically operated crane, a river boat, cruiser or the like can be used in conjunction with a novel adapter and pressure clamp, flexible tubing and floating volume control, a toy submersible such as one illustrated in more detail in Figure 7 has been chosen to illustrate the novel concepts of the present invention. Furthermore, although the environment in which the toy submersible is depicted is a conventional bathtub, it is to be understood that the hydraulically powered toys may be used in conjunction with any container having an inside length not more than about two-thirds the length of the flexible tubing used in conjunction with the toy.

Although the hydraulically powered toys of the present invention have been developed primarily in conjunction with a container, such as a bathtub, having only two relatively sharp corners at one end and the other end a curve of relatively long radius, it is to be understood they can be used in conjunction with containers having different contours such as the bathtub illustrated in Figure 1 and the small out-door wading pools of more recent availability which are of elliptical, circular and even rectangular shape. As illustrated in Figure 1 bathtub 1 has three relatively sharp corners and only one corner which is curved. Nevertheless, the hydraulically powered toys such as cruisers, battleships, submersibles and the like can be used with the activity necessary to the enjoyment thereof by the juvenile in a container having this contour.

In Figure 1 a container 1 such as a bathtub or outdoor wading pool is partially filled with water through spout 2 under control of a valve (concealed in the structure illustrated) manipulated by handle 3 mounted on valve stem 4. In many such installations one valve, usually designated a mixing valve, controls the flow of both hot and cold water. Since the flexible tubing is usually damaged by temperatures in excess of about 75 degrees Fahrenheit, care must be exercised when only such a mixing valve is provided to control the flow of water from the general supply to set the valve to admit only cold water to the flexible tubing and the toy.

At the outlet end of spout 2, which may be smooth or provided with a rolled edge but is not threaded either externally or internally, adapter assembly 5 is attached by forcing the open end of adapter 6 over spout 2.

Adapter assembly 5 as shown in more detail in Figure 2 comprises an adapter body 6 which is of frusto-conical shape preferably provided at the end having the smaller diameter with a conventional metal hose connection 7 having external threads 9 and an adjustable clamp 8. The adapter body is resilient or somewhat flexible but sufficiently rigid not to be greatly deformed when being forced on the spout. The internal diameter of the end of the adapter body having the greater diameter should not exceed the outside diameter of the spout and under the pressure exerted by adjustable clamp 8 makes a substantially water-tight connection with spout 2 even at full line pressure up to about 75 p. s. i.

The conventional metal garden hose fitting 7 is attached to the adapter body 6 in any suitable manner as by pressure to make a water-tight joint. Fitting 7 is externally threaded while metal cap 10 is tapped to receive threads 9 of fitting 7. Preferably, cap 10 is provided with a suitable washer whereby the joint is made water-tight.

Preferably the adapter body is constructed of an elastomer such as polyethylene, vinyl chloride resin, reinforced rubber or the like having a relatively heavy wall.

4

An alternate adapter assembly structure comprises an elastomer body having a metal tube integrally formed therewith at the smaller end of the adapter body. The metal tube has an outside diameter substantially the same as the inside diameter of the flexible tubing which is attached thereto. However, this construction is not preferred because of its one piece form. Therefore, it is preferred to have a breakable joint between the adapter body and the flexible tubing.

Metal cap 10 preferably is integrally formed with a metal tube 11 having an outside diameter substantially the same as the internal diameter of the flexible tubing 12. Since the metal tube has structural strength, the wall thickness is a minimum and the inside diameter thereof is substantially the same as that of the flexible tubing 12.

Flexible tubing 12 is joined to metal tube 11 in any suitable manner to provide a pressure resistant water-tight joint. As illustrated, the flexible tubing 12 is forced over tube 11 and clamped there by ferrule 13.

Slidably mounted on flexible tubing 12 is floating volume control 14. Floating volume control 14 preferably comprises a rigid but somewhat flexible strip of metal which at one end is bent at a right angle with the broad plane of the band to form a tab 15. Tab 15 is pierced to provide a tubing guide 16 substantially circular shaped and of somewhat greater diameter than the outside diameter of the flexible tubing 12. At a point 17 removed from the aforesaid tab, the metal band is bent back upon itself toward the aforesaid tab as at 17. Mounted in any suitable manner preferably within the bend at 17 is a tubing guide 18 of any suitable type which in conjunction with guide 16 positions the flexible tubing substantially along the longitudinal axis of the broad plane of the metal band. Guide 18 can be either a separate piece of metal mounted within the bend as illustrated and the metal band provided with an orifice (not shown) through which tubing 12 slides or band 14 can be provided with an orifice through which the tubing 12 slides and the guide 18 can be omitted. However, the structure illustrated is preferred. Those skilled in the art will understand that the structure, per se, of the floating volume control is not critical and that any control structure providing relatively minor incremental increases and decreases in the volume of water flowing through the flexible tubing will provide satisfactory results. As illustrated, the flow of water through flexible tubing 12 is a maximum. By pressing the free end of the flexible strip of metal toward tab 15, the flow of water through flexible tubing 12 is reduced as described.

In order to connect the flexible tubing with the top in a substantially water-tight manner and without interfering substantially with the mobility of the toy, a connector assembly 19 is provided. Connector assembly 19 shown in detail in Figure 6 comprises a tube 20 preferably of metal having an outside diameter substantially the same as the inside diameter of the flexible tubing and having a wall thickness minimum to provide the structural rigidity required. At one end tube 20 is flared to a cup-like shape, the outer surface of which is complementary to the inner surface of fitting 21. Fitting 21 at one end 22 is rotatably mounted over the flared end of tube 20 and provided at the other end with internal threads 23.

The toy is provided with a fitting 24 beveled at the outer or free end with a beveled end sitting in the cup-like flare of tube 20. The external periphery of fitting or tube 24 is provided with threads of the same pitch and thickness to permit fitting 21 to be drawn up on tube 24 thus forcing the beveled end of tube 24 into the cup-like flare of tube 20 with the result that a watertight joint is provided. The connector assembly structure is similar to that employed where a pressure-tight connection is necessary on small lines such as oil lines which are to be broken as necessary after joining.

5

The flexible tubing 12 is attached in any suitable water-tight manner to the connector assembly 19. However, it is presently preferred to make the joint by forcing the free end of the flexible tubing 12 over the unflared end of metal tube 20 and to secure the joint by pressure such as is exerted by a ferrule pressed around that portion of the flexible tubing which surrounds the end portion of metal tube 20.

The toy connection of the connector assembly, tube 24, can be attached in any suitable manner which provides sufficient rigidity and mechanical strength to permit attaching and disengaging the connector assembly a plurality of times. Presently, it is preferred to cast tube 24 as an integral portion of the hull or body of the toy and as a part of the inlet portion of the jet tube. However, the inlet end of the jet tube can be provided with internal threads and the inboard end of tube 24 provided on its external periphery with threads complementary to the aforesaid internal threads in the inlet end of the jet tube.

Returning now to a discussion of the adapter and adjustable clamp as illustrated in more detail in Figures 3 and 4. Figure 3 is a plan view of the adapter taken on line 3—3 of Figure 2. Adapter 6 surrounds the outlet end of spout or faucet 2. Clamp 8 is positioned around that portion of adapter 6 which surrounds spout or faucet 2.

Clamp 8 comprises a flat band of flexible metal 25 provided at one end with a housing 26 which spans the band 25. Mounted in housing 26 is a pin or shaft 27 in spaced relation with the band 25 and transverse thereof. Mounted on said pin 27 is a second shaft 28 provided at the end within the housing with a worm 29. Beginning at a point spaced from said housing 26 and usually beginning at a point about midway between the housing 26 and the other end of band 25, the band is provided with slots 30, the longer axes of which are at an angle with the longitudinal axis of the band 25 and at such an angle that the worm 29 engages said slots when the free end of the band is positioned around an object and inserted in the open end of the housing between the worm 29 and that portion of the band on which housing 26 is mounted. Turning of shaft 28 and therefore worm 29 draws the free, slotted end of band 25 through the housing. This clamp is commercially available in various sizes and in its presently commercially available form is provided with a slot for the receipt of a screwdriver or like tool at the free end of shaft 28. However, in view of the lack of digital strength among juveniles, it is preferred to provide a shaft 28 with a broad cross bar 31. The length of the portion of shaft 28 extending beyond the housing is made such that a child's fingers can be applied to cross bar 31 without substantial contact with the free end 32 of band 25 when the clamp is in position around adapter 6.

The water-craft chosen to illustrate the present invention in Figure 1 is the toy submersible illustrated in more detail in Figure 7. Such a submersible having a length of about 12 to 14 inches when at rest floats in water with about 15 to 20 percent of the hull above the surface of the water when attached to tubing having a length about 1.5 times the internal length of the container in which the toy is to be used provided that the tubing has the critical dimensions hereinafter specified. The toy submersible is a conventional toy submersible constructed of light metal but preferably of plastic, preferably about 12 to 14 inches long, in which the upper 15 to 20 percent of the submersible is a sealed air space. The balance is flooded with supporting liquid.

The air space can be provided either during forming of the toy by means of a plate sealed to the interior walls of the toy or by filling the upper 15 to 20 percent of the interior of the toy with cork attached to the un-

6

derside of the deck and walls in any suitable manner as with an adhesive.

The hull 33 of the submersible is constructed of light sheet metal but preferably of plastic. The hull is provided with such super-structure as may be necessary to present a reasonable simulation of an actual submersible. Provision is made for the admission of water into the hull in order that under proper manipulation of the volume of water entering the jet tube in conjunction with the angle at which the jet stream leaves the submersible, the toy may be caused to move partly submerged, completely submerged or alternate partly submerged or completely submerged as hereinafter described. In order to provide the necessary buoyancy, the upper 15 to 20 percent of the hull is filled with cork 34 or sealed off by means of a plate. The hull is also provided at a point, preferably just below the cork or air chamber, with one or more vents 35 through which air escapes from the hull when the toy is first placed in the water each time it is used.

Preferably, the submersible is provided with a stabilizing fin 36 on each side of the stern and one or more ballast water inlets 36a which can simulate torpedo tubes. The stabilizing fins 36 extend from the stern of the craft forward at an angle of about 45 degrees with the horizontal for a distance about one fifth the length of the craft.

The toy submersible is provided with a jet inlet tube 37 to the outer end of which is attached connector assembly fitting 24 shown in more detail in Figure 6.

While the angle between the jet outlet tube 38 and the hull or the jet inlet tube 37 is immaterial for the propulsion of other water borne craft, it has been found that, in order that the submersible can dive, surface, move forward on the surface of the water or on the bottom of the container, the jet outlet tube should emerge from the hull at an angle of about 35 to 40 degrees with the horizontal plane of the craft. When the jet outlet tube is so positioned, propulsion of the craft along the surface, diving and surfacing can readily be achieved by control of the water with the floating control. That is to say, with the jet outlet tube positioned at an angle of 35 to 40 degrees with the horizontal plane of the toy at low rates of flow of water through the jet, the craft moves forward on the surface of the water. Under medium rate of flow of the water, the reaction to the jet stream forces the bow of the craft down and the craft dives or submerges. Reducing the rate of flow of the water through the jet tube then causes the craft to surface. Thus, with the jet outlet tube so positioned all of the maneuvers of a submersible, including forward motion on the surface, diving, forward motion while submerged and surfacing can be obtained by control of the rate of flow or volume of water passing through the jet outlet tube.

It is to be noted that the lower edge of the jet outlet tube should not extend beyond the projection of the line of the keel of the submersible when the submersible is to be propelled on the bottom surface of the container.

A freely spinning propeller 39 can be mounted on jet outlet tube 38 to provide the illusion that the craft is moved thereby. However, such a propeller is not a necessary adjunct.

With the toy submersible constructed as briefly outlined hereinbefore, the power tubing and adapter with the secondary volume control floating on the tubing between the adapter and the connector attaching the tubing to the toy, the submersible is placed on the surface of the water and with the floating volume control closed, the water faucet of the tub is opened to provide a good flow of water when the primary valve or the faucet is open. By regulating the volume of water flowing through the tubing by means of the secondary volume control, i. e., floating volume control, the submersible can be caused to cruise on the surface of the water, i. e., 75

to 80 percent submerged, can be made to dive rapidly or slowly, to cruise completely submerged and to rise and dive like a dolphin. Opening the floating control to permit full flow of water through the tubing causes the submersible to dive rapidly and to be propelled completely submerged. Reducing the volume of water flowing through the tubing by closing the floating volume control to permit a minimum of water to flow through the tubing causes the submersible to cruise partially submerged. Settings intermediate the aforementioned extremes causes the submersible to react intermediate the extreme of rapid diving with complete submersion and cruising on the surface of the water. Alternate opening and closing the floating control produces the rapid diving and rising suggestive of a dolphin at play.

The flexible tubing may seem to be an unimportant item of the assembly but it must be correlated to the buoyancy of the toy, surface-borne or submersible, desired mobility and permissible water pressure to provide required activity and mobility, freedom from kinking after making several circuits of the container (bathtub) and resistance to rupture under full faucet pressure of up to 75 pounds per square inch.

During the development of the present combination, much experimentation was required to find the tubing which satisfied all the requirements. Tubing satisfactory from the standpoint of resistance to rupture was in numerous instances found to either be so heavy or rigid as to reduce the activity of the toy to a point where children lost interest or the tubing kinked or otherwise fouled the toy. In numerous instances, tubing which suffered from neither the foregoing disadvantages ruptured at water pressure necessary to provide the required activity. It was determined that for water toys having an overall length of 12 to 14 inches tubing having an inside diameter of 0.114 to 0.144 inch minimum, to 0.124 to 0.158 inch maximum and a wall thickness of 0.020 inch with a tolerance of plus or minus 0.003 inch and especially fabricated from polyethylene or vinyl chloride resins satisfied with requirements of flexibility, resistance to rupture and minimum minus buoyancy. Preferred of the elastomer tubings satisfying these requirements is tubing sold under the trade name "Miralite E" having the following specifications:

Tensile strength.....	p. s. i.	2500
Ultimate elongation.....	percent.....	300
Maximum temperature permissible.....	° F.....	140
Low temperature flexibility, to.....	° F.....	-58

Inside Diameter	Maximum, in.	Minimum, in.
A.....	0.124	0.114
B.....	0.141	0.129
C.....	0.158	0.144

Usually the tubing between the adapter and the toy will have a length of at least about 1.5 times the length of a conventional bathtub. A secondary volume control 14, capable of step-wise control of the flow of water through the tubing between the extremes of fully closed to fully open is provided. For convenience, the secondary volume control is mounted in a floating relation to the tubing. That is to say, the secondary volume control preferably is not in fixed position on or in the tubing but is movable along the tubing from the end of adapter assembly 5 to the connector assembly 19.

The toy whether a submersible or a surface craft is provided with a jet inlet tube 37 and a jet outlet tube 38 which can be constructed of a single piece of rigid tubing such as copper tubing or of a plurality of pieces of rigid tubing to provide for expulsion of the water in a direction opposite to that in which the toy is to travel. Jet inlet tube 37 is provided on the outer end

with the male portion 24 of connector assembly 19. The male portion 24 of connector assembly 19, jet inlet tube 37 and jet outlet tube 38 can be of one piece of tubing. While the foregoing connector assembly 19 is the preferred means of obtaining a water-tight, rotatable connection between the flexible tubing and the jet inlet tube of the toy, any other suitable light-weight means for achieving this goal can be used.

While the inlet end of jet inlet tube 37 can be positioned at any point on the deck or hull of the craft, the connection illustrated at the rear provides best performance including travel along the bottom of the bathtub or other container.

Another toy which can be hydraulically powered is a simulated seaplane such as illustrated in Figures 8 and 9.

The seaplane comprises a fuselage 40 and tail assembly simulating the conventional type supported by hollow struts 41 mounted on pontoons 42. A wing 43 having simulated flaps 44 is attached to the top of fuselage 40. Each of the pontoons is provided with a jet outlet tube 45 which is connected with jet inlet manifold 46 which is preferably positioned at about the water-line of the pontoons. At about the mid-point of manifold 46 a connector assembly fitting 46a is provided which either extends downwardly or rearwardly from manifold 46. Connector assembly fitting 46 is structurally the same as fitting 24 of connector assembly 19 as illustrated in detail in Figure 6.

Extending upwardly from manifold 46 is a tube 47 connecting the manifold to a water-wheel or turbine 48 on an extension of the shaft 49 on which a propeller 50 is rigidly mounted.

Pontoons 42 preferably are oval or elliptical in shape preferably extending beyond the propeller.

Water is admitted to manifold 46 and flows simultaneously through the jet tubes 45 and the turbine inlet 47. After passing through the impulse turbine 48 the turbine discharge escapes through hollow struts 41 and pontoon 42 through an outlet not shown. It will be appreciated that the rotation of propeller 50 is primarily for the purpose of the illusion that the means of propulsion of the miniature craft is the same as that of the craft simulated. When two or more jets are placed in pontoon 42 it is unnecessary to connect both jet tubes to the turbine 44.

The fuselage 40 is provided with wing 43 which projects laterally beyond the pontoon. During free motion of the seaplane along the sides of the container, e. g., bathtub, the wing tips contact the sides of the container. This produces a reaction force which brings the pontoon nose also in contact with the sides of the container. This causes the craft to tend to capsize. To eliminate this undesirable effect, it is necessary that the angle between the long axis of the pontoon and the leading edge of the wing be not less than about 120 degrees.

Those skilled in the art will understand that the principles of the present invention can be applied to the production of movement in other structures. Thus, a lighter provided with a crane can be self propelled by the means described hereinbefore and in addition through a turbine driven drum can be provided with a means to lift movable cargo from the deck thereof and deposit it on some other surface. Or a salvage vessel capable of lifting craft from the water can be powered both with respect to propulsion and hoisting or only as to one of the foregoing by a turbine or a jet. Similarly, Ferris-wheels and merry-go-rounds can be powered in accordance with the principle of the present invention.

In addition to toys moving upon or through the water the hereinbefore described power tube arrangement can be used to activate other toys such as a "Ferris wheel" and a washing machine.

I claim:

1. In combination a toy powered by water, said toy having a water inlet, at least one water outlet spaced from said water inlet, and at least one conduit connect-

ing in a water-tight manner said water inlet with said water outlet, flexible elastomer tubing having an inside diameter of about 0.114 to about 0.158 inch and a wall thickness of about 0.017 to about 0.023 inch, means connecting said flexible elastomer tubing and said water inlet in a pressure-tight manner, means connecting said flexible tubing to household water supply at pressures up to about 75 pounds per square inch in a pressure-tight manner, and means movable on said flexible tubing to control within relatively narrow limits the volume of water flowing through said flexible tubing.

2. In combination with a water powered toy having a water inlet and a water outlet, flexible elastomer tubing having an inside diameter of about 0.114 to about 0.158 inch and a wall thickness of about 0.017 to about 0.023 inch, means connecting said flexible tubing and said water inlet in a pressure-tight manner, means connecting said flexible tubing to household water supply at pressures up to about 75 pounds per square inch in a pressure-tight manner, and means movable on said flexible tubing to control within relatively narrow limits the volume of water flowing through said flexible tubing.

3. In combination a container, a toy watercraft having a length not greater than the radius of curvature of the corners of said container, said toy watercraft having a water inlet, at least one water outlet, at least one conduit connecting said water inlet with said water outlet in a water-tight manner, flexible elastomer tubing having an inside diameter of about 0.114 to about 0.158 inch and a wall thickness of about 0.017 to about 0.023 inch, means connecting said flexible elastomer tubing and said water inlet in a pressure-tight manner, means connecting said flexible tubing to household water supply at pres-

ures up to about 75 pounds per square inch in a pressure-tight manner, and means movable on said flexible tubing to control within relatively narrow limits the volume of water flowing through said flexible tubing.

4. In the combination set forth and described in claim 3 wherein the toy watercraft simulates a submersible, wherein said toy watercraft is not more than about 12 to about 14 inches long, wherein said toy watercraft has an air space and flooded hold when partially submerged, flexible elastomer tubing having an inside diameter of about 0.114 to about 0.158 inch and a wall thickness of about 0.017 to about 0.023 inch, said flexible elastomer tubing being about 1.5 to 2 times the length of said container, and wherein said outlet tube projects beyond and emerges from said hull at an angle of about 35 to 40 degrees with the horizontal plane of said toy watercraft.

5. In the combination set forth and described in claim 3 wherein the toy watercraft simulates a seaplane having at least one pontoon and a wing, wherein the angle between a vertical plane passing through the long axis of said pontoon and the leading edge of the wing is at least 120 degrees.

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