ATOMIC INFILTRATED TOY

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The present invention relates to animated toys. More particularly, it relates to animated toys in the shape of humans or animals in which the appendages are of the popout variety.

It is a principal object of this invention to produce a toy having a filled body in which various members, such as the eyes, ears, etc. are hollow and can be made to pop out by application of pressure to the filled body.

It is a further object of this invention to produce a self-sealing filled toy having outwardly projecting hollow members which can be made to assume a variety of positions by the application of pressure to the filled portion.

It is a further object of this invention to produce a filled toy having a whistle device embedded therein adapted to produce a whistle sound when the toy is squeezed and also having hollow appendages adapted to pop out when the toy is squeezed.

It is a further object of this invention to produce an animated filled toy which may be in the shape of human figurines or of animals, either as accurate reproductions of the same or as caricatures therefrom in which hollow members are attached to a filled body and adapted to assume various shapes when pressure is applied to the filled body portion of the toy.

These and other objects of the present invention will appear from the following detailed description of the invention to be read in conjunction with the accompanying drawings.

In said drawings:

FIG. 1 is a front elevation of a filled toy embodying the features of this invention in the form of a doll and illustrating the various positions assumed by typical hollow members in the resting and in the body compressed position;

FIG. 2 is a top plan view of the toy of FIG. 1;

FIG. 3 is a fragmentary cross-sectional view of a portion of the toy illustrated in FIG. 1 taken along the line 3—3' of FIG. 2;

FIG. 4 is a fragmentary cross-sectional view of the eye portion of the toy illustrated in FIG. 1 taken along the line 4—4' of FIG. 1;

FIG. 5 is a perspective view of a filled toy embodying the features of this invention in the form of an alligator;

FIG. 6 is a perspective view of the toy of FIG. 5 showing the various appendages in the pop out position as a result of compressing the body portion of the toy;

FIG. 7 is a cross-sectional view of the toy of FIG. 5 taken along the line 7—7 of FIG. 5;

FIG. 8 is a fragmentary cross-sectional view of the eye portion of the toy illustrated in FIG. 4 taken along the line 8—8 of FIG. 5;

FIG. 9 is a cross-sectional view of a type of valve which may be used in accordance with this invention;

FIG. 10 is a top view of a type of valve which may be used in accordance with this invention; and

FIG. 11 is a sectional view of the valve illustrated in FIG. 10 taken along the line 11—11 of FIG. 10.

Referring now to the drawings, the animated filled toy of this invention will be illustrated with reference to a doll and an alligator. It is to be understood that these embodiments are illustrative only and that a toy in accordance with this invention may take any of a number of forms.

A toy of this invention is illustrated in general by the numeral 9 and comprises a body section 10 filled with a material 11 such as polyethylene or urethane which is cellular and air retaining. It is important that the cellular filler of this invention be of opened cellular material so that air may flow from one cell to the other. In some modifications of the invention the filler may be in block form but in general, due to the irregularities of the contour of the body, it will be of shredded material. In addition to being of cellular and opened cell construction, the filler material must be easily compressible and be substantially resilient or elastic so that it will return to its original shape when pressure is removed from it.

The filler material is enclosed in a substantially airtight, flexible casing generally illustrated by the numeral 12 which is so constructed that it takes the form of a doll body when the filler material is inserted. The casing is made from any suitable sheet plastic which may be heat sealed or otherwise attached along seams. A number of such materials, particularly vinyl plastics, are well known in the art.

The body casing, which should be of substantially flexible material, is manufactured in any suitable manner. As shown, the doll casing is constructed of nine separate panels, two front exterior panels 13 and 14 and two front interior panels 15 and 16. There are four corresponding back panels not shown and a head panel 17. The panels are heat sealed or otherwise attached along their edges to form lines of seal 18, 19, 20, 21 and 22, respectively. In the doll embodiment illustrated in FIG. 1, three sets of appendages are shown. These are the arms, generally illustrated by the numerals 23 and 24, the eyes, generally illustrated by the numerals 25 and 26, and the ears generally illustrated by the numerals 27 and 28. Each appendage has a hollow portion illustrated at 29, 30, 31, 32, 33 and 34 which communicates with the interior or chamber portion of the body through an opening illustrated, for example in FIG. 1 at 35 and 36, in FIG. 3 at 37 and in FIG. 4 by the pinhole opening 38.

The said opening serves as a conduit for air to and from the hollow portion as pressure is applied to and removed from the body portion.

Each appendage is formed with front and back panels. In the figure, the front panel for the arms is shown at 39 and 40, the back panel for the arms is not shown. The front and back panels for the ears are most clearly shown in FIG. 3 at 40 and 41 and for the eyes in FIG. 4 at 42 and 43. The panels are joined to each other along seal lines 44, 45, 46, 47 and 48. It will be noted that the seal lines are not necessarily on the periphery of the panels. It should also be noted that with the ears the line of seal extends through both ears and that both ears are formed from only one front panel and one back panel.

FIGS. 1—4 illustrate different methods by which the pop out members can be attached to the body member. In FIG. 1 the arm members are constructed by attaching the front and back panels of each arm along the lines of seal 18 and 19 of the body casing 12. Each line of seal is interrupted to form an opening at aforesaid to provide for the free passage of air in and out of the arm members.

The figures, especially FIGS. 1, 3 and 4, illustrate another method of attaching appendages to the body portion. Referring especially to FIGS. 1 and 3 and to the ear members illustrated therein, it will be seen that the bottom panel 41 has means defining an annular opening generally illustrated by 49. This opening is in cooperative engagement with a corresponding opening generally illustrated by numeral 49' in the head panel of the body portion. The cooperating openings are attached
a conduit for the free passage of air. A whistle device 51 is secured in this conduit in the embodiment of the invention illustrated.

Referring now to FIGS. 1 and 4, it will be seen that the eye members are attached to the bottom portion in a manner similar to that employed for attaching the ear members. Thus the bottom panel 43 of each eye member has means defining an annular opening generally illustrated by the numeral 52 in FIG. 4. Each eye member is attached to the body portion, for example, by heat sealing along the line of seal 54. The air conduit from the body portion to the eye member is in this instance a pinhole 38. The latter must, of course, be formed before an eye member is attached.

The general appearance of each eye member is enhanced by providing a disc 54b with means forming an annular opening 55 secured within the eye member to represent the pupil of the eye.

Referring now to FIGS. 5, 6, 7 and 8, there is illustrated an embodiment of this invention in the form of an alligator. The component parts of this embodiment which are identical with the corresponding parts in the doll embodiment are identified by the same reference numerals with the addition of the suffix a.

The alligator, generally represented by number 9a, comprises a body section 10a formed with a compressible, resilient, elastic material 11a enclosed in a substantially airtight, flexible casing 12a so constructed that it assumes the form of an alligator body when filled with the cellular material. The body has a plurality of pop out appendages including the upper jaw, generally represented by the numeral 56, a tongue, generally represented by the numeral 57, fins, generally represented by the numerals 58 and 59, a tail, generally represented by numeral 60, eyes, generally represented by numerals 25a and 26a, and ears, generally represented by the numerals 27a and 28a.

As shown, the body casing is constructed of two panels, an upper panel 61 and a lower panel 62 joined along lines of seal 63 and 64, respectively. These panels are conveniently cut to include the tail and the fins as is clearly shown with respect to the tail in FIG. 7. This is not necessary, however, since these members can also be attached using the procedure described in connection with members of the doll embodiment of FIGS. 1–4.

The upper surface 65 of the lower jaw, the upper and lower surfaces of the tongue 66 and 67 and the lower surface 68 of the upper jaw may all be formed from one panel suitably folded to follow the contours of the oral region. This is shown in FIG. 7 which also illustrates that this panel is joined to upper and lower body casing panels 61 and 62 at lines of seal 70 and 71.

The ear members are each constructed of front and back panels represented by numerals 72, 73, 74 and 75 joined along lines of seal 76 and 77 and joined to the body casing along lines of seal 78 and 79. Each has a hollow portion 33a and 34a and an opening 89 and 81 to allow passage of air.

The eye members 25a and 26a are each constructed in a manner similar to the construction of the eye members in the doll toy. Thus there are front and back panels 42a and 43a, the latter having means forming an annular opening 52a. Each eye is joined to the body portion at the line of seal 54a. There is a pinhole 38a for the passage of air and an annular disc 54a having means defining an opening 55a.

The tongue and upper jaw also have hollow openings 80 and 81 defined by lines of seal 82 and 83.

There are similar hollow openings in the fins and tail illustrated by 84, 85 and 86. These are defined by lines of seal 87, 88 and 89.

The operation of a filled animated toy of this invention is as follows: In the resting position, the various appendages impinge against the outer surface of the casing and the air pressure in every interior segment of the toy is the same. When the body portion of the toy is compressed, the filler is forced into the appendages increasing the air pressure therein and forcing them to assume a pop out position. When the compressive force is removed from the body portion, the filler material, because of its resiliency, tends to assume its regular position. Since the volume of the filler then increases, an air pressure differential is created with the higher pressure in the appendages and therefore in the body portion. This differential is equalized by air leaving the appendages and filling the cells in the filler material. The appendages then assume their normal position.

It has been found that the toys of this invention operate more efficiently if a valve is provided through which the interior of the body portion or the chamber communicates with the atmosphere to allow for controlled passage of atmospheric air to and from the interior chamber. The provision of a valve is not essential to the operation of the toy but since the casing may not be completely airtight, or since pinholes may be inadvertently formed in the casing during manufacture, and since uncontrolled passage of air may inhibit the efficient operation of the toy, it is best to provide a valve.

Two types of valves which may be employed in this invention are illustrated in FIG. 10. FIG. 9 shows a valve generally illustrated by 99a comprising a hollow tube having an opening 90' defined by the walls of the tube represented by 91 and 92. The tube is sealed by a substantially airtight seal in the body casing of the toy represented by 93 so that the lower end of the tube 94 communicates with the interior chamber of the toy. A flexible flap 95 is hinged to or formed integrally with the valve 99a. A manually operated closure flap 96 is shown although this is not necessary to the operation of the valve.

This type of valve is operated with the closure flap 96 either absent or opened. When the filler material is pressed, the back pressure thus created closes the flap 95 and prevents the escape of air through the valve. When the pressure is removed, the differential between the higher atmospheric air pressure and the lower air pressure in the interior of the toy causes the flap to open and atmospheric air enters.

FIG. 10 and 11 illustrate another type of valve which may be employed with a toy of this invention. The valve generally represented by 97 consists of a substantially rigid disc 98 of plastic or other material that is bent sealed or otherwise attached to the body casing 99, the attachment being made about the periphery of the disc 98 for a purpose to be presently described. As illustrated in FIG. 11, the inner surface of the disc 98 is provided with an annular ridge 100 adjacent the periphery of the disc 98. The ridge is adapted to receive the casing 99 to provide an airtight seal therebetween. The portion of the casing 99 underlying the disc 98 is provided with a plurality of radially spaced openings 101 and the disc 98 is provided with a central opening 102 for a purpose presently to be described.

The operation of the valve illustrated in FIGS. 10 and 11 is as follows: In the normal condition there is a free passage for air through the central opening 102 and the radially spaced openings 101. When the body is compressed, the back pressure from the air being forced out of the cellular openings in the filler will bias the casing against the lower surface of the disc and prevent the escape of air to the atmosphere. When the compressive force is removed, the greater air pressure of the atmosphere forces the valve open in a manner similar to that described in connection with FIG. 9.

What has been described is a filled animated toy with pop out appendages. It is to be understood that although several embodiments of the invention have been described, changes and modifications may be made thereto.
without departing from the spirit and scope of the present invention as defined in the appended claims.

I claim:

1. An animated toy having a body member comprising a body casing filled with compressible, resilient, open cellular, filler material; flappable hollow appendages disposed externally of and attached to said body casing adapted to represent facial and body features, the said appendages communicating through air passage means defined by the walls of said body casing with the interior of said body member, characterized in that the said appendages expand and contract in response to movement of air into and out of the hollow portion thereof through the said air passage means by the application and release of pressure to the said filler material.

2. An animated toy having a body member comprising a body casing filled with compressible, resilient, open cellular filler material, flappable appendages disposed externally of and attached to said casing representing facial and body features, the walls of said appendages defining a hollow central portion communicating with the interior of said body member through air passage means defined by the walls of said body casing, the said appendages being adapted to expand in response to air forced out of the filler material through the air passage means into the hollow central portion when the filler material is compressed, and said appendages being adapted to contract in response to movement of air out of the hollow central portion through the air passage means into the filler material when the filler material is released.

3. An animated toy, said toy comprising a compressible, resilient, open cellular filler material enclosed in and substantially filling a body portion formed by a substantially airtight body causing, flappable appendages representing facial and body features each having a front and a back panel sealed substantially around their peripheries to form a hollow central portion, the said appendages being attached to the outside of the body portion, each said hollow central portion communicating with the interior of the body portion through air passage means defined by the walls of said body casing, characterized in that the appendages expand and contract in response to movement of air into and out of the hollow portion thereof through the said air passage means by the application and release of pressure to the said filler material.

4. An animated toy as in claim 1 including valve means sealed in said body casing communicating with the interior chamber of said body member and with the atmosphere, said valve adapted to close in response to air forced from the filler material by compression of the same and to open in response to atmospheric air pressure when compression is removed from said filler.

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