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2,544,949

ANIMATED AMUSEMENT DEVICE

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FIG. 1

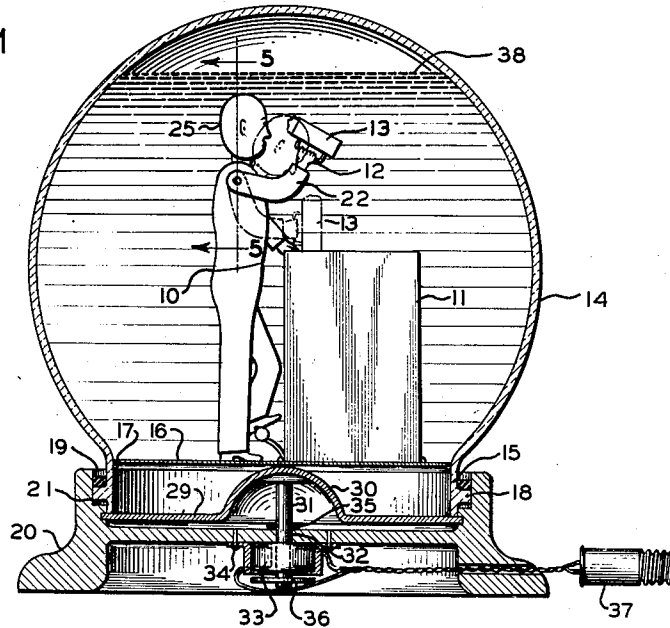


FIG. 2

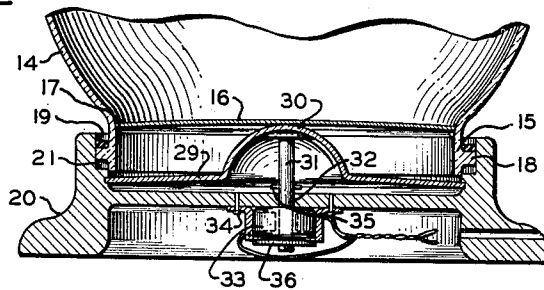


FIG. 3

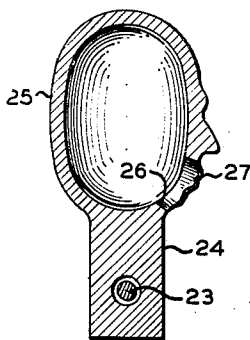


FIG. 4

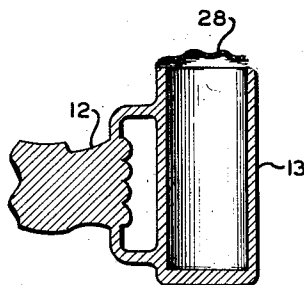
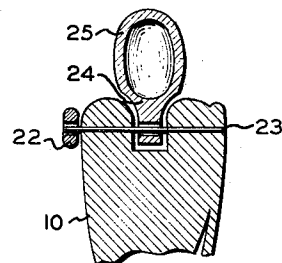


FIG. 5



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ANIMATED AMUSEMENT DEVICE

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4 Claims. (Cl. 272-8)

1

This invention relates to amusement devices and more particularly to the application of the Cartesian diver principle to devices which may well find use for amusement purposes in the home, club or other places where people are likely to gather, and this application is a continuation in part of prior application Serial No. 53,165, filed October 7, 1948.

The principle of the Cartesian diver is of course very old and well-known and resides primarily in changing the buoyancy of a floating object from positive to negative and from negative to positive by the application and removal of pressure on the fluid in which the object is immersed. The change in pressure on the fluid may be accomplished by the movement of a diaphragm by distortion of the walls of the container or by utilizing a fluid pressure pump or the like. Usually in order to enhance the mystifying effect of the device means is provided whereby the pressure may be applied without the knowledge of the spectators.

In the instant invention applicant has provided concealed means whereby the pressure on the fluid may be changed and has utilized the basic principle to produce a novel and amusing movement of portions of a figure not normally associated with the usual forms of the Cartesian diver.

It is therefore an object of this invention to provide an amusement device in which the Cartesian diver principle is utilized to cause movement of the head and arm of a figure disposed in a container substantially filled with liquid, a miniature mug being grasped by the hand of the figure which upon operation simulates the action of drinking.

It is a further object of this invention to provide an amusement device utilizing the Cartesian diver principle for causing novel movements of portions of a figure immersed in a liquid and in which concealed means is provided for permitting the application and removal of pressure to and from the fluid within the container.

It is a further object of this invention to provide an amusement device utilizing the Cartesian diver principle in which automatic means is provided for periodically applying and removing pressure from liquid disposed within a container.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a vertical section showing the amuse-

2

ment device of this invention in which pressure is alternately applied and released to cause movements of portions of a figure disposed in a container substantially filled with liquid;

Fig. 2, a fragmentary sectional view showing an automatic mechanism for alternately applying and removing pressure from liquid in the container;

Fig. 3, a vertical section through the head of the figure showing the aperture and flexible closure therefor which permits changing the buoyancy thereof;

Fig. 4, a section through the miniature mug held in the hand of the figure and showing the flexible closure which permits changing the buoyancy thereof; and,

Fig. 5, a vertical section on the line 5-5 of Fig. 1 showing the manner of connecting the head and arm of the figure disposed in the container.

The Cartesian diver principle may be utilized to produce a novel and highly amusing device in which parts of a figure may be caused to move in a manner similar to natural movements thereof and for purposes of illustration there is shown in Fig. 1 a simulated figure of a man 10 standing at a bar 11 and grasping in his hand 12 a miniature beer mug or the like 13.

The bar 11 and figure 10 are disposed within a transparent container 14 provided at the bottom thereof with a neck 15, the bar 11 and figure 10 being secured to a closure 16 in the form of a semi-flexible wall or diaphragm secured at 17 to the base of the neck in fluid tight relation thereto. The neck 15 is provided on the outer surface thereof with a plurality of lugs 18 designed to engage in bayonet slots 19 in a hollow base 20 the internal diameter of the base being sufficient to snugly receive the neck 15. The base 20 is provided with an annular groove 21 which receives the lugs 18 to securely fix the container 14 thereto.

The arm 22 of the figure 10 is loosely pivoted at the shoulder on a rod 23 extending through the figure and as best shown in Fig. 5 the neck 24 which supports the head 25 is also loosely pivoted upon this rod 23. It will thus be seen that upon pivotal movement of the arm 22 head 25 will also move forward and backward in a manner similar to a person nodding his head or as in this instance tilting the head backward so that a mug or the like may be applied to the mouth for drinking purposes. In the position shown in full lines in Fig. 1, the mug 13 and head 25 are in upper position with the mug about

3

to be applied to the mouth, and in the position shown in phantom the mug 13 is resting on the bar 11 with the figure 10 apparently contemplating the remaining contents of the mug.

As shown in Fig. 3, the hollow end of the head 25 is provided adjacent the chin thereof with an aperture 26 which is closed by a flexible diaphragm 27, the outer surface of which may have a configuration simulating the chin portion of the head. Likewise as shown in Fig. 4, the mug 13 is hollow and the upper end thereof is covered by a flexible diaphragm 28 the outer surface of which may be provided with a configuration simulating the foam on a mug of beer or other beverage. Obviously the aperture in the head 25 could be located in any other desired location and likewise a separate aperture covered by a flexible diaphragm could be provided in the wall of the mug 13 if such arrangement was more desirable than providing the diaphragm 28 covering the open end of the mug.

In order to conveniently flex or distort the wall or diaphragm 16 the base 20 of the device is provided with a resilient plate 29 secured to the wall thereof and having a central inverted cup-shaped portion 30 in contact with the lower surface of the wall 16. The plate 29 normally occupies a position as shown in Fig. 1 with the wall 16 in undistorted condition and in order to move the wall 16 upwardly to the position shown in Fig. 2 to apply pressure to the fluid within the container 14 there is provided a plunger 31 slidably mounted in an aperture 32 in a portion of the base 20, plunger 31 passing through the center of a solenoid 33 secured to the base 20 by fastening means 34. Downward movement of the plunger 31 may be limited by a pin 35 passing therethrough and contacting a portion of the base 20 as shown in Fig. 1 and the upward movement thereof may be limited by a washer 36 secured to the plunger and contacting the lower surface of the solenoid 33 at the upper limit of travel as shown in Fig. 2. If desired, the washer 33 may be adjustably mounted on the plunger 31 in order to permit adjustment of the travel thereof.

Since it is necessary that the plunger 31 reciprocate in order to apply and release pressure from the fluid in the container 14 current must be intermittently supplied to the solenoid 33 and this may be conveniently accomplished by utilizing a conventional light flasher or the like 37 although any other suitable form of intermittent switch device might be used.

In operation the container 14 is filled with fluid to substantially the level of line 38 and the wall or diaphragm 16 carrying the figure 10 and bar 11 is sealed in place in fluid tight relation with the neck 45 of the container 14. The container 14 is assembled with the base 20 and the intermittent switch device 37 connected to a source of electrical current. When the solenoid 33 is de-energized the plunger 31 will be in its lowermost position and normal atmospheric pressure will be present within the container 14. In this condition the head 25 and mug 13 will be in raised position as shown in full lines in Fig. 1. Upon energization of solenoid 33 plunger 31 will move upwardly to distort plate 29 and wall 16 thus increasing the pressure within container 14 and moving diaphragm 27 inwardly of the head 25 and diaphragm 28 inwardly of the mug 13. This movement of diaphragms 27 and 28 will reduce the volume within these objects and change the buoyancy thereof from positive to

4

negative, thus permitting the mug to move downward and come to rest on the surface of the bar 11 and the head 25 to move forwardly and downwardly to the position shown in phantom in Fig. 1.

1. Upon de-energization of solenoid 33 resilient plate 29 will return the plunger 31 to lowermost position and the wall 16 will return to original position, thus releasing pressure on the interior of the container 14. As a result the mug 13 and the head 25 will regain their positive buoyancy and return to the position shown in full lines in Fig. 1. This operation will be repeated as long as an intermittent source of current is supplied to the solenoid 33.

If desired for convenience in manufacture, the plate 29 could be eliminated and the plunger 31 directly contact the wall or diaphragm 16 and if necessary additional means could be provided to return the plunger 31 to lowermost position upon de-energization of the solenoid 33.

It will be seen from the above that there has been provided a novel amusement device utilizing a well known basic principle comprising few moving parts and which will automatically operate for an indefinite period of time. This device is also susceptible of high volume production, thus permitting sale of the same in a highly competitive market.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. An amusement device comprising a transparent container partially filled with a liquid and closed by a flexible wall, a base engaging said container for supporting the same, a figure simulating a person disposed in said container and secured to said wall said figure having a hollow head, the head and one arm of said figure being mounted for simultaneous pivotal movement, a simulated hollow mug fixed to said arm, an aperture in said head adjacent the chin thereof, said figure, head, arm and mug being submerged in said liquid, a flexible diaphragm closing said aperture, a flexible diaphragm closing the upper end of said mug, a flexible plate secured to said base for flexing movement toward and from said wall and for engagement therewith, a plunger mounted for reciprocatory movement in said base and engaging said plate to flex the same, a solenoid associated with said plunger, means to supply current intermittently to said solenoid whereby said plunger is reciprocated and said wall is distorted to increase and decrease the pressure in said container, thus flexing said diaphragms to vary the buoyancy of said head and mug causing downward and upward movement thereof.

2. An amusement device comprising a transparent container partially filled with a liquid and closed by a flexible wall, a base engaging said container for supporting the same, a figure simulating a person disposed in said container and secured to said wall said figure having a hollow head, the head and one arm of said figure being mounted for simultaneous pivotal movement, a simulated hollow mug fixed to said arm, an aperture in said head, said figure, head, arm and mug being submerged in said liquid, a flexible diaphragm closing said aperture, an aperture in said mug and having a flexible diaphragm for closing the same, a flexible plate secured to said base for

5

flexing movement toward and from said wall and for engagement therewith, a plunger mounted for reciprocatory movement in said base and engaging said plate to flex the same, a solenoid associated with said plunger, means to supply current intermittently to said solenoid whereby said plunger is reciprocated and said wall is distorted to increase and decrease the pressure in said container, thus flexing said diaphragms to vary the buoyancy of said head and mug causing downward and upward movement thereof.

3. An amusement device comprising a transparent container partially filled with a liquid and closed by a flexible wall, a base engaging said container for supporting the same, a figure simulating a person disposed in said container and secured to said wall said figure having a hollow head, the head and one arm of said figure being mounted for pivotal movement, a simulated hollow mug fixed to said arm, an aperture in said head, said figure, head, arm and mug being submerged in said liquid, a flexible diaphragm closing said aperture, an aperture in said mug and a flexible diaphragm closing the same, a plunger mounted for reciprocatory movement in said base and operable to engage and distort said wall, a solenoid associated with said plunger, means to supply current intermittently to said solenoid whereby said plunger is reciprocated and said wall is distorted to increase and decrease the pressure in said container thus flexing said dia-

6

phragms to vary the buoyancy of said head and mug causing downward and upward movement thereof.

4. An amusement device comprising a transparent container partially filled with a liquid and closed by a flexible wall, a base engaging said container for supporting the same, a figure simulating a person disposed in said container and secured to said wall said figure having a hollow head, the head and one arm of said figure being mounted for pivotal movement, a simulated hollow mug fixed to said arm, an aperture in said head, said figure, head, arm and mug being submerged in said liquid, a flexible diaphragm closing said aperture, an aperture in said mug and a diaphragm closing the same, and means secured to said base for periodically distorting said wall to increase and decrease the pressure in said container, thus flexing said diaphragms to vary the buoyancy of said head and mug causing downward and upward movement thereof.

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