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A. M. ZIEGLER ETAL

3,361,310

DISPLAY MANNEQUINS

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2 Sheets-Sheet 1

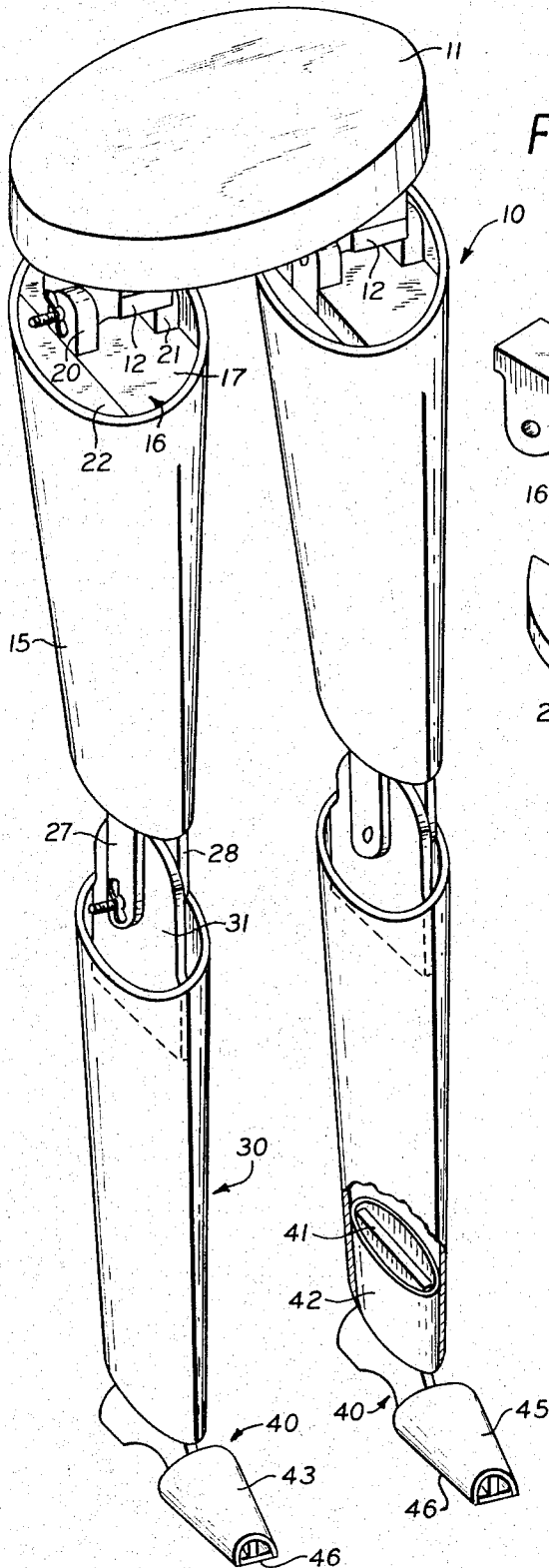


FIG. 1.

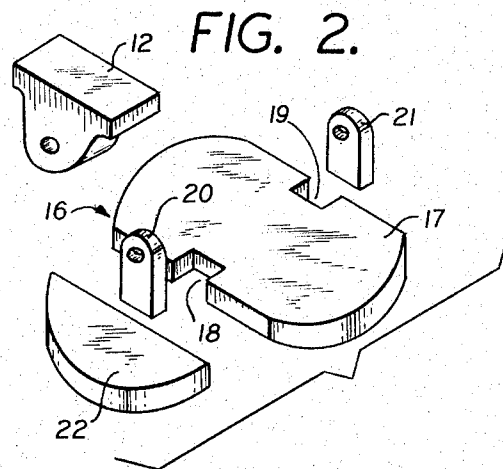


FIG. 2.

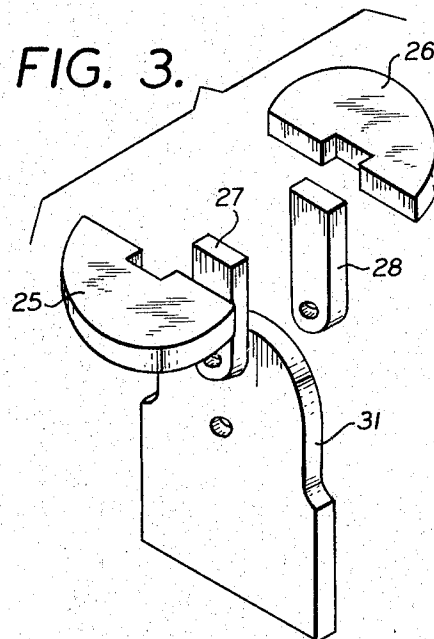


FIG. 3.

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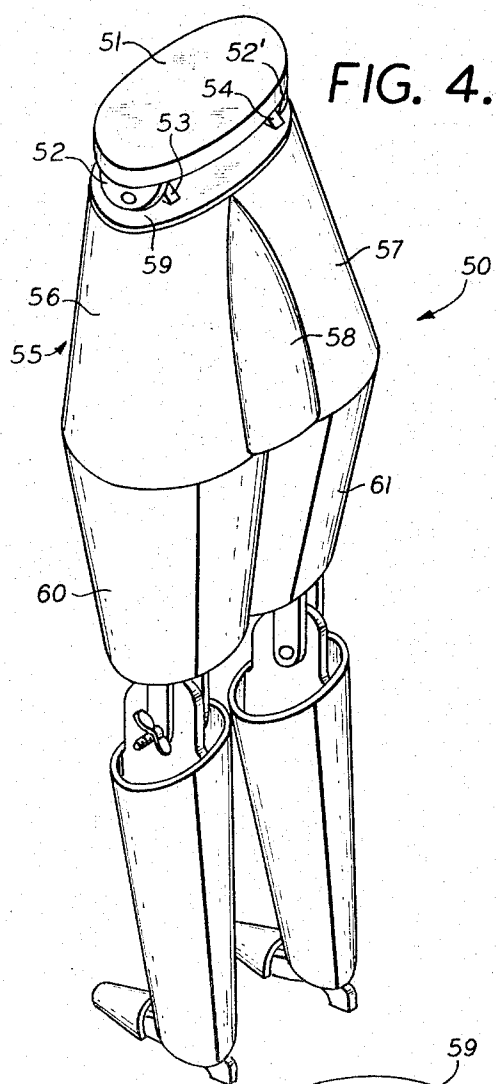
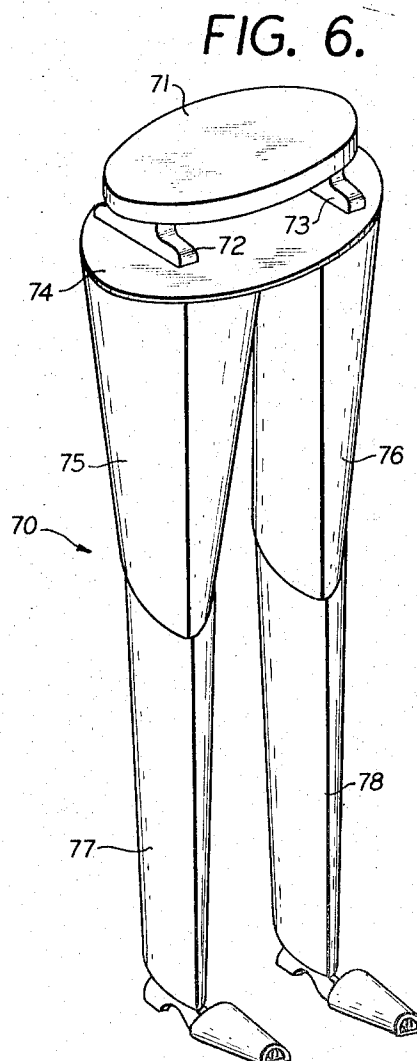
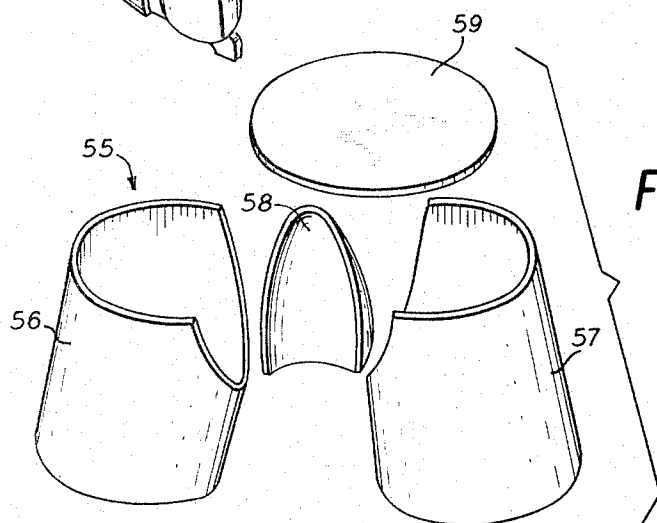
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2 Sheets-Sheet 2



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3,361,310

DISPLAY MANNEQUINS

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5 Claims. (Cl. 223—72)

This invention relates to the art of display mannequins, more particularly to an improved mannequin formed of stock cylindrical tubing made up of sheet material such as pasteboard, chipboard, or the like inexpensive material, whereby the cost of the mannequin may be kept relatively low.

A variety of display mannequins have been evolved for use in presenting merchandise to view by the purchasing public. Where the mannequin is employed to display items of clothing or the like apparel, it is generally desirable that the mannequin be subjected to positioning in as natural a position as possible so as to display the items of clothing as they would appear in normal use. Where cost is no consideration, of course the mannequin may be made to appear almost lifelike. However, cost considerations become rather critical in most merchandising, and a variety of attempts are made to minimize merchandise display expenditures. Where mannequins are utilized this reduction in cost may be effected in a variety of ways. Thus by eliminating articulated joints on the mannequin the cost of mannequin production may be reduced. With the elimination of articulated joints, however, a loss of naturalness results, and difficulties are encountered in positioning the clothing on the mannequin, and in positioning the mannequin in the display. Additionally costs may be reduced by minimizing the contouring of the mannequin components. Such economy obviously reduces the desirability of the resulting mannequin product.

It is with the problems and desiderata in mind that the present means, including both method and apparatus, have been evolved, means providing an improved display mannequin having desired contours of the body represented, and subject to formation with articulated joints, readily dressable, positionable in a variety of natural poses, and relatively inexpensive.

It is accordingly among the objects of this invention to provide an improved mannequin subject to being formed of inexpensive stock materials to obtain desired contours at relatively low cost.

Another object of the invention is to provide an improved method of forming a display mannequin of hollow cylindrical stock.

A further object of the invention is to provide an improved display mannequin having desired joint articulation.

It is also an object of the invention to provide an improved mannequin subject to being dressed with minimal effort.

Another important object of the invention is to provide improved means forming a display mannequin for trousers or the like items of clothing covering the lower torso and legs.

These and other objects of the invention which will become hereafter apparent are achieved by forming a display mannequin of elongate lengths of hollow cylindrical tubing formed of sheet materials such as pasteboard, chipboard, or the like inexpensive sheet material. A length of tubing is cut to a length proportional to a length of the desired part of the anatomy to be represented by the mannequin. Thus where the upper legs are to be formed, lengths of tubing proportional or equal to the length of the upper leg are cut. Thereafter this length of cylindrical tubing has an end thereof elliptically contoured, while an opposite end thereof is also elliptically

contoured. The upper end of the leg which is normally thicker than the lower end, is provided with an elliptical contour having a minor axis larger than the minor axis of the elliptical end having a thinner contour with the result that the leg portion is provided with a natural-looking taper. The lower leg portions are similarly formed, and thereafter the lower leg portions and upper leg portions are joined by a suitable pivot connection where articulation is desired between the upper and lower leg members. The upper leg members are coupled via a bracket to a waist piece formed of sheet material, preferably fabricated chipboard or the like material capable of accommodating a pin or tack inserted by manual pressure. At the lower end of the lower leg member, a removable foot piece is provided which has a front portion arcuately contoured to accommodate a shoe, and a cuff portion adapted for insertion in the lower end of the lower leg member. The cuff portion, and the shoe portion are formed preferably of the same stock tubing as previously described in connection with the limb portions.

An important feature of the invention resides in the fact that the components of the mannequin are fabricated of conventional sheet stock pieces such as cylindrical tubing, and sheet boards, whereby fabrication expenses may be kept at a minimum, and desired lightness in weight to implement handling of the mannequin is obtained.

Another feature of the invention resides in the formation of articulated joints by the utilization of hinge brackets formed of sheet stock.

It is also a feature of the invention to obtain tapering of an originally cylindrical element by the formation of ellipses of differently sized major (or minor) axes at the ends of the cylinder.

The specific details of several embodiments of the invention, and their mode of functioning will be made most manifest, and particularly pointed out in clear, concise and exact terms in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of a display mannequin of the lower human torso designed for displaying trousers or the like garments, shown formed with articulated joints and with parts broken away to reveal some of the structural details; and

FIG. 2 is an exploded detail view showing a preferred form of the hinge and spacer assembly employing at the upper end of the upper leg for waist articulation; and

FIG. 3 is an exploded detail view of the pivot bracket employed for providing knee-like articulation between the upper and lower leg members; and

FIG. 4 is a perspective view of a mannequin formed with a lower torso or hip portion contoured in accordance with the teachings of this invention; and

FIG. 5 is an exploded view of the lower torso or hip components employed in the FIG. 4 embodiment; and

FIG. 6 is a perspective view of a mannequin for trousers or the like garments formed without articulation in accordance with the teachings of this invention.

Referring now more particularly to the drawings, like numerals in the various figures will be employed to designate like parts.

As shown in the embodiments of the invention illustrated in FIGS. 1-3, the mannequin 10 is designed for use in displaying trousers, slacks, or the like garments covering the lower limbs of the human anatomy. Mannequin 10 is formed with a waist piece 11 fabricated of sheet material such as pasteboard, chipboard, or the like inexpensive material, preferably sufficiently soft so as to permit a pin or tack to be manually inserted therein. The waist piece 11 is formed of a substantially oval configuration simulating that of the human body. Secured to the waist piece 11 at the underside thereof are two spaced downwardly extending bracket plates 12.

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An upper leg piece 15 is formed of an elongate length of hollow cylindrical tubing fabricated of pasteboard, chipboard, or the like sheet material. In order to obtain the desired leg contour, the upper end of the upper leg piece 15 is elliptically contoured. Contouring is effected by utilization of a spacer or shaper plate 16 formed of in-
 5 expensive sheet material which may be shaped to the desired elliptical shape intended for the upper portion of the leg piece 15. In the preferred embodiment of the invention illustrated, in order to implement fabrication, it is preferred that this shaper plate 16 be made up to extend over slightly more than half the cross-sectional area of the upper end of upper leg 15. Shaper plate 16 is of a dimension such that it contains at least a major axis of the desired ellipse.

As best seen in FIG. 2, it is preferred that this shaper plate 16 be made up of a central portion 17 notched at 18 and 19 on opposite edges thereof. Within notches 18 and 19 hinge plates 20 and 21 respectively are secured at a spaced distance such that bracket hinge plate 12 may extend therebetween, as viewed in FIG. 1. End piece 22 is thereafter secured to center piece 17 to form spacer or shaper plate 16. It will be understood by those skilled in the art that by virtue of the space left between the side walls of the tube forming leg 15, and the spacer or shaper plate 16 a hand may be inserted beneath the assembled spacer or shaper plate 16 (to the right as viewed in FIG. 2) to implement assembly.

The lower end of upper leg 15 is similarly contoured to provide an elliptical configuration by the utilization of spacer plate halves 25 and 26, as best seen in FIG. 3. A downwardly extending hinge plate 27 and 28 respectively is secured to each of the spacer halves 25 and 26 within a notch formed within the spacer plate halves 25 and 26. The elliptical contour provided by the lower spacer plate halves 25 and 26 is such that the length of the minor axis of the ellipse formed at the lower end of upper leg 15 is less than the minor axis of the ellipse formed at the upper end of leg member 15, as a result of which the upper end of the leg member 15 appears thicker than the lower end.

Lower leg member 30 is similarly formed of an elongate length of cylindrical tubing formed of sheet material similar to that of upper leg portion 15 and is provided with a desired tapered configuration by the utilization of a spacer member formed by plate 31 contouring the upper end of the leg member 30 into an elliptical configuration having a minor axis smaller than the minor axis in the elliptical configuration of the lower portion of leg member 30, whereby the lower part of the leg appears thinner.

The vertically extending plate member 31, shaped as best seen in FIG. 3, is formed of sheet stock of desired rigidity, and dimensioned with a breadth equal to the dimension of the desired major axis of the ellipse to be formed at the top of the lower leg portion 30. The upper end of plate 31 is preferably rounded and pivoted between pivot brackets 27 and 28 secured respectively to spacer halves 25 and 26, as seen in FIG. 3.

The lower end of lower leg 30 is maintained in its desired elliptical contour by the utilization of footpiece 40 which has an upwardly extending plate 41 about which a cuff 42 is extended. Cuff 42 is formed of tubular chipboard and is adapted for telescopic insertion within the leg portion 30. The breadth of plate 41 is equal to the length of the desired major axis of the lower end of leg portion 30 which as above described will be understood to be less than the length of the major axis of the upper end of leg portion 30 to provide the desired taper.

Footpiece 40 as illustrated is contoured to approximate an elevational view of the human foot, and desired thickness is obtained by employing top part 45 formed of cylindrical tubing cut on a plan askew to its longitudinal axis and provided with a sole 46.

In the event that additional tapering is required to obtain desired contouring from all angles of view the cy-

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lindrical stock tubing employed in the fabrication of the upper leg 15 and lower leg 30 may be cut to remove a V-shaped segment, the apex of which extends longitudinally with respect to the tube, and the base of the segment lying along the end of the tube which it is desired to reduce in size. Thereafter the portions of the tube from which the segment has been removed are joined to form a conical segment. In lieu of the segment removal, conical tubing may be employed.

In the embodiment of the invention illustrated in FIG. 4, the inventive concept is shown as utilized in the formation of a mannequin provided with lower torso contouring such as might be found desirable in the display of ladies' slacks.

Mannequin 50 is formed with a waist piece 51 of rigid relatively soft sheet material such as chipboard, wood, of the like material in which a pin or tack may be manually inserted, and two spaced bracket pieces 52 and 52¹ are extended downwardly from the waist piece 51. Hinge plates 53 and 54 are secured respectively to bracket plates 52 and 52¹. A hip portion of the mannequin is formed by utilizing tubing of the type heretofore described.

Hip portion 55, as best seen in FIG. 5, is formed by cutting tubes 56 and 57 on a bias, i.e. the ends are cut off at an angle other than right with respect to the longitudinal axis. Thereafter a segment 58 is removed from each tube along a plane of proposed juncture of the tubes. The tubes 56 and 57 are secured to an end plate 59 which is geometrically similar to waist piece 51, and rear contouring tube segment 58 is inverted after removal from the tubes 56 and 57 and secured between them, as viewed in FIG. 4.

Thereafter upper leg segments 60 and 61 are secured respectively to the lower ends of hip forming tubes 56 and 57. A spacer is inserted within the upper end of leg portions 60 and 61 to contour the upper portion of the leg in a substantially elliptical shape having a minor axis smaller than the minor axis of the lower ends of leg portions to provide a thinner appearance at the lower end. As above noted in connection with the FIG. 1-3 embodiment, desired tapering may be effected by utilizing a cone shaped tube, or splitting the cylindrical tube and removing a V-shaped segment to provide additional taper in all planes.

Lower leg members, and the foot pieces on the FIG. 4 embodiment are made like lower leg members 30, and foot pieces 40 described in connection with the FIG. 1-3 embodiment, as seen in the drawings.

In the FIG. 6 embodiment of the invention, the mannequin 70 is formed without articulated joints. The components of the mannequin in accordance with the teachings of this invention are formed of sheet material such as pasteboard, chipboard, or the like.

Waist piece 71, like waist pieces 51 and 11, is oval shaped to simulate the human waist. Brackets 72 and 73 are secured to the waist piece 71 and an end plate 74 is arranged at the lower end of the brackets.

Secured to the end plate 74 are upper leg pieces 75 and 76 formed of tubular lengths of sheet material. Tapering effects are provided either by forming said tubular lengths of a conical material and/or by utilizing spacers to form the upper end with an ellipse of minor axis greater than the minor axis of the lower end, as above described.

Lower leg pieces 77 and 78 are formed in the manner of upper leg pieces 75 and 76 and secured thereto, and foot pieces like foot piece 45 are inserted in the bottom of lower leg pieces 77 and 78 as shown.

Operation

In use, the aforedescribed mannequins are fabricated of conventional sheet material utilizing conventional sheet forming techniques of cutting, pasting, stapling, nailing, and the like.

Desired three dimensional effects and tapering are attained by utilizing tubular lengths equal or proportional

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to the length of the limbs represented and contouring the ends of the tubular lengths into an ellipse with the desired thicker part of the anatomy having a minor axis larger than the minor axis of an ellipse at an end of the limb which it is desired to make thinner.

The mannequins made in accordance with the teachings of the invention are dressed in trousers or the like by removing the foot pieces from the lower leg members, drawing the trousers onto the mannequin and repositioning the foot pieces. Where desired shoes may be applied to the foot pieces, the to part 45 serving to maintain the shoe in position.

It is thus seen that a simple mannequin structure has been provided, subject to inexpensive fabrication of sheet stock, to provide desired contours and articulation.

The above disclosure has been given by way of illustration and elucidation and not by way of limitation, and it is desired to protect all embodiments of the herein disclosed inventive concept within the scope of the appended claims.

What is claimed is:

1. A display mannequin comprising a waist piece formed of a flat piece of sheet stock; two leg support brackets extending from a normally lower surface of said waist piece; a leg secured to each support bracket, said leg formed of hollow tubing, with the upper part of the tubing secured to said bracket, a hip portion being arranged between said waist piece and said leg, in which said hip portion comprises: a tubular member; and a segment cut from said tubular member and secured thereto to extend therefrom.

2. A method of forming a display mannequin of hollow stock tubing, said method comprising the steps of: cutting the tubing to a length proportional to the length of the desired part of the anatomy to be represented by the portion of the mannequin formed; bending an end of the cut length of tubing into a contour having a substantially elliptical cross-section; bending the opposite end of the cut length of tubing into a contour having a substantially elliptical contour, with the end of the tubing corresponding to a thicker part of the anatomy having a minor axis larger than the minor axis of the end of the tubing representing a thinner part of the anatomy.

3. A method as in claim 2 in which said step of bend-

ing an end of the tubing into a substantially elliptical contour is performed by inserting a member into the end of the tubing, said member dimensioned to extend across the end of the tube between the sidewalls thereof a distance equal to the desired length of the major axis of the substantially elliptical contour.

4. A display mannequin comprising a waist piece formed of a plane piece of sheet stock; two spaced leg support brackets extending from a normally lower surface of said waist piece; an upper leg piece secured to each of said brackets, said upper leg piece formed of hollow tubing with the upper part of the tubing having an elliptical contour, and the lower part of the tubing having an elliptical contour, the minor axis of the lower part of the tubing being smaller than the minor axis of the upper part of the tubing; a lower leg piece secured to said upper leg piece, said lower leg piece formed of hollow tubing having an upper end with an elliptical contour and a lower end with an elliptical contour having a minor axis less than the minor axis of the upper end, in which a hip portion is arranged between said upper leg piece and said waist piece, said hip portion comprising a pair of tubes having their ends lying in a plane at an angle other than right with respect to the axis of the tubes, said tubes having a segment cut therefrom along an edge of the tube along which they are to be joined.

5. A display mannequin as in claim 4 in which one of the segments cut from said tubes is secured to said tubes to extend between them when joined to provide desired fullness of contour.

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