Nov. 3, 1936. G. C. GOODSILL 2,059,338

DISPLAY FIGURE

Filed April 9, 1934

Fig. 1

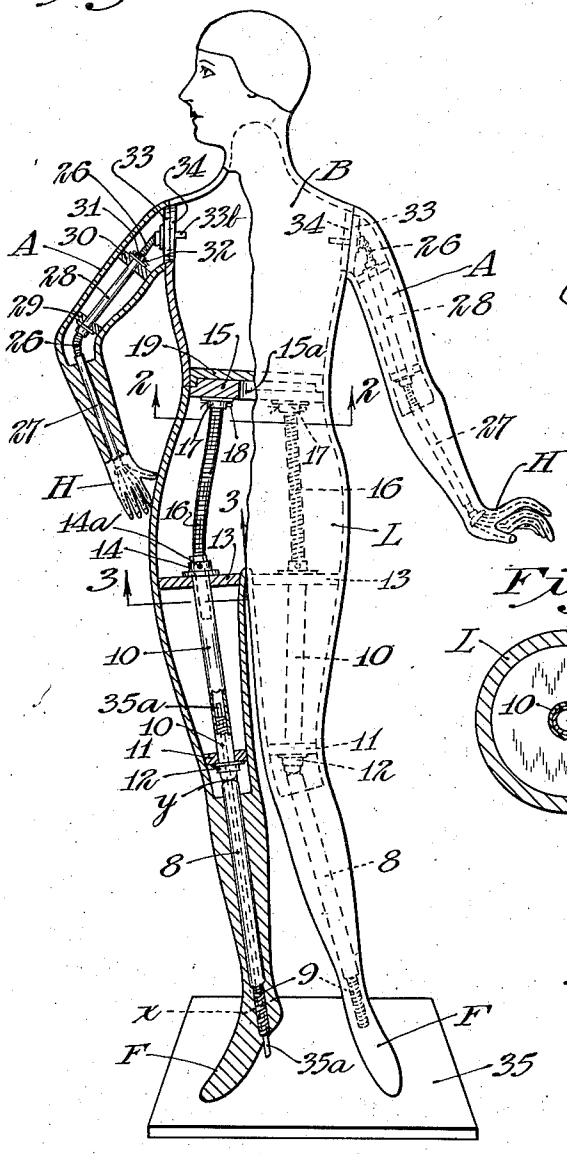


Fig. 6

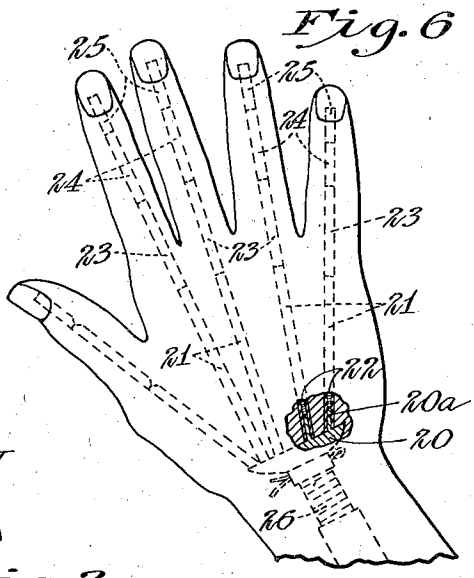


Fig. 3

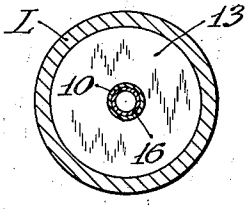


Fig. 5

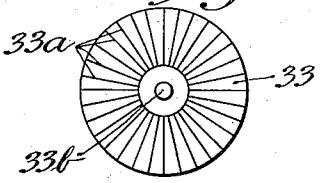


Fig. 4

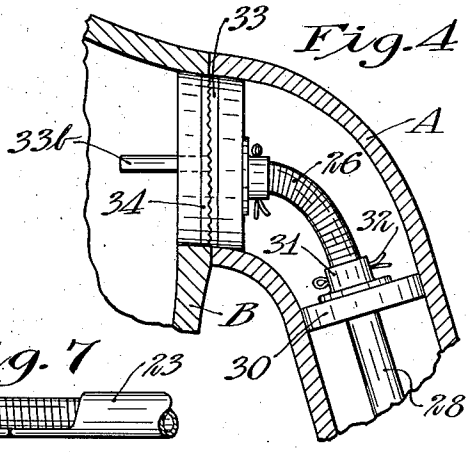


Fig. 2

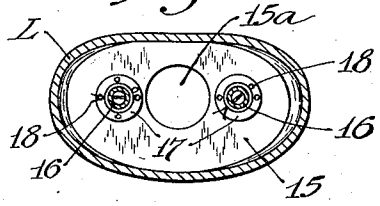
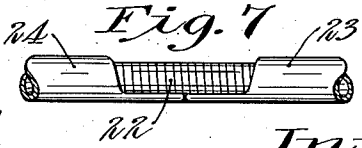


Fig. 7



Inventor
Guy C. Goodsill
By his Attorneys
Williamson & Williamson

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2,059,338

DISPLAY FIGURE

Guy C. Goodsill, Hollywood, Calif.

Application April 9, 1934, Serial No. 719,696

2 Claims. (Cl. 223—68)

This invention relates to display figures and manikins and particularly to a display figure simulating a human body and adaptable for adjustment in various postures and positions.

It is an object of my invention to provide a comparatively simple and highly efficient display figure of the type referred to having joints, members and limbs so constructed that it may be positioned in any of the natural postures of the human body.

More specifically it is an object to provide a manikin or display figure having a body constructed for the most part of relatively light pliable material and having joints and reinforcements so associated with said body that the hands, arms, legs, hips and trunk of the body may be bent and positioned in the various normal positions of the human body and will be retained in the adjusted positions until another position or pose is desired.

Another object is the provision of a manikin or figure of the class described which may be manufactured at relatively low cost, which is rugged in structure and will withstand continued usage and which may be disassembled for storage or shipment purposes.

These and other objects and advantages of the invention will be more fully set forth in the following description made in connection with the accompanying drawing, in which like reference characters refer to similar parts throughout the several views, and in which:—

Fig. 1 is a view partly in perspective and partly in vertical section showing an embodiment of my invention positioned in upright or standing position;

Fig. 2 is a cross section taken on the line 2—2 of Fig. 1;

Fig. 3 is a cross section taken on the line 3—3 of Fig. 1;

Fig. 4 is a vertical section on a larger scale showing the manner in which one of the arms is detachably and adjustably mounted on the trunk of the figure and also showing the joint formed at the shoulder;

Fig. 5 is a detail view illustrating one of the toothed retaining disks detached;

Fig. 6 is a fragmentary perspective view of one of the hands of the figure, some portions broken away and others shown in section, and

Fig. 7 is a detail view showing a suitable form of joint construction utilized in the embodiment disclosed.

The embodiment of my invention illustrated comprises four separate main parts, first a bust or trunk portion B integrally carrying the head of the figure, secondly, a lower body portion L which includes the hips, legs and feet of the figure and third and fourth, a pair of detachable arms A as shown integrally formed with the hands H carried at the extremities thereof. The several main body portions are preferably constructed from suitable pliable material, such as rubber or a rubber composition and the greater portions of the several body members are hollow to decrease weight and facilitate assembly of the joints and reinforcements. It will, of course, be obvious that the head may be separately formed from the bust and that likewise the legs if desired may be separately formed and connected with the torso.

Referring now to the lower body construction L, the legs and greater portion of the torso are integrally cast or constructed and as shown the torso and hip portions are hollow, as are the legs from points just below the knees upwardly. The feet F of the body as shown are integrally formed with the legs but are vulcanized up to the ankle line x to afford hardened extremities.

Embedded within the lower portion of the leg and extending longitudinally thereof is a rigid reinforcing tube 8 and within and projecting from this tube is an elongated flexible member of such nature that it may be bent when considerable force is applied, but will retain its bent or adjusted shape until it is again desired to apply force and change the same. The several joints of my figure are formed by exposing or uncovering sections of the shape retaining flexible members and providing means for limiting the bending at said joints in the direction and to the extent desired.

As shown I employ for the flexible shape retaining elements strong flexible conduits of the type comprising a multiplicity of connected annular elements so connected that the several elements are adjustable angularly with respect to each other and are frictionally held in adjusted position until considerable force is applied to change the position. In the legs the reinforcing tube 8 extends from a point just above the ankle line x to the knee joint line y. The flexible shape retaining element 9 utilized in each leg extends through the tube 8 and is embedded in the ankle and foot portions of the legs, the exposed portion of element 9 between the lower end of tube 8 and the ankle line x being adapted to be bent to adjust the foot in various positions relative to the lower portion of the leg. The upper end of shape retaining element 9 projects

considerably beyond the upper end of tube 8 and is telescoped in the lower portion of a reinforcing tube 10 extending between the top of the leg and a point just above the knee joint line *y*. A transverse attachment plate 11 is fixed within the hollow portion of the leg a short distance above the knee joint line *y* and is centrally apertured to receive and position the lower end of reinforcing tube 10. A collar 12 may be provided if desired to surround the lower portion of tube 10 and is affixed to the bottom of plate 11. The lower end of tube 10 and the upper end of reinforcing tube 8 are formed as shown in Fig. 7 with abutment portions disposed at the front of the figure and with cut-away portions at the back and sides of the figure exposing a small section of the flexible shape retaining element 9 to permit of its bending to adjust the angulation of the lower leg portion with reference to the upper leg portion. The upper end of reinforcing tube 10 extends through a rigid transverse mounting plate 13 fixed within the upper end of the leg and as shown is rigidly secured to plate 13 by means of the collar 14 which is affixed to the top of plate 13 and to which the tube 10 is secured as shown by a set screw 14*a*. At the upper end or waist portion of the body member L a heavy transverse mounting plate 15 is affixed distending and shaping the peripheral wall of the waist portion and cemented or otherwise secured thereto. This plate 15 may have a circular hand aperture 15*a* formed therein to facilitate assembly of the joints and reinforcements within the upper portions of the legs. A heavy flexible shape retaining element 16 depends from plate 15 and is fixed to the bottom thereof by means of a collar 17 the attachment flange of which is secured to the bottom of plate 15. A cotter pin or other securing element 18 connects the upper end of shape retaining member 16 with the collar. The lower end of shape retaining element 16 projects for some distance into the upper end of the reinforcing tube 10 and is telescopically anchored there.

Both legs of the figure are similarly equipped with joints and reinforcing elements as described.

The lower edge or waist portion of the bust B of the figure is provided with a transverse mounting plate 19 cemented or otherwise secured within the peripheral wall of the body member and the bottom of this plate may have a recessed main portion providing a flange which telescopes over a shouldered portion of the plate 15 to join the bust with the lower portion of the body.

The hands and arms of the body are provided with joints and reinforcements in general similar to those of the legs and to this end each hand has embedded therein adjacent the wrist a head or casting 20 which as shown integrally carries five outwardly extending and diverging studs 20*a* over which are slipped the inner ends of the small reinforcing tubes 21. Reinforcing tubes 21 extend from said head 20 to the points within the hand corresponding to the large knuckles of a human hand. Flexible shape-retaining elements 22 extend through tubes 21 from points adjacent the studs 20*a* to points adjacent the tips of the fingers of the hand. Small reinforcing tubes 23 surround the intermediate portions of the shape-retaining elements 22 extending from the outer ends of tubes 21 to points adjacent to the second joints or knuckles of a human hand and a third series of reinforcing tubes 24 surround shape-retaining elements 22 and extend from the outer ends of tubes 23 to points adjacent the first finger joints of a human hand. In the tips of the fingers are embedded additional and relatively short reinforcing tubes 25 surrounding the outer ends of shape-retaining elements 22 and extending from the outer ends of tubes 24 to points adjacent the extremities of the fingers.

Between each of the pairs of adjacent reinforcing tubes a portion of the flexible shape-retaining element 22 is exposed by cutting the ends of the adjacent tubes in the manner shown in Fig. 7 with abutments provided to prevent the backward or unnatural swinging of the joints of the fingers and to permit normal swinging and adjustment of the several fingers.

The tubes 21, 23, 24, and 25 are all preferably embedded in the material from which the hand is cast or otherwise produced.

A flexible shape-retaining element 26 of the type utilized in the other joints of the figure is fixed at one end in a socket provided at the inner end of head 20 and extends through a rigid reinforcing tube 27 extending longitudinally of the forearm and terminating as shown just below the elbow. Shape-retaining element 26 is exposed for a few inches at the elbow portion of the arm and then passes through a reinforcing tube 28 which is mounted between and in a pair of transverse mounting plates 29 and 30 respectively. The upper end of tube 28 is secured to the upper mounting plate 30 by suitable means such as the collar 31 which is attached to plate 30 and a cotter pin or other fastening means 32 passes through the collar, through the tube and also, as shown, through the flexible shape-retaining element 26. A few inches of the upper end of shape-retaining element 26 is exposed to form a shoulder joint for the arm and the outer extremity of element 26 is fixed to a disk 33 which closes the hollow end of the arm at the shoulder. Disk 33 as clearly shown in Fig. 5 has on its outer surface a series of radially disposed ribs or corrugations 33a which are adapted to mesh with complementary ribs of a disk 34 fixed to the arm connection portions of the bust B. The disk 33*a* of the arm also carries an axial elongated stud 33*b* which frictionally engages an apertured central portion of the disk 34 and projects therethrough for detachable connection of the arm with the bust of the body.

In many instances it is desirable to utilize the display figure in an erect or standing posture and to this end a suitable broad base 35 of adequate weight is provided rigidly carrying an upstanding supporting rod 35*a* which is adapted to project telescopically into the shape-retaining element 9 which extends from the sole of the foot past the knee joint of one of the legs of the figure. The introduction of this rod rigidifies the knee joint and cooperates with the base 35 in supporting the figure in erect posture.

From the foregoing description it will be seen that I have provided a very life-like manikin or display figure having shape-retaining joints corresponding to the important joints of the human body. It will further be seen that the arms, shoulders, hips, torso, knees and feet of the figure as well as the fingers of the hands may be positioned by bending the pliable casing and the shape-retaining elements into most of the normal postures or positions of the corresponding members of a human body. The cooperation of the reinforcing tubes, exposed portions of the shape-sustaining elements, mounting plates for the

tubes and the pliable casings is such that wide adjustment may be made without deforming the contour of the limbs and other parts of the body. My figure is adapted for wide general use as a part of a display or as means for showing clothing and other merchandise.

No unsightly joints are utilized between the various body parts of the figure and all of the reinforcements, shape-retaining elements and joints are concealed within the body. The figure is therefore adapted for displaying almost any type of clothing, including lingerie, bathing suits, as well as all types of dresses, gowns, coats, hats, shoes, etc.

The construction of the torso and waist portion of the body is such that the figure may be adjusted into various sitting and bending positions and the arms, of course, have axial adjustment by means of the disks **33** and **34** and have most of the joint adjustments of which the human body is capable.

For shipment or storage the arms may be readily detached from the bust and the bust portion may be also detached from the lower body portion by separating the large plates **15** and **19**.

It will be understood that I do not limit myself to the use of flexible conduits of the type illustrated for the shape-retaining flexible elements, but contemplate substitution of any solid or tubular shape-retaining element which may be bent under considerable force and which will retain its shape when so bent and have sufficient rigidity to retain the casing in the desired adjusted position until it is forcibly adjusted to another position.

It will further be understood that various changes may be made in the form, details and proportions of the parts and combinations of parts, without departing from the scope of my invention, which, generally stated, consists in a device capable of carrying out the objects above set forth and in the novel parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. In a display figure, a tubular casing simulating at least a portion of a human body, a pair of rigid reinforcing tubes mounted longitudinally within said casing and having opposing ends, a transverse mounting plate fixed to said casing therewithin and with which one of said tubes is connected for preventing longitudinal movement of said tube relatively to said plate, means for connecting the other tube with said casing, a flexible shape-retaining element within the opposing ends of said reinforcing tubes, the opposing ends of said reinforcing tubes having projecting abutment portions which limit bending of said shape-retaining element in one direction and having cut-away portions which permit bending of said element in certain directions.

2. In a display figure, a pliable casing simulating at least a portion of an animate body, a pair of rigid reinforcing tubes mounted longitudinally within said casing with their ends opposed, means for connecting said tubes with said casing to maintain the positions of said tubes relative to the peripheral wall of said casing substantially constant, a flexible shape-retaining element mounted within the opposing ends of said reinforcing tubes and being the only means for connecting said tubes, the opposing ends of said reinforcing tubes having projecting abutment portions which limit bending of said shape-retaining element in one direction and having cut-away portions which permit bending of said element in certain directions.

GUY C. GOODSILL.