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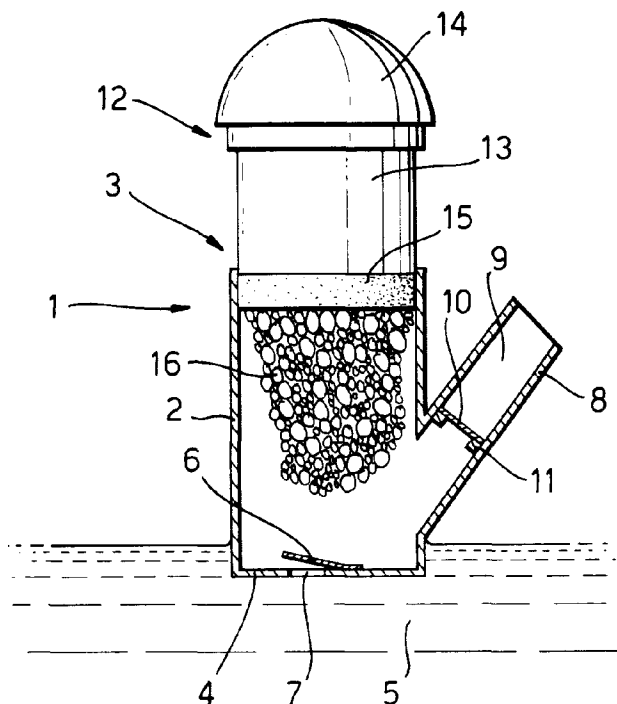
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(54) **Foam making apparatus**

(57) Foam making apparatus comprises a housing (2) having a foam outlet (8). A gas permeable store (15) is mounted in the housing (2) for storing a supply of

foaming agent. An activator (13) causes gas to pass through the store (15) so as to generate a supply of foam in the housing (2) which can be expelled through the foam outlet (8).

Fig.1.



Description

The present invention relates to an apparatus for making foam, such as a toy for making foam from a foaming agent such as soap or detergent.

Children in particular enjoy playing with foam. Many children use a foaming agent (such as bath foam) in the bath to make foam by agitating the water. Children, however, often find it difficult to agitate the water sufficiently to create a foam. Also, foam aerosols are available in which foam is dispensed from a nozzle on a pressurised container, but the container does not form part of a toy.

According to the present invention, there is provided foam making apparatus comprising a housing having a foam outlet; a gas permeable store mounted in the housing for storing a supply of foaming agent; and an activator for causing gas to pass through the store so as to generate a supply of foam in the housing which can be expelled through the foam outlet.

The invention seeks to provide a toy which self-generates foam by the action a child playing with the toy whereby amusement is had with both playing with the toy and playing with the foam. The invention provides a very simple form of apparatus which is particularly suited for use by children as a toy such as a bath toy. Typically, the gas will comprise air allowing the foam very safely to be generated.

In order further to enhance the generation of foam, the apparatus may further comprise a liquid inlet to enable liquid to enter the housing and mix with the foam so as to dilute the foam.

In some cases, the store could be fixed in the housing, the activator causing gas to pass through the store. In the preferred arrangement, the store is movable within the housing under control of the activator to cause gas to pass through the store. For example, the store and housing may form a piston/cylinder arrangement. In this embodiment, the store in the form of a piston reciprocates in and out of the cylinder, reciprocation of said piston forcing gas, e.g. air, through the store as said piston reciprocates out of the cylinder.

Conveniently, the activator is also adapted to cause foam to be expelled through the foam outlet. Where the store forms a piston then the piston can expel foam out of the housing.

Conveniently, a one-way valve is provided in one or both of the foam outlet and liquid inlet (where provided) to ensure correct operation of the apparatus.

The store is preferably a porous membrane which may be an open foam structure such as a sponge or sponge-like structure. The diluting liquid may be water and the gas may be air. The foaming agent may be a soap or detergent or similar agent, such as commercial foam bath liquid.

The foam outlet may have a non-circular cross-section so as to form a mould to shape the foam expelled therethrough.

The invention will now be described with reference

to the accompanying drawings, in which:-

Figure 1 shows a cross-section view of an apparatus fabricating the foam in the housing; and,
 Figure 2 shows a cross-section view of the apparatus of Figure 1 expelling foam from the housing.

Referring to the drawings, there is shown an apparatus 1 having a housing 2 in the form of a cylindrical tube having an open end 3 and a closed end 4. Closed end 4 has a one-way valve 5 in the form of a hinged flap 6 hinged to the inside of the end 3, and an aperture 7 covered by the flap 6 in its closed position. A housing or foam outlet is provided by a spout 8 extending from the housing wall. Inside spout 8 is a one-way valve 9 in the form of a hinged flap 10 hinged to the inside of the spout, which flap 10 seals against a seat formed by an annular rib 11. A piston arrangement 12 is formed by a hollow tubular shaft or actuator 13 having a handle 14 at one end thereof, and a gas-permeable sponge membrane 15 at the end of the shaft 13 remote from the handle 14. The piston 12 can be made to reciprocate into and out of the housing 2.

The closed end 4 of the apparatus can be immersed in water as shown. As the piston is withdrawn from the cylinder, the one-way valve 9 closes, and the air pressure in the housing 2 reduces, and thus air is forced through membrane 15. Withdrawal of the piston arrangement 12 thus provides a gas generating means. At the same time, a small amount of water enters the housing through the one-way valve 5, so that the water level in the housing is the same as the level outside the housing.

In use of the apparatus, a foaming agent such as soap or detergent is applied to and stored in the membrane 15 in either a concentrate or diluted form. When the piston arrangement is pushed fully into the cylinder 2, the membrane 15 is in contact with and absorbs the water which has entered the cylinder through the one-way valve 5. The water mixes with the foaming agent. The one-way valve 5 thus provides a means for applying diluting liquid to the foaming agent. When the piston arrangement 12 is drawn towards the end 3 of the housing 2, air is forced through the membrane 15 containing foaming agent and water and creates a plurality of foam or "bubbles" 16. When the piston arrangement 12 is pushed back fully into the cylinder 2 again, the foam 16 is expelled through the one-way valve 8 (Figure 2) whilst the one-way valve 5 closes. At the same time, the membrane 15 again absorbs more water. The action of reciprocating the piston arrangement 12 within the housing 2 thus generates foam through the spout 8.

The apparatus may be used as a toy. Suckers (not shown) may be provided to attach the apparatus to the wall of a bath with the end of the housing immersed in the bath water.

The apparatus could be shaped into the form of a character or other object such as a pump. It could be of

any suitable colour and made of any suitable material such as moulded plastics.

If desired, the outlet 8 may form a mould to shape the foam expelled therethrough. For example, dies could be attached to the end of spout 8, such as triangular, square or other shaped dies. Alternatively, the outlet 8 may be designed to expel balls of foam and the apparatus may be designed to imitate a gun which shoots such foam balls.

In order to facilitate reciprocation of the piston arrangement 12, a spring (not shown) such as a coil spring, could bias the piston out of the housing 2. The user would then only be required to push the piston into the housing and the spring would return the piston out of the housing.

The membrane 15 may be a push fit in the cylinder 2 thus allowing it to be completely withdrawn for re-charging with foaming agent. Alternatively, it may be retained in the housing via a flange (not shown) or other retaining member at the end 3.

Instead of the construction specifically described above, the invention extends to any apparatus in which gas is forced through a membrane containing a foaming agent. For example, gas such as air could be provided by an electric pump.

8. Apparatus according to claim 7, wherein the liquid inlet is provided with a one-way valve to prevent foam being expelled through the liquid inlet.

5 9. Apparatus according to any of the preceding claims, wherein the store comprises a porous membrane, for example a sponge.

10 10. Apparatus according to any of the preceding claims, wherein the foam outlet has a non-circular cross-section.

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Claims

1. Foam making apparatus comprising a housing having a foam outlet; a gas permeable store mounted in the housing for storing a supply of foaming agent; and an activator for causing gas to pass through the store so as to generate a supply of foam in the housing which can be expelled through the foam outlet.

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2. Apparatus according to claim 1, wherein the store is movable within the housing under control of the activator to cause gas to pass through the store.

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3. Apparatus according to claim 2, wherein the store and housing form a piston/cylinder arrangement.

4. Apparatus according to any of the preceding claims, wherein the gas comprises air in the housing.

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5. Apparatus according to any of the preceding claims, wherein the activator is adapted to cause foam to be expelled through the foam outlet.

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6. Apparatus according to any of the preceding claims, wherein a one-way valve is provided in the foam outlet so as to prevent material from returning into the housing through the foam outlet.

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7. Apparatus according to any of the preceding claims, the housing further comprising a liquid inlet to enable liquid to enter the housing and mix with the foam.

Fig.1.

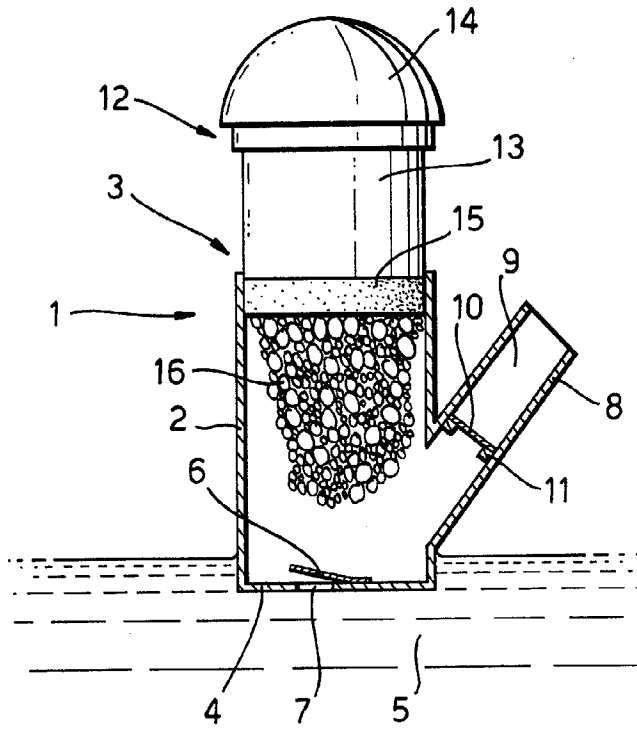


Fig.2.

