

Nov. 27, 1962

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3,065,567

INFLATABLE TOY

Filed Feb. 27, 1959

2 Sheets-Sheet 1

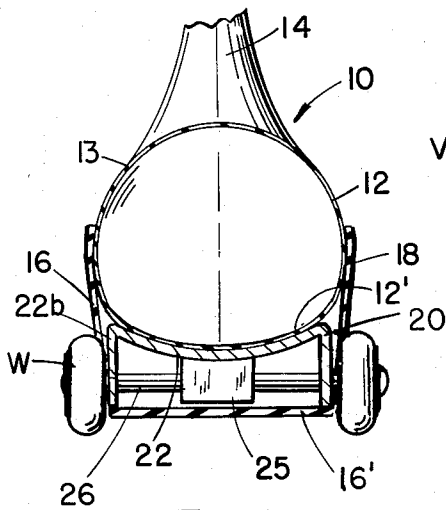


Fig. 1

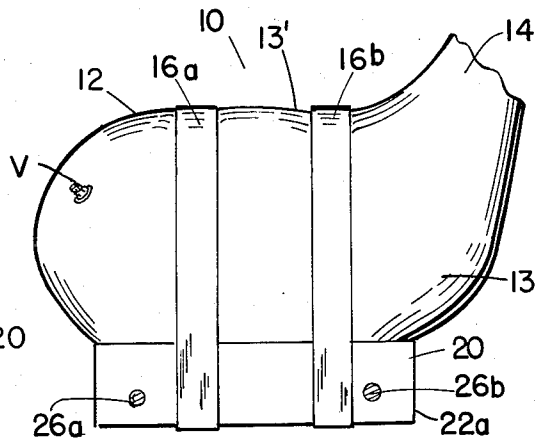


Fig. 2

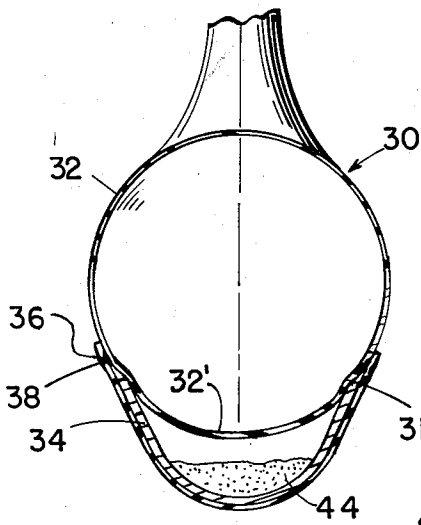


Fig. 3

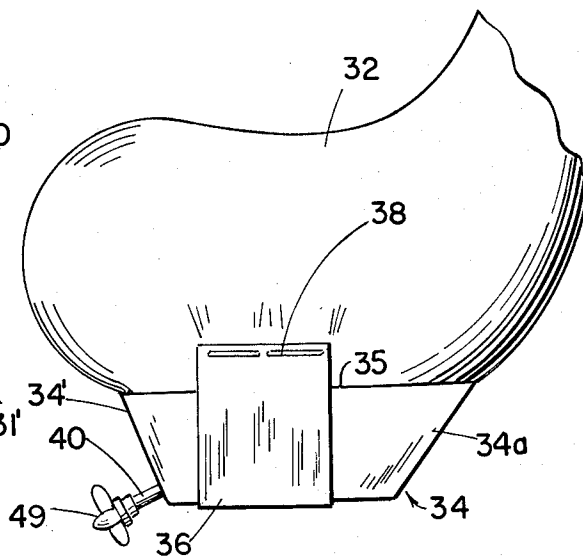


Fig. 4

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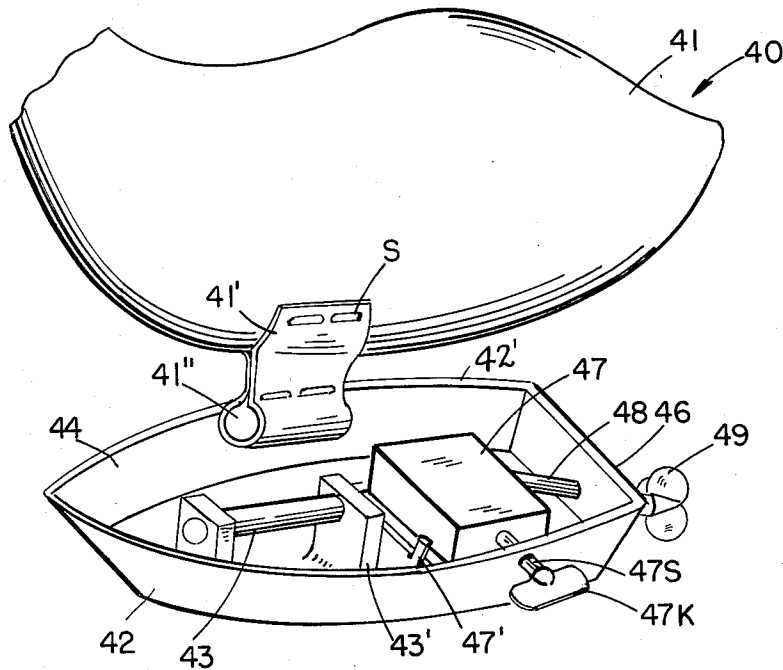


Fig. 5

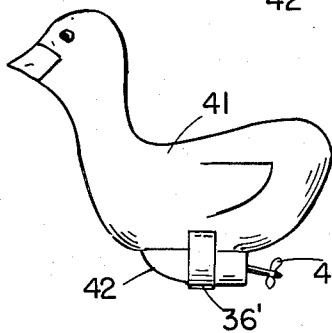


Fig. 7

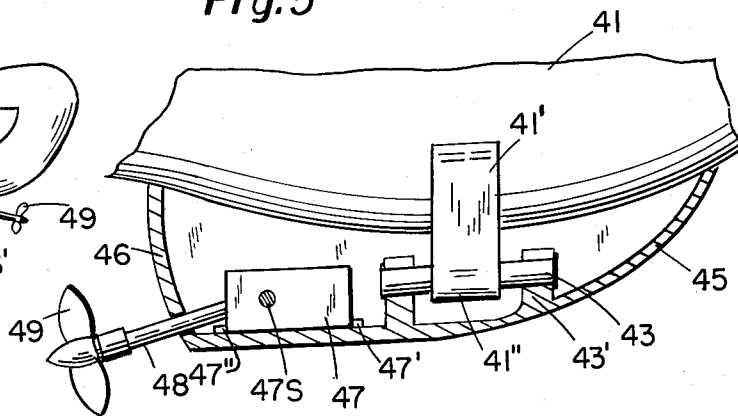


Fig. 6

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INFLATABLE TOY

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7 Claims. (Cl. 46-88)

This invention relates to inflatable assemblies and, in particular, to inflatable toys and supports therefor. This is a continuation in part of my copending patent applications Ser. No. 320,184 entitled Inflatable Toys and filed on November 13, 1952, now abandoned, and Ser. No. 410,489 entitled Inflatable Toys and filed on Feb. 16, 1954 and now Patent 2,916,849.

Toys fabricated out of flexible plastic sheeting in the form of an enclosure which may be inflated to provide a semi-rigid mock figure or the like have been used, prior to this, primarily as beach or water toys. These have found very little utility other than to serve as a float, figure or doll.

It is accordingly a primary object of this invention to provide new and improved structures in inflatable toys which will not only enhance their versatility but will also permit them to be used as wheeled toys, and mechanical toys.

Another object is to provide a new and improved method of assembling inflatable bodies with rigid support means whereby to improve the versatility and extend the use for such articles.

Another object is to provide a new and improved toy, the major portion of which is made of a flexible plastic material in the form of a bag or enclosure which may be inflated and which assembles in semi-rigid engagement with a support therefor when said bag is inflated, said support being utilizable as a means for propelling or otherwise moving said toy.

Another object is to provide a new and improved wheeled toy vehicle having a relatively large body, the major portion of which is an inflated enclosure which is supported by means of a rigid base having wheels mounted thereon.

Yet another object is to provide an improved wheeled toy which is colorful, free of sharp edges and rigid projections, and is light in weight.

A further object is to provide a new and improved construction in wheeled toys which are relatively large in size yet which may be packaged in a container or box which is considerably smaller than the toy when assembled.

Still another object is to provide improved means for assembling an inflatable body with a rigid base containing a motor and propulsion means for said base whereby said body may be propelled thereby across a surface or on a body of water.

Still another object is to provide new and improved assembly means for an inflatable body on a rigid support or base whereby said body and said base will not easily shift relative to each other.

With the above and such other objects in view, as may hereinafter more fully appear, the invention consists of the novel construction, combination and arrangement of parts, as will be hereinafter more fully described, and illustrated in the accompanying drawing, wherein are shown embodiments of this invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention, as claimed.

In the drawing:

FIG. 1 is an end view in cross-section showing details of the construction and assembly of an inflatable body with a rigid base member adapted not only to support said body in semi-rigid engagement therewith but also to sup-

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port propulsion means such as axles on which wheels may be mounted.

FIG. 2 is a partial side view of a modification of the assembly illustrated in FIG. 1.

FIG. 3 is an end cross-section of an inflatable body and a rigid base member assembled in accordance with FIG. 1.

FIG. 4 is a partial side view of the assembly of FIG. 3 showing a propulsion means extending from the base.

FIG. 5 is an isometric view of a modified form of assembly of an inflatable toy and base,

FIG. 6 is a partial side view in partial cross-section of FIG. 5 and

FIG. 7 is a side view of a modified form of the water toy of FIG. 5.

In FIG. 1 are shown details of a construction which may be applied to inflatable wheeled toys, marine vehicles or boats, or the like which comprises an assembly 10 of an inflatable body 12 and a rigid base member 20 joined together in such a manner that when the inflatable body is fully inflated, the tensioning of the walls thereof will serve to greatly enhance the strength of the assembly. The inflatable body 12 is preferably made by heat sealing two or more sheets of a flexible plastic material such as polyvinyl-chloride, polyethylene or the like in a circum-scribing seal which provides an enclosure which may be inflated by means of a valve of conventional design into a shape such as a mock toy animal or the like. The body 12 consists of, in FIG. 1, a lower portion 13 having a generally bulbous shape and a neck portion 14 protruding upward therefrom which may be shaped to simulate the neck of a mock animal. The body portion 13 of 12 may be elongated in shape as illustrated in FIG. 2 providing an upper surface 13' of substantially horizontal extension on which a small child may ride. By itself the bulbous body 12 is relatively unstable and top heavy thereby limiting its application as a toy to an object which may be sat on or floated in the water.

By securing the inflatable body 12 to a rigid support therefor which serves as a vehicle or the like, the versatility of an inflatable figure toy may be greatly increased. In FIGS. 1 and 2 a box-shaped base 20 is provided having an upper wall 22 adapted to be drawn in firm engagement with the inflatable body 12 when the latter is inflated by means of a flexible strap member 16 secured to the inflatable body and extending around at least part of the base 20 as illustrated. The flexible strap member 16 may be secured to the inflatable body 12 in any suitable manner, provided that it is adapted to perform the required function of holding the two members together in a somewhat semi-rigid assembly upon inflation of the inflatable body. The flexible strap member 16 will therefore be in a flexible or loose condition upon initial assembly of 20 with 12 and, as the latter is inflated, will be drawn into an increasing state of tension until full inflation whereupon it will draw the flexible walls of the inflatable body firmly against the rigid base member 20. This type of assembly will permit the fabrication of a variety of toys out of inflatable flexible plastic sheeting which would not ordinarily be possible utilizing conventional inflatable toys per se.

In FIG. 1 the flexible joining strap 16 is illustrated as being heat sealed or welded near each end thereof to the side walls of the lower portion of the inflatable body 12. The notation 18 refers to the general areas of the strip 16 and the side walls of body portion 12 where joining is effected by means of heat sealing or welding.

FIG. 1 illustrates the main portion or roof 22 of body 20 as comprising a sheet-like formation having a slight curvature to conform to the bottom wall 12' of 10 when inflated. The roof portion 22 is shown with a pair of downwardly extending side walls 22a and 22b which

serve to provide bearing support for one or more axles 26 which mount wheels W at the ends thereof. The assembly 10 may therefore be utilized as a pull toy, push toy, or a power operated toy by coupling the drive of a motor 25 to wheel shaft 26. Because of the extreme lightness of the inflated body 12, a very large toy may be provided which may be powered by a motor which is relatively lower in power output than that required for a toy of comparable size and manufactured out of rigid materials such as wood or metal.

In FIG. 2 the side-secured strap 16 of FIG. 1 has been replaced by a pair of straps 16a and 16b which circumscribe the side and lower portions of the base member or body 20 and the central portion of the bulbous inflatable body 12, as illustrated, and serve to draw said inflatable body firmly against said supporting base when said inflatable body is inflated. The strap members 16a and 16b are preferably so dimensioned that they will be drawn into a state of tension upon inflation of 12 after it has been placed in a deflated state between said straps and the base and will be held in place thereby while serving at the same time to partially define the shape of 12 and to compressively draw it against said base. An improved semi-rigid assembly is effected by utilizing the flexible characteristics of the walls of the inflatable body 12 which, when it is drawn against the base 20 as provided in the embodiments of FIGS. 1 and 2, serves as a tensioning means which constantly applies an evenly distributed force continuously on the flexible strapping to maintain it at all times in a drawn or tensioned state. At the same time, the deformation of the wall 12' of the inflatable body 12 to the contour of the wall 22 of base 20 serves to increase the area of contact between the two which further improves the assembly. The frictional forces between the surfaces of 12 and 20 are increased as a result of the forces applied thereto by inflating 12 and a greater supporting surface on which the inflatable body 12 may rest is provided. Notation V refers to a valve disposed in the wall of body 12 which is used to inflate and deflate the body 12.

FIGS. 3 and 4 illustrate a further construction in an inflatable toy in the realm of this invention in which an inflatable body is provided in firm engagement with a rigid base member and is adapted with means for supporting said inflatable body thereon in a semi-rigid assembly therewith. The base member 34 is provided in the form of a hull or boat which may also be modified with wheels for use as a wheeled toy. The toy 30 consists of the assembly of an inflatable body 32 on a base 34 which is shown substantially bowl-shaped and has an upper rim 35 adapted to be drawn against and engage the under body of the inflatable body.

Assembly of the two bodies is effected by means of a wide strap or band 36 of flexible plastic sheeting preferably of the same material as the sheeting which comprises the walls of the inflatable body member 32, said sheeting having its ends sealed along welding lines 38 to the walls of said inflatable body. The flexible member 36 is of such a dimension that it securely holds the rigid base member 34 in place in a semi-rigid assembly therewith when the inflatable body is inflated. Assembly of base 34 between the flap 36 and the flexible walled member 32 when the latter is in a deflated state, will result in the upper rim of 34 being drawn in firm engagement with the bottom wall 32' of 32 when said inflatable body is inflated as illustrated in FIG. 3 resulting in said semi-rigid assembly.

As in the embodiments hereinabove described, the inflatable body 32, when inflated, serves to effect the semi-rigid assembly of the toy 30. The inflation of 32 from a deflated or semi-inflated state with base 34 positioned between 36 and 32, will cause the flexible member 36 to be drawn against the rigid base 34 which, when 32 is nearly fully inflated, will start drawing said inflated body against the upper rim 35 of the base. The flexible member, in

turn, is maintained in a state of tension by the action of the tensioned walls of 32 which, since 36 is sealed thereto, are tensioned with said flexible member in the general areas where 36 joins the walls of 32 and coats with 36 to effect said semi-rigid assembly. In other words, the improved unitary, semi-rigid assembly is effected and maintained as the result of the inflation of 32 and is enhanced when 32 is in a state of full inflation. As a result, the toy is substantially a unitary assembly in which forces applied to either body will be transmitted to the other without appreciable movement of either relative to the other.

In FIGS. 3 and 4, the notation 34a refers to the side-wall of base 34 and 34' to the rear portion or wall thereof. 40 refers to a propeller shaft protruding rearward from the hull 34 which extends from a motor mounted therein for propelling said toy through water by means of a propeller 49 shown mounted at the end of said shaft. The notation 44 refers to sand ballast in the bottom of hull 34 for providing a sufficiently low center of gravity to prevent capsizing of the assembly when in water. Other forms of ballast such as a single weight on out-riggers may also be provided to maintain the assembly upright on water.

While the flexible member 36 is shown secured near its ends to two lateral areas of the lower portion of the inflated body 32, it is noted that certain variations in its size, shape and the means by which it engages the body 34 are possible without deviating from the spirit of the invention. For example, a flexible flap or band-member, similar to 36 may extend from the central portion of the body 32 and engage a holding means therefor situated below the rim 35 which may effectively draw the wall of 32 against said rim, when inflated. This method of assembly is illustrated in FIGS. 5 and 6 in which the rigid base 42 of a toy 40 is illustrated as a boat-like hull 42 which has a longitudinally extending rod or pin 43 secured therein which is adapted to engage a flexible flap or pocket 41' extending from the bottom portion of the wall of inflatable body 41. If the flexible flap 41' is provided of the same material as the walls of inflatable body 41, such as plasticized polyvinyl chloride, it will stretch only a limited degree when tensioned and may be used to draw the lower face of 41 against the upper rim of hull 42, as shown in FIG. 2 when said body is inflated. In the assembly illustrated in FIG. 6, the bottom of the inflated body 41 is shown with a slight deformation thereto where it bulges over the rim 42' of 42 and is drawn towards pin 43. The frictional forces developed when the rim of 42 engages the bottom wall of 41 serves to further enhance the assembly.

The body or hull 42 may be made as a unitary structure by molding a thermo-plastic material wherein the side-walls 44, bottom 45, and rear wall 46 may be integrally formed with each other. The notation 43' refers to projecting walls or shelves for holding the pin 43 in place which may be integrally molded with the bottom 45 as shown. The notation 47 refers to a spring-wound motor windable by turning a key 47K on winding shaft 47S which motor is secured to the bottom 45 of 42. In the drawing, securing is effected by deforming or mushrooming studs 47', which are molded integral with the bottom 45, to retain side-flanges extending from the bottom of said motor.

The notation 48 refers to a shaft extending rear from motor 47, through the rear wall 46. A propeller 49 is shown connected to the end of 48 for drawing said assembly as said motor operates.

FIG. 7 shows a modified form of the water toy of FIGS. 5 and 6 assembled in accordance with the teachings of FIGS. 3 and 4 wherein a strap 36' extends completely around the base or hull 42 and holds it against the bottom of the inflated body 41.

A latitude of modification and substitution is intended in the foregoing disclosure and in certain instances some

features of the invention will be used 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.

I claim:

1. A toy consisting of a single inflatable body and support assembly, said assembly comprising the combination of

(a) an inflatable body member made of a flexible plastic sheeting having an interior volume which is totally enclosed and which is capable of retaining air and of being inflated to a semi-rigid state;

(b) a rigid base support member simulating a vehicle for said inflatable body member having side walls and including means for retaining said rigid member upright on a surface; said support member being adapted to be disposed in a generally horizontal plane;

(c) means for mounting said inflatable body member on said rigid base support member whereby it projects upwardly therefrom when said inflatable body member is inflated;

(d) means for permitting inflation of said inflatable body member to said semi-rigid state whereby the walls thereof become erect and are capable of upright self-support;

(e) means for securing said inflatable body member and base support member together comprising a flexible sheet member having downwardly extending side portions which are secured at their upper ends to laterally spaced apart portions of said inflatable body member and are joined together at their lower ends by a connecting strip which is adapted to engage a portion of said rigid base support member in a state of tension;

(f) whereby when said inflatable body member is inflated it is drawn by said flexible sheet member in a state of tension against said base member in a semi-rigid assembly therewith permitting the operation of the assembly as a single unit and normally maintaining said two members in a substantially fixed attitude to each other.

2. A toy assembly according to claim 1 wherein said flexible sheet member extends around the side walls and bottom of the rigid base support member.

3. A toy consisting of a single inflatable body and support assembly, said assembly comprising the combination of

(a) an inflatable body member made of a flexible plastic sheeting having an interior volume which is totally enclosed and which is capable of retaining air and of being inflated to a semi-rigid state;

(b) a rigid base support member simulating a vehicle for said inflatable body member having side walls and including means for retaining said rigid member upright on a surface, said support member being adapted to be disposed in a generally horizontal plane;

(c) means for mounting said inflatable body member on said rigid base support member whereby it projects upwardly therefrom when said inflatable body member is inflated;

(d) means for permitting inflation of said inflatable body member to said semi-rigid state whereby the walls thereof become erect and are capable of upright self-support;

(e) means for securing said inflatable body member and base support member together comprising a loop of flexible sheet member secured at its upper end to the bottom of said inflatable body member, said loop being engaged and retained by a portion of said rigid base support member;

(f) whereby when said inflatable body member is inflated it is drawn by said flexible sheet member in a state of tension against said base member in a semi-rigid assembly therewith permitting the operation of the assembly as a single unit and normally maintaining said two members in a substantially fixed attitude to each other.

4. A toy assembly according to claim 3 wherein said loop engages an elongated rod member disposed within the base support.

5. A toy according to claim 1 wherein said rigid base support member simulates a boat.

6. A toy according to claim 1 wherein said vehicle has wheels rotationally mounted thereon for supporting said inflatable body upright on a surface.

7. A toy according to claim 6 including a motor secured to the assembly and operatively connected to at least one of said wheels for driving said assembly.

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