

Nov. 28, 1967

J. W. RYAN
FIGURE TOY HAVING COMPRESSED ELASTOMERIC
STUFFING AND BONDED COVER

3,354,578

Filed July 24, 1964

2 Sheets-Sheet 1

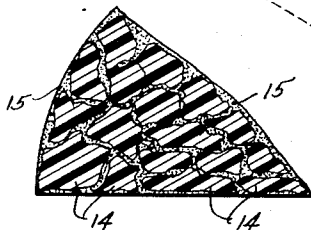
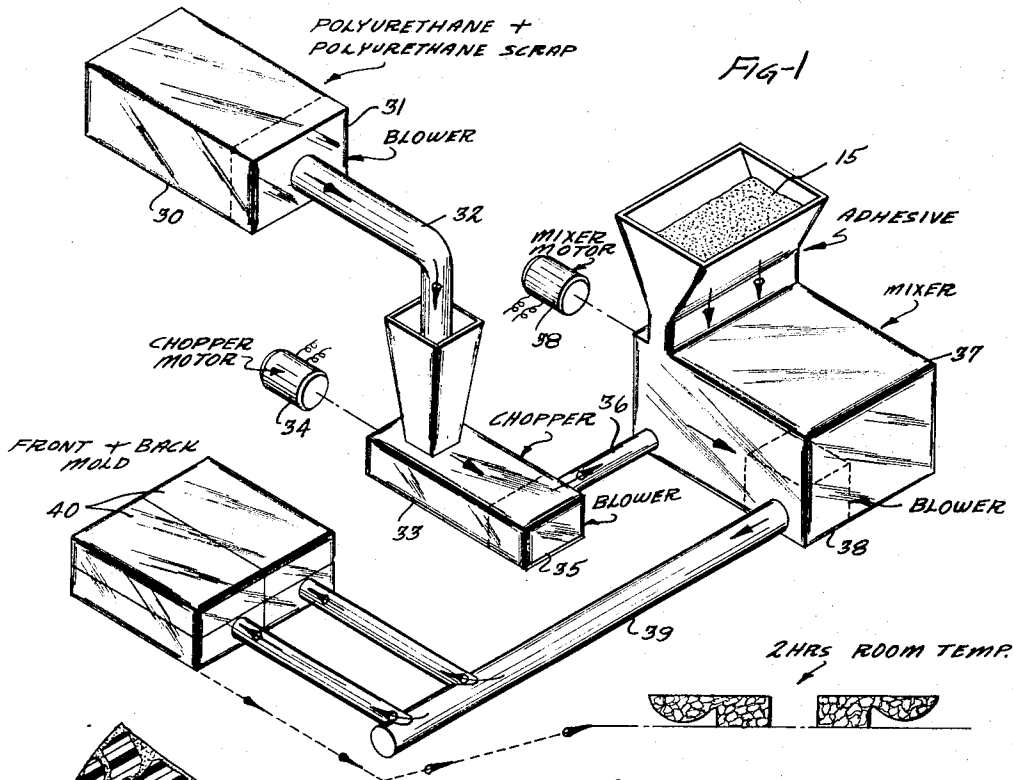


Fig-3

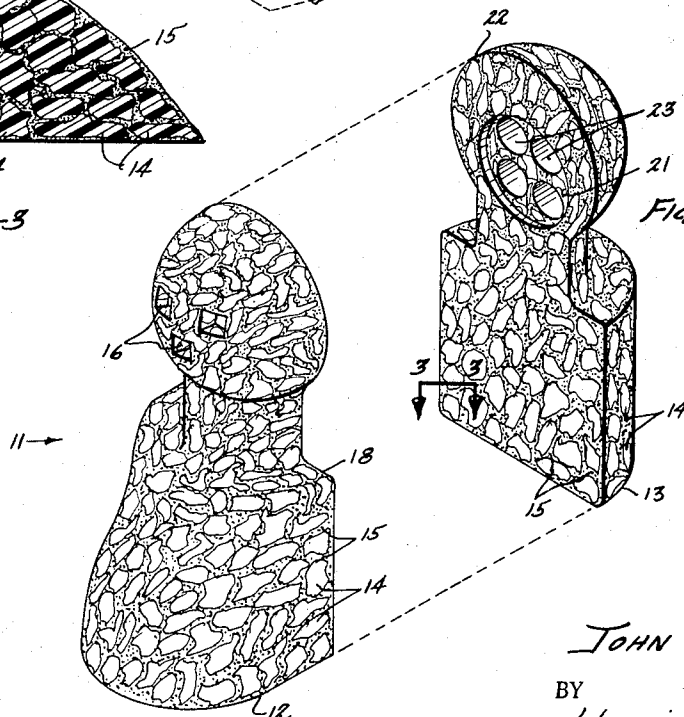


Fig-2

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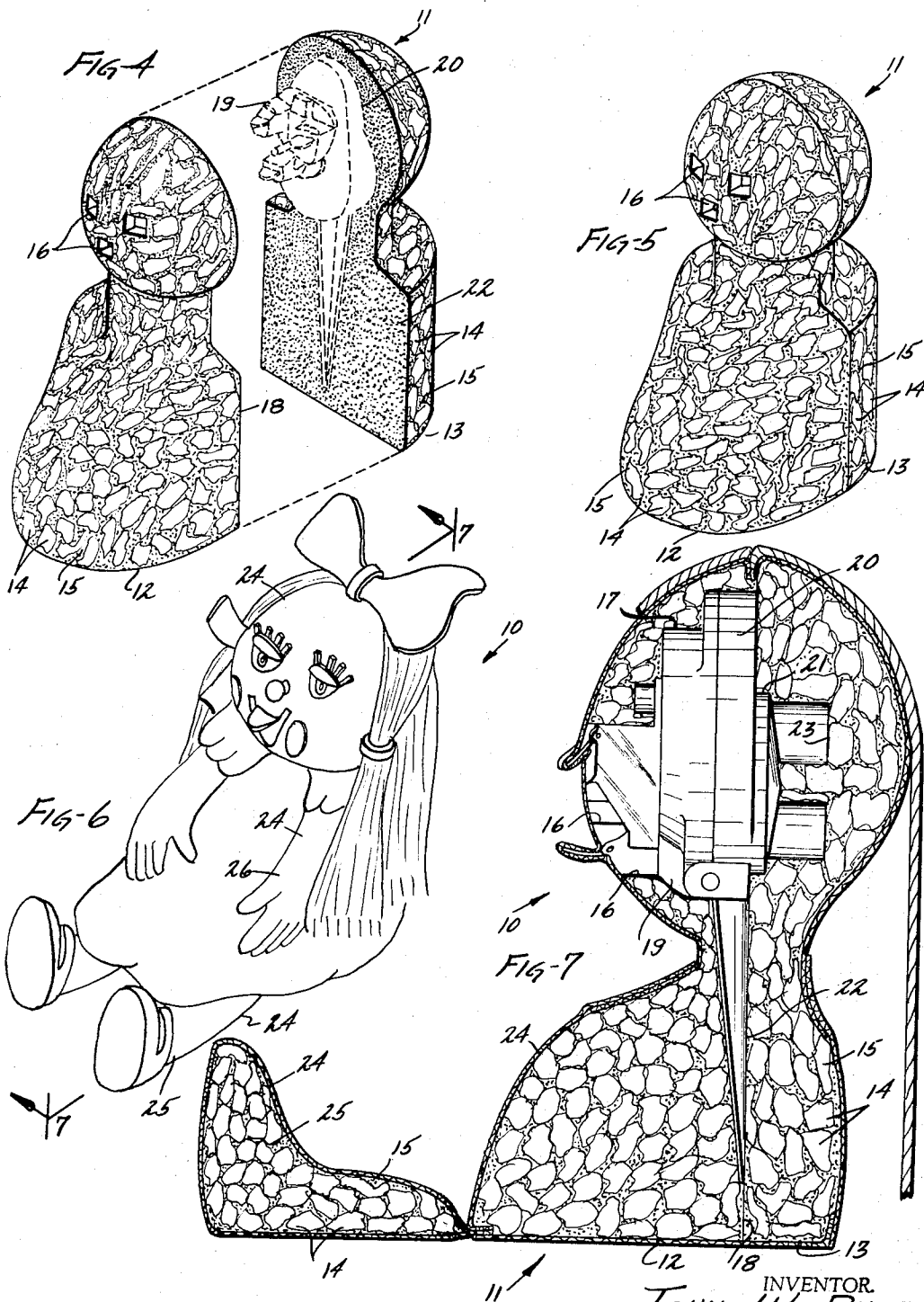
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FIGURE TOY HAVING COMPRESSED ELASTOMERIC STUFFING AND BONDED COVER

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Filed July 24, 1964, Ser. No. 384,940

1 Claim. (Cl. 46—158)

In general, the present invention relates to a stuffed toy figure. More particularly, the present invention relates to a stuffed toy figure adapted to maintain its shape over a long period of use and to prevent the loosening of its cover and the method of making such toy figure.

A very common toy which has been made and used for very many years is the stuffed toy simulating figures such as children, babies and animals. Such prior art stuffed figure toys invariably are formed by making a cover whose shape when filled conforms to the figure which is desired to be produced and then stuffing such cover with a suitable stuffing, usually cotton shoddy or scraps of cotton. Such prior art stuffed figure toy can present initially a good simulation of the desired figure; however, after it is used by the child in his play for any substantial period of time, the stuffing becomes bunched and forms lumps in various parts of the figure which distorts its shape and presents a bumpy appearance. Furthermore, the remaining parts of the stuffed figure have empty spaces which cause the cover to wrinkle and become displaced with respect to the stuffing. Consequently, after any substantial period of use, the usual prior art stuffed figure toy presents only a very distorted simulation of the imitated figure. In addition, in the case of a stuffed toy figure having an internal mechanism such as a voice unit or animated facial features, the formation of lumps and displacement of the stuffing causes such mechanism to be subject to much greater external abuse and thus substantially impairs its protection of the mechanism.

Consequently, an object of the present invention is a stuffed figure toy adapted to maintain its shape over a long period of use.

Still another object of the present invention is a stuffed figure toy adapted to prevent the loosening of its cover.

Still another object of the present invention is a stuffed figure toy which is adapted to maintain the protection of its internal mechanism over a long period of use.

Still another object of the present invention is a stuffed toy figure economically produced out of elastomeric scrap material.

Other objects and advantages of the present invention will be readily apparent from the following description and drawings which illustrate a preferred exemplary embodiment of the present invention.

In general, the present invention involves a stuffed figure toy comprising a resilient structurally self-sustaining model formed out of small pieces of elastomeric material, such as polyurethane, bonded together by an adhesive material. Enclosing such model and conforming thereto is a cover which compresses the model and is bonded to the model by an adhesive material which preferably is the same adhesive material used to bond the elastomeric material pieces together. Thus, the model is maintained under compression while the cover is maintained under tension.

In order to facilitate understanding of the present invention, reference will now be made to the appended drawings of a preferred specific embodiment of the present invention. Such drawings should not be construed as limiting the invention which is properly set forth in the appended claims.

In the drawings:

FIGURE 1 is a schematic perspective view of the

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process for forming the stuffed figure toy of the present invention;

FIGURE 2 is a perspective view of the model parts of the present invention produced by the process illustrated in FIGURE 1;

FIGURE 3 is a cross-sectional view of FIGURE 2 taken along lines 3—3 of FIGURE 2;

FIGURE 4 is a perspective view similar to FIGURE 2 showing the assembly of a voice unit and movable lip and eyelash mechanism between the model parts;

FIGURE 5 is a perspective view of the model parts illustrated in FIGURE 4 after they are assembled;

FIGURE 6 is a perspective view of the completed figure toy of the present invention; and

FIGURE 7 is a cross-sectional view of FIGURE 6 taken along the line 7—7 of FIGURE 6.

As illustrated in FIGURES 1—7, the stuffed figure toy 10 of the present invention may best be described with reference to the process of producing it. As illustrated particularly in FIGURE 1, such process involves supplying an elastomeric material, such as polyurethane, preferably polyurethane scrap, to a container 30 from which it is conveyed by suitable means such as a blower 31 through a conduit 32 to a chopper means 33. The chopper means 33 is adapted to reduce the particle size of the elastomeric material to particles having their longest dimension in the range of about one-eighth to one-half inch. Such particles, of course, are very irregularly shaped and a small proportion of the total weight of the particles are formed out of particles having sizes both smaller and larger than the earlier stated range so that when the mass of particles is later compacted, an intimate contact among the particles is achieved. The chopper means 33 may be formed out of conventional grinding machinery and powered by conventional motor 34. After the elastic material has been reduced to suitable particle size, it is moved out of the chopper means 33 by a suitable means such as a blower 35 through a conduit 36 to a mixer 37 where an adhesive 15 is added and thoroughly intermixed therewith. The mixer means 37 may be conventional mixer means and powered by a conventional motor 38. The adhesive material 15 which is added may be any suitable adhesive material adapted to bond the elastomeric materials together and to bond it to the cover for the figure toy. Thus, in the case of polyurethane scrap, the adhesive may be a rubber-based adhesive in the form of a viscous solid-containing liquid. Such mixing serves to cover the elastomeric particles with a thin coating of adhesive material but the elastomeric particles remain in loose, particulate form. After the mixing of the adhesive material with the elastomeric material, the resulting mixture is moved by suitable means, such as a blower 38, through a conduit 39 to a suitable set of molds 40 wherein the front and back halves 12 and 13 of the model 11 are formed. Such molding of the model halves 12 and 13 may be done at room temperature under atmospheric pressure in about two hours when utilizing polyurethane scrap with the adhesive material stated above.

Front half 12 and back half 13 of the model 11 formed by the above described process each are formed out of the small pieces 14 of elastomeric material which are bonded together by the adhesive material 15. The front half 12 of the model 11 is formed with a series of holes 16 adjoining a recess 17 in the rear surface 18 which are adapted to receive a portion of a lip and eyelash mechanism 19 and a voice unit 20. Similarly, the rear half 13 of the model 12 includes a recess 21 in its front surface 22 with the recess 21 having a set of cavities 23 so that recess 21 and cavities 23 are adapted to receive a portion of the voice unit 20. As illustrated in FIGURES 4 and 5, such lip and eyelash mechanism 19 and voice unit 20 are positioned in the rear half 13 and then the front

half 12 and rear half 13 of the model 11 are glued together by the adhesive 15. The model 11 is then enclosed by a cover 24 which conforms to the shape of the model 11 and compresses the model 11. The cover 24 is also bonded to the model 11 by the same adhesive material stated above by coating its inner surface slightly with such adhesive material prior to placement about the model 11. By putting the cover 24 on the model 11 tightly and thus compressing the model 11, the model 11 is maintained under compression while the cover 24 is maintained under tension. Thus, the connection between the various pieces of elastomeric material as well as the connection between the model 12 and the cover 24 is maintained under compression at all times during the normal usage of the toy so that, as a practical matter, such connection cannot be broken during ordinary play. Model 11 of the stuffed toy figure 10 also includes legs 25 molded in a similar fashion and having a covering 24 as well as arms 26 also molded in a similar manner and having a covering 24. The construction and operation of the lip and eyelash mechanism 19 as well as the voice unit 20 are described in detail in applicant's copending application entitled, "Improved Animated Speaking Figure Toy," Ser. No. 383,465, filed July 17, 1964, now Patent No. 3,264,778.

Many other specific embodiments of the present invention will be obvious to one skilled in the art in view of this disclosure. Thus, a wide variety of elastomeric material, both in its original form and scrap form, may be utilized as well as a wide variety of adhesive material. Similarly, a wide variety of toy figures may be formed such as dolls and animals having a variety of mechanisms therein.

There are many features in the present invention which clearly show the significant advance the present invention represents over the prior art. Consequently, only a few of the more outstanding features will be pointed out to illustrate the unexpected and unusual results attained by the present invention. One feature of the present invention is a stuffed toy figure adapted to maintain its shape over a long period of use. Thus, the model which forms the stuffing in the present invention is a resilient, structurally self-sustaining model which can be handled in the course of normal playing without losing its shape or becoming permanently distorted. Also, it does not form bumps or void spaces. Similarly, another feature of the present invention is a stuffed toy figure which prevents loosening of the cover for the toy figure since the cover is bonded to the self-sustaining model and compresses it so that the cover itself is under tension. Thus, a substantially permanent connection is formed between the pieces forming the model and between the model and cover so

that the displacement between the model and cover cannot occur and the cover cannot become loose and form wrinkles. Still another feature of the present invention is a stuffed figure toy wherein scrap pieces of elastomeric material, such as polyurethane, can be utilized to form a relatively dense, internally cohesive model, and thus the figure toy itself is simple and economical to produce. Still another feature of the present invention is the formation of permanent protection for mechanism within the toy figure since, despite substantial usage, a resilient barrier is maintained between the mechanism and the exterior of the toy figure.

It will be understood that the foregoing description and example are only illustrative of the present invention and it is not intended that the invention be limited thereto. All substitutions, alterations, and modifications of the present invention which come within the scope of the following claim, or to which the present invention is readily susceptible without departing from the spirit and scope of this disclosure, are considered part of the present invention.

What is claimed is:

A stuffed figure toy adapted to maintain its shape over a long period of use and to prevent the loosening of its cover comprising:

- a resilient structurally self-sustained model formed out of small pieces of elastomeric material bonded together by a first adhesive material;
- a cover conforming in shape to the shape of said model and enclosing said model; and
- a second adhesive material forming a permanent bond between the inner surface of said cover and the outer surface of said model, said cover fitting said model tightly, whereby said model is maintained under compression while said cover is maintained under tension, said first and second adhesive materials forming connections between said small pieces of elastomeric material and between said cover and said model, respectively, and thereby comprising means minimizing separation of said pieces, said cover and said model during ordinary play with said figure toy.

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