March 24, 1953 C. BARRANGO 2,632,586

ARTICULATED LIMB FOR MANIKINS

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Fig. 1.

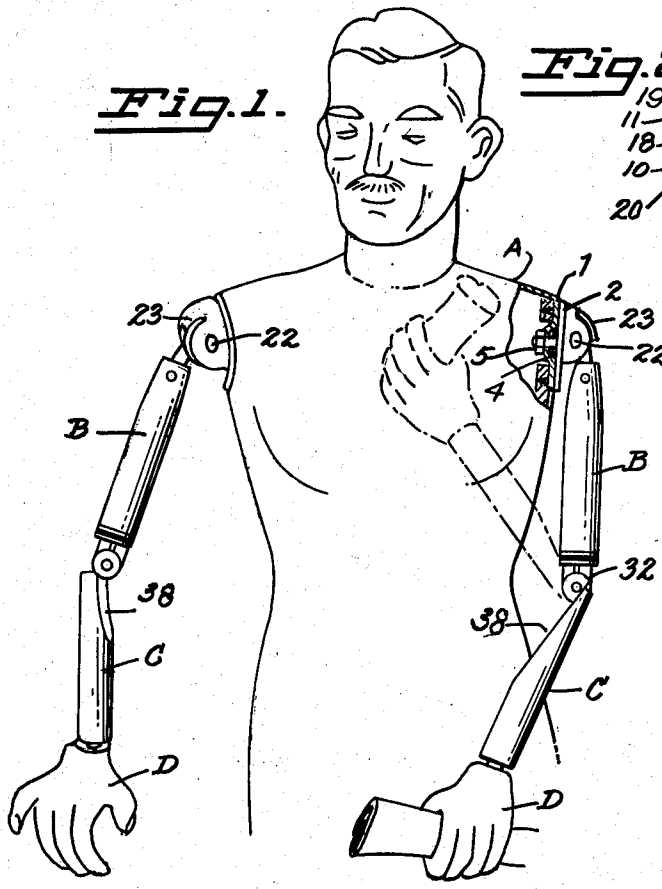


Fig. 2.

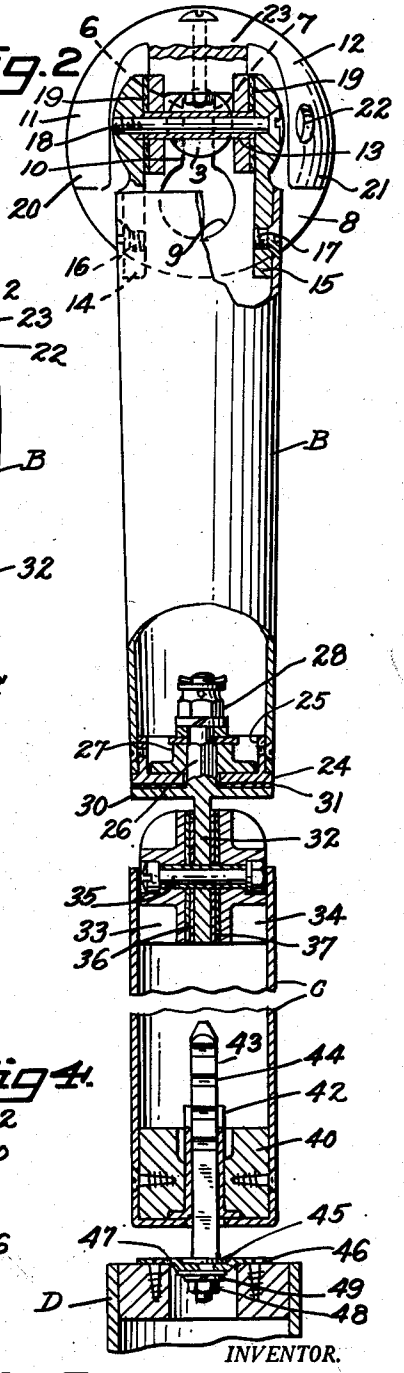


Fig. 3.

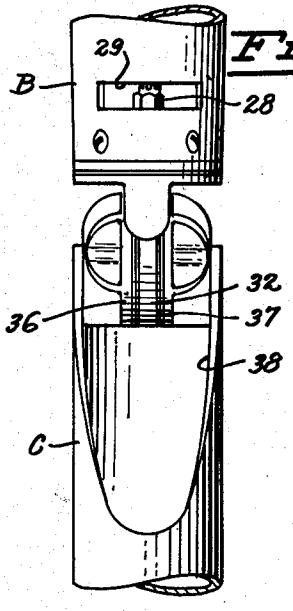


Fig. 4.

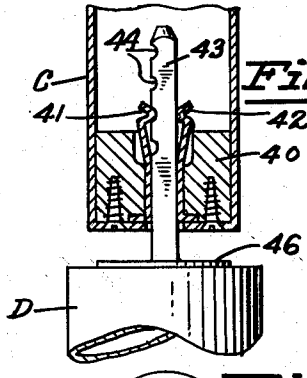
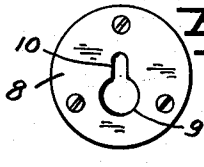


Fig. 5.



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ARTICULATED LIMB FOR MANIKINS

Carmen Barrango, San Francisco, Calif.

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2 Claims. (Cl. 223—68)

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The invention is disclosed and related more particularly to adjustable arms for manikins for displaying garments.

Among the objects of the invention is the provision of mechanical joints for the limb assemblies of manikins for displaying garments in a realistic manner simulating human postures.

Another object is the provision of sturdy structures in such limbs able to withstand rough handling, accidental falls, and storage accidents to which such manikins are subjected.

Other objects and advantages will appear as the description proceeds. In the specification and drawings the invention is disclosed in its preferred form. But it is to be understood that it is not limited to this form; because it may be embodied in modifications within the spirit of the invention as defined in the claims following the description.

In the one sheet of drawings:

Fig. 1 is a front elevation of the upper portion of a manikin equipped with full length arms articulated in accordance with this invention.

Fig. 2 is an enlarged detail in side elevation from the inner side of a manikin arm partially broken away in vertical section and showing the inner structure of the various joints in the arm.

Fig. 3 is a fragmentary detail in front elevation of the elbow portion of the arm.

Fig. 4 is a detail in vertical section of the wrist portion of the arm.

Fig. 5 is a reduced detail in front elevation of the shoulder plate of the upper arm.

In detail the structure shown in Fig. 1 comprises the shoulder portion A of the manikin body having the flat wooden block 1 fixed therein. The flat plate 2 is attached to this block by screws and has the stud bolt with the round head 3 mounted in the plate with the interposed friction discs at 4, permitting the bolt to rotate relative to said plate to which it is fixed by the nut 5 threaded thereon. The hemispherical bolt head 3 has the lateral slots 6, 7 on its sides respectively, in accordance with my copending application Serial No. 772,541, entitled Manikin Joint.

The upper arm B and lower arm C are preferably formed from aluminum or plastic tubing. The upper arm has the circular plate 8 with an off-center round hole 9 to pass the head 3 of the bolt with the lateral slot 10 so placed that the upper arm plate 8 is suspended coaxially with the bolt head 3, from which it may be dismounted by lifting the arm until the bolt head 3 alines with the round hole 9, see Fig. 5.

The plate 8 has the interspaced brackets 11, 12, integral with the plate, preferably in cast aluminum. The tubular bushing 13 extends between these lugs. The upper arm B has the projecting lugs 14, 15, fixed to the upper end of the upper arm by the screws 16, 17, and terminating in lateral alinement with the brackets 11, 12, to which they are held by the Phillips screw 18, passing through the bushing 13. Friction discs are interposed at 19, 19, between the brackets 11, 12, and the lugs 14, 15, to retard the outward swing of the upper arm B and hold it in adjusted position. The plate 8 has the lateral shields 20, 21, for concealing the shoulder joint, the latter having the opening 22, giving access to the head of the Phillips screw. The plate 8 also has the semicircular shield 23 extending over the brackets 11, 12 and coacting with the shields 20, 21 to give a rounded contour to the shoulder joint of the arm with the shoulder A of the torso of the manikin. The shield 21 has the opening 22, permitting access to the screw 18.

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The elbow joint comprises the circular base 24 with the annular flange 25 fixed in the lower end of the upper arm B. The square swivel stem 26 extends upwardly through the center opening through the base and engages the square hole in the hub of the rotary head 27, bearing against the upper face of the base 24 to which it is attached by the nut 28 on the end of the stem 26. The upper arm has the slot 29 therethrough and giving access to the nut 28, see Fig. 3. The stem 26 has the circular flange 30 bearing against the flat face of the base 24 with the friction disc interposed at 31 therebetween and held in frictional relation by the nut 27. This circular flange 30 has the integral circular extension 32 projecting downwardly therefrom, Fig. 1.

The tubular forearm C has the opposed lugs 33, 34 fixed in its upper end and attached to the extension by the transverse screw 35 with the friction discs 36, 37 interposed therebetween and held under pressure by the screw 35. This forms in effect a universal and swivel joint capable of pivotal movement in axial and lateral relation to the upper arm B. A particular feature of the forearm is the cut away portion at 38, permitting the forearm to assume an acute angle to the length of the upper arm as indicated in dotted lines Fig. 1.

The hand D is adjustably joined to the forearm by the wrist joint comprising the wooden plug 40 fixed in the lower end of the forearm and having a square axial hole therethrough and provided with the opposed spring detents 41, 42 fixed in the plug 40, Figs. 1, 4. The hand D has the

square wrist pin 43 with lateral notches such as 44 in the sides thereof for engaging the detents 41 and 42. The pin 43 has the flat head 45 fixed thereon and countersunk into the face of the circular base plate 46 fixed to the upper wrist of the hand D, with an interposed friction disc 47 permitting retarded swiveling of the hand D relative to the axis of the forearm C. The end of the pin 43 is provided with the nut 48 and washer 49 for applying pressure to the interposed friction discs for holding the hand in rotated adjustment. The interspaced notches 44 permit adjusting the arm length in accordance with the sleeve length of the garment being displayed. The swivel mounting of the hand D enables the appropriate arrangement of the hands according to the posture of the manikin torso, as in Fig. 1. A variety of hand shapes are supplied as accessories for more realistic posturing such as holding a hat in lifted position, simulating the tying of a shoe. where hats or shoes are to be accented in window dressing.

Substantially the same structural joints shown in the arms may be adapted to the legs at hip, knee and ankle, as shown at the shoulder, elbow and wrist respectively, with appropriate changes in size with the same mode of operation.

This arm structure is offered as a combinative unit, because only by the inclusion of the present substantially universal joints at the shoulder and elbow portions and the swivel mounting of the hand, may all the possible postures of the human arm be simulated.

Having thus described this invention and its mode of operation, what I claim and desire to secure by Letters Patent is:

1. A display manikin having an articulated arm structure of readily detachable units capable of retaining any adjusted position comprising a body member having a shoulder plate secured therein, a bolt having its head and slotted shank projecting outwardly from said plate and mounted therein for frictionally retarded rotation, an arm composed of three separable members including an upper arm member, a lower arm member and a hand member, an upper arm plate member having an off-center hole and slot adapted to removably pass the head of said bolt and receive said slotted shank for unitary juncture and rotation, and provided with upper and lateral shields to provide a continuous, natural shoulder contour and prevent drapery from catching in the upper arm joint, and means integral with said upper arm plate and concealed by said shields for securing said upper arm member with frictionally retarded rotary movement in a plane transverse to the plane of said upper arm plate.

2. A display manikin having an articulated arm structure of readily detachable units capable of retaining any adjusted position comprising a body member having a shoulder plate secured therein, a bolt having its head and slotted shank projecting outwardly from said plate and mounted therein for frictionally retarded rotation, an arm composed of three separable members including an upper arm member, a lower arm member and a hand member, an upper arm plate member having an off-center hole and slot adapted to removably pass the head of said bolt and receive said slotted shank for unitary juncture and rotation, and provided with upper and lateral shields to provide a continuous, natural shoulder contour and prevent drapery from catching in the upper arm joint, and means integral with said upper arm plate and concealed by said shields for securing said upper arm member with frictionally retarded rotary movement in a plane transverse to the plane of said upper arm plate, said lower arm member having a joint at its upper end with a stem adapted for rotatable engagement with the lower end of said upper arm member and a separate pivotal movement transverse thereto, said hand member having a pin allowing rotation but adapted for quick disengagement with the lower end of said lower arm member, all of the movements of said lower arm and hand members being frictionally retarded.

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