Aug. 9, 1966 G. BUONAMICI 3,265,257

ADJUSTABLE MANIKIN

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Fig. 1.

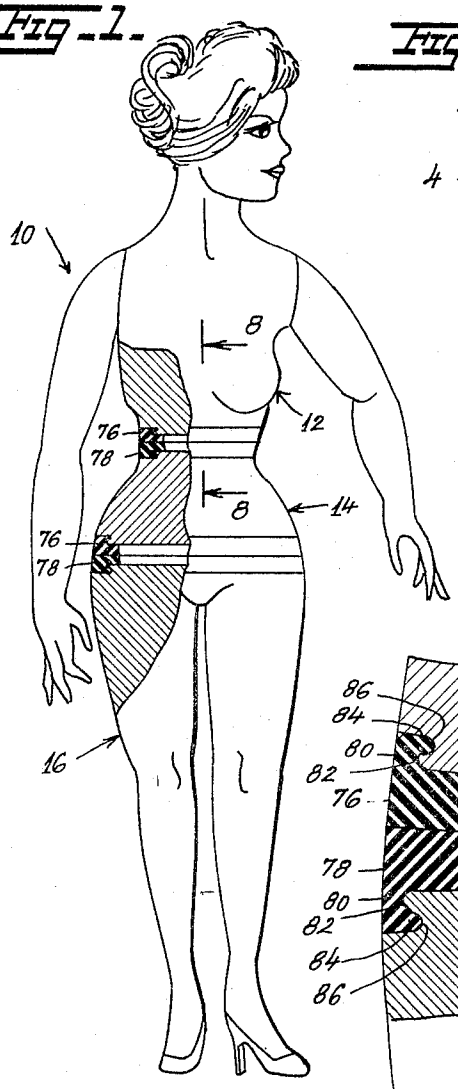


Fig. 2.

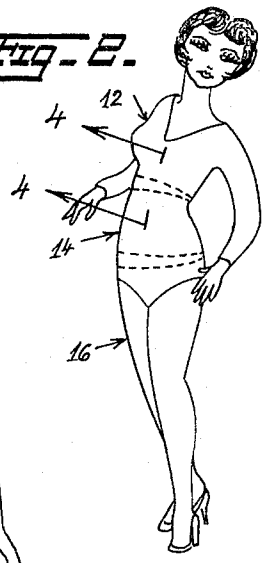


Fig. 3.

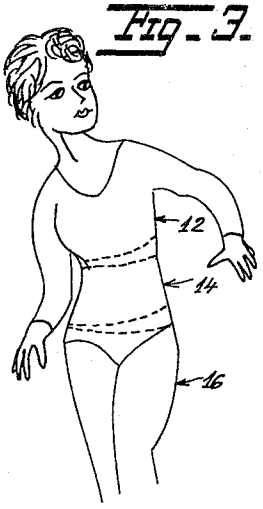


Fig. 4.

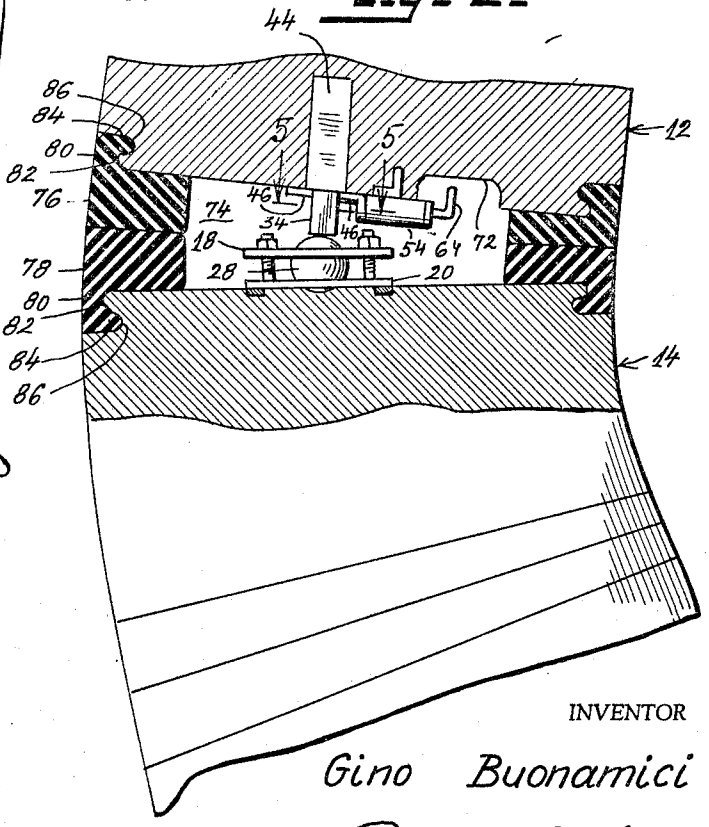
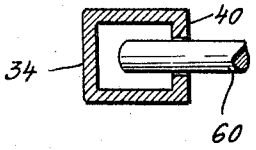


Fig. 5.



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Fig-6-

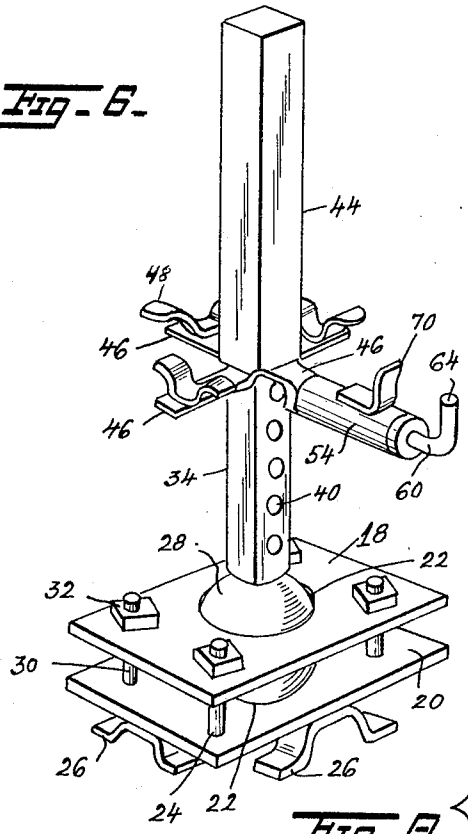


Fig-8-

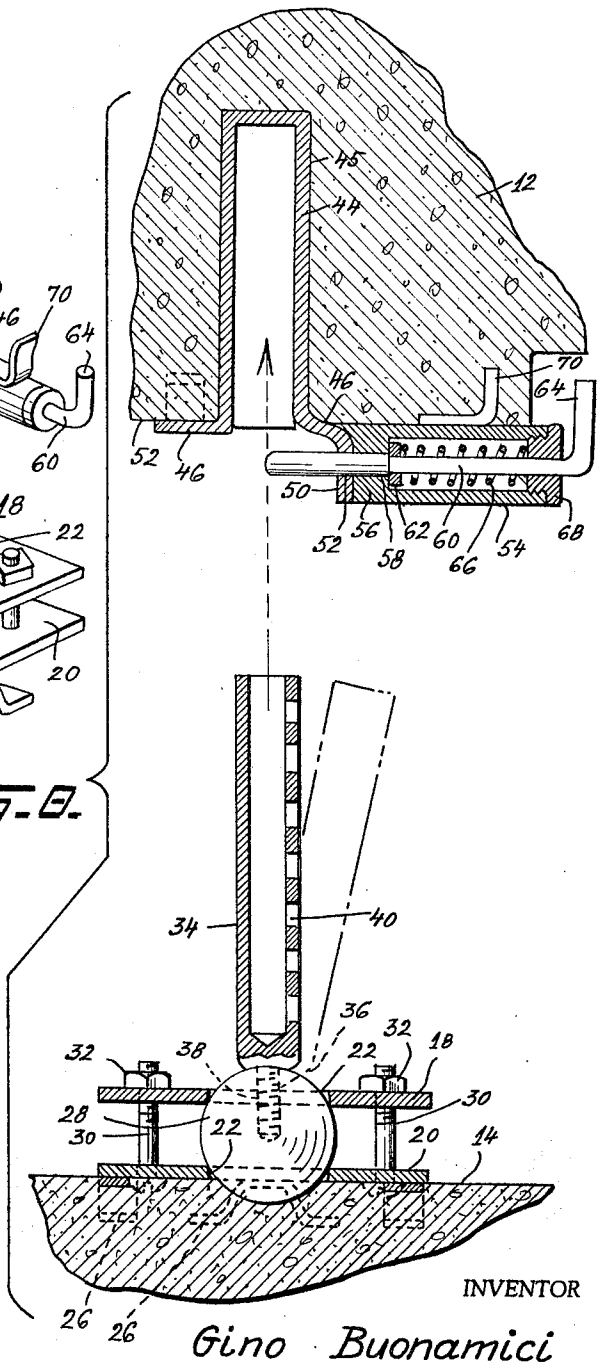
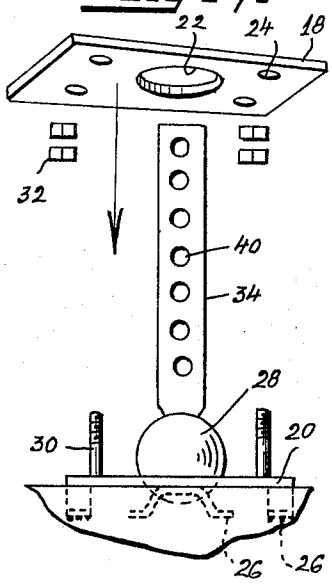


Fig-7-



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ADJUSTABLE MANIKIN

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2 Claims. (Cl. 223—68)

This invention relates generally to manikins and more particularly to articulated manikins for the supporting and displaying of garments in store windows and the like.

A principal object of the present invention is to provide a manikin that is adapted to simulate the postures of the human body.

Another object of the invention is the provision of torso and limb articulated joints that respond to bending stresses applied by the manipulator.

A further object is the provision of a torso and limb articulated joints adapted to respond to bending stresses applied by the manipulator.

Yet another object is the provision of a manikin that has a smooth continuity of surface contour to permit a garment to hang properly and attractively just as it would on a real human figure.

Yet another object of the invention is to provide a manikin that is adjustable so that it may be bent or tilted at the waist or other selected regions.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIGURE 1 is a front elevational view of a manikin embodying my invention, parts being shown broken away.

FIG. 2 is a similar view on a reduced scale showing the manikin tilted to the right.

FIG. 3 is a similar view on the same scale showing the manikin tilted to the left.

FIG. 4 is a vertical sectional view taken on the line 4—4 of FIG. 2, on an enlarged scale.

FIG. 5 is a cross-sectional view taken on the line 5—5 of FIG. 4.

FIG. 6 is an enlarged perspective view of the mid-torso and hip joint assembly.

FIG. 7 is a side elevational view of a fragment of the assembly of FIG. 6 with parts shown in detached relation.

FIG. 8 is a vertical sectional view taken on the line 8—8 of FIG. 1, with the torso and hip shown detached, parts being shown in moved relation in dot-dash lines, on an enlarged scale.

Referring now in detail to the various views of the drawings, wherein similar reference numerals are used to indicate similar parts throughout, in FIG. 1 a manikin embodying my invention is shown and designated generally at 10 and represents a human female figure and may be composed of any suitable doll material. The body of the figure is solid and sectional including an upper section 12, an intermediate section 14 and a lower section 16. The upper section 12 conforms to the general contour of the upper portions or chest section of the human figure; the intermediate section 14 conforms to the abdominal and hip portions of the human figure, and the lower section 16 conforms to the thigh and limbs of the human figure. Articulated universal joints connect the sections of the body.

The universal joint assembly for connecting section 12 to section 14 and for connecting section 14 to section 16 are similar in construction and each consists of a pair of spaced rectangular plates including a top plate 18 and a bottom plate 20 similar in shape and dimensions. Each plate is formed with a central round opening 22 and with

holes 24 adjacent the corners thereof. The lower plate is supported on angular straps 26 that are embedded in the material of the section 14 or 16. A metal ball 28 is seated in the opening 22 in the lower plate 20 and extends through the opening 22 in the upper plate 18. Assemblies of bolts 30 and nuts 32 hold the upper plate 18 on the ball and connected to the lower plate. The ball has freedom of movement in the openings 22 in the plates. An upright tubular metal post 34 square in cross section and closed at the top and bottom is supported on the ball 28 by means of a threaded pin 36 threaded into a threaded socket 38 in the ball. The post is formed with spaced holes 40 in one side thereof, extending the length of the post.

Another hollow metal post 44 similar in shape to post 34 but open at its bottom end as viewed in FIG. 8 and of slightly larger dimensions is embedded in a recess 45 in the section of the body above the section mounting lower plate 20, for instance, section 12 or 14. The post 44 serves as a socket to receive post 34 and is formed with radial supporting plates 46 extending laterally from the sides thereof at the bottom. Three of the four plates 46 shown support attaching strips 48 that are embedded in the material of the section mounting the post 44. The other supporting plate 46 is bent downwardly forming an extension 50 below the flat bottom surface 52 of the section. A hole 52 is formed in the extension 50.

A latching bolt assembly as best seen in FIGS. 6 and 8 is secured to the flat surface 52 of the section for holding the post 34 in moved adjusted position inside the post 44. The bolt assembly comprises a hollow cylindrical casing 54 closed at one end as indicated at 56, the closed end being formed with a bore 58 therethrough. An elongated long bolt 60 extends through the hollow body of the casing and through the bore 58 and is formed with an annular flange 62 intermediate its ends and with a bent portion at its outer protruding end forming a handle 64 for manipulating the same. A compression spring 66 is sleeved around the bolt inside the casing with one end seated against the annular flange 62 and the other end against a threaded perforated nut 68 threaded into the open end of the casing and sleeved around the bolt. An angular bracket 70 having one section secured to the casing 54 and its other section embedded in the material of the section 12 constitutes the means of securement of the bolt assembly to the section, with the closed perforated end of the casing in contact with the extension 50 on the socketed post so that the bolt is adapted to pass through the aligned bore 58 and hole 52 as seen in FIG. 8. A recess 72 is formed in the bottom surface of sections 12 and 14 to accommodate the handle 64 on the bolt 60.

The universal joint assemblies connecting the sections of the body of the figure leave a space 74 between the sections which space is closed, concealing the joint assemblies, by means of a pair of rubber rings or bands 76 and 78, one ring, for example ring 76, being secured to the bottom surface of section 12 or 14 along the outer periphery thereof by means of an extension 80 formed on the outer periphery of each ring secured in an annular groove 82 formed in the outer surface of the section 12 or 14, which extension 80 is formed with an annular nose portion 84 seated in an annular notch portion 86 formed in the groove 82. The other ring, for example, 78 is similarly secured to the adjacent top surface of the section 14 or 16. The rings or bands 76 and 78 provide a smooth continuity of contour which is maintained at all times and which is admirably adapted to underlie and support any garment that may be fitted over the figure.

In FIG. 2 I have shown how the upper section 12 of the figure may be tilted relative to the sections 14 and 16, in one direction, to wit, the left, this adjustment being

a sidewise tilting of somewhat limited character, but nevertheless adequate for the present purpose. In FIG. 3 I have shown how the upper section **12** may be tilted in the opposite direction, to wit, the right, a slight degree. Corresponding degrees of tiltability in slightly oblique directions are also permitted.

By reason, of the construction of the figure, a tilting of the upper chest section **12** rearwardly maintains a smoothly rounded contour at the abdomen, which is quite realistic; and a sidewise tilting as shown in FIGS. 2 and 3 produces a realistic contour which simulates the elevation of the thigh at the side of the figure.

This relative adjustability of one section with respect to the other is permitted by the universal joint assembly and by the spacing between the sections, and during these adjustments the rings or bands which cover the joints between the sections are adapted to yield, stretch and contract without impairing the smoothness of the contour in the adjustable region.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

What is claimed is:

1. In a manikin having a sectional body, with flexible joints therebetween, each joint including a universal joint assembly, including a plate secured to one surface of one section, said plate having a central opening therein, a ball loosely seated in said opening, said ball having a threaded socket therein, another plate spaced above said first plate, said other plate having an opening to receive the ball, bolt and nut assemblies fastening the plates to each other and to the ball, said ball adapted to move relative to the plates, means for adjustably connecting the universal joint assembly to the adjacent section, said means including an upright hollow post having spaced holes therein, a threaded pin carried on the bottom of the post, said pin being threaded in the socket in the ball, another hollow post

secured to the adjacent surface of the other section of the body, said adjacent post receiving the post attached to the ball, and a movable bolt assembly carried by the adjacent section of the body and coacting with the holes in the first named post for adjustably holding the first named post in the other post, said other post having a depending perforated extension below the surface of said adjacent section, said bolt assembly including a hollow casing secured to the under surface of the adjacent section adjacent said extension, a spring pressed bolt in the casing and having one end extending through the casing, through the perforation in the extension on the other post and through a hole in the first named post, and a handle on the other end of the bolt for manipulating the bolt, and straps on the first named plate embedded in the material of said one section for securing said plate to the section, straps on the bottom end of the other hollow post embedded in the material of the adjacent section of the body for securing said post to said adjacent section, and a pair of peripheral rubber bands, one band secured to said one section and the other band secured to said adjacent section and concealing the universal joint assembly and adjustable connection means.

2. A manikin as defined in claim **1**, wherein the sections have annular grooves in the outer peripheries thereof adjacent the rubber bands, said bands having extensions with nose portions thereon seated in said grooves and notches for securing the bands to the sections.

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