June 3, 1958 J. WEIH 2,836,929

ASSEMBLED DOLL

Filed Nov. 28, 1956 2 Sheets-Sheet 1

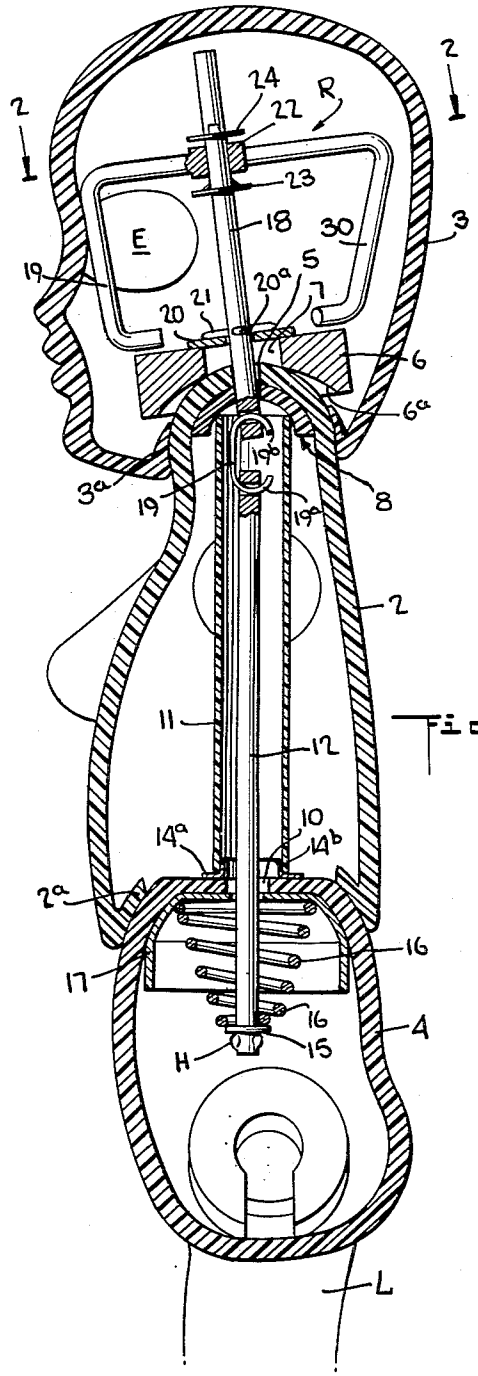


Fig. 1.

Fig. 2.

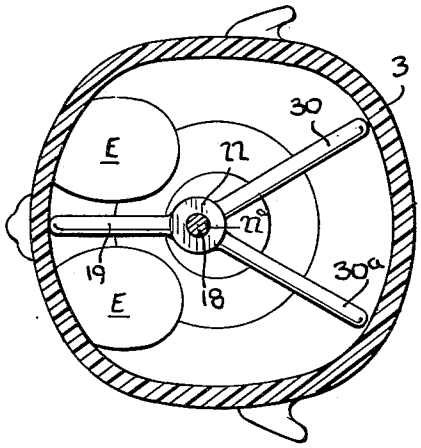
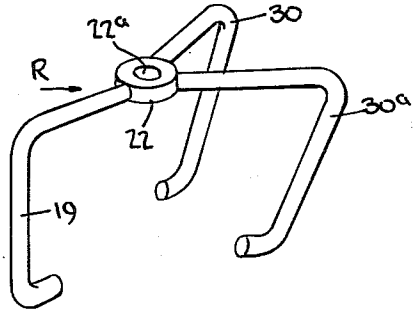


Fig. 3.



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Fig. 4.

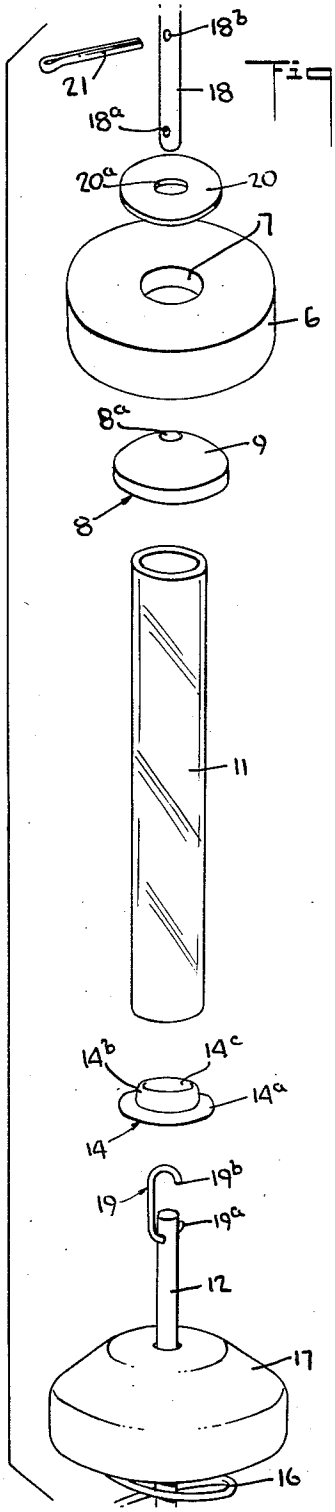


Fig. 5.

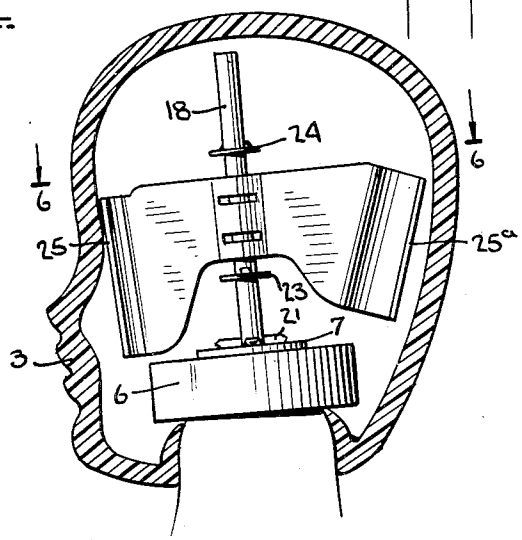


Fig. 6.

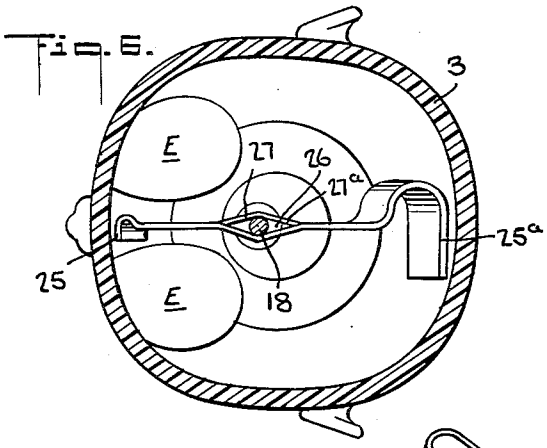
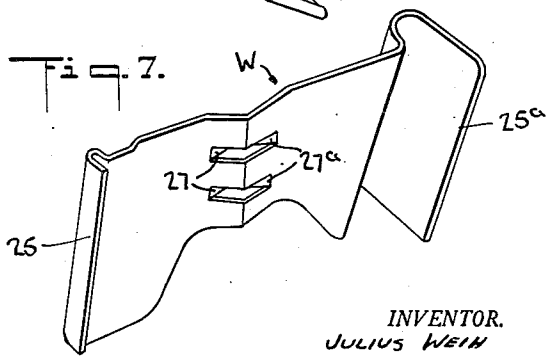


Fig. 7.



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ASSEMBLED DOLL

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Application November 28, 1956, Serial No. 624,917

6 Claims. (Cl. 46—162)

My invention relates to a new and improved assembled doll which has three separately-made and assembled sections which comprise a head, a torso to which arms can be attached, and a lower body part or pelvis which has leg-openings to which legs are attached.

It is well-known to mold or make such sections by the plastisol method, from a vinyl resin or plastic, such as polyvinyl chloride. Such sections can be molded or made of polyethylene and other materials. The vinyl plastics or vinyl resins are well-known, as under the name "Vinylite" (pages 663–664 of the 1942 edition of "The Condensed Chemical Dictionary," published by Reinhold Publishing Company; and in the 1953 edition of "Handbook of Material Trade Names," by Zimmerman & Lavine, published by Industrial Research Service).

According to one embodiment, one or more of said three sections is resilient, flexible and stretchable and elastic. Such a section can be easily squeezed or stretched from its selected normal shape by ordinary hand-force. When such hand-force is released, such a section resumes its selected normal shape.

According to another embodiment, one or more of said three sections is resilient, but is substantially rigid, so that it can be deformed only slightly from its selected normal shape by ordinary hand-squeezing. This applies particularly to the torso-section. Nevertheless, if such torso-section is made of polyvinyl chloride or certain other materials, such torso is gradually and permanently deformed from its selected normal shape, under the axial or vertical pressure which is applied by an assembly spring, which continuously urges the head-section and the pelvis-section towards each other, thus exerting a continuous or permanent vertical pressure upon the intermediate torso-section.

According to my invention, I provide a construction which can be made and assembled at low cost, and in which I provide the torso-section with internal reinforcement in order to resist the continuous and vertical assembly pressure. As above noted, the resilient torso-section can be easily squeezed under ordinary hand pressure, or it may be substantially rigid under ordinary hand pressure. The invention applies particularly to a doll whose torso is made of polyvinyl chloride, and such torso is made in selected normal shape by the plastisol method.

The head-section is optionally and preferably flexible and stretchable. I optionally and preferably provide the head with an internal reinforcement, which limits the deformation of the head under vertical and horizontal pressure.

Preferably, the head-section is turnable relative to the torso-section, as around a vertical axis.

I provide the head-section with an internal head-rod, and I mount the head-reinforcement turnably on said head-rod so that said head-reinforcement can turn together with the head-section around a vertical axis; when the turning movement of the head exceeds a selected angle. For this purpose, I provide the head section with circumferentially spaced internal projections, which may

be the eye-sockets in which the eyes are mounted. A part of the head-reinforcement is located intermediate said internal projections. When the head-section is turned beyond a selected small angle, one of these internal projections engages the head-reinforcement in unison with the head-section.

Numerous additional objects and features and advantages of my invention are set forth in the annexed drawings and description, which disclose two embodiments of my invention. The invention also includes the subcombination of the complete embodiments disclosed herein. The drawings are substantially to scale, and reference is made thereto for all necessary details.

Fig. 1 is a vertical section, partially in elevation, of the first embodiment. The assembled sections are shown in selected normal shape and in normal relative assembly position.

Fig. 2 is a section in the line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the head-reinforcement.

Fig. 4 is an exploded, perspective view of certain of the rigid, internal parts of Fig. 1.

Fig. 5 is a vertical section, partially in elevation, which shows the head-reinforcement of the second embodiment.

Fig. 6 is a section in the line 6–6 of Fig. 5.

Fig. 7 is a perspective view of the head-reinforcement of Figs. 5 and 6.

The two embodiments are the same, save for the difference in the head-reinforcement.

Figs. 1–4

This embodiment shows a hollow head-section 3, a hollow-torso-section 2, and a hollow pelvis-section 4. In this embodiment, the head section 3 is flexible and elastic and easily stretchable. In this embodiment, the torso 2 and pelvis-section 4 are resilient, but are substantially rigid under ordinary hand pressure.

In this embodiment, said sections 3, 2, 4 are made of vinyl plastic or resin, such as polyvinyl chloride, and they are made by the plastisol method, in the respective shapes shown in Fig. 1. If the torso 2 is continuously subjected to vertical pressure between the head-section 3 and the pelvis-section 4 by the assembly compression spring 16, said torso 2 is slowly and permanently deformed.

These three sections 3, 2, 4 can be connected by any means for assembly purposes. In this embodiment, the lower end of head 3 is open and is shaped to provide a socket 3*a*. The upper end of torso 2 is shaped to interfit with socket 3*a*. Said upper end of torso 2 extends above the top of socket 3*a*.

In this embodiment, the lower end of torso 2 is open and is shaped to provide a socket 2*a*. The upper end of pelvis-section 4 fits in socket 2*a*.

In this embodiment, the sections 3, 2, 4 are turnable relative to each other around the vertical or longitudinal axis of the torso-section 2.

The head-section 3 has an inner and rigid head-rod 18. Means are provided to maintain the assembly between head 3 and its rod 18, so that head-rod 18 cannot be pulled downwardly out of head 3 in the assembled doll. In this embodiment, the head-rod 18 has an upper horizontal bore 18*b*, through which a cotter pin 21 extends. This cotter pin 21 abuts the top of a rigid washer 20. The head-rod 18 extends downwardly through the bore 20*a* of washer 20. Said washer 20 abuts the top of a rigid plug or head-insert 6, which has a bore 7. The lower part of head-rod 18 extends downwardly below plug 6, and through a hole 5 in the top of torso 2. The inner face of the top of torso 2 has a rigid, reinforcing plug or torso-insert 8, which has a hole 8*a*, through which the lower part of head-rod 18 extends.

The upper face 9 of the top torso-insert 8 is convex, as shown in Fig. 1, in order to interfit with the convex inner face of the top of torso 2.

The bottom face 6*a* of the head-plug or head-insert 6 is concave and of less curvature than the convex top face of the top of torso 2.

Any assembly means may be provided, in order to keep head-rod 18 assembled with head 3, under the downward force which is continuously exerted by the assembly compression spring 16, which is always under compression in the assembled doll.

As above noted, the torso 2 may be easily yieldable under ordinary hand pressure, or said torso 2 may be only slightly and temporarily yieldable and deformed from normal shape, when ordinary hand pressure is temporarily applied, but said torso 2 is slowly and permanently deformed when it is subjected to the continuous vertical pressure which is exerted by the compression springs 16 in the assembled doll.

The torso-section 2 has a vertical and rigid reinforcing tube 11, which has a cylindrical shape. The upper edge of torso-tube 11 abuts the upper rigid and reinforcing torso-insert 8. This upper end of tube 11 effectively abuts the top of torso 2. The top face of torso-insert 8 abuts the inner face of the top of torso 2.

The lower end of tube 11 fits over the vertical extension 14*b* of a rigid washer 14, which has a vertical bore 14*c* and a planar flange 14*a*. The lower end of tube 11 abuts said planar flange 14*a*. Said planar flange 14*a* abuts the top face of the top wall of pelvis-section 4. The lower end of tube 11 effectively abuts the top wall of pelvis-section 4. Said top wall of pelvis-section 4 has a vertical bore 10. Said top wall of pelvis-section 10 has a rigid and lower and reinforcing pelvis-insert 17, which has a bore which is aligned with bore 10.

Said pelvis-section 4 has the usual leg openings, by means of which the legs L are attached.

Of course, the torso 2 has the usual arm openings, to which the arms are attached.

A rigid torso-rod 12 is located in tube 11. Said torso-rod 12 extends into the pelvis-section 4.

The head-rod 18 has a lower horizontal bore 18*a*. A rigid clip 19 has legs 19*b* and 19*a*, which extend respectively through lower bore 18*a* of head-rod 18, and through a corresponding horizontal bore at the top of torso-rod 12. This clip 19 has an original U-shape, and its legs 19*b* and 19*a* are bent after they have been inserted through the respective bores in order to keep clip 19 assembled with rods 18 and 12. In this embodiment, a helical and tapered compression spring 16 is used in order to maintain the assembly, in which the head 3 and the pelvis-section 4 are always firmly vertically pressed against the intermediate torso 2, so that torso 2 is always subject to the vertical pressure of spring 16 between head-section 3 and pelvis-section 4.

The lower end of torso-rod 12 has a head H. A perforated and rigid washer 15 abuts head H. The lower end of spring 16 abuts washer 15. The upper end of spring 16 abuts the rigid pelvis-insert 17. This assembly spring 16 is maintained under permanent compression in the assembled doll, when its parts have the normal positions of Fig. 1.

The optional and rigid head-reinforcement R has a central head 22, which has a bore 22*a*. The inner wall of bore 21 fits slidably and turnably on head-rod 18.

Said rigid reinforcement R, is shown in Fig. 3, and has a front leg 19 and rear legs 30 and 30*a*, which are rigid and integral with head 22.

The head-rod 18 is assembled with perforated spring washers 24 and 23, which firmly grip head-rod 18, in order to limit the sliding movement of head 22 of reinforcement R upon head-rod 18. In the assembly, said spring washers 24 and 23 may be as close as desired to head 22.

The head 3 has internal and integral eye-projections or sockets E, which receive the eyes and their mechanism, which are not shown.

As illustrated in Fig. 2, the top of the front bar or leg 19 of reinforcement R abuts the inner face of head 3, between said internal eye-projections or sockets E. Hence, when head 3 is turned relative to torso 2, around the common vertical and longitudinal axis of rod 12 and tube 11, the reinforcement R is turned by the respective sockets E on head-rod 18 in unison with head 3, when the angular turning movement of head 3 exceeds a selected limit.

The top of head-rod 18 is close to or may abut the top of head 3, thus limiting any downward squeezing of head 3.

The bars 19, 30 and 30*a*, will limit any substantial horizontal squeezing of head 3.

Assembly of embodiment of Figs. 1–4

The torso-rod 12, its washer 15, spring 16, and pelvis-insert 17, are assembled outside of the pelvis-section 4, as a respective sub-unit. This sub-unit is inserted through one of the leg-openings of pelvis-section 4, and the rod 12 is inserted through the top opening of pelvis-section 4.

As a separate operation, the tube 11 is rigidly assembled with washer 14, as by a press fit to form another sub-unit.

Before the reinforcement R is assembled with head-rod 18, and before the torso 2 is assembled with the pelvis-section 4, said head-rod 18 is assembled with the torso-rod 12 by means of the clip 19.

The next step is to slip the tube 11 and its previously assembled washer 14, upon the top of pelvis section 4.

The next step is to apply the torso-insert 8 to the top of torso-tube 11, by slipping this torso-insert 8 over the head-rod 18, to the position shown in Fig. 1.

The torso 2 is then assembled with the pelvis-section 4.

The next step is to apply the member 6 to the top of torso 2, and to apply the washer 20 to the top of the rigid member 6.

The next step is to upwardly pull the assembled head rod 18 and the torso-rod 12, in order to compress the compression spring 16. The clip C has its top sufficiently below the torso-insert 8, so that the spring 16 can be sufficiently compressed, to allow for insertion of cotter pin 21, so that in the completely assembled doll, the spring 16 is always under permanent pressure, to press the member 6 firmly against the top of torso 2, and to keep the torso 2 and pelvis-section 4 under firm vertical pressure, while permitting relative turning movement between torso 2 and pelvis-section 4.

The next step is to fix the washer 23 to head-rod 18.

The next step is to apply the reinforcement R to the head-rod 18.

The next step is to fix the upper washer 24 to the head-rod 18.

The final step is to apply the resilient and squeezable head 3 to the resilient torso, thus providing a firm joint, while permitting relative turning movement between head 3 and torso 2.

The tapered shape of spring 16 is desirable, because when rod 12 is pulled outwardly as above described, each lower, small-diameter turn of spring 16 can enter the next-adjacent, large-diameter turn, so that the spring 16 is not excessively compressed during the assembly step.

In the final assembly, the spring 16 is under a permanent compression of ten to fifteen pounds.

Hence, the improved construction provided an easy assembly.

If the torso 2 is made of a vinyl plastic or resin, such as polyvinyl chloride, and such torso 2 can resist permanent deformation under normal and temporarily applied hand pressure, said permanent vertical compressional force of spring 16 is sufficient gradually to permanently deform the torso 2.

Second embodiment (Figs. 5, 6, and 7)

In this embodiment, the head reinforcement consists of a rigid web W which has a front lateral flange **25**, and a rear lateral flange **25***a*. Said web W is shaped by suitably stamping a single sheet of metal, in order to provide vertically-alined sockets **26**. This web W also limits horizontal compression of head-section 3.

As illustrated in Fig. 6, each of these sockets **26** has angular walls, each said wall having legs **27** and **27***a*. A firm frictional grip is provided between the head-rod 18 and the walls of these vertically-alined sockets **26**. The spring washers **23** and **24**, as in the previous embodiment, serve to limit any accidental sliding movement of the head reinforcement upon the head-rod **18**. The web W is also turnable on head-rod **18**.

I have disclosed preferred embodiments of my invention, including sub-combinations thereof. Numerous changes, omissions, additions and substitutions can be made in the preceding disclosure, without departing from the scope of my invention, as defined and disclosed in the appended claims.

I claim:

1. An assembled doll, said doll having a head-section and a torso-section and a pelvis-section, each said section being hollow; spring means for forcing said head-section and pelvis-section vertically towards each other to exert vertical compression on said torso-section; said head section having an internal head-rod; said torso-section having an internal reinforcing torso-tube which resists said vertical compression on said torso-section; the upper end of said torso-tube effectively abutting the upper end of said torso, the lower end of said torso-tube effectively abutting the top wall of said pelvis-section; said torso-section having a torso-rod located within said torso-tube; the lower end-part of said head-rod extending downwardly through the upper end of said torso-section and also extending downwardly into said torso-tube; the lower end-part of said torso rod extending below the lower end of said torso-tube into said pelvis-section; said spring means being located in said pelvis-section and engaging that part of said torso-rod which extends into said pelvis-section; the upper end of said torso-rod being below the upper end of said torso-tube; the adjacent ends of said head-rod and said torso-rod having connecting means which are located in said torso-tube.

2. An assembled doll according to claim 1, in which said connecting means are a clip which has respective legs which extend through respective bores of said head-rod and said torso-rod.

3. An assembled doll according to claim 1, the lower end of said head-section being shaped to provide a socket for the torso, the upper end-part of said torso fitting in said socket, said torso being turnable around a vertical axis in its said socket; said head having a rigid head-insert located therein, said torso having an inner and rigid and reinforcing torso-insert at the inner face of the top of said torso; said head-insert abutting the outer face of the top of said torso; said head-insert and said torso-insert having bores through which said head-rod extends, the upper end of said torso-tube abutting the inner face of said head-insert.

4. An assembled doll according to claim 1, said head-section having spaced inner projections, said head-section being turnable relative to said torso-section around a vertical axis, said head-rod having a head-reinforcement turnably mounted thereon, said head-reinforcement having a part thereof located between said inner projection.

5. An assembled doll according to claim 4, in which said inner projections are eye-sockets.

6. An assembled doll according to claim 4, in which said inner projections are eye-sockets, and said head-reinforcement has a front bar between said eye-sockets and rear bars.

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