

Feb. 26, 1952

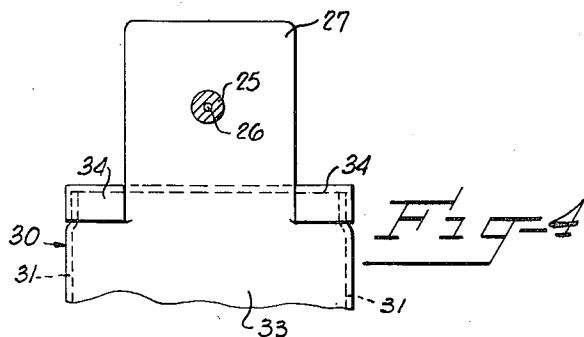
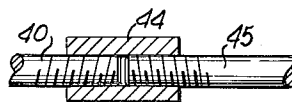
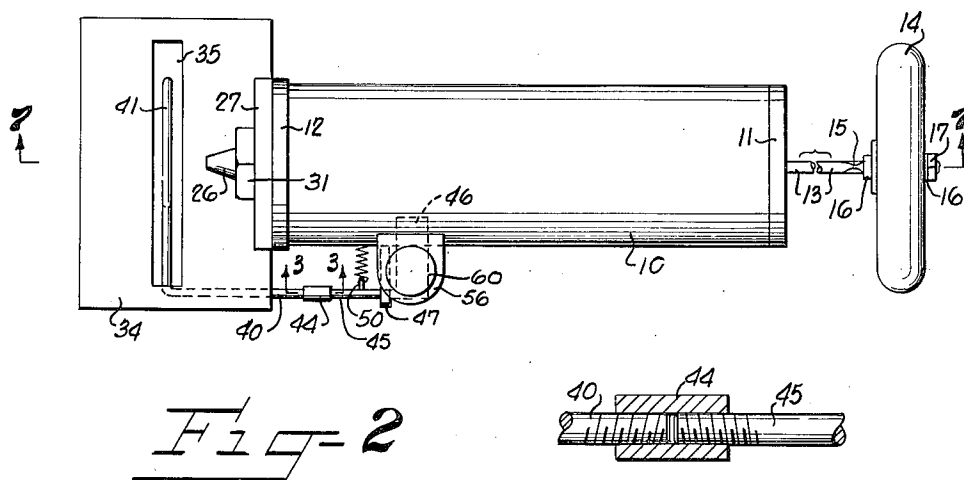
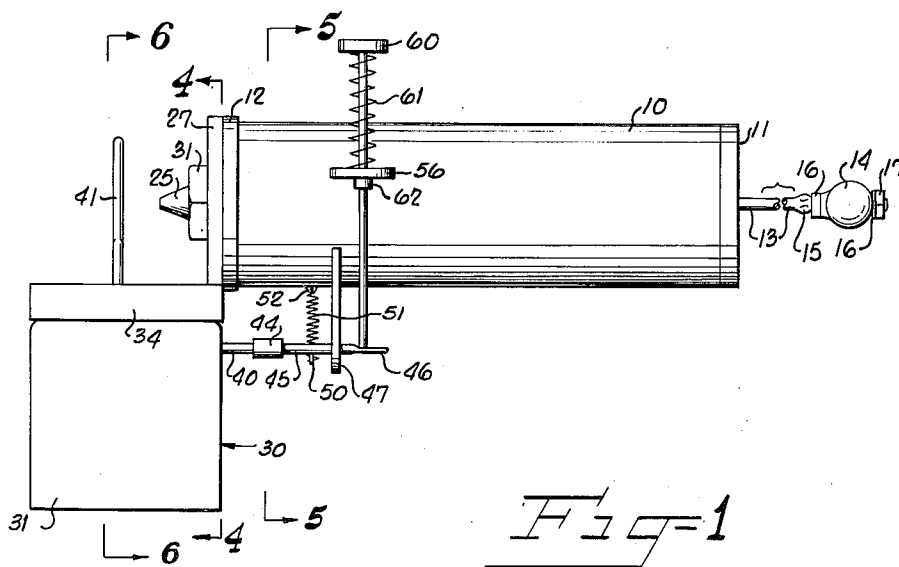
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2,587,536

BUBBLE BLOWING DEVICE

Filed Oct. 13, 1948

2 SHEETS--SHEET 1



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BUBBLE BLOWING DEVICE

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2 SHEETS--SHEET 2

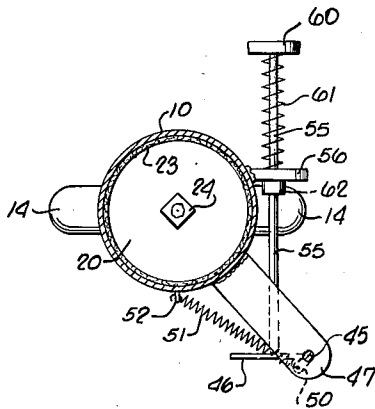


Fig-5

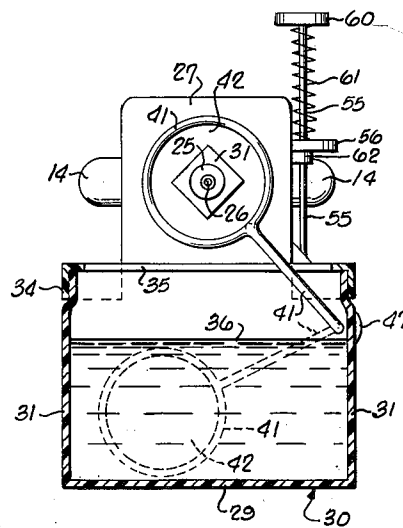


Fig-6

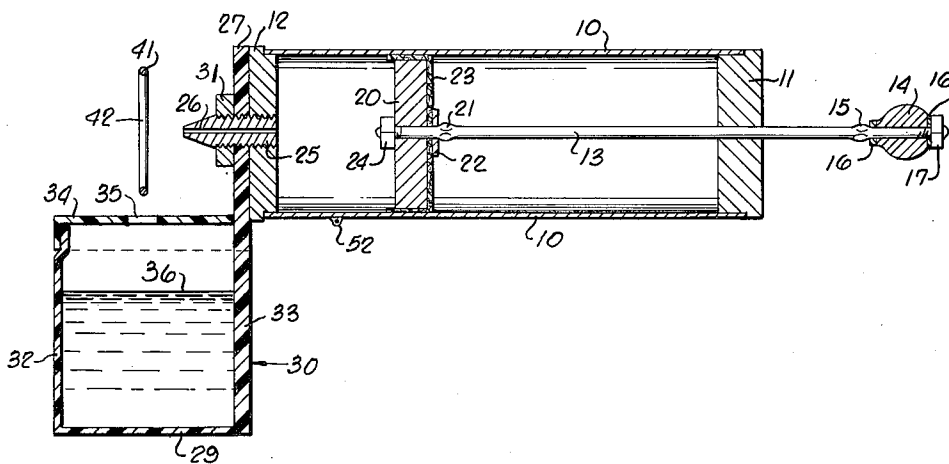


Fig-7

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BUBBLE BLOWING DEVICE

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Application October 13, 1948, Serial No. 54,236

1 Claim. (Cl. 46—8)

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This invention relates to a toy automatic bubble blowing apparatus and has for its primary object that of providing a manually operated air gun, in the discharge end of which a reservoir for containing a suitable bubble forming solution is mounted and into which a looped wand is adapted to be passed, the wand being oscillatably mounted in the reservoir, and upon releasing the wand, spring means will urge the wand out of the bubble forming solution, and into alignment with the nozzle at the discharge end of the manually operated air gun and, upon operating the manually operated air gun, the film of solution that has been deposited on the wand will be formed into bubbles by the blast of air passing through the loop in the wand.

It is another object of this invention to provide a bubble forming device comprising a hand operated compressed air pump having a discharge nozzle at one end thereof and to provide a reservoir secured to the discharge end of the compressed air pump, in off center relation thereto, for containing a suitable film forming solution and to provide a wand eccentrically mounted relative to the discharge end of the compressed air pump and being oscillatably mounted in one of the walls of the reservoir and to provide a spring loaded plunger mounted on one side of the compressed air pump which is adapted to engage an extended portion of the wand projecting out of the reservoir to thereby cause the wand to move into the bubble forming solution upon manually pressing the plunger in one direction and whereby upon releasing the plunger the wand will be urged upwardly by a suitable spring means, at which time the wand will be covered with the film forming solution and upon manually operating the pump the compressed air will pass through the wand to thereby form a plurality of bubbles.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the bubble forming device;

Figure 2 is a top plan view of the device;

Figure 3 is a vertical sectional view showing a suitable coupling means and is taken substantially along the line 3—3 in Figure 2;

Figure 4 is an elevation with parts in section and with parts being broken away and is taken substantially along the line 4—4 in Figure 1;

Figure 5 is a vertical sectional view taken along the line 5—5 in Figure 1;

Figure 6 is a vertical sectional view taken along the line 6—6 in Figure 1;

Figure 7 is a vertical sectional view taken along the line 7—7 in Figure 2.

Referring more specifically to the drawings, the numeral 10 indicates the cylinder of a suit-

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able hand operated compressed air gun or pump and this cylinder is capped at its right-hand and left-hand ends, in Figures 1, 2 and 7, as at 11 and 12, respectively.

Slidably penetrating the cap 11 is a suitable piston rod 13 having a handle 14 loosely mounted on the right-hand end thereof in Figures 1, 2 and 7 and the piston rod 13 is crimped as at 15 and a washer 16 is provided on each side of the handle 14 on the piston rod 13 and threadably mounted on the right-hand end of the piston rod 13 is a nut 17 to thus secure the handle 14 against the crimped portion 15 of the piston rod 13. The left-hand end of the piston rod in Figure 7 has a piston 20 mounted thereon and this piston rod 13 is crimped as at 21, the crimped portion 21 being engaged by a suitable washer 22 and a suitable cup washer 23 being provided between the piston 20 and the washer 22, on the piston rod 13. The left-hand end of the piston rod 13 has a nut 24 threadably mounted thereon to thus secure the piston 20 and associated parts against the crimped portion 21 of the piston rod 13. The cup washer 23 is mounted for sliding movement within the cylinder 10.

The cap 12, at the left-hand end of the cylinder 10 in Figures 1, 2 and 7, has a nozzle 25 threadably mounted therein which has a longitudinally extending bore 26 therein. The nozzle 25 extends outwardly from the cap 12 and slidably penetrates an upwardly extending portion 27 of a reservoir broadly designated at 30. The nozzle 25 has a nut 31 threadably mounted on the left-hand end thereof in Figure 7 for securing the compressed air pump to the portion 27 of the reservoir 30.

The reservoir 30 may be of any desired material and is shown as being of a molded plastic material in Figure 7, and comprises side walls 31 and front and rear walls 32 and 33, respectively, and a bottom 29. A cover member 34 is adapted to be pressed lightly onto the reservoir 30. The cover 34 has an elongated slot 35 therein and through which the wand to be presently described is adapted to pass. A suitable bubble forming solution 36 is provided in the reservoir 30.

Rotatably mounted in the rear wall 33 of the reservoir 30; that is, adjacent the discharge end of the compressed air pump, is a laterally extending portion 40 of a wand 41 having an opening 42 therein. The laterally extending portion of the wand is disposed at right angles to the main portion of the wand 41. Suitably coupled to the laterally extending portion 40, as at 44, is a lever arm 45 which is bent inwardly and is flattened as at 46 and this lever arm 45 is rotatably mounted in a bearing member 47 secured, as by welding, to the cylinder 10.

A spring perch 50 is secured, as by welding, to

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a medial portion of the lever arm 45 and has one end of a tension spring 51 connected thereto, the other end of which is connected to a spring perch 52 projecting from the cylinder 10 in Figure 5. The tension spring 51 normally urges the lever arm 45 in a clockwise direction in Figure 5 and will correspondingly urge the wand 41 to the solid line position shown in Figure 6; that is, with the opening 42 of the wand 41 in alignment with the discharge end of the nozzle 25.

The wand 41 is prevented from moving upwardly beyond the solid line position shown in Figure 6 by the lower end of a plunger 55, to be presently described, which engages the flattened portion 46 of the lever arm 45 (Figures 1 and 5).

The plunger 55 is mounted for vertical sliding movement in a guide block 56 secured, as by welding, to the cylinder 10 and projecting outwardly therefrom. The plunger 55 has a headed portion 60 integral therewith and a suitable compression spring 61 surrounds the upper portion of the plunger 55 and engages the headed portion 60 at its upper end and the guide member 56 at its lower end to thus normally urge the plunger 55 upwardly in Figure 5. However, the plunger 55 has a collar 62 secured thereon, as by a pressed fit, and this collar intermittently engages the lower surface of the guide block 56, thus restricting upward movement of the plunger 55 as well as to prevent the wand 41 from moving in a clockwise direction beyond the solid line position shown in Figure 6.

Method of operation

The cover 34 may be removed from the reservoir 30 for pouring the desired amount of bubble forming solution 36 into the reservoir 30, as shown in Figure 7, or the solution 36 may be poured into the reservoir 30 through the elongated opening 35 through which the wand 41 is adapted to pass. The cylinder 10 is held in one hand by an operator and the handle 14 is grasped by the other hand. The piston 20 is then moved from left to right in Figure 7 until the crimped portion 21 of the piston rod 13 engages the cap 11. The headed portion 60 of the plunger 55 is then pressed downwardly by the thumb of the hand holding the cylinder, and this will cause the wand to move in a counter-clockwise direction to the dotted line position shown in Figure 6 to thus deposit a film of the bubble forming solution over the opening 42 of the wand 41.

The plunger 55 is then released and the compression spring 61 will cause the plunger to move upwardly while the tension spring 51 will cause the wand 41 to move in a clockwise direction in Figure 6 to the solid line position.

The handle 14 is then moved in such a manner as to cause the piston 20 to force air through the nozzle 25 and this compressed air will pass through the opening 42 in the wand 41 to thus form the bubbles.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are em-

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ployed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claim.

I claim:

Apparatus for forming bubbles from a film forming liquid comprising a cylinder, a piston mounted for longitudinal sliding movement in the cylinder, a piston rod connected to the cylinder and extending through one end of the same, a handle on the free end of the piston rod which is adapted to be grasped by an operator for moving the piston relative to the cylinder, a nozzle in the end of the cylinder opposite from the end through which the piston rod projects, a reservoir having an upwardly extending portion integral therewith, said upwardly extending portion being penetrated by the nozzle for securing the reservoir to the cylinder, a wand disposed in the reservoir and having a longitudinally extending portion integral therewith, said longitudinally extending portion being rotatably mounted in the wall of the reservoir adjacent the cylinder, said wand having an opening therein, spring means disposed between the cylinder and the longitudinally extending portion of the wand for urging the wand into a position adjacent the discharge end of the nozzle and exteriorly of the reservoir, said longitudinally extending portion having a flattened off-set portion integral therewith, a plunger engaging the off-set portion of the longitudinally extending portion of the wand whereby upon application of pressure to the plunger in one direction, the free end of the wand will be moved into the film forming liquid and upon release of the plunger the free end of the wand will be moved into alignment with the discharge end of the nozzle by the spring means and whereby upon manually moving the piston in a direction towards the nozzle in the cylinder a stream of air will pass through the same to thus cause the stream of air to pass through the opening in the wand to dislodge the film therefrom and to form a plurality of bubbles.

JOSEPH C. SCOTT.

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