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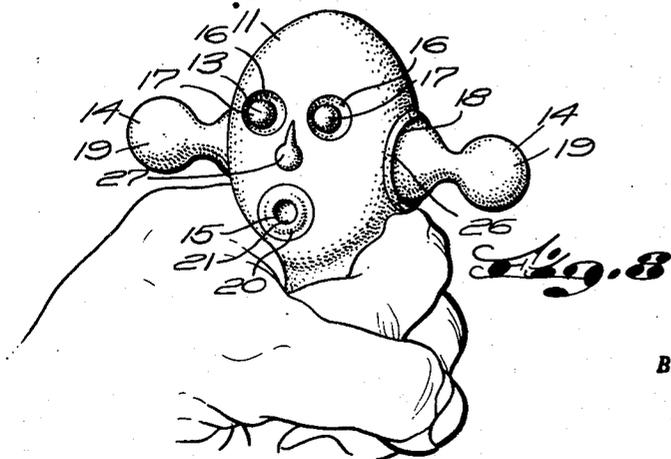
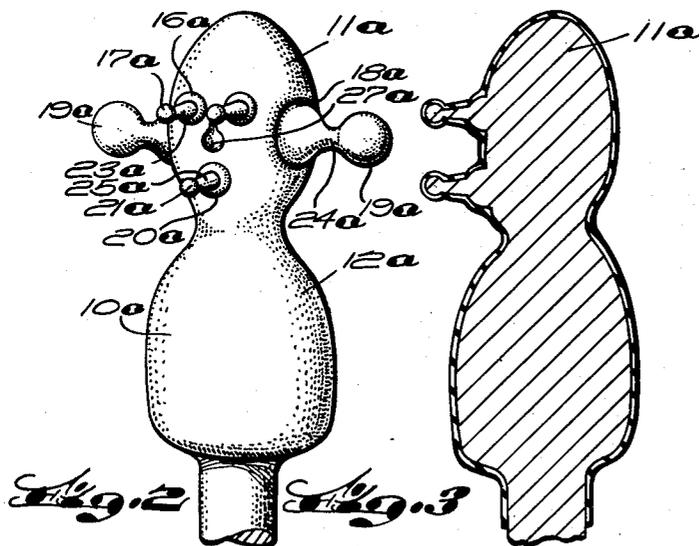
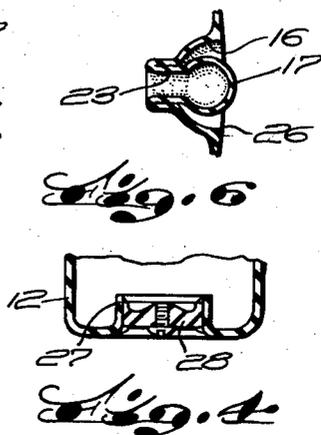
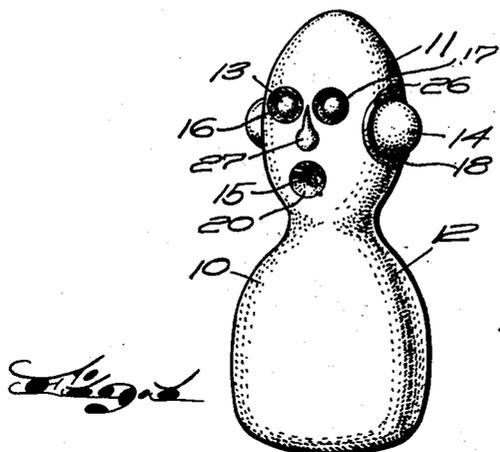
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2,668,394

SQUEEZABLE POP-OUT ACTION TOY

Filed May 24, 1947

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

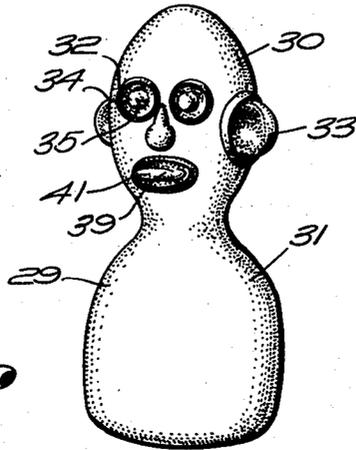


Fig. 9

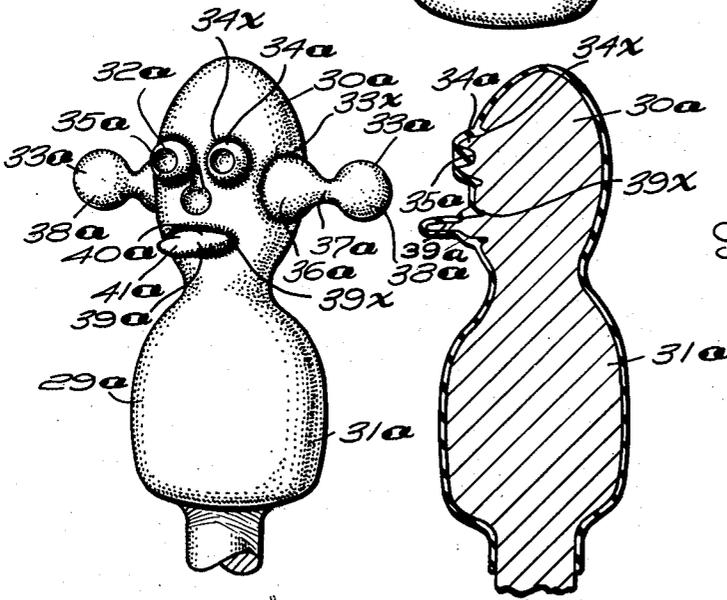


Fig. 10

Fig. 11

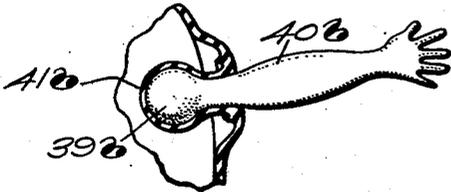


Fig. 12

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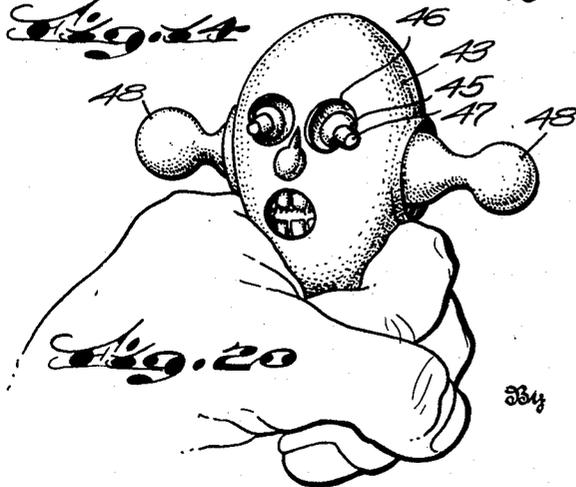
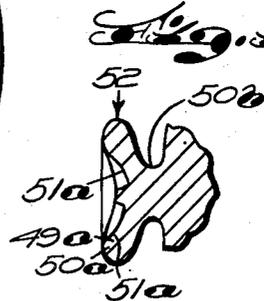
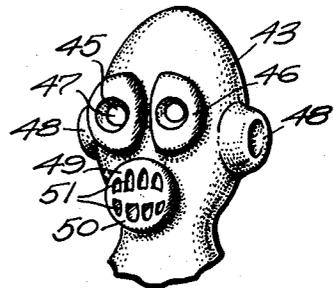
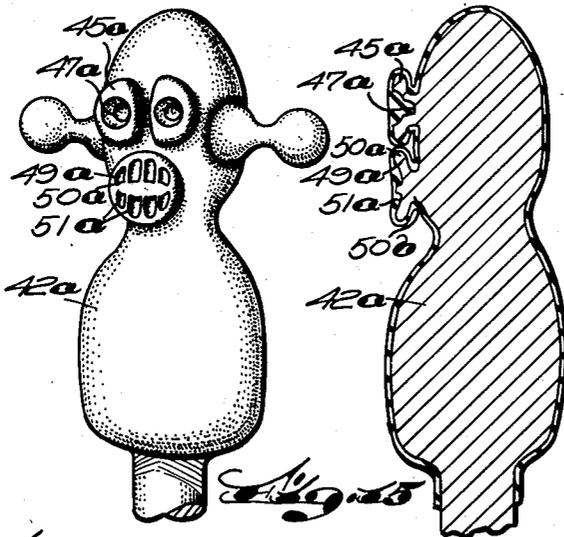
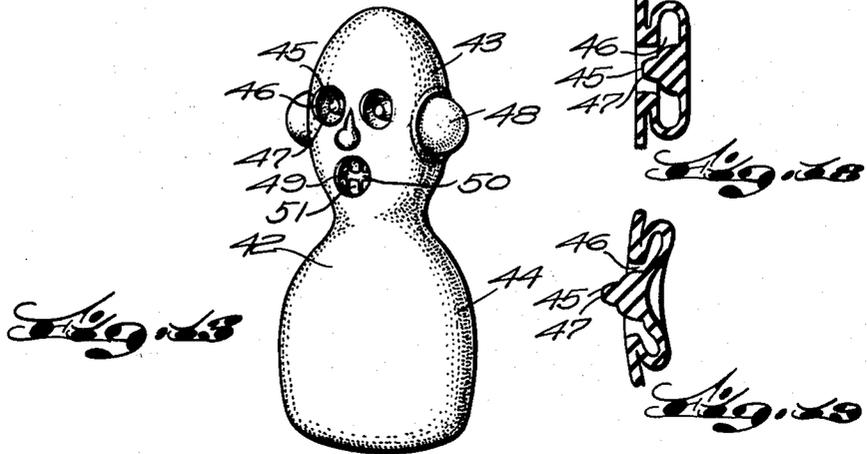
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SQUEEZABLE POP-OUT ACTION TOY

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4 Sheets-Sheet 3



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SQUEEZABLE POP-OUT ACTION TOY

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4 Sheets-Sheet 4

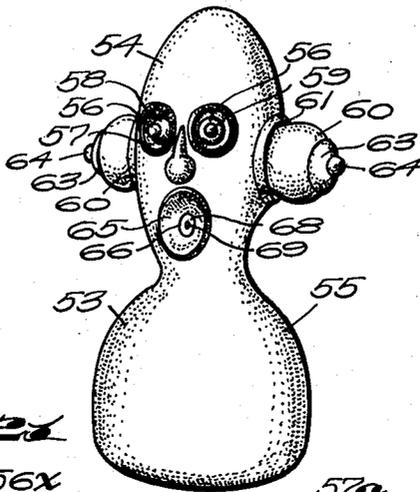
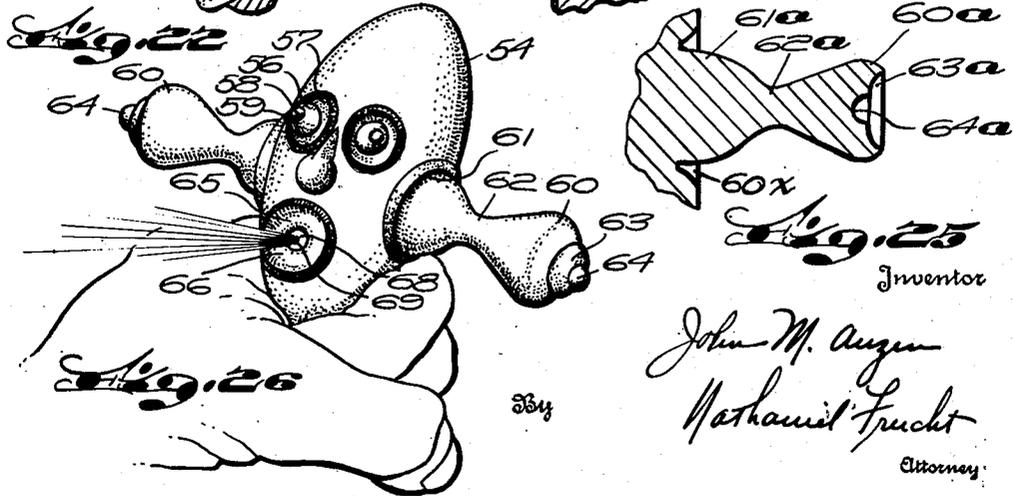
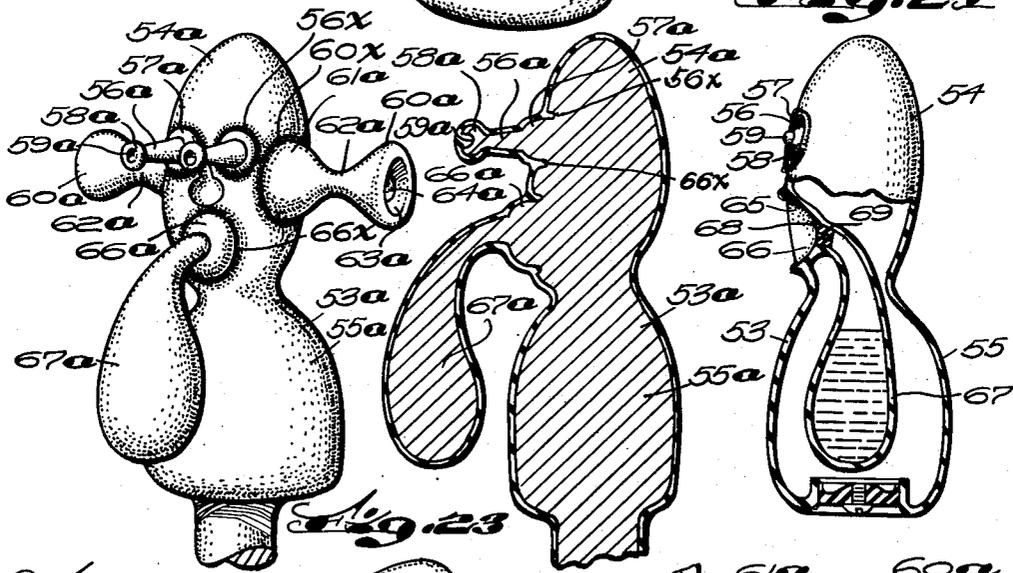


Fig. 21

Fig. 21



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UNITED STATES PATENT OFFICE

2,668,394

SQUEEZABLE POP-OUT ACTION TOY

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Application May 24, 1947, Serial No. 750,318

4 Claims. (Cl. 46-135)

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The present invention relates to the manufacture of rubber toys, and has particular reference to air filled action toys which have expansible parts.

The principal object of the invention is to provide an air filled toy which has expansible ears, eyes, and other parts adapted to snap out when the toy is squeezed, and adapted to snap back as soon as the squeezing pressure is released.

Another object of the invention is to provide an expandible portion for a rubber toy which has parts placed under tension when the toy is squeezed, for compelling return of the expanded parts to collapsed position as soon as the squeezing pressure is released.

A further object of the invention is to provide dipping molds of special design for forming tensioning elements associated with expansible toy parts and adapted to exert collapsing pressure on the expansible toy parts.

Another object is to provide an action toy which provides noise when the toy is squeezed.

An additional object of the invention is to provide a rubber action toy with expansible parts normally seated in recesses and adapted to snap out wholly or in part of the recesses when the toy is squeezed and to snap back into the recesses as soon as the squeezing pressure is released.

An additional object is to provide an action toy with an eye arrangement that operates when the toy is squeezed to enlarge the eyes and cause the pupils to move outwardly.

A further object is to provide an eye arrangement for an air filled toy which snaps the eyes out in diverging relation when the toy is squeezed.

Another object is to provide an action toy which has eyes, teeth, and a mouth, the eye sockets, pupils, teeth and mouth being permanently colored by applying color during manufacture.

Still another object of the invention is to combine a fluid filled sac with an air filled toy, whereby squeezing the toy will project parts of the toy outwardly and also project a stream of water or similar fluid outwardly from the toy.

An additional object is to provide an action toy having a head with flexible parts which move to give a surprised or startled expression when the toy is squeezed.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully described in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

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In the drawings:

Fig. 1 is a perspective view of an illustrative action toy having expansible parts in accordance with the invention;

Fig. 2 is a perspective view of the dipping mold for dipping the toy of Fig. 1;

Fig. 3 is a vertical section through the dipping mold of Fig. 2 after the dip has been made;

Fig. 4 is a sectional detail of the base of Fig. 1, showing one form of air retaining plug mounted therein;

Fig. 5 is an enlarged sectional transverse detail showing the dip for one eye portion of Fig. 3;

Fig. 6 is a vertical sectional detail through one eye of Fig. 1, the eye being shown pushed in position;

Fig. 7 is a sectional view of the ear shown in expanded position;

Fig. 8 is a perspective view showing the appearance of the toy of Fig. 1 when it is squeezed;

Fig. 9 is a perspective view of a modified construction of toy;

Fig. 10 is a perspective view of the dipping mold therefor;

Fig. 11 is a vertical section through the dipping mold after the dipping operation;

Fig. 12 is a vertical section through one ear of the toy of Fig. 9, showing the ear portions cemented together;

Fig. 12a is a sectional detail showing how an ear type socket recess can be used to swingingly receive an arm or other projection;

Fig. 13 is a perspective view of another modified toy construction;

Fig. 14 is a perspective view of the novel mold for dipping the toy of Fig. 13;

Fig. 15 is a vertical section through the dipping mold of Fig. 14, after the dipping operation;

Fig. 16 is a perspective view of the dipped toy head, with the toy removed from the mold, but in a right side out position, the ear projection being shown pushed in;

Fig. 17 is an enlarged vertical section through the mouth portion of the mold of Fig. 14;

Fig. 18 is an enlarged section showing the eye formation of Fig. 13, in collapsed position;

Fig. 19 is a view similar to Fig. 18, the eye being in expanded position;

Fig. 20 is a perspective view showing the appearance of the toy of Fig. 13 when squeezed;

Fig. 21 is a perspective view of a further modified construction of toy made in accordance with the invention;

Fig. 22 is a perspective view of the dipping mold therefor;

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Fig. 23 is a vertical section through the dipping mold of Fig. 22, after the dipping operation;

Fig. 24 is a side elevation, partly in section, of the completed toy;

Fig. 25 is an enlarged detail section through one ear portion of the dipping mold; and

Fig. 26 is a perspective view showing the appearance of the toy of Fig. 21 when squeezed.

It has been found desirable to manufacture a rubber action toy of the air filled type, which has expansible parts which move or project outwardly from the toy when it is squeezed and which snap back when the squeezing pressure is removed. To this end, I provide a dipping mold of special formation, which is dipped into any suitable solution of rubber, either natural latex or synthetic latex, dispersions or rubber solutions, to provide a flexible coating of the desired thickness. The coating is dried and cured enough so it can be stripped from the mold and is left in an inside-out position. In stripping, the ears and eyes will recede into their respective recesses as shown as 13 and 14 in Fig. 1. The mouth may be pushed in so that it is in its original position or can be left in an inside-out position to form a tongue. The toy is now leached in water after which it is dried.

The toy thus has recesses in which projectible portions such as ears, eyes, tongue, and similar parts are normally nested to snap outwardly when the toy is squeezed, the recesses and their projectible parts having portions which are tensioned when the parts are projected out and operate to snap the parts back into the recesses when the squeezing pressure is released. I have further found that the recesses may be so shaped that the projectible parts, and particularly the eyes, may be made to turn outwardly so as to give the toy a cross-eyed appearance, and that the toy may have within it a sac containing water or the like, so that squeezing the toy will also produce a stream of liquid, as for example from the mouth of the toy.

Referring to the drawings, the illustrative action toy 10 shown in Fig. 1 is hollow, and has a head 11 and a body portion 12 which is adapted to be squeezed. The head 11 has eyes 13, ears 14, and a mouth 15, the eyes including eye socket recesses 16 and pupils 17, the ears including ear recesses 18 and extensions 19, and the mouth including a mouth recess 20 and a tongue 21, see Fig. 8, the tongue having been pushed in to leave a cavity. The toy is formed by utilizing a dipping mold 10a, see Fig. 2, having a head portion 11a, a body portion 12a, eye socket recess portions 16a and pupil portions 17a which extend outwardly as illustrated, as well as ear recess portions 18a and ear extensions 19a, a mouth recess portion 20a, and a tongue projecting portion 21a. As illustrated, the recess portions 16a, 18a, 20a are preferably joined to the projecting portions 17a, 19a, 21a by narrow bridges 23a, 24a and 25a to provide corresponding narrow connections 23, 24 and 25 in the toy.

The eye parts and the mouth parts are at right angles to the associated body portions whereby dipping such as is accomplished in the Teague process, produces a desirable thickening at the joints or boundaries, as indicated at 26 in Fig. 5; when the coating is removed from the dipping mold and reversed, the thickening 26 forms a tensile bead or ring shaped portion at the boundary between the recess and the body portion which is of thicker material than the thickness of

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the body portion and the recess material, see Fig. 7, and which serves to normally pull or snap the projection into the recess when the toy is squeezed; the excess air squeezes the projections out, see Fig. 8, and the tensile ring shaped portions 26 then snap the projections back into the recesses as soon as the pressure is released. The tensile ring shaped portion formed by the recess portion 18a in Fig. 2, and plainly shown at 26 in Fig. 8, is particularly advantageous when the toy material is thin in comparison with the size of the recess, for a positive ear return action.

When the coating is stripped from the form, the eye pupils will recede into their socket recesses, as shown in Fig. 6; the inner portions of the eyes will dry and cure and will not pop out under normal squeezing pressure. However, if it be desired that the eyes be constrained not to pop out when the toy is squeezed, then rubber or other suitable cement may be applied to the interior of the socket recesses to lock the eyes in place under the squeezing pressure. The mouth projection is normally turned inwardly as shown in Figs. 1 and 8. A nose cavity 27a may be provided in the mold body, to form a nose 27 in the toy.

The toy is preferably made air sealed by sealing the lower edge of the body portion after turning it inwardly, see Fig. 4, and inserting a plug 28 of rubber or other material, the plug being cemented in.

Many other variations may be made in the construction of the toy to obtain different expanding or projecting effects when squeezed. Thus, referring to Fig. 9, the toy 29 has a head 30, a body 31, eyes 32 and ears 33. A dipping form 29a for this modified construction is shown in Fig. 10, and includes a head portion 30a, a body portion 31a, eye portions 32a and ear portions 33a. The eye portions 32a include socket recess forming parts 34a which extend outwardly and have pupil cavities 35a which are filled with latex when the mold is dipped to provide eye socket recesses 34 and pupils 35, and the ear portions 33a include rounded recess portions 36a, connection portions 37a, and round outer portions 38a. The parts of the round outer portions of ears 33 may be cemented together, see Fig. 12, to obtain a cup-shaped ear. The mold may have a tongue projection 39a which can be of any desired shape; it preferably has an enlarged base 40a to form a tongue 39 having a socket 40, and an elongated extension 41a to provide an elongated tongue tip 41, which normally nests in the mouth recess as shown in Fig. 9.

When the anode, or one-dip process is used, thickening of the joints or boundaries does not occur; therefore, grooves 33x, 34x and 39x at the base of the ear, eye and mouth parts are formed to provide the desired tensile ring shaped portions at the base of the parts. Fig. 12a shows how an ear type socket recess can be used for an arm recess, the recess being formed in the body of the toy by modifying the mold; rounded ends 39b of arms or other projections 40b may be inserted in the recesses 41b to be resiliently and movably retained therein.

If preferred, the toy may be manufactured in the form shown in Fig. 13, wherein the modified toy 42 is designed to provide diverging projecting eyes when squeezed and to disclose teeth. The toy 42 includes a head 43, a body 44, eyes 45 which have eye socket recesses 46 and pupils 47, ears 48 similar to the ear arrangements heretofore described, a mouth 49 having a mouth socket recess 50, and teeth recesses 51.

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The toy is obtained by dipping a mold 42a, illustrated in Fig. 14, in latex or similar rubber solution, stripping the coating, and reversing. The mold is generally similar to the molds previously described, but has eye extensions 45a which are spaced as illustrated in Fig. 14, the extensions 45a forming the eye sockets and having cavities 47a which form the projecting pupils. The cavities, if desired, can be oval to form a natural type eye. The mouth portion 49a of the mold has an extension 50a for providing the mouth socket recess, the extension being joined to the main body of the mold by a narrow connection 50b, which is smoothly rounded as illustrated in Fig. 17. The teeth are formed by adjacent mold cavities 51a. The mouth portion 49a and connection 50b may be made oval, whereby more and longer teeth can be shown.

Fig. 18 shows a cross-sectional detail of the eye construction in a relaxed or normal position, and Fig. 19 shows the eye expanded, the pupil being pushed outwardly and the eye socket enlarged as the toy is squeezed. This form of eye and mouth construction permits coloring of the eye pupils, teeth and mouth by applying colored latex prior to dipping the toy, the teeth cavities being preferably colored white, and the mouth parts red, the colored latex being applied to cover the projecting mold parts to a point such as designated 52 in Fig. 17. The eye socket cavity portion of the mold can be colored blue, black or brown, for example, while the remaining mold cavity portions can be colored white. Instead of applying colored latex to selected portions such as the eyes and teeth, color may be applied by brush after the mold is dipped or the coating is removed. If the toy material is translucent, it is preferred to apply the color inside.

Referring now to Fig. 16, it will be noted that the coating, when removed from the dipping mold, is generally similar to the mold; the latex or other rubber has a tendency, however, to fill up between the projecting portions of the mold, and particularly between the eye socket portions. If this filling-in is permitted to remain, the eyes will project out straight when the toy is squeezed; if the filling-in part is cut, then the eyes will diverge when the toy is squeezed, and particularly if the pupils are initially made close together. The toy mouth, if formed as described, will project forward when the toy is squeezed to show the teeth, which will push outwardly. If it be found that the earring portions lack sufficient resiliency to snap the ears back in, this can be corrected by applying latex solution to the boundaries between the ears and the body when right side out, as shown in Fig. 16, to make that portion thicker.

The toy may be constructed to obtain other attractive effects, as illustrated in Fig. 21. In this embodiment the toy 53 has a head 54, a body 55, eyes 56 which have eye socket recesses 57 and pupils 58, the pupils having end tips 59; the ears 60 have ear recesses 61, connections or bridges 62 of narrow shape, and ear extensions 63 which have end tips 64. The mouth 65 has a mouth recess 66, a flexible sac 67 being provided within the body 55 and depending from the inner portion of the mouth and containing liquid such as water or perfume which will be sprayed through the perforated mouth plug when the toy is squeezed, to thus supplement the effect produced by the forwardly projecting eyes and ears.

The toy of Fig. 21 is produced from a dipping

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mold 53a, see Fig. 22, which has a head portion 54a, a body portion 55a, eye sections 56a which have socket recess forming portions 57a and pupil forming portions 58a, the pupil portions 58a having cavities 59a for forming the desired pupil tips. The ear portions 60a of the mold have ear recess forming portions 61a, connections 62a, ear extension portions 63a, and cavities 64a which form the end ear tips, the cavities 64a being preferably of the shape shown in the enlarged sectional detail Fig. 25. The sac 67 is preferably formed by a sac-form extension 67a in the mold, see Fig. 23, which depends from the mouth portion 66a of the mold. To obtain a larger and very strong retractive ring shaped portion around the recess portions of the projectible members, the mold may be undercut at the boundaries between the extensions and the mold body, by the eye groove 56x, the mouth groove 65x, and the ear groove 60x, the ear groove being shown more clearly in the enlarged section Fig. 25.

After the coating is stripped from the mold, the sac or reservoir is reversed so that it is contained within the body of the toy, as shown in Fig. 24. A plug 68 having a small opening or passageway 69 is cemented in the mouth opening, as shown in Fig. 24, whereby the sac will be compressed when the toy is squeezed to eject the sac fluid through the mouth in a fine stream. The sac is readily filled by squeezing the toy and immersing it in water; release of the squeezing pressure causes the sac to fill up.

The ends and end tips of the eyes and ears can be colored as previously described. It is noted that the finished ears of the toy are much longer than the ear mold parts, thus facilitating formation of the molds and making the stripping operation easier.

The above described constructions are illustrative of typical arrangements for obtaining different types of action toys. One basic feature of the invention resides in the construction of the mold elements for forming the expansible or projectible portions of the toy, these elements being either formed integral with the mold body, which may be of aluminum, duralumin, stainless steel, or wood. The mold projections may be formed separately and permanently or removably attached to the mold.

Another basic feature resides in the turning of the toy inside out after forming, thus providing recesses in which the projectible eyes, ears and tongue portions are positioned. Each projectible portion is connected to its recess by a reverse bend, whereby squeezing the toy body projects the projectible portion and its recess outwardly. A third basic feature resides in the formation of a ring shaped portion at the base of each projectible part, each ring shaped portion permitting the body portion to be of uniform thin thickness, although the projectible parts may be of different diameters, as in the case of eyes and ears. When the bead normally assumes the position where it retracts the expandible or projectible element of the toy, with the result that these elements pop out with noise when the toy is squeezed, the tension imparted to the ring shaped portions by the expansion pressure ensures a snap return of the expanded or projected elements as soon as the pressure is relieved, this snap return being assisted by the collapse of the inner enlarged portions of the projectible elements.

A fourth basic feature resides in the formation

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of a one-piece action toy in which the projectible parts are integral with the body of the toy.

The use of separate projections on the mold body which have cavities at the base, ends of large diameter, and intermediate connecting portions of relative reduced diameter, as illustrated in the different illustrative figures, permits the inclusion of preformed projections of different materials, such as metal, rubber compounds, plastics such as Texloid, or other suitable materials, and also permits the mounting of preformed parts on the mold body and mold elements which then become integrated with and part of the flexible coating, thus becoming incorporated in the action toy. Many other variations will be apparent to the skilled toy manufacturer; for example, the pressures at which the projectible parts pop out may be controlled by changing the length and the radius of the recesses, whereby the action toy may have its ears, eyes, and tongue pop out successively instead of simultaneously, if desired; portions of the ring shaped portions may be omitted to incline the projected parts at desired angles to the body portion.

Although I have described specific types of toys, made with man-type heads, it is obvious that the toy may be made in the form of animal types, such as dogs, cats, rabbits and the like, or other shapes as desired, and that the size, shape, and arrangement of the parts may be varied to obtain any desired popping effect, without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. An air filled action toy of flexible material, having a hollow body portion with a recess, a hollow part extending from the recess and in free communication with the interior of the hollow body portion, whereby squeezing the action toy projects the hollow part outwardly, the material of the body portion, the hollow part, and the recess being of the same thickness, the boundary between the recess and the body portion being a ring shaped portion having at least a part thereof of thicker material than the material of the body portion and the recess.

2. An air filled action toy of flexible material, having a hollow body portion with a recess, a hollow part extending from the recess and in free communication with the interior of the hollow body portion, whereby squeezing the ac-

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tion toy projects the hollow part outwardly, the material of the body portion, the hollow part, and the recess being of the same thickness, the boundary between the recess and the body portion being a ring shaped portion having at least a part thereof of thicker material than the material of the body portion and the recess, the hollow part having its sides cemented together to form a cup shaped end portion.

3. An air filled action toy of flexible material, having a hollow body portion with a recess, a hollow part extending from the recess and in free communication with the interior of the hollow body portion, whereby squeezing the action toy projects the hollow part outwardly, the material of the body portion, the hollow part, and the recess being of the same thickness, the boundary between the recess and the body portion being a ring shaped portion having at least a part thereof of thicker material than the material of the body portion and the recess, the hollow part having a hollow base, an enlarged end, and an intermediate connecting portion of reduced cross section.

4. An air filled action toy of flexible material, having a hollow body portion with a recess, a hollow part extending from the recess and in free communication with the interior of the hollow body portion, said hollow part and said recess being connected by a reverse bend, whereby squeezing the action toy projects the hollow part and the recess outwardly, the material of the body portion, the hollow part, and the recess being of the same thickness, the boundary between the recess and the body portion being a ring shaped portion having at least a part thereof of thicker material than the material of the body portion and the recess.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
494,410	Carpenter	Mar. 28, 1893
1,196,649	Bockstahler	Aug. 29, 1916
1,352,047	Boje	Sept. 7, 1920
2,100,574	Spanel	Nov. 30, 1937
2,169,475	Spanel	Aug. 15, 1939

FOREIGN PATENTS

Number	Country	Date
31,949	Denmark	June 28, 1923