Oct. 29, 1929. R. F. WARHAM 1,733,478

BUBBLE BLOWER

Filed Dec. 5, 1927

Fig. 1

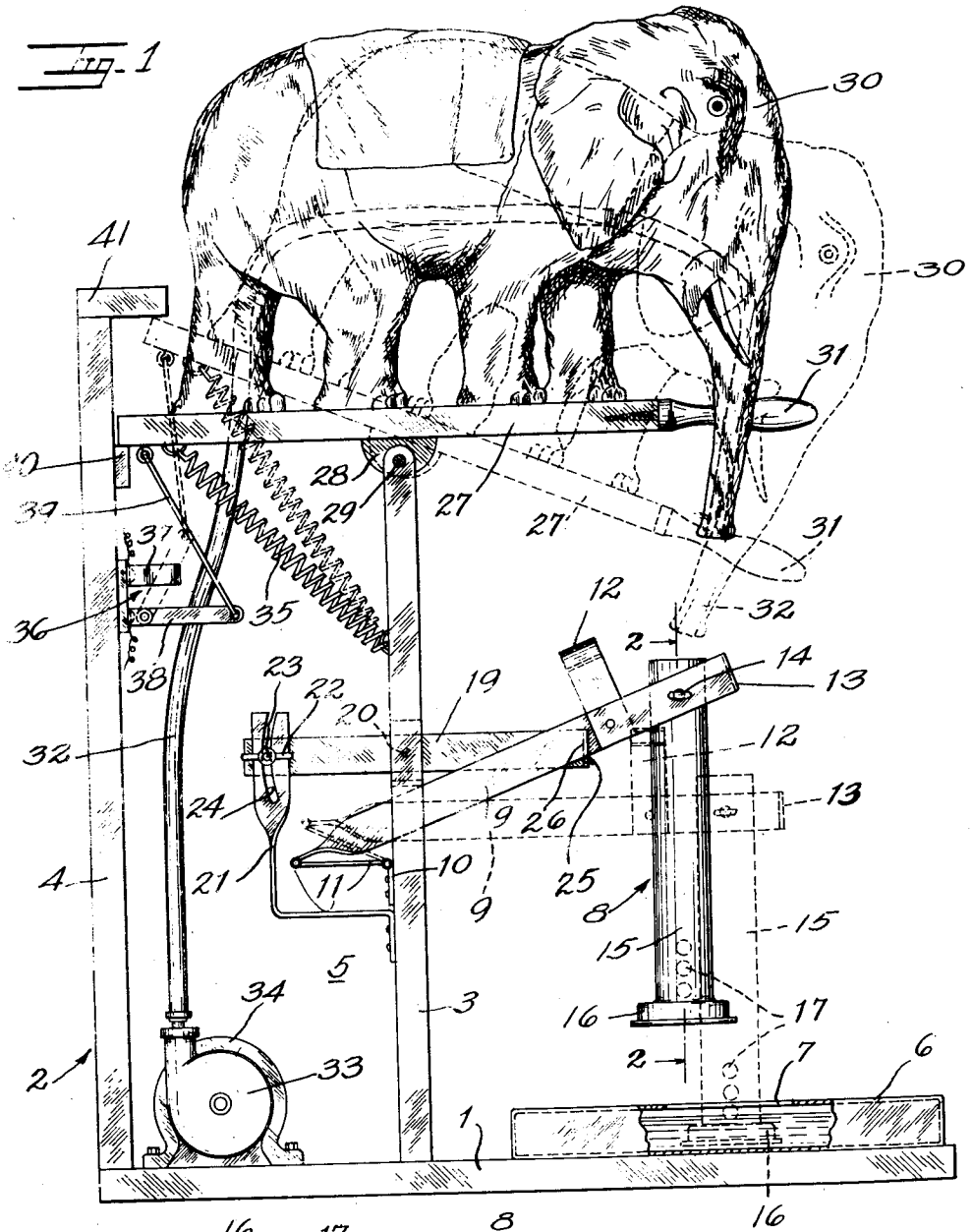
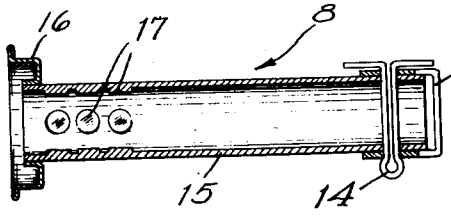


Fig. 2



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BUBBLE BLOWER

Application filed December 5, 1927. Serial No. 237,667.

The invention forming the subject matter of this application relates to toy bubble blowers.

The bubble blower at present consists merely of a pipe or other similar tubular rods, one end of which is dipped in a certain bubble solution, mostly plain soap solution, then the bubbles are blown by pressing the mouth against the opening of the blower and by blowing therethru until a bubble is formed.

The primary object of the present invention is the provision of a toy bubble blower which is adapted to retard the flow of a bubble liquid therefrom after it is dipped in said liquid, and which is so designed that the air enters from a source disposed in a spaced relation to the inlet opening of the bubble blower.

Another object of the invention is to provide a toy in which the air flow for blowing bubbles is produced mechanically and automatically upon bringing a top in closely spaced relation to the inlet opening of a bubble blower.

A still further object of the invention is the provision of a toy in which the position of the bubble blower may be readily adjusted and which is compact so that the operation thereof involves only two movements—first, the dipping of the bubble blower into a bubble liquid and bringing the same back to its original position, and second, the moving of a toy figure in a closely spaced relation to the inlet opening of the bubble blower. The movement of the figure causes the operation of mechanical means to create an air flow thru said figure into the bubble blower.

A still further object of the invention is the provision of a toy bubble blower in which the air draft entering a bubble blower tube is produced by mechanical means, said mechanical means being automatically actuated by the tilting movement of a toy figure disposed in a bubble blowing relation to the tube.

Another object of the invention is to provide a mechanical bubble blower toy which is highly useful and entertaining, and simple in construction. Convenience of arrangement, lightness and comparative inexpense of manufacture are further objects which have been borne in mind in the production and the development of the invention.

With the above mentioned objects, and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit, or without sacrificing any of the advantages of the invention.

With the foregoing objects in view, reference is had to the accompanying drawings for the illustrative embodiment of the invention wherein

Figure 1 is a side elevation of the mechanical bubble blower toy, the side of the box containing the mechanical operating elements shown removed; and

Figure 2 is a sectional detailed view of the bubble blower tube taken on the line 2—2 of Figure 1.

In carrying out my invention I make use of a base 1 supporting a casing denoted in its entirety by the numeral 2. Said casing comprises a front wall 3, a rear wall 4 and side walls 5, one of which is removed in Figure 1. In front of the casing 2 a bubble liquid container 6 is placed upon the base 1, said container having an opening 7 on the top thereof, otherwise it is completely enclosed. A bubble blower 8 is held in the end of a lever 9 extending thru the front wall 3 and it is movably supported therein by means of a hinge plate 10 secured to the front wall 3 and by a link 11, one end of which is secured to the plate 10, the other end being pivotally secured to the end of the lever 9. A handle 12 on the lever 9 facilitates the handling of the blower. The bubble blower is pivotally supported in the enlarged end 13 of the lever 9 by means of a cotter pin 14, extending thru the end of the blower.

The bubble blower 8 comprises a tube 15 and a recessed disc 16 secured to the free end thereof. Protrusions 17 project from the inside wall of the tube 15 adjacent to the lower

end thereof for the purpose to be hereinafter described. The arm 9 and the bubble blower 8 are suspended on a bracket 19 pivotally secured at 20 into the front wall 3. The other end of the bracket 19 is removably secured to an adjusting bracket 21 by means of wing nut 22. A bolt 23 on which the wing nut is threaded is slidable in an arcuate slot 24 cut in the adjusting bracket 21 so that the position of the bracket 19 may be slightly adjusted by loosening up the wing nut 22 and sliding the bolt 23 in the slot 24 upwardly and downwardly thereby lowering or raising the other end of the bracket 19. An extension 25 on the end of the bracket 19 is provided with a slot 26, the lever 9 resting therein when in suspended position, as shown in full lines in Figure 1.

Before a bubble is blown the lever 9 is raised out of the slot 26 by lifting the handle 12 thereon and then the bubble blower 8 is lowered into the dotted line position so that the disc 16 and part of the tube 15 are immersed into the bubble liquid in the container 6. After the dipping of the bubble blower 8 the lever 9 is raised and replaced into the slot 26 so as to rest thereon.

In order to produce a bubble between the bottom of the disc 16 and the base, an air current must be passed thru the tube toward the disc. The air or other gaseous current is created by means to be presently described. A platform 27 is pivotally supported at the top of the front wall 3 by means of a downwardly extending lug 28 pivoted at 29. An animal figure—in the illustration indicated as an elephant—30 is attached to the platform 27 so that when the platform is tilted around the pivot point 29 the elephant carried thereon is also tilted. It is to be noted that the elephant's trunk extends downwardly from the platform. A handle 31 is secured to the front end of the platform 27 so as to facilitate the tilting of the platform and the bringing of the platform and the figure 30 thereon into the position indicated by dotted lines. It is clear that when the platform 27 is tilted in the dotted line position the end of the elephant's trunk is in closely spaced relation to the inlet opening of the tube 15.

An air current is conveyed thru a flexible conduit 32 extending thru a hind leg of the elephant and ending in the tip of the elephant's trunk. Said flexible conduit is connected to the outlet port of a blower 33 driven by an electric motor 34. When the electric motor 34 is rotated the blower forces air or other gaseous substance desired thru the flexible conduit 32, thru the hidden passage in the elephant's body down to the tip of the elephant's trunk. It is evident that when the platform 27 and the elephant thereon are brought into the dotted line position, the air current will pass from the trunk of the elephant into the open end of the tube 15 and passing therethru blows a bubble at the disc end thereof.

After the bubble is blown, the platform 27 is released, and it is automatically returned to its horizontal position by the pull of a tension string 35, one end of which is secured to the bottom of the platform, the other end thereof being secured to the front wall 3 of the casing 2. In order to regulate the air current in the flexible conduit 32 so that air current is produced only at a time when the platform is tilted and the elephant's trunk is in an operative position relative to the tube 15, a switch 36 is provided, said switch being secured to the rear wall 4 of the casing 2.

The switch is operated by the tilting movement of the platform 27 in the following manner: A knife switch 37 is fixedly secured to the rear wall 4, while the switch blade 38 is pivotally secured thereto. A link 39 depending from the platform is pivotally attached to the free end of the switch blade 38, the link being of such a length that when the platform 27 is in the horizontal position, as shown in full lines, it holds the blade out of engagement with the knife switch 37; but when the platform and the figure 30 thereon are tilted, the link 39 lifts the blade 38 into contact with the knife switch 37. The knife switch is electrically connected to the electric motor 34 so as to make and break the circuit thereof. When the elephant's trunk is in inoperative position relative to the tube 15, then the switch 36 is opened thereby rendering the electric motor 34 inoperative, thus there is no air current thru the flexible conduit 32. However, when the platform 27 is tilted to the dotted line position the link 39 and the switch blade 38 assume the position also shown in dotted lines, closing the electric circuit thru the switch 36 and the electric motor 34, thereby causing the electric motor 34 to rotate the blower 33 and blow an air current thru the flexible conduit 32. It is apparent that the motor 34 is operated only at a time when the elephant's trunk is in the dotted line position so that the air current passing thru the flexible conduit 32 may readily enter and pass thru the tube 15. In the absence of a mechanical blower the child may place the end of the conduit 32 in his mouth and blow therethru, when the platform is tilted.

In order to limit the tilting movement of the platform 27 a block 40 is secured to the rear wall 4 so that when the spring 35 forces the platform 27 to assume a horizontal position, the return movement of the platform is determined by said block. Another block 41 is provided at the upper end of the rear wall 4 so that when the platform 27 is tilted so as to bring the elephant's trunk into the lowermost position, the tilting movement of the platform is obstructed at a certain incline

by the block 41. Thus the tip of the elephant's trunk is accurately spaced from the end of the flexible conduit 32.

The invention operates as follows: First, the bubble blower 8 is dipped into the bubble liquid in the container 6, as heretofore described. Then the bubble blower is suspended by means of the lever 9 on the bracket 19. The position of the bubble blower may be readily adjusted on the adjusting bracket 21 in a manner heretofore described. The bubble liquid gradually flows toward the disc 16. Now the platform 27 is tilted by depressing the handle 31 against the action of the spring 35, whereupon the link 39 rises with the rear end of the platform 27 and closes the knife switch 36 which, in turn, starts the motor 34 and operates the blower 33 creating an air current thru the conduit 32. The air current passing from the tip of the elephant's trunk into the tube carries therewith a certain volume of air from the outside around the end of the tube. The blowing of the air thru the tube causes the bubble liquid in the bottom of the tube and in the disc 16 to form a large bubble. After the bubble is formed the handle 31 is released and the action of the spring 35 returns the platform 27 and the elephant 30 to the horizontal position, at the same time breaks the circuit of the electric motor thereby discontinues the forcing of an air current thru the flexible conduit 32.

It is to be noted that the construction of the bubble blower 8 is such as to retard the descending of the bubble liquid therefrom. After the bubble blower 8 is dipped into the bubble liquid, the bubble liquid collects around the inside circumference thereof and collects above the top of the protrusions 17, which are indicated in the drawings as being cylindrical. Thus the bubble liquid is obstructed in its flow downwardly so that the dripping of the fluid from the tube will be extremely slow. The bubble is first formed around the edge of the tube, then when it is large enough it jumps to the outside edge of the disc 16. The particular structure of the bubble blower may be used independently of the device by simply removing the cotter pin 14, thereby detaching the bubble blower 8 from the end 13 of the lever 9. The lips of the person blowing the bubbles thru the tube should not be pressed directly against the end of the tube 15, but should be properly spaced therefrom so that the suction created by the air current passing from the mouth into the tube is permitted to carry some additional air from the surrounding atmosphere thereby providing a larger volume of air for the creation of the bubble and producing relatively larger bubbles than it is possible to produce with any of the present toys in use.

Having thus described my invention, what I now claim as novel and desire to secure by Letters Patent, is:

1. A toy comprising a bubble blower tube, a flexible conduit for conducting an air current into the tube and means supporting said flexible conduit in a spaced relation to an end of said tube; said means being adapted to move the end of said flexible conduit toward and away from the end of said tube; adjustable means to detachably support said tube in an operative position; and a bubble liquid container disposed below said tube; said last supporting means being adapted to guide said tube into said container after said tube is detached.

2. A toy comprising a frame, a bubble blower tube supported on the frame, a flexible conduit for conducting the flow of a gaseous substance into an end of said tube; means tiltable on the frame for supporting said conduit in inoperative relation to said tube; said means being so disposed that the tilting thereof brings the end of said conduit in communication with the end of said tube.

3. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexible conduit so disposed in said figure as to be movable therewith relative to the tube and to conduct a current of gaseous substance into an end of said tube, when said platform is tilted.

4. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexble conduit so disposed in said figure as to be movable therewith relative to the tube and to be brought in blowing relation to an end of said tube, when said platform is tilted; and resilient means to normally maintain said platform in a level position.

5. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexible conduit so disposed in said figure as to be movable therewith relative to the tube and to be brought in blowing relation to an end of said tube, when said platform is tilted; resilient means to maintain said platform in a level position; and means actuated by said platform, for producing a current of gaseous substance thru the conduit.

6. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexible conduit so disposed in said figure as to conduct a current of gaseous substance into an end of said tube, when said platform is tilted; resilient means to maintain said platform in a level position; means actuated by said platform, for producing said current in the con-

duit; said last means comprising a blower, electric means rotating said blower and a circuit breaker for said electric means, said circuit breaker being operatively connected to said platform.

7. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexible conduit so disposed in said figure as to conduct a current of gaseous substance into an end of said tube, when said platform is tilted; resilient means to maintain said platform in a level position; means actuated by said platform, for producing said current in the conduit; said last means comprising a blower, electric means rotating said blower and a circuit breaker for said electric means, said circuit breaker being operatively connected to said platform; a bubble liquid container disposed on said frame in operative relation to said bubble blower.

8. A toy comprising a frame; a bubble blower tube supported on the frame; a platform pivotally supported on the frame; a figure attached to said platform; a flexible conduit so disposed in said figure as to conduct a current of gaseous substance into an end of said tube, when said platform is tilted; resilient means to maintain said platform in a level position; means actuated by said platform, for producing said current in the conduit; said last means comprising a blower, electric means rotating said blower and a circuit breaker for said electric means, said circuit breaker being operatively connected to said platform; a bubble liquid container disposed on said frame in operative relation to said bubble blower; and adjustable means on the frame for detachably suspending said bubble blower.

In testimony whereof I affix my signature.

ROBERT F. WARHAM.