July 31, 1934. J. L. KALLUS 1,968,492

TOY FIGURE

Filed Jan. 28, 1932 3 Sheets-Sheet 1

Fig. 1.

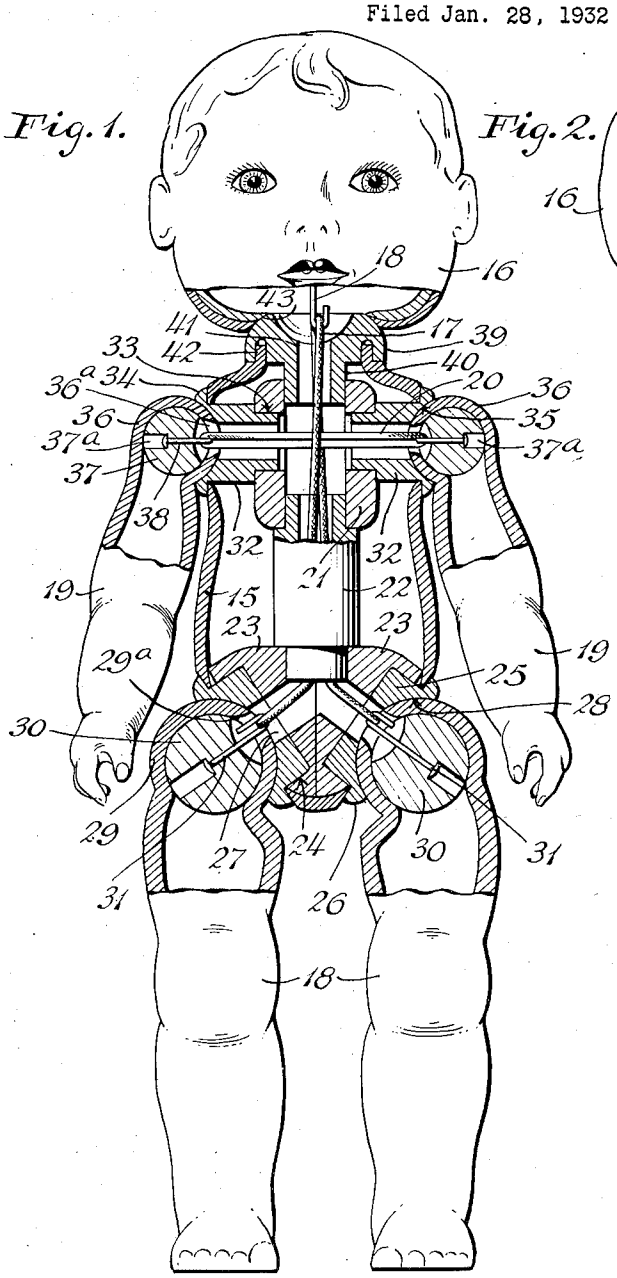


Fig. 2.

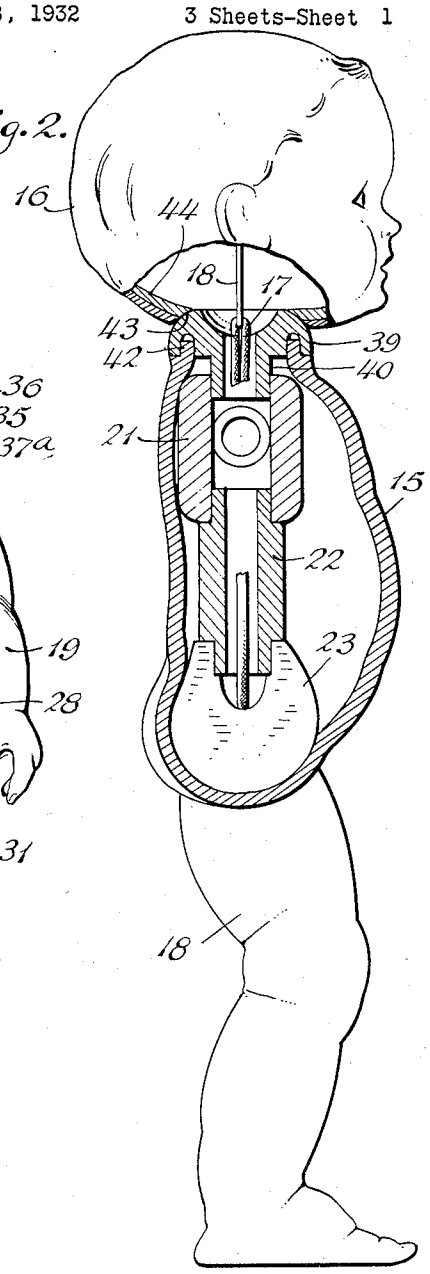


Fig. 3.

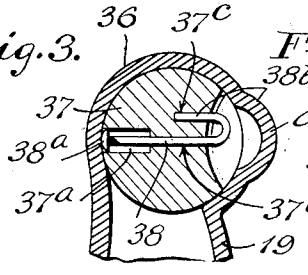
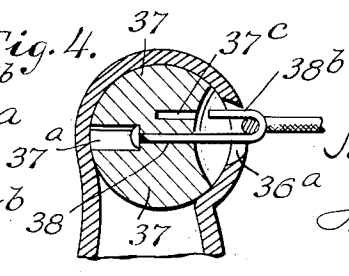


Fig. 4.



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July 31, 1934. J. L. KALLUS 1,968,492

TOY FIGURE

Filed Jan. 28, 1932 3 Sheets-Sheet 2

Fig. 5.

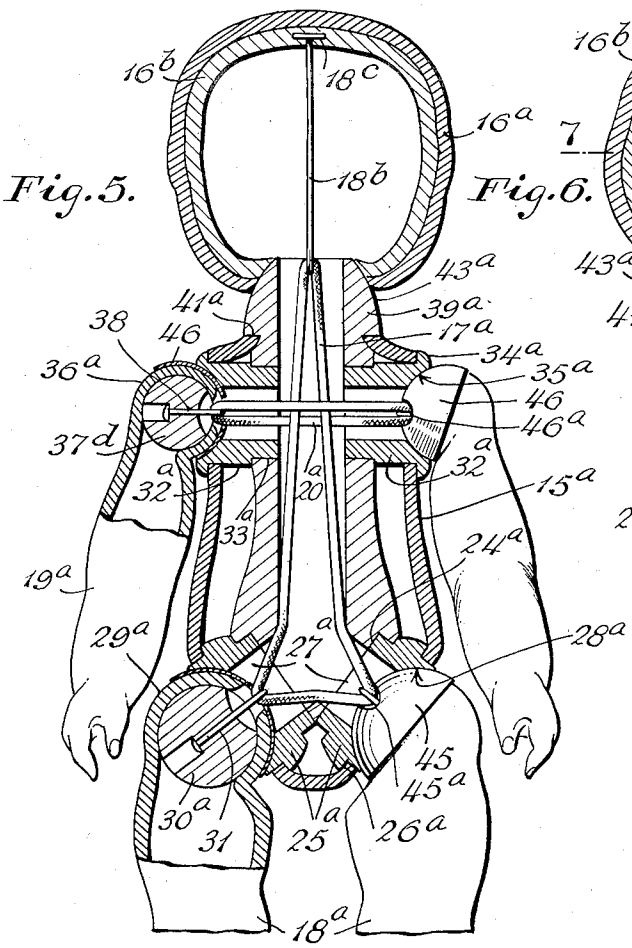


Fig. 6.

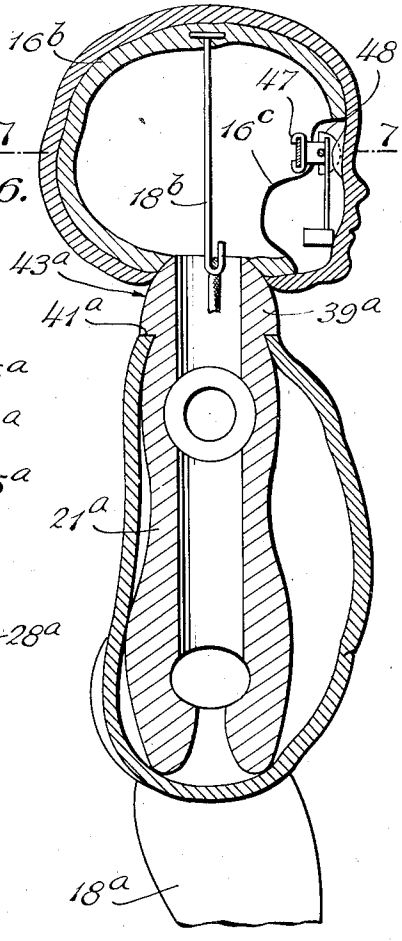
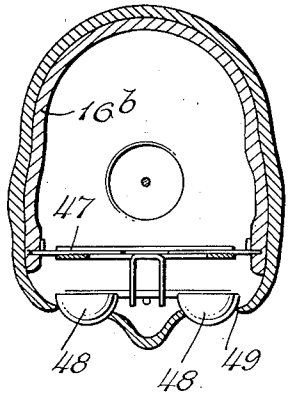


Fig. 7.



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July 31, 1934. J. L. KALLUS 1,968,492

TOY FIGURE

Filed Jan. 28, 1932 3 Sheets-Sheet 3

Fig. 8.

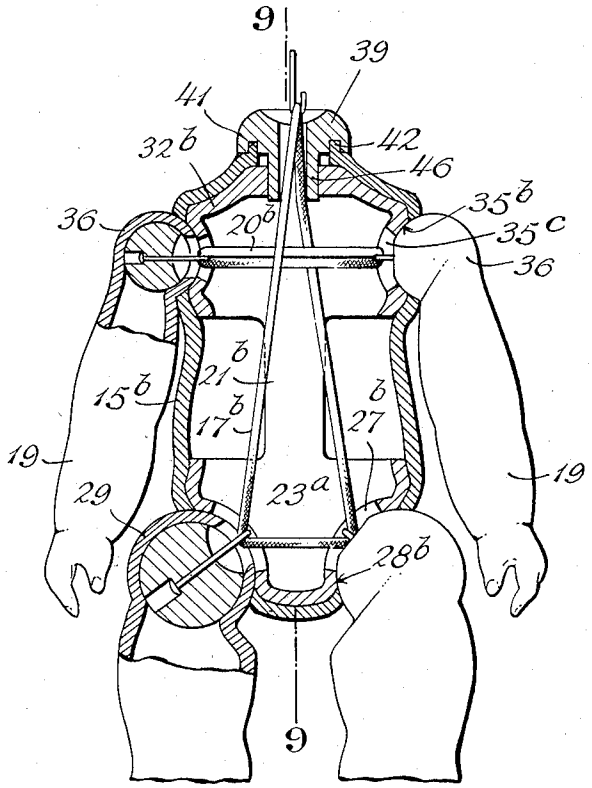


Fig. 9.

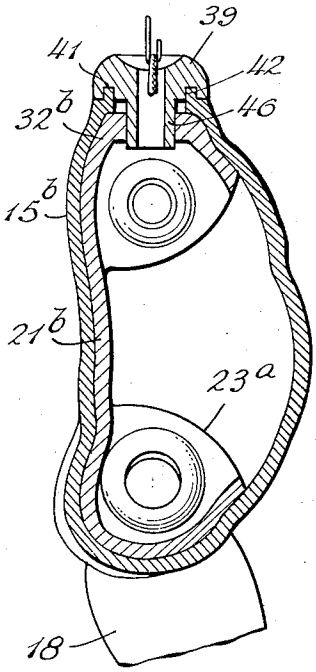
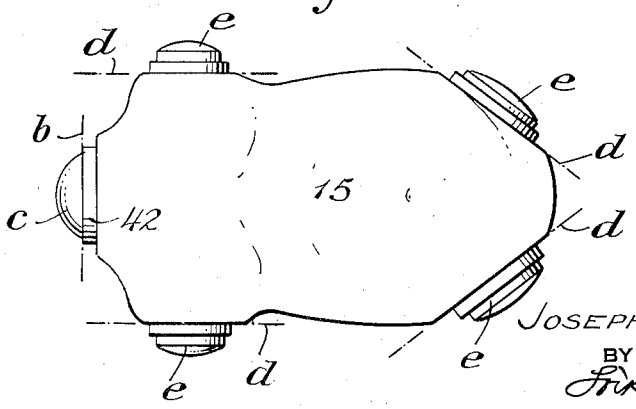


Fig. 10.



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UNITED STATES PATENT OFFICE

1,968,492

TOY FIGURE

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Application January 28, 1932, Serial No. 589,328

11 Claims. (Cl. 46—40)

My invention relates to toy figures such as dolls, toy animals and the like, and more particularly to jointed toy figures having hollow bodies and other members made of collapsible material such as soft rubber. Because of the inherent yielding or non-rigid characteristics of the soft rubber or its equivalent, considerable difficulty has heretofore been experienced in combining the parts of the figure in a manner to provide an efficient arrangement of joints which will withstand use and permit adjustment of the various parts of the figure in a natural and life-like manner.

The invention has for its object to provide novel constructions in which these difficulties are overcome and in which the body and associated members are connected in jointed relation in a simple and efficient manner. The invention contemplates further the provision of a jointed toy figure, made of hollow soft rubber or its equivalent and constructed in a manner to simulate naturally the relatively rigid and yielding parts of the original which the toy figure is intended to represent. Other more specific objects of the invention will appear from the description hereinafter, and the features of novelty will be pointed out in the claims.

In the accompanying drawings, which illustrate examples of the invention without defining its limits, Fig. 1 is a front elevation partly in section of a doll embodying the novel features; Fig. 2 is a side elevation thereof partly in section; Figs. 3 and 4 are detail sectional views of a novel joint and fastening arrangement forming part of the invention; Fig. 5 is a fragmentary front elevation partly in section of another form of the invention; Fig. 6 is a longitudinal section of the doll shown in Fig. 5 looking at right angles thereto; Fig. 7 is a horizontal section on the line 7—7 of Fig. 6; Fig. 8 is a fragmentary front elevation partly in section of still another form of the invention; Fig. 9 is a sectional view on the line 9—9 of Fig. 8, and Fig. 10 is a detail view of the body of a doll immediately subsequent to the molding thereof.

In the illustrated examples of the invention, the novel features have been shown as embodied in hollow rubber dolls having jointed or relatively movable heads, legs and arms, for which they are particularly adapted; it is to be understood however that the examples shown in the drawings have been selected for illustrative and descriptive purposes only, and that the novel features may be utilized with equal efficiency in connection with other jointed, hollow toy figures made of collapsible material.

In the form shown in Figs. 1 and 2, the doll comprises a body 15, which is constructed of soft rubber or other equivalent material and is hollow, as shown in the drawings. The doll further includes a hollow head 16 of soft rubber or other suitable collapsible material, said head being adjustably mounted on the body 15 and secured in place thereon by means of conventional elastic cords, bands, or the like 17 attached to a hook 18 carried by the head 16 and serving also to secure the hollow legs 18 of the doll in jointed connection with the body 15 as will appear more fully hereinafter. The hollow arms 19 of rubber or other collapsible material are mounted upon the body in jointed or adjustable relation thereto and are fixed in place by means of elastic cords or the like 20 in the manner to be more fully set forth hereinafter.

Because of the hollow form of the body and other members comprising the doll, and because of the collapsible character of the soft rubber or equivalent material from which these parts are made, special means is provided to prevent collapse of the doll under the tension developed by the cords 17 and 20 or their equivalent, and to provide an arrangement of joints which will permit the different sections of the doll or its equivalent to be easily adjusted relatively to each other in a natural and life-like manner. In the example shown in Figs. 1 and 2, the means in question comprises a back-bone member, preferably consisting of two tubular sections 21 and 22, suitably connected with each other as by gluing and provided at the lower end with a pelvis member consisting of two complemental sections 23 fastened to the section 22 and to each other in any convenient manner. The pelvis sections 23 are each formed with recesses 24 adapted to receive socket members 25 which, at one end, include annular flanges 26 adapted to clamp the rubber or other material of which the body 15 is made, to the pelvis sections 23. The socket members 25 and the pelvis sections 23 are internally provided with registering openings 27, which terminate at concave recesses 28 formed in the socket members 25; the recesses 28 are dimensioned and constructed to receive the spherical ends 29 of the leg members 18 to provide hip joints on which said leg members 18 may be adjusted at will relatively to the body 15. The normally collapsible or non-rigid spherical ends 29 are internally reinforced by means of reinforcing members or supporting devices 30 illustrated in the form of solid spheres of wood or

other suitable material and provided with fastening devices 31 to which the cords or bands 17 which extend through the recesses 27 are secured. A shoulder section is combined with the back-bone section and consists of tubular socket members 32 fitted into recesses 33 with which the back-bone section 21 is provided, and secured therein in any conventional manner, as by gluing. The socket members 32 are formed at their outer ends with annular flanges 34 and with concave recesses 35 adapted to receive the spherical ends 36 of the arm members 19 to provide shoulder joints on which said arm members may be adjusted relatively to the body 15. To provide the necessary rigidity, the spherical ends 36 are likewise internally reinforced by means of reinforcing members or supporting devices 37 illustrated in the form of solid spheres of wood or other suitable material and carrying fastening devices 38 to which the elastic cord or band 20 is fastened, as illustrated in Fig. 1. In addition to the parts so far described, a rigid tubular neck member 39 is mounted upon the back-bone section 21 by means of a reduced continuing section 40, which fits into the section 21 and is secured therein in any well known way. The neck member 39 is formed with an annular recess 41 into which the neck portion 42 of the body 15 extends and in which said portion 42 may be permanently secured in any well known manner. The neck member 39, in the illustrated form, is curved or rounded as indicated at 43 to provide a bearing surface on which the head 16 is adjustably supported and is secured in place by means of the elastic cords or bands 17. The head 16, in the example shown, is also made of hollow collapsible material, such as soft rubber, and in the form illustrated in Figs. 1 and 2 is internally reinforced by means of a rigid interior member or supporting device 44 which, in its preferred form is also hollow and constructed in a preferred manner to be more fully set forth hereinafter.

In constructing the form of the doll now being described, the body 15 is molded in any conventional manner, for instance, by placing a suitable quantity of uncured rubber of putty-like consistency within a mold and then introducing air or other fluid pressure into said mold to expand the rubber into contact with the molding surface thereof. At the finish of the molding operation, the body is removed from the mold and presents an appearance for instance, as indicated in Fig. 10, said body, in effect, constituting a more or less inflated air bag, all parts of which are closed. In this condition, the body is vulcanized or cured in the conventional manner, or subjected to any other treatment dependent upon the nature of the material from which it is made, to bring it to its final condition for use. In molding the leg members 18 and the arm members 19, the same procedure is followed, with the exception that the internal reinforcing members 30 and 37 respectively, are introduced into the mold after first having been covered with a suitable rubber cement or its equivalent and are molded in place in the leg members 18 and arm members 19, respectively, coincidentally with the molding of said members; the combined members and reinforcing members are then vulcanized. The leg members 18 and the arm members 15 at the end of the molding and vulcanizing operations also comprise hollow more or less inflated flexible elements as indicated, for instance, in Fig. 3, which shows the spherical end 37 of one of the arm members 19; it will be understood that the spherical ends 29 of the leg members 18 present a substantially similar appearance at the corresponding stage of production.

In order to provide an efficient fastening means for attachment of the elastic cords 17 and 20 or their equivalent, the reinforcing members 37 are provided with recesses 37*a* and continuing apertures 37*b* in which fastening devices 38 with their heads 38*a* are slidably mounted; in the illustrated example, the fastening device 38 is in the form of a hook, the return member 38*b* of which, during molding and vulcanizing, is located within a recess 37*c* also provided in the reinforcing member 37, as shown best in Fig. 4. The reinforcing members 30 located within the spherical ends 29 of the leg members are provided with fastening devices 31 of the same general type as the devices 38 and similarly mounted so as to be slidable in said members 30 in the manner described with respect to the reinforcing members 37. During the molding of the arm and leg members, the fastening devices 38 and 31 occupy the position indicated in Fig. 3 in which the return members, such as 38*b*, are located within the recesses indicated by the reference character 37*c*, so that all parts of each fastening device are located within the confines of the associated spherical end 36 or 29, as the case may be. After the arm and leg members 19 and 18 respectively have been vulcanized, the reinforcing members 37 and 30, through the medium of the rubber cement coating previously applied thereto have been vulcanized to the respective arm or leg members and thus have been intimately united therewith so as to become substantially integral parts of said arm and leg members, respectively. If found desirable or necessary the reinforcing members 37 and 30, or their equivalents, may extend beyond the spherical ends of the respective arm and leg members into other parts of these members, for the purpose of providing support against collapse to such other parts, or for any other purpose. At the conclusion of the vulcanizing processes, the dome-like or other projections *a* which remain on the arm and leg members respectively are cut away so as to leave in the spherical members 36 and 29 openings such as the openings 36*a* and 29*a* respectively. The hook-ends of the fastening devices 38—31 are thereby rendered accessible and accordingly may be adjusted to the positions indicated in Figs. 1 and 4, in which the return portion, such as 38*b* has been withdrawn from the recess indicated by the reference character 37*c*; this adjustment of said fastening device brings the head 38*a* thereof, or its equivalent into contact with the inner end of the recess 37*a* to thereby prevent a further withdrawal of said fastening device relatively to the reinforcing members 37 or 30 and brings the hook-ends of said fastening devices into position for connection with the elastic cords 20 and 17 or their equivalent.

To complete the doll structure now being described, the doll body is trimmed or cut along the line *b* to remove the hollow projection *c* and to leave the body 15 with the annular neck flange 42 previously referred to. In addition, the body 15 is further cut or trimmed along the lines *d* to remove the hollow projections *e* which results in the formation of shoulder openings and pelvis openings respectively in the body 15. The united back-bone sections 21 and 22 may then be inserted into the interior of the doll body 15, either through the neck opening or one of said pelvis openings, after which the socket members 32 are inserted through the shoulder openings into the openings 33 of the back-bone section 21; the sock-

et members 32 may be glued in the openings 33 of the section 21 or simply fastened therein with a forced fit and in any case when in place on said section 21 project inwardly through the shoulder openings of the body 15 with the flanges 34 in engagement with the body material as shown in Fig. 1. The neck member 39 may then be inserted through the neck opening of the body with the flange 42 projecting into the annular recess 41 and the reduced portion 40 extending into the section 21 and suitably secured therein. Likewise, the two pelvis sections 23 may be separately inserted into the body 15 through the pelvis openings thereof and connected with the section 22, after which the socket members 25 may be passed through the pelvis openings into the recesses 24 and fixed in place therein either by gluing or by means of a forced fit; it will be understood that the pelvis sections 23 are coated at the proper places with glue or other adhesive or otherwise arranged, so that in their final positions they will become united with each other and with the section 22 to form a unitary structure. It will of course be obvious that the described sequence in assembling the parts need not be followed arbitrarily, and that any other proceeding may be resorted to whereby the same results are finally obtained. In the final position of the socket members 25, the flanges 26 thereof serve to clamp the material of the body 15 between themselves and the pelvis sections 23, as illustrated in Fig. 1. The elastic cords 17 or their equivalent may then be connected with a fastening device 18 of the head and passed downwardly through the back-bone sections 21 and 22, and outwardly through the recesses 27 for connection with the fastening devices 31 whereby the spherical ends 29 of the leg members are adjustably secured in the recesses 28 of the socket members 25 and the head 16 is adjustably fastened in place upon the neck member 39. Likewise the elastic cords 20 or their equivalent may be passed through the socket members 32 and back-bone section 21 and secured to the fastening devices 38 and thus serve to adjustably position the spherical ends 36 of the arms 19 in the recesses 35 of the sockets 32. It will be understood that the elastic cords 17 and 20 are dimensioned so as to be placed under a tension when connected with the respective members, so that the head and leg members, and the arm members are attached in place upon the body 15 in a manner to permit them to be adjusted relatively to the body in a life-like manner to different life-like and natural positions.

In the completely assembled condition of the doll, the combined back-bone sections, pelvis sections and neck member form a rigid device extending between the upper and lower ends of the body 15 and thus serve to support the same against collapse or distortion in the direction of the length of the doll under the tension developed by the elastic cords 17 or their equivalent. Collapse of the body in transverse directions in the pelvis region thereof under the aforesaid tension of said cords 17 or the like is prevented by the resistance of the pelvis sections 23 which fit the lower end of the body 15, as clearly shown in Fig. 1. Collapse of the body transversely across the chest region thereof under the action of the elastic cords 20 or the like is prevented by the socket members 32 which constitute rigid seats for the spherical ends 36 of the arms 19. The back-bone sections 21 and 22, which are located in proximity to the back of the body 15 function as a back-bone for the doll and prevent pressure upon the back of the body 15 from collapsing the same inwardly. As shown in Figs. 1 and 2, a space exists between the sides and front of the body 15 and the aforesaid back-bone sections 21 and 22, so that the body may yield inwardly at the sides and front in a natural and life-like manner. The flanges 26 of the socket members 25 and the flanges 34 of the socket members 32 not only serve to clamp or otherwise fix the flexible material of which the body 15 is constructed in proper position, but also cover the peripheral edges of the openings through which said socket members extend inwardly and thereby provide a neat finish and avoid visible rough edges; the same is true of the annular recess 41 of the neck member 39, which completely encloses the neck portion 42 of the body 15 and hides the same from view. The doll in its finished condition thus presents a highly attractive appearance and an arrangement in which the head, arms and legs may be easily adjustable relatively to the body 15 to various positions in a life-like and natural manner. If the novel features are included in toy figures other than dolls, such as, for instance, toy animals, corresponding results will be secured by the embodiment of such features in said figures.

In the form shown in Figs. 5, 6 and 7, the means whereby the desired rigidity against collapse is imparted to the various parts of the figure differs in detail from the arrangement shown in Figs. 1 and 2, but operates to produce approximately the same results. The means in question constitutes a back-bone member consisting of a single tubular section 21*a*, terminating at its upper end in an integral neck member 39*a* shaped to form an annular recess 41*a* and including a curved outer surface 43*a* forming a bearing seat on which the head to be more fully described hereinafter is adjustably mounted. At its lower end the back-bone section 21*a* terminates in a pelvis section having recesses 24*a* which converge inwardly in a downward direction and are adapted to receive socket members 25*a* which may be secured in the recesses 24*a* by a forced fit or by gluing or in any other suitable manner. The socket members 25*a* are formed with internal openings 27*a* which communicate with the interior of the back-bone member 21*a* as shown in Fig. 5. Instead of the external annular flanges 25 of Figs. 1 and 2, the socket members 25 include annular shoulders 26*a* located interiorly of the body of the doll in the assembled condition thereof and constituting bearing surfaces against which the body material rests, as illustrated in Fig. 5. The body 15*a* of the doll now being described corresponds substantially to the body 15 of Figs. 1 and 2, but instead of being provided with the neck portion 42 is simply formed with a neck opening, the peripheral edge portion of which extends into the annular recess 41*a* as shown in Figs. 5 and 6.

The leg members 18*a* and the arm members 19*a* generally speaking may correspond to the leg members 18 and arm members 19 respectively, of Figs. 1 and 2, and likewise terminate in spherical ends 29*a* and 36*a* in which reinforcing members or supporting devices 30*a* and 37*a* corresponding to the previously mentioned reinforcing members or devices 30 and 37 are located. The reinforcing members 30*a* and 37*d* may be provided with fastening devices 31 and 38 corresponding in location, construction and operation to the fastening devices 31 and 38 of Figs. 1 and 2, and likewise being attached to elastic cords or bands

17a and 20a, which correspond to the elastic cords or bands 17 and 20 respectively, of Figs. 1 and 2. In order to reduce friction to a minimum and to still further facilitate the adjustability of the leg members 18a and arm members 19a, the spherical ends 29a and 36a may be provided respectively with bearing members 45 and 46, which preferably comprise metallic shells of hemispherical form and are secured in position on the respective spherical ends in any convenient manner; the bearing members 45 and 46 are provided with apertures 45a and 46a through which the fastening devices 31 and 38 are accessible for connection respectively with the elastic cords or bands 17a and 20a.

In constructing the doll now being described, the body 15a may be molded, vulcanized or otherwise brought to a finished state and trimmed or cut to produce the various openings in the same way as set forth with respect to the body 15 of Figs. 1 and 2. The back-bone section 21a may then be inserted into the body 15a through the neck-opening thereof or otherwise, and the body material forced into the annular recess 41a and secured therein in any conventional way. As the next step, the socket members 25a may be inserted through the pelvis openings in the body 15a and extended into the recesses 24a of the section 21a in the manner illustrated in Fig. 5 and secured in such recess, either by glue or by means of forced fits; if the socket members 25a have been fastened in place on the section 21a, previous to its insertion into the body 15, as may sometimes be done, the said socket members 25a are inserted into the pelvis openings from the inside. In either case, the material of which the body 15a is made will engage the annular shoulders 26a with the peripheral surfaces of said openings in engagement with the contiguous surfaces of said socket members. To complete the arrangement, socket members 32a, which may be substantial duplicates of the members 32 of Figs. 1 and 2, are inserted through the shoulder openings of the body 15a into recesses 33a formed in the member 21a and corresponding to the recesses 33 of Figs. 1 and 2. The socket members 32a are also provided with annular flanges 34a corresponding to the flanges 34 of Figs. 1 and 2, and likewise engaging the body material surrounding said control openings, as clearly shown in Fig. 5; the socket members 32a may be secured in the recesses 33a by gluing or by simple force fits therein. The sockets 25a are provided with concaved recesses 28a for the reception of the bearing members 45 fixed upon the spherical ends 29a of the leg members, which socket members 32a include concave recesses 35a for the reception of the bearing members 46 secured upon the spherical ends 36a of the arm members 19a. The arm members 19a are fixed in place in the manner previously indicated with respect to Figs. 1 and 2 by the elastic cords or the like 20a, and the leg members 18a are adjustably held in place by means of the elastic cords 17a or the like, which engage a fastening device 18b located interiorly of the head 16a, which is adjustably mounted on the curved surface 43a of the neck section 39a, and is adjustably held in place thereon by the tension of the cords or bands 17a.

The head 16a may be of the same general construction as the head 16 of Figs. 1 and 2, but in the example shown in Figs. 5, 6 and 7 comprises a special construction which will now be described. In this special construction the head 16a is made of soft rubber or equivalent material and is molded in hollow form in any conventional way, for instance, as previously set forth with respect to the molding of the bodies and leg and arm members described hereinbefore, so that in its normal condition, the head is collapsible and without any inherent rigidity of its own. To provide the desired rigidity against collapse, and to make said head conform more closely to the natural characteristics of the natural head exemplified thereby, a rigid means 16b is located within said head for supporting predetermined portions thereof against inward collapse under external pressures exerted thereon or forces developed internally of the toy figure, for instance, by the elastic cords 17, 17a, or their equivalent. In the illustrated example, this supporting means 16b comprises a hollow device which may be constructed of plastic material, metal or other suitable material and in any case is combined with the head 16a during the molding thereof; that is to say, the device 16b when made of metal or the like, after first having been coated with a rubber cement or other suitable material is introduced into the mold with the material of which the head 16a is composed, which is then molded in the conventional manner; if made of plastic material or the like the device 16b is coated with rubber cement or the like as before, is placed with the head material in the mold so that the head and the device 16b may concurrently be molded to the desired finished shape. After the molding process has been completed, the combined head 16a and the supporting device 16b are vulcanized, so that both become intimately united by vulcanization to comprise, in effect, a unitary structure. The device 16b corresponds in its arrangement and characteristics to the particular head of the toy figure with which it is combined. In the illustrated example, the supporting device 16b comprises a frontal section, a skull section, a back section and a lower portion which is apertured to adjustably fit upon the neck member 39a, as clearly shown in Figs. 5 and 6. The front portion of the device 16b in the form shown in Figs. 6 and 7 is cut away to form a front opening in registry with the face of the doll, and at the sides along a curved line 16c, so that the face of the doll and the cheeks thereof are unsupported from the inside and accordingly are capable of yielding inwardly in a manner closely simulating the face and cheek portions of a natural human head. With this arrangement, the device 16b may serve as a support for the framework 47, which carries the eyes 48 in such a manner that said eyes may operate to simulate the eyes of a sleeping person, and one who is awake. In such case, the head 16a will be provided in the face portion thereof with eye-sockets 49 through which the eyes 48 project and in which they are movable, as previously described. With the arrangement now being described, the supporting device 16b may also carry the fastening device 18b which, in such case may be secured to the device 16b by being molded therein and include a head 18c embedded in the device 16b to maintain the fastening device 18b in connection with the device 16b under the tension exerted by the elastic cords 17a or their equivalent.

In some forms of toy figures, it may be desirable to combine the means whereby the body of the figure is supported against collapse in a predetermined manner, by molding the support-

ing device within the body coincidentally with the molding thereof in a manner similar to the method described with respect to the head of Figs. 5, 6 and 7. Such an arrangement embodied in a doll is illustrated in Figs. 8 and 9. In this form, the doll comprises a hollow body 15*b* of soft rubber or equivalent material corresponding to the body 15 of Figs. 1 and 2, which body 15*b* at the conclusion of the molding operation may present the appearance illustrated in Fig. 10. The internal supporting means, as illustrated in Figs. 8 and 9, comprises a back-bone section 21*b*, a shoulder and chest section 32*b*, and a pelvis section 23*a*. The section 32*b* is formed with concave recesses 35*b* in which openings 35*c* are located, and the pelvis section 23*a* includes concave recesses 28*b* is which openings 27*b* are formed, as shown in Fig. 8. The sections 21*b*, 32*b* and 23*a* comprise integral parts of each other and may be formed of metal, plastic material or any other suitable substance. The unit consisting of the sections 21*b*, 32*b* and 23*a*, when made of metal or corresponding substantially rigid material, after having been covered with a suitable rubber cement or its equivalent, is introduced into the mold with the material from which the body 15*b* is made, so that the supporting device now being described is combined with said body 15*b* during the molding; if said supporting device is made of plastic or other similar moldable material, said device, in addition to being combined with the body 15*b* in the manner described above, may be molded to final shape, coincidentally therewith. After the molding operation has been completed, the combined body and internal supporting device are vulcanized and thereby become intimately united to form a substantially unitary element. The doll now being described further includes a neck member 39 corresponding to the neck member of Figs. 1 and 2, and similarly including an annular recess 41 for the reception of the neck portion 42 with which the body 15*b* may be provided in the same way as in Figs. 1 and 2; the neck portion 42 may be permanently secured in the annular recess 41 in any convenient manner, and the neck member 39 may be fastened in place by means of a reduced continuing section 40 fitted into an opening provided in the section 32*b* and secured in such opening in any desirable manner. To complete the doll, a head, either as shown in Figs. 1 and 2, or as illustrated in Figs. 5, 6 and 7 is mounted upon the neck member 39 and secured in place by means of elastic cords 17*b*, which serve also to fix the spherical ends 29 of the leg members 18 in the recesses 28*b* of the pelvis section 23*a* to adjustably secure said leg members to the body 15*b*; the spherical ends 36 of the arm members 19 are secured in the concave recesses 35*b* of the section 32*b* by means of elastic cords or the like 20*b* to adjustably connect said arm members 19 with the body 15*b*.

It will be understood that the body 15*b* is provided with suitable openings through which the spherical ends 29 of the leg members 18 and the spherical ends 36 of the arm members 19 extend into engagement with the co-operating concave recesses 28*b* and 35*b* respectively; the openings in question may be produced by cutting away the portions *e* shown in Fig. 10 in the manner previously set forth in the description, or said openings may be produced in any other convenient manner. The leg members 18 and the arm members 19 of Figs. 8 and 9 may correspond in construction either to the leg and arm members of Figs. 1 and 2, or the leg members 18*a* and arm members 19*a* of Figs. 5 and 6.

When the doll of Figs. 8 and 9 has been completed, the body 15*a* will be rigidly supported at the rear by the sections 21*b*, 32*b* and 23*a* in a manner to correspond to the characteristics of a natural human body at the indicated sections; the upper chest portion of the body and the front and lower pelvis portions thereof will likewise be supported from within, while the lower chest portion and the abdominal section of said body will be unsupported and accordingly will yield inwardly at the front and sides in approximate simulation of the corresponding parts of a human body.

It will be understood that the plastic material referred to in the specification for use in constructing the supporting devices in some forms, is of such a character that it will become set or dry hard, and thus present the required rigid properties in its final form. Similarly it is to be understood that the application of a rubber cement or its equivalent to the supporting devices for connection with the associated elements may in some instance be omitted.

While I have described the various novel features specifically in connection with a toy doll, it will be obvious that they may be incorporated in other toy figures in such manner that said toy figures will very closely approximate the originals of which said figures are copies. In all forms the toy figures accordingly present not only a most natural appearance, but embody characteristics closely approximating those of the human or animal bodies constituting the originals of the toy bodies under discussion.

In addition, the internal supporting means provides mechanical arrangements which efficiently operate to resist tensional forces inherently present in the different types of jointed figures whereby all parts of said figures are adjustably maintained in their intended relation to each other. In those forms in which the internal supporting means is combined with the respective members or elements of the toy figures by molding and subsequent vulcanization, a most intimate and efficient union of the parts is secured so that in effect the internal supporting means and the members or elements in which said means are incorporated constitute unitary structures or devices. Toy figures made in hollow form of soft rubber or other collapsible material have long been recognized as ideal replicas of the originals from which they are copied. Such toy figures, however, up to the present time have lacked the adjustability inherent in other types of figures, which include jointed constructions, because of the fact that said rubber or equivalent dolls and other figures have usually been molded as units in which all parts of the figure are molded together as integral parts. With the present novel constructions, all of the desirable features present in the existing hollow toy figures of soft rubber or the like, and inherent in existing toy figures of jointed construction are included in their entirety, with the additional advantage that toy figures constructed in accordance with the instant invention much more closely simulate the originals from which they are copied. The novel toy figures present no particular difficulties of manufacture and are not excessively expensive to produce.

Various changes in the specific forms shown and described may be made within the scope of

the claims without departing from the spirit of the invention.

I claim:

1. A doll comprising a hollow collapsible body, provided with a neck opening and arm and leg openings, a rigid device located interiorly of said body and extending lengthwise thereof, a neck member extending from said rigid device outwardly through said neck opening and connected with said body thereat to constitute a bearing surface exteriorly of said body, said rigid device being provided with arm recesses and leg recesses in proximity respectively with said arm and leg openings, a head movably mounted on the exterior bearing surface of said neck member, arm members movably mounted in said arm recesses, leg members movably mounted in said leg recesses, and means whereby said head, arm members and leg members are adjustably connected with said body.

2. A doll comprising a hollow collapsible body provided with a neck opening, arm openings and leg openings, a rigid device located interiorly of said body and extending lengthwise thereof, a neck member located exteriorly of and connected with said body at said neck opening and projecting inwardly through the same into connection with said rigid device to constitute an external bearing surface, a head adjustably mounted on the bearing surface of said neck member, socket members located exteriorly of said body and extending inwardly through said arm openings into connection with said rigid device to constitute external bearing surfaces, arm members adjustably mounted in the external bearing surfaces of said socket members, additional socket members located exteriorly of said body and extending inwardly through said leg openings into connection with said device to constitute additional external bearing surfaces, leg members adjustably mounted in the external bearing surfaces of said last named socket members, and means whereby said head, arm members and leg members are adjustably secured in connection with said body.

3. A doll comprising a hollow collapsible body, provided with a neck opening and arm and leg openings, a rigid device located within said body and extending lengthwise thereof, a neck member projecting outwardly from said rigid device through said neck opening and connected with said body thereat to constitute a bearing surface exteriorly of said body, a head movably mounted on the exterior bearing surface of said neck member, socket members extending through said arm openings into connection with said device, arm members adjustably mounted in said socket members, additional socket members connected with said device and projecting through said leg openings, leg members adjustably mounted in said last named socket members, and means whereby said head, arm members and leg members are adjustably connected with said body.

4. In a doll, a hollow collapsible body provided with a neck opening and arm and leg openings, a back-bone member located within said body and consisting of two connected tubular sections, a neck member connected with said back-bone member and extending through said neck opening and being connected with said body thereat, socket members extending through said arm openings into connection with said back-bone member and provided with externally accessible concave recesses, annular flanges carried by said socket members and engaging said body exteriorly of said arm openings, a pelvis member consisting of two sections connected with each other and with said back-bone member and provided with recesses in registry with said leg openings, socket members extending through said leg openings into the recesses of said pelvis sections and provided with externally accessible concave recesses, and annular flanges carried by said last named socket members whereby said body is clamped against said pelvis sections adjacent to the peripheries of said leg openings.

5. A doll comprising a hollow collapsible body provided with a neck opening and arm and leg openings, a back-bone member located within said body and extending lengthwise thereof, a neck member comprising an integral extension of said back-bone member and projecting outwardly through said neck opening to constitute a bearing surface exteriorly of said body, said back-bone member being provided with an annular recess at the base of said neck member in which the body at said neck opening is secured, a head movably mounted on the external bearing surface of said neck member, socket members extending through said arm openings into connection with said back-bone member, annular flanges carried by said socket members and engaging said body exteriorly of said arm openings, additional socket members connected with said back-bone member and extending outwardly through said leg openings, said socket members being all provided with externally accessible concave recesses, arm members movably mounted in the recesses of said first socket members, leg members movably mounted in the recesses of said additional socket members, and means whereby the head, arm members and leg members are adjustably connected with said body.

6. A doll comprising a hollow collapsible body provided with a neck opening and arm and leg openings, a rigid supporting device located interiorly of said body and consisting of a back-bone section extending lengthwise of said body, a combined shoulder and chest section provided with concave arm recesses in registry with said arm openings, and a pelvis section provided with concave leg recesses in registry with said leg openings, said supporting device being in molded connection with said body, a neck member provided with a bearing surface exteriorly of said body and extending through said neck opening into connection with said device and provided with an annular recess, a neck portion comprising an integral extension of said body at said neck opening extending into said annular recesses whereby said neck member and said body are connected with each other, a head movably mounted on the exterior bearing surface of said neck member, arm members movably mounted in said arm recesses, leg members movably mounted in said leg recesses, and means whereby said head, arm members and leg members are adjustably connected with said body.

7. A doll comprising a hollow collapsible body provided with a neck opening and arm and leg openings, a rigid supporting device located interiorly of said body and consisting of a back-bone section extending lengthwise of said body, a combined shoulder and chest section provided with concave arm recesses in registry with said arm openings, and a pelvis section provided with concave leg recesses in registry with said leg openings, said supporting device being vulcanized to said body for intimate connection therewith, a neck member provided with a bearing surface

exteriorly of said body and projecting inwardly through said neck opening into connection with said rigid device, a head movably mounted on the exterior bearing surface of said neck member, arm members movably mounted in said arm recesses, leg members movably mounted in said leg recesses, and means whereby said head, arm members and leg members are adjustably connected with said body.

8. In a doll, a hollow collapsible member of soft rubber provided with a spherical end constituting a joint and having an opening, a spherical supporting device within said spherical end for internally supporting the same against collapse, said spherical device being in molded, vulcanized connection with said spherical end and having a recess and a continuing aperture, and a fastening device connected with said spherical device and slidably mounted in said recess and continuing aperture, said fastening device being initially located entirely within said spherical end and being adjustable into a position of accessibility through said opening.

9. In a doll including a body provided with an external bearing at the neck thereof, that improvement which comprises a hollow collapsible head of soft rubber provided with eye-sockets and a bearing portion adapted for engagement with the external bearing of said body, a hollow supporting means within said head for supporting predetermined portions of said head from the inside and extending downwardly into proximity with said bearing portion for imparting rigidity to said head at the bearing portion thereof, said supporting means being open at the front and sides in registry with the face and cheeks of said doll, and eye mechanism movably carried by said supporting means and including eyes located in registry with said eye sockets.

10. In a toy figure including a body, a head and recesses for accommodating limb members, that improvement which comprises a limb member of moldable material provided with a collapsible hollow spherical end having a restricted opening therein, said spherical end constituting a joint adapted to fit one of said recesses, a rigid supporting device in conforming interior surface engagement with said spherical end and enclosed thereby for supporting said spherical end against collapse, and fastening means movably carried by said supporting device in registry with said opening for adjustment in its entirety into said spherical end and into an operative position through said opening for connecting said limb member with said body.

11. In a doll including a body, a head mounted thereon, and bearing recesses for accommodating arm and leg members, that improvement which comprises a hollow collapsible member of soft rubber provided with a hollow spherical end constituting a joint adapted to fit into one of said bearing recesses and having a restricted opening, a spherical supporting device enclosed within said spherical end in conforming interior surface engagement therewith for supporting said spherical end against collapse, fastening means slidably carried by said supporting device in registry with said opening and adjustably accessible therethrough for connecting said member with said body, and a metallic bearing shell secured to said spherical end in external relation thereto for bearing contact with the surface of the cooperating recess.

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