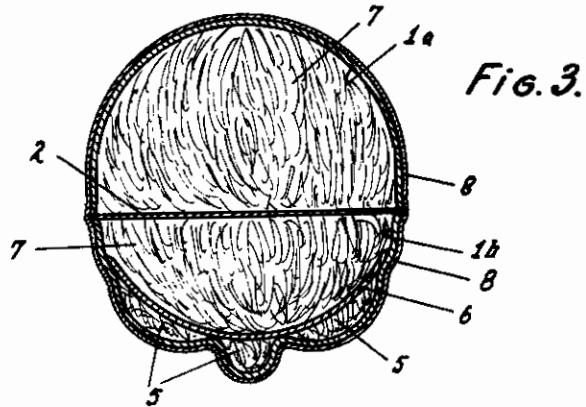
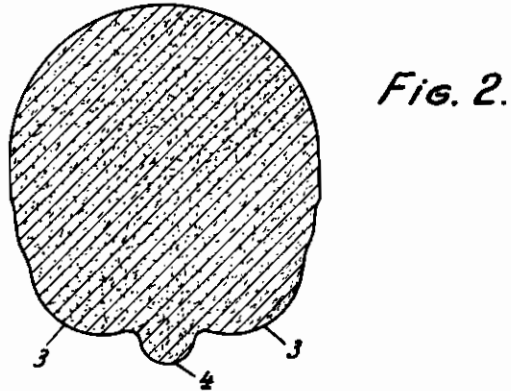
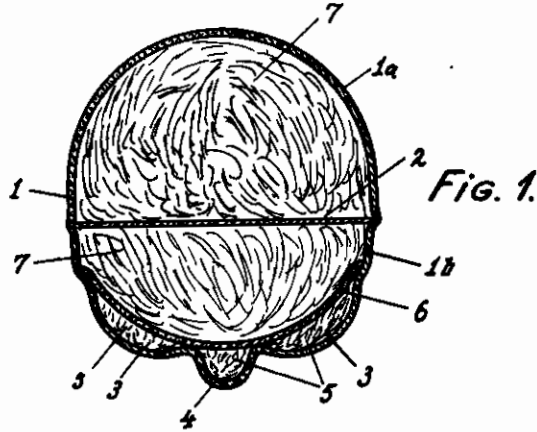


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FIGURES, DOLLS, OR OTHER BODIES, AND
THE METHOD OF PRODUCING SAME
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FIGURES, DOLLS, OR OTHER BODIES, AND THE METHOD OF PRODUCING SAME

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The invention relates to figures, dolls, models, masks, and other forms of bodies, and to the method of producing same.

It is known to make dolls, figures, and other forms of bodies out of cloth and to provide them with any kind of filling material. However, such dolls do not keep their shape very long, and no substantial improvements could be obtained by inserted stiffenings. Furthermore, it is known to insert a rigid skeleton in a correspondingly cut doll's body made of rubber sponge and provided with a cloth cover. Such dolls only possess a certain elasticity and their entire form must otherwise be considered as rigid owing to the skeleton contained therein, and by the use of rubber sponge their cost of production is too high, whereas dolls made of solid rubber layers are suitable for small-sized dolls only, and in other cases they would be too expensive and too heavy.

In order that the dolls, figures, models, masks, and other forms of bodies, for example for playing, decorating, and stage purposes or the like, should have an extremely low weight, a high elasticity, and should keep their shape, and should also be indestructible by stresses of any kind, as well as cheap in manufacture, it is proposed by the invention to make the figures, bodies, etc. out of artificial hair, fibres, wood wool, or the like, especially in a curled up state, these materials being treated with solutions of rubber, gutta-percha, caoutchouc, glue, resins, thermoplastic substances, or the like, or with dispersions of these materials and dried or vulcanized hot or cold so as to keep the shape of the desired body.

The figures, bodies, or the like are made of raw materials, such as hair (for example horse hair, hogs' bristles), fibres, greases, wood wool, or other known kinds of filling materials in a curled up state, which are moistened in any known manner with one of the above mentioned binding materials and preferably shaped out of thinner piles into layers or masses of the desired thickness, these layers or masses being made to keep their shapes by drying or by hot or cold vulcanization of binding materials, which remain elastic, whereupon the desired figures etc. are produced by punching, milling, cutting, or the like. It will be advantageous to compress the layers or masses before or during the vulcanization or drying so that the starting materials become denser whereby the surfaces of the shaped bodies are easier to coat, paint, or spray with covering layers or coatings, which preferably remain plastic and/or elastic. The shaped bodies may also be provided with a cloth covering.

Shaping the figures, bodies, or the like out of the material arranged in layers or masses generally requires special skill of the operator. Therefore, in order to keep the contours of the bodies perfectly uniform, it is proposed by the invention as a further development to use negative moulds for pressing the fibres, especially hair, treated with one of the above mentioned binding materials, into the desired shape of the figure, whereupon the figure is dried or vulcanized cold or hot according to the binding material employed. Furthermore, it is possible to proceed according to the invention in such a manner that the piles of hair, fibres, wood wool, or the like are inserted in two negative moulds which together form the desired shape of the body; these piles are moistened with solutions of rubber, gutta-percha, caoutchouc, glue, resins, thermoplastic substances, or the like, or with dispersions, preferably aqueous dispersions, of these substances, and are then compressed in the negative moulds by means of dies shaped according to the negatives, preferably with the aid of heat. Thus, the piles, compressed in the two negative moulds to thinner layers, acquire the desired shape of the body, and in pressing together the two negative moulds, the drying and vulcanization, preferably hot vulcanization, is effected so as to combine the two halves of the figure to one whole. But the separate halves of the figure may also be removed from the negative moulds and, by further moistening of the surfaces or edges to be joined with flexible binding materials, they may be vulcanized in a separate furnace. As flexible binding materials it has been found especially advantageous to use aqueous dispersions of rubber or caoutchouc, such as latex and revertex, with additions of protective colloids and known vulcanization agents for moistening the starting materials, the protective colloids preventing a premature coagulation of the dispersions.

In order to ensure an absolutely safe connection of the two halves of the figure, they may be jointed by inlaid keys or edge bulges so that one half projects into the other half of the figure.

The two halves of the figure, thus jointed together and vulcanized, have an extremely low weight, always remain elastic, and keep their shape, and owing to the denser disposition of the compressed starting materials they may be provided with any desired coverings of cloth or coatings by laying on, painting or spraying. In the case of cloth coverings, these may be attached by first placing the cloth in the negative moulds. Thereupon, the piles are inserted and treated

with binding materials, which treatment may also be effected beforehand, and then the piles and the cloth covering are compressed or pressed in by means of dies, and finally the binding materials are vulcanized. Thereby the cloth covering and the piles are vulcanized together, and no further sewing work is required for attaching the covering. It is also possible to use insertions keeping their shape and being elastic, such as thinner wires, spiral springs, rope's ends, or the like, which are vulcanized into the compressed piles or into filling materials to be inserted, as mentioned hereinafter, according to the figures, bodies, etc. or according to the location of the extremities of the bodies.

If the desired bodies have projecting parts, such as noses, extremities, or the like, it is possible to fill these bulges from the inside of the halves with any desired filling materials, preferably of an elastic nature, after compressing the piles treated with binding materials, and then to cover these filling materials with treated piles which, after the whole has been compressed and vulcanized, are thus securely connected with the form persisting skin-like outer layer, so that the shapes of the bulges will be kept by the filling materials or insertions in any case.

It is also possible, with or without a special filling of the bulges, to fill the whole cavity inside the figures formed by the compressed piles with filling materials or insertions, for which purpose the cheapest raw materials, such as grasses, fibres of any kind, wood wool, or hair, may be used. Even these filling materials, which are loosely inserted, may be treated with elastic binding materials of the kind mentioned above and dried or vulcanized whereby a shifting and clogging together of these filling materials inside the figures etc. will be prevented. The above mentioned form-persisting insertions corresponding to the shape of the body may also be vulcanized into these filling materials.

Three constructional examples of the subject of the invention are illustrated in the accompanying drawing in which Figs. 1 to 3 each show a section of a doll's head.

In the example shown in Fig. 1 the skin of the doll or any other body consists of thin compressed hair piles which, before being compressed, are treated with a binding material, preferably latex. In producing the doll, the hair is placed in two negative moulds and then pressed into these negative moulds by means of a pressing die. By this operation the hair pile acquires the contours of the desired figure. The two halves 1^a and 1^b are then connected, if necessary with a separating layer 2, which may also consist of hair treated with latex, and then they are vulcanized in a furnace. In the case of dolls or

figures of animals having projecting bulges, such as cheeks 3 and noses 4, these bulges, after pressing the skin 1, may be filled with any kind of filling material 5, upon which there may be placed a thin pile 6 of compressed hair treated with latex so that this pile 6, after vulcanization, is connected with the skin 1. Before assembling the doll consisting of two halves, the cavities of the two halves 1^a and 1^b will be filled with any kind of padding. Such padding consists of hair, grasses, wood wool, or any kind of fibres. This filling material 7 may also be treated with a binding material in order to prevent the filling material in the body from being damaged or from clogging together. The dolls or figures produced in this manner possess a great elasticity and absolutely keep their shapes independent of any stresses. As already mentioned, the persistence of form of the bulges of the body may be increased by additional piles 6. Instead of curled hair, any kind of other fibres may be used for the skin, and other binding materials than latex may be employed, as long as these remain elastic after drying or vulcanizing.

The dolls or bodies made according to the present invention, owing to the use of compressed hair, possess a rough exterior surface. As shown in Fig. 3, this surface is provided with a covering 8 of cloth or the like, or any kind of coating is sprayed, laid on, or painted on the exterior surface of the compressed skin 1. As a base for these coatings there may be used elastic lacquers, resins, or similar materials.

The dolls or bodies may also be made according to the invention, depending upon the kind of figure, in the following way. Piles of hair or other fibres are moistened with latex or other binding materials remaining elastic, and then these piles are assembled and placed in a negative mould into which they are forced by pressure. In this case, the doll or body consists throughout of a uniformly treated material, and it is not necessary, as in the construction shown in Figs. 1 to 3, to press special outer layers and to fill these with filling materials. In this case too, the material is vulcanized after the pressing so as to make the doll elastic and form-persisting. The figures according to Fig. 2 may, however, also be produced by assembling the fibres treated with binding materials into thicker layers or masses and then drying and vulcanizing them. Out of these layers or masses thus made to keep their shape, the desired form of the doll or body is worked out by cutting, milling, or the like. However, this latter method or production requires special skill of the operator, and therefore it is simpler to produce the bodies with negative moulds.

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