May 16, 1967 M. A. WOLF 3,319,846

ADJUSTABLE MANNEQUIN ARMS

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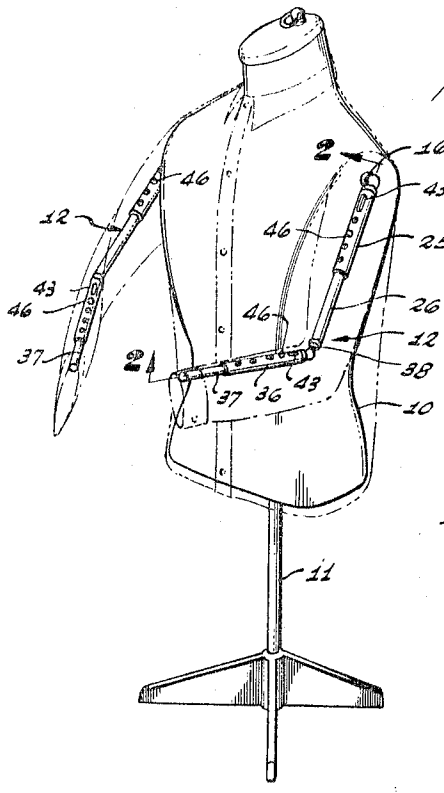


Fig. 1

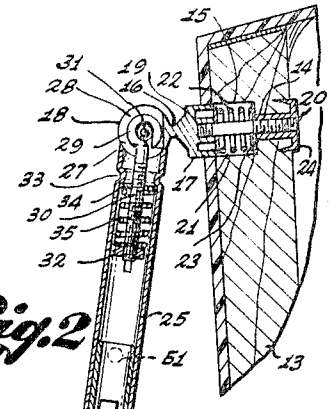


Fig. 2

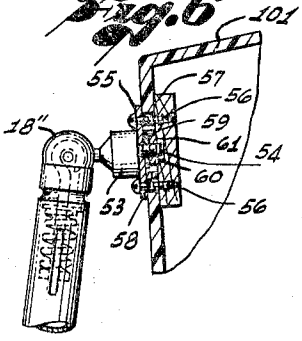


Fig. 6

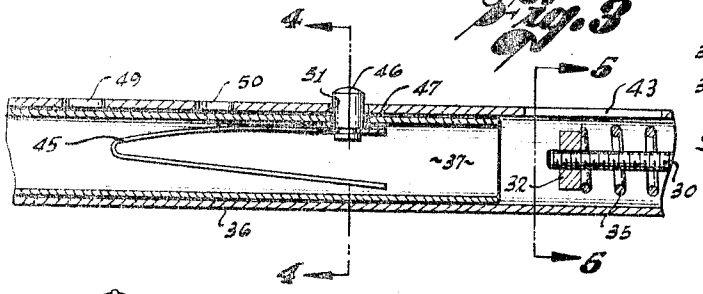


Fig. 3

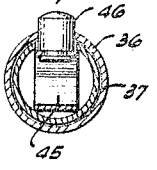


Fig. 4

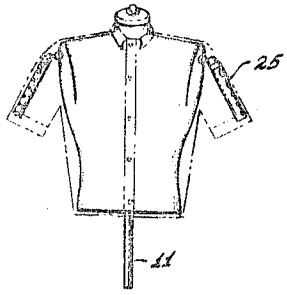


Fig. 7

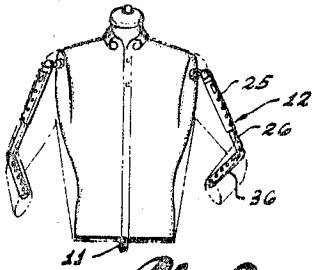


Fig. 8

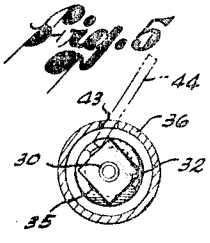


Fig. 5

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ADJUSTABLE MANNEQUIN ARMS

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This invention relates to clothing display mannequins, and more particularly to an arm structure for such mannequins.

An object of this invention is to provide an arm structure for clothing display mannequins that can be used with upper garments of various sleeve lengths, for example, short sleeves, three-quarter sleeves and full length sleeves of shirts, jac-shirts or any other upper garment.

Another object of the invention is to provide a mannequin arm structure having an upper arm assembly and a lower arm assembly either or both of which assemblies can be adjusted as to length.

Yet another object of the invention is to provide a mannequin arm structure that is adjustable as to position, either or both at the shoulder or at the elbow and that is provided with a means at the shoulder and elbow for securely maintaining the arm in the adjusted position.

Yet another object of the invention is to provide an arm structure for a mannequin of simple, inexpensive and easily adjustable construction, but nevertheless adapted to have a long service life and which may be incorporated in new mannequins or provided as an attachment capable of ready connection to mannequins not originally equipped with these arms.

The foregoing and other objects and advantages of the invention will be apparent from the following description, when taken in conjunction with the annexed drawing.

FIGURE 1 is a perspective view of a clothing display mannequin provided with arms incorporating the presently preferred embodiment of my invention;

FIGURE 2 is a sectional view taken along the line 2—2 of FIGURE 1 and showing internal details of construction;

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 2 showing a latching means for maintaining a desired length adjustment of the arm;

FIGURE 4 is a transverse sectional view on the line 4—4 of FIGURE 3;

FIGURE 5 is a sectional view on the line 5—5 of FIGURE 3 showing a means for adjusting the frictional clamping force at the ball joints of the arm structure;

FIGURE 6 is a partial sectional view of the shoulder joint of another embodiment of the invention, particularly adapted for connection of the arm structure to pre-existing mannequins;

FIGURE 7 illustrates the use of the mannequin arm structure in wearing a short sleeve garment; and

FIGURE 8 shows the use of the arms on a mannequin wearing a three-quarter length sleeve garment.

Referring now to FIGURE 1, there is shown a full round approximately half-length mannequin form **10**, such as might be employed in the display of sweaters or jackets, supported on a pole standard **11**. The form **10** and standard **11** form no part of the invention but are merely illustrative, it being understood that any suitable type of support and any type of man's, ladies' or children's form could be employed. In any event, the form **10** is provided with a pair of identical arm assemblies **12**, comprising the presently preferred embodiment of the invention and connected to the shoulder portions of the form **10**. As the arms are identical, only one of them will be described in detail.

In general, the arm **12** comprises an upper arm assembly and a lower arm assembly, the two assemblies having

a spring-loaded ball joint connection at the elbow joint. Similarly, another spring-loaded ball joint connection is incorporated at the upper end of the upper arm assembly, at the shoulder joint. Each of the upper arm and lower arm assemblies comprises a pair of telescopically related tubular members interconnected by latching means whereby each of the upper arm and lower arm assemblies can be adjusted to a desired length. Because of the spring-loaded elbow joint, the lower arm assembly can be maintained in an angularly adjusted position relative to the upper arm assembly. Similarly, because of the spring-loaded shoulder ball joint, the upper arm will maintain an angularly adjusted position relative to the form **10**. The construction is such that the entire arm **12** may be removed from the form **10** or sections of the arm assembly may be removed in order to adjust the overall length of the arm into correspondence with the sleeve length of the garment on display.

The illustrated form **10** is especially adapted to receive the arm assembly **12** in the manner shown in FIGURE 2. Thus, the form **10** is a hollow structure made of a suitable plastic, papier maché or other suitable material and internally, at its shoulder, has a wooden block **13** secured thereto. At a position corresponding to the shoulder socket of the form **10**, the material of the form **10** and the block **13** are provided with a counter bore **14** including an outermost enlarged diameter portion **15**.

The shoulder joint includes a member **16** having a generally cylindrical base portion **17** at one end and a generally spherical ball portion **18** at the other end. The base portion **17** is receivable in the enlarged diameter portion **15** of the counter bore **14** and on its end face is provided with a tapped blind bore **19** to threadedly receive one end of a threaded stud **20**. A washer **21** is coaxially seated on the inner end face of the base portion **17** to seat one end of a compressed helical spring **22** whose other end is seated on a shoulder **23** defined at the junction of the portions of the counter bore **14**. A T-nut **24** is mounted in the wooden block **13** having its internally tapped body portion coaxially disposed in the minor diameter portion of the counter bore **14** to threadedly receive the inner end of the stud **20**.

The upper arm assembly includes a pair of tubes **25** and **26**, the latter being telescopically slidably received within the lower end of the upper tube **25**. The upper tube **25** has an internal diameter less than that of the ball portion **18** of the member **16** and the upper end of the tube **25** is internally chamfered to provide a socket **27** for the ball portion **18**. In order to interconnect the upper arm to the shoulder joint, the ball portion **18** of the member **16** is provided with a diametrically extending slot **28** to receive the eye portion **29** of an eye-bolt **30**, the ball portion **18** being provided with a pin **31** to hold the head of the eye-bolt in place. The shank of the eye-bolt extends into the upper end of the tube **25** and threadedly mounts a nut **32** at its innermost end. Adjacent the upper end of the tube **25** it is formed with an internal circumferentially extending bead **33** that serves as an abutment for a washer **34** through which the shank of the eye-bolt **30** extends, the washer in turn serving as an abutment for one end of a compressed helical spring **35** whose other end is seated against the nut **32**.

The lower arm assembly is made up of a tube **36** and tube **37** that are identical to those used in the upper arm assembly. The elbow joint is made up of the same parts as are used in the shoulder joint except that a ball member **38** is used in lieu of the member **16** of the shoulder joint. Accordingly, the elbow joint connection will be described only with reference to the differences in the member **38**.

The member **38** is adapted to be seated in the lower end of the tube **26**. For this purpose, it is formed with a cylindrical end portion **39** that is telescopically slidably receivable within the lower end of the tube **26**, the portion **38** being surmounted by a shoulder **40** against which the lower end of the tube **26** abuts. A pin **41** extends diametrically through the wall of the tube **26** and the cylindrical portion **39** to hold the member **38** in place. The ball portion **18'** of member **38** is then connected to the socket **27'** of the upper end of the tube **25** of the lower arm assembly by means of a pin **31**, eye-bolt **30**, washer **34**, nut **32** and spring **35**, such as are employed in the shoulder joint. The lower end of the tube **37** of the lower arm assembly is closed by a cap **42** secured thereto at a location corresponding to the wrist of the arm.

As is apparent, the tube **25** will not maintain a desired angular relationship to the body **10** unless sufficient compression is maintained in the spring **22**. Such compression of the spring is readily maintained merely by rotation of the tube **25** in clockwise direction, assuming a right-hand thread in the stud **20**. By such rotation, the stud more deeply enters the T-nut **24** thus compressing the spring **22** between the shoulder **23** and the washer **21**.

Similarly, to maintain the tube **25** in angularly adjusted position relative to the ball **18** or the lower arm adjusted relative to the upper arm, compression must be maintained in the springs **34**. For this purpose, a slot **43** is provided in the walls of each of the tubes **25** and **36** extending longitudinally of the tube in the area overlying the desired range of movement of the nut **32** on the shank of the eye-bolt **30**. Thus, a coin **44**, such as a twenty-five cent piece, can be inserted through the slot **43** for wedging between the periphery of the nut **32** and the inner face of the tube. The tube, coin **44** and nut **32** can then be turned to advance the nut along the shank of the eye-bolt **30**, the eye-bolt being held against rotation by its connection to the ball **18** or **18'**. The spring **35** is thus compressed to the desired extent, to increase the clamping force of the upper end of the tube **25** or **36** against the surface of the ball.

The combined length of the telescopically related tubes **25** and **26** or **36** and **37** is maintained in a desired adjustment by means of the same latch mechanism, best seen in FIGURE 3. A generally V-shaped leaf spring **45** is disposed within the smaller diameter tube **37** and at the extremity of one arm is provided with a button **46**. The tube **37** is provided with a single opening **47** in its wall in registration with the button **46** and adapted to freely pass the button. The larger diameter tube **36** is provided with a plurality of spaced openings **48**, **49**, **50** and **51** spaced longitudinally of the tube, preferably at increments of one inch, which openings are also adapted to be readily penetrated by the button **46**. Thus, the tube **37** may be pushed inwardly and outwardly of the tube **36** and held in a desired position with the button **46** and any one of the openings **48**, **49**, **50** and **51** of the tube. A change in overall length is accomplished merely by depressing the button **46** until it clears the inner diameter of the tube **37** after which the tube can be pushed or pulled, as the case may be, until the button reaches a new opening in the wall of the tube **36**. If it is desired to skip either of the intermediate holes **49** and **50** or to remove the tube **37**, the tube **37** can be rotated within the tube **36** after the button **46** has been depressed. The button can then ride along the inside surface of the tube **36** past holes **49** or **50**, or past the hole **48** and then out of the tube **36**.

FIGURE 6 shows an embodiment of the invention that is just like that in FIGURES 1 through 5 except for being adapted for connection to a form **10'** as an attachment. The only difference in this case is in the shoulder joint which here includes a ball joint member **52** having a cylindrical section **53** that is provided with a coaxially projecting stud **54**. A separate flange member **55** is provided that can be secured to the shoulder socket position of the form **10'** to rotatably seat the stud **54** by means of a plurality of suitable fasteners **56** that pass through the material of the shell of the form **10'**, and then into a block of wood **57** on the inside of the form, whereby the flange is held in place. A bore **58** is formed in the form **10'** of sufficiently large diameter to house a spring type lock washer **59** and nut **60** on the stud **54**. If necessary, a clearance blind bore **61** may be formed in the block of wood **57** to provide clearance for the inner end of the stud **54**. The member **52** is provided with a substantially spherical portion **18''** that is connected to the upper arm assembly with the eye-bolt means previously described.

In a mannequin provided with my invention, the arms **12** may be completely removed, as for displaying a sleeveless shirt. For example, in the arms of FIGURE 2, removal is accomplished merely by unthreading the stud **20** from the T-nut **24**. On the other hand, if it is desired to display a short-sleeve shirt as in FIGURE 7, the tube **26** and all portions of the arm therebelow can be removed simply by depressing the button **46** of the upper arm and withdrawing the tube. When it is desired to display a three-quarter length sleeve garment as in FIGURE 8, only the tube **37** of the lower arm assembly is removed, once again by depression of the button **46** of the lower arm and withdrawal of the tube **37**. In displaying a full-length sleeve garment, as in FIGURE 1, all four sections of tubing are used. In any event, the arm can be placed in any desired position merely by bending or turning, or both, at the elbow joint or the shoulder joint, or both.

Several variations and modifications of the arm structure described above will undoubtedly occur to those skilled in the art. Accordingly, I do not mean to be limited to those details of construction, but only by the spirit and scope of the following claims.

I claim:

1. In an articulated arm for clothing display mannequins, the combination comprising:

a first pair of telescopically engaged tubes, each of which tubes constitutes a portion only of the distance between an elbow joint and a shoulder joint of said arm, said pair of tubes together comprising the full length of the distance between the shoulder and elbow joints of said mannequin arm;

a latch means for detachably securing said first pair of tubes together;

a ball member connected to a lower end of said pair of tubes;

a second pair of telescopically slidably engaged tubes to simulate a lower arm and having an upper end serving as a socket for said ball member each of said second pair of tubes constituting a portion only of the distance between an elbow joint and a wrist location of said arm, said second pair of tubes together comprising the full length of the distance between the elbow joint and wrist location of said mannequin arm;

a spring biased means interconnected between said ball member and said second pair of tubes for biasing said ball member and socket together;

a second latch means for detachably securing said second pair of members together;

a second ball member adapted to be connected to the shoulder of a mannequin, an upper end of said first pair of tubes serving as a socket for said second ball member; and

a second spring biased means interconnected between said second ball member and said first pair of tubes to bias together said second ball member and said socket of said first pair of tubes.

2. An arm for clothing display mannequins as set forth in claim **1** in which said second ball member is

provided with a cylindrical portion adapted for rotatable engagement with a mannequin and in which a spring biased means is provided for interconnection between said second ball member and said mannequin for resisting rotation of said cylindrical portion whereby to maintain said arm in an adjusted position.

3. In an articulated arm for clothing display mannequins, the combination comprising:

a pair of elongated members, each of which constitutes a portion only of the distance between an elbow joint and a shoulder joint of said arm, said pair of members being interconnected in longitudinally aligned relationship to together comprise the full length of the distance between the shoulder and elbow joints of said mannequin arm;

a latch means to detachably interconnect said pair of members;

an elongated rigid means adapted to simulate a portion at least of the elbow to wrist length of a lower mannequin arm;

a means pivotally interconnecting a lower end of a lower one of said pair of elongated members to an upper end of said elongated means to simulate a lower mannequin arm to vary the angular relationship therebetween, whereby to simulate an elbow joint for said mannequin arm;

and yieldable means connected to said last-mentioned means for yieldably maintaining a selected angular relationship.

4. A mannequin arm as set forth in claim 3 in which:

said elongated means to simulate a lower mannequin arm comprises a second pair of members that are interconnected in longitudinally aligned relationship and

a second latch means to detachably interconnect said second pair of members whereby a lower one of said second pair of members can be removed from an upper one of said second pair of members, said upper one of said second pair of members being adapted in length to simulate less than the elbow to wrist length of a mannequin arm.

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