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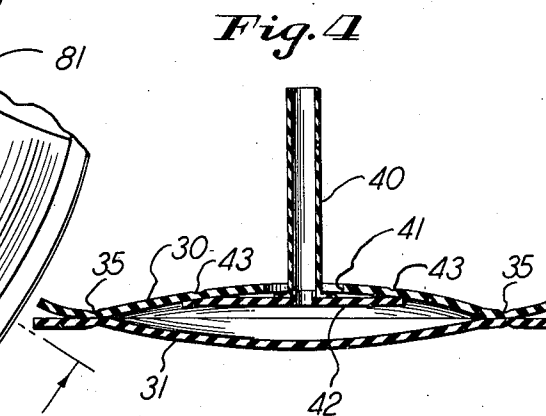
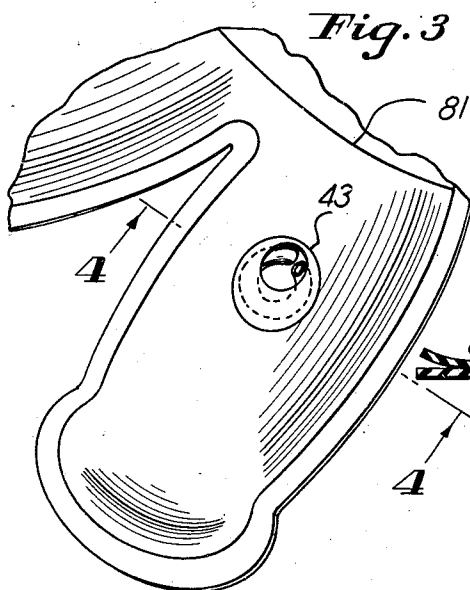
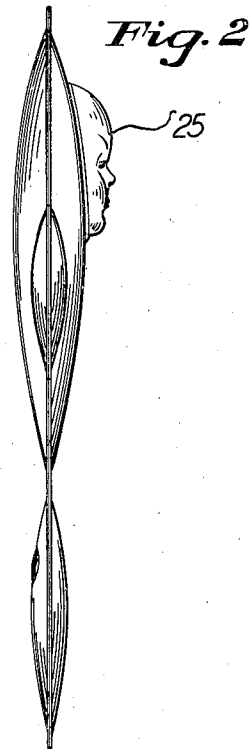
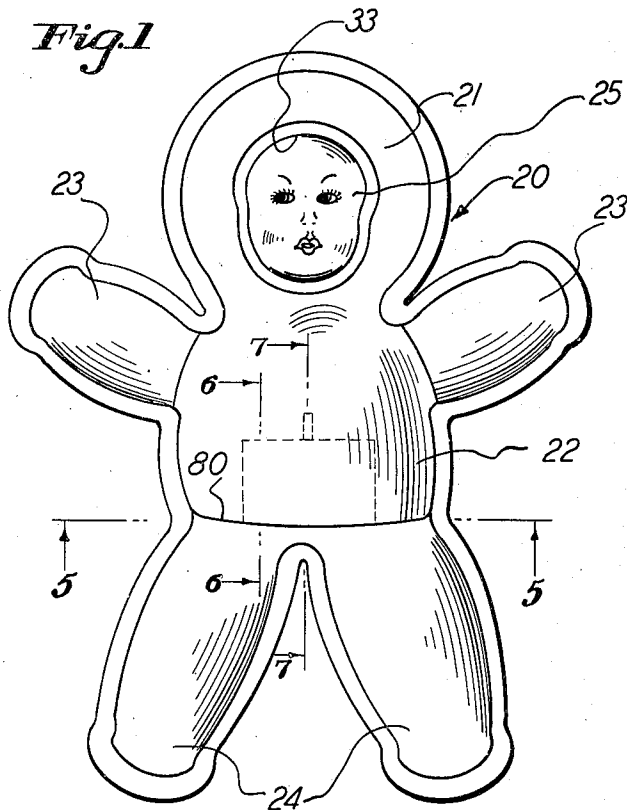
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INFLATED TOY WITH SOUND PRODUCING MEANS

Filed March 16, 1949

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

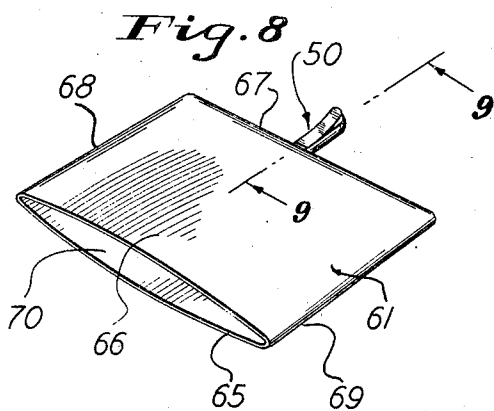
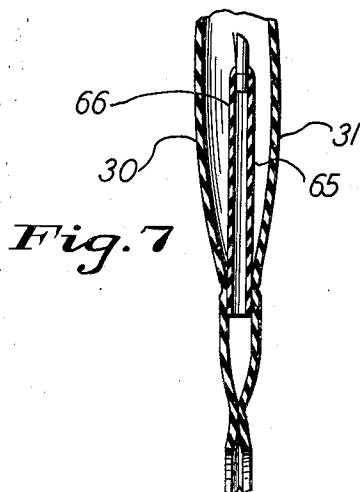
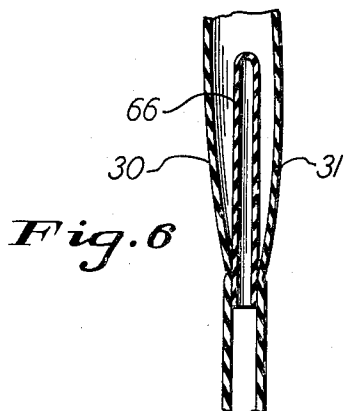
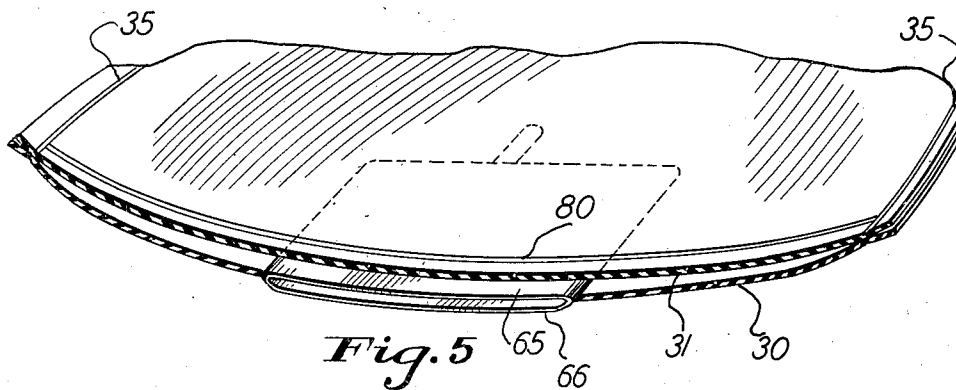
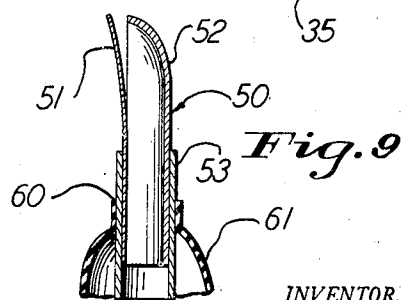
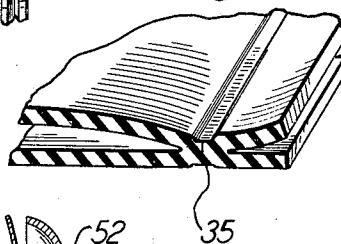


Fig. 10



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UNITED STATES PATENT OFFICE

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INFLATED TOY WITH SOUND PRODUCING MEANS

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7 Claims. (Cl. 46—88)

1

This invention relates to an inflated doll with sound producing means.

The doll forming the subject matter of this application is made of plastic material and more particularly plastic sheet material cut to appropriate shape and size and heat sealed along all peripheral edges. The plastic sheet material may include the representation of a face or a simulated face may be incorporated therein. The doll may be inflatable in the sense that provision may be made in the doll itself for introducing air under pressure, the ultimate consumer to perform the inflating operation, or the doll may be pre-inflated, that is air under pressure may be introduced into the doll during its process of manufacture.

Included in the doll is a sound producing mechanism which functions when the doll is pressed. The sound producing mechanism has a reed or a plurality of reeds which are vibrantly responsive to a flow of air. This mechanism is so situated in the doll that when one part of the doll is pressed, a flow of air takes place from the pressed part through the sound mechanism and into an opposite part of the doll. When pressure is released, there is a return flow of air from said opposite part of the doll through the sound mechanism and back to that part of the doll which had been pressed. The sound producing mechanism may respond to the flow of air in a given direction and if pressure upon the doll causes a flow in the opposite direction, sound will not be produced until the air is permitted to return to the compressed portion of the doll. It is of course true that a sound producing mechanism may be incorporated into the doll which is responsive to a flow of air in either direction. In such case, sound will be produced both when the doll is compressed and when it is released, since there will be a double flow of air through the sound producing mechanism.

The specific arrangement of parts which is set forth in the specification and in the drawing is intended to be illustrative of many arrangements of which this invention is susceptible. As it is shown in the drawing, the invention includes a sound producing mechanism which is situated for communication on one side with the body of the doll and on the other side with the doll's legs. In all other respects the body of the doll is sealed off from its legs so that whatever passage of air takes place from the legs to the body and from the body to the legs must proceed through the sound producing mechanism. Assuming that the sound producing mechanism produces a

2

sound only when air passes through it in one direction, that is from the legs to the body, then pressure applied upon the legs will produce a flow of air in the desired direction and the sound producing mechanism will function. Pressure upon the body will indirectly produce a sound since the sound producing mechanism is non-responsive to a flow of air from the body to the legs but sound will be produced on the return flow back to the body. A converse arrangement may also be provided within the scope and spirit of the present invention. The sound producing mechanism may be responsive to a flow of air from the body portion of the doll to its legs. Hence, pressure upon the body will produce a flow of air in the right direction and the sound producing mechanism will function. Pressure upon the legs will result in the production of sound only on the return flow of the air from the body back to the legs. A double acting sound producing mechanism which is responsive to a flow of air in both directions will produce sound both when the body and the legs are pressed.

It will therefore be seen that the principle upon which this invention is based is the utilization of the air within the inflated doll to produce the necessary sound. It is not necessary to cause a flow of air either into the doll or out of it to produce sound. Instead the invention provides for the passage of air from one part of the doll to another and this passage takes place through a reed by which the sound is produced. The reed may be placed in any desirable location within the doll, that is between the legs and the body or between the body and the head or between the body and the arms. If desired, more than one reed may be incorporated into the doll. Also if desired, reeds producing different sound may be incorporated into a single doll so that the pressure upon one of the legs will produce one sound, whereas pressure upon the head or upon the arms will be productive of a different kind of sound. There are innumerable variations of which the present invention is susceptible and it will therefore be understood that the specific form of the invention which is disclosed in the drawing is presented solely for purposes of illustration and not for purposes of limitation.

By way of illustration, the material of which the doll is made is not critical so that many different kinds of material may be employed for the purposes of this invention. In its preferred form Vinylite plastics are used to good advantage, since their porosity with respect to air is extremely low. They seal well by means of heat and

they are highly resistant to the wear and tear which dolls normally encounter in the hands of the younger set. Other materials however may also be used, such as rubber, both natural and synthetic.

A preferred embodiment of this invention is shown in the accompanying drawing in which:

Fig. 1 is a front view of a doll made in accordance with this invention;

Fig. 2 is a side or edge view thereof;

Fig. 3 is an enlarged fragmentary view of the back of one of the legs of the doll showing the tube through which air is introduced into the doll disposed in a pocket formed on the leg of the doll;

Fig. 4 is an enlarged sectional view on the line 4-4 of Fig. 3, showing the tube through which air is introduced in the doll in its upright or unconfined position;

Fig. 5 is an enlarged section on the line 5-5 of Fig. 1 showing the pouch in the body of the doll which contains the sound producing mechanism;

Fig. 6 is an enlarged fragmentary sectional view on the line 6-6 of Fig. 1;

Fig. 7 is a similar view on the line 7-7 of Fig. 1 showing the sound producing mechanism mounted in the pouch aforementioned;

Fig. 8 is a perspective view of the pouch showing the sound producing mechanism projecting therefrom;

Fig. 9 is an enlarged sectional view on the line 9-9 of Fig. 8 showing the details of the sound producing mechanism; and

Fig. 10 is an enlarged fragmentary sectional view through one of the heat sealed portions of the doll.

The doll 20 shown in Figs. 1 and 2 of the drawing includes a head 21, a body 22, a pair of arms 23, a pair of legs 24 and a face 25. The back of the doll is made of a sheet of plastic material 30 cut to the shape shown in Fig. 1. The front of the doll is also made of a sheet of plastic material 31 similarly cut to the same shape. In one respect however the front sheet 31 differs from the back and that is in its cut out 33 which is provided to accommodate face 25. The face is three dimensional, as Fig. 2 clearly shows and it may be cemented to the front 31 along the peripheral edge of cut out 33.

Since the front and back are cut to identical shape, with the exception above noted, their respective marginal edges coincide when they are superimposed one upon the other. These marginal edges are heat sealed as is clearly shown at 35 in Figs. 10, 4 and 5. Following the heat sealing treatment, the doll may be described as inflatable and air retaining.

An air tube 40 is provided for the introduction of air under pressure into the doll. A hole 41 is provided in back 30 of one of the legs 24 and it is through said hole that tube 40 projects. A flange 42 is provided on the inner end of tube 40 and said flange is heat sealed to the inside of back 30, on line 43 which is best shown in Fig. 3. Since this line is spaced from the edges of hole 41, it will be clear that a pocket is thereby formed between flange 42 and that part of the back 30 which surrounds hole 41. It is into this pocket that tube 40 may be inserted when it is desired to close off its opening and to place it in a relatively concealed and out of the way place. See Figs. 3 and 4.

The sound producing mechanism 50 is best shown in Fig. 9. It comprises a reed 51, a reed

supporting member 52 and a tube 53 which holds both the reed and the reed supporter. The sound producing mechanism shown in Fig. 9 is mounted in a hole 60 formed in a bag or pouch 61. This bag or pouch is clearly shown in Figs. 6, 7 and 8. It has a front 65, a back 66 and it is closed at the top 67 and at its two sides 68 and 69, respectively. It is open at the bottom 70. Hole 60 through which tube 53 extends is formed in the top 67 of said pouch, substantially midway between its two side edges 68 and 69, respectively.

Figs. 3, 5, 6 and 7 show the position which pouch 61 occupies within the body of the doll. The front 65 of pouch 61 is heat fastened along line 80 to front 31 of the doll proper. Back 66 is heat fastened to back 30 of the doll proper along a corresponding line 81. It will be seen in Fig. 1 that line 80 extends across the waistline of the doll a short distance above its crotch. It will also be seen in said Fig. 1 as well as in Fig. 5 that said line 80 extends the full width of the doll and it will be understood that line 80 coincides with line 81 previously mentioned. It will therefore be appreciated that the front and the back of the doll proper are heat fastened to each other along their respective lines 80 and 81 on both sides of pouch 61 and where they are not fastened to each other, they are fastened to the pouch. Hence a barrier is set up along lines 80 and 81 which prevents the passage of air from the bottom of the doll to the legs and conversely from the legs to the body. Since lines 80 and 81 are spaced from the crotch, communication is afforded between the two legs but not between the legs and the body, except as hereinafter described.

The only opening therefore between the body and the legs is in the sound producing mechanism 50. Air may pass through said opening on its way from the body to the legs or from the legs to the body. This passage of air takes place not only through the sound producing mechanism but also through pouch 61 in which said mechanism is disposed. It will therefore be appreciated that when air is caused to flow from the body of the doll to the legs or from the legs to the body, the sound producing mechanism will be affected. If it happens to be a two-way sound producing mechanism, sound will be produced both when the air passes up to the body and when it passes down to the legs. If it happens to be a sound producing mechanism which is responsive to a downward flow of air only, then sound will be produced when the body of the doll is pressed and air is forced downwardly into the legs. Under such circumstances, a backward flow of air to the body will be non-productive of sound. By the same token when one or both of the legs are pressed and air is forced into the body, there will be no sound until the legs are released and the air flows back from the body.

If the sound producing mechanism happens to be responsive to an upward flow of air, then pressure upon the legs will produce sound and pressure upon the upper part of the doll will produce sound only on the return flow of the air from the legs to said upper part of the body.

It will be understood from the foregoing that sound is produced by simply causing a flow of air from one part of the doll to another through a sound producing mechanism. The type of sound producing mechanism is wholly unimportant and the nature of the sound produced is also unimportant. Naturally, the sound producing mechanism should be capable of producing a sound

which is appropriate to a doll. Nor is the position of the sound producing mechanism in the doll of great importance. As has above been indicated, it may be positioned anywhere in the doll providing that there is an air space within the doll on both sides of said mechanism and providing further that the two spaces are sealed off from each other except in so far as they communicate with each other through the sound producing mechanism.

A preferred form of this invention has herein been described and it will be understood from all of the foregoing that modifications and variations may be incorporated therein within the broad coverage and spirit of the invention. For example, although the invention takes the form of a doll as presented in the drawing, it can equally as readily take the form of other objects and things of nature such as the many members of the animal kingdom.

I claim:

1. A toy formed from contoured sheets of elastic material with the sheets united along the contour zone to produce an airtight toy of inflatable type having an extended width and comparatively shallow depth, the said sheets being additionally united in an intermediate lengthwise zone of the toy with the united intermediate zone extending inwardly from opposite sides of the contour and partially across the width of the toy in such intermediate zone to thereby present the zone as of relatively thin thickness with inflatable portions of the toy on opposite sides of such intermediate zone, an intermediate portion of said intermediate zone being open between the sheets to permit air movement therethrough, said intermediate zone including a bag-like element having one end open and having the opposite walls of its open end zone united to the respective sheets within such intermediate zone with the element extending into one of the inflatable sides to thereby constitute the element as the sole means of air communication between such inflatable portions of the toy, said element being of extended area, a wall of said element being perforated, said perforation being closed by a sound-producing mechanism adapted to be rendered active for the production of sound by air flow when pressure is applied individually to either of the portions located on the opposite sides of the intermediate zone.

2. A toy as in claim 1 characterized in that the toy includes an inflating means carried by one of the inflatable portions with the means positioned remote from the contour zone of the toy and from said intermediate zone.

3. A toy as in claim 2 characterized in that the inflating means is located on the portion carrying the open end of the bag-like element, with the said inflating means including a flexible in-

flating tube having its inner end open to the interior of such portion, and with a wall of such portion formed to permit housing of the tube by coiling to thereby seal the tube against the entrance and discharge of air therefrom.

4. A toy as in claim 1 characterized in that the sound-producing mechanism includes a vibratory reed and its supporting element positioned at an intermediate point in the width of the closed end of the bag-like element, said reed and its carrier providing an air passageway therebetween, with the carrier having a curved zone for directing air toward the reed face, whereby air flow in one direction through the carrier will vibrate the reed and permit air flow in the opposite direction without reed vibration.

5. A toy as in claim 4 characterized in that the air pressure values on opposite sides of the intermediate zone are normally equalized, pressure on the toy at either side of such zone disturbing the normal equalization in pressure, said mechanism being rendered active directly when one of the sides is subjected to pressure for movement of air to the opposite side and remains inactive during the succeeding return air flow in producing the normal equalization in pressure, pressure applied to the opposite side causing the mechanism to become active during the succeeding return of air flow in producing the normal equalization in pressure.

6. A toy as in claim 1 characterized in that the contour of the pair of sheets is shaped to provide the head, arms, body and legs of a doll when the sheets are united in their contour zones, the intermediate zone being located adjacent the juncture of the leg zones and the body, whereby the legs provide one of the compressible portions with the other portion presented by the body, arms and head zone.

7. A toy as in claim 6 characterized in that the sheets are formed of plastic material, and further characterized in that the front sheet has its head portion including a cut out zone having cemented thereto a plastic face of three-dimensional type.

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