Feb. 23, 1960 R. INSERILLO 2,925,944

MECHANICALLY ANIMATED MANIKIN

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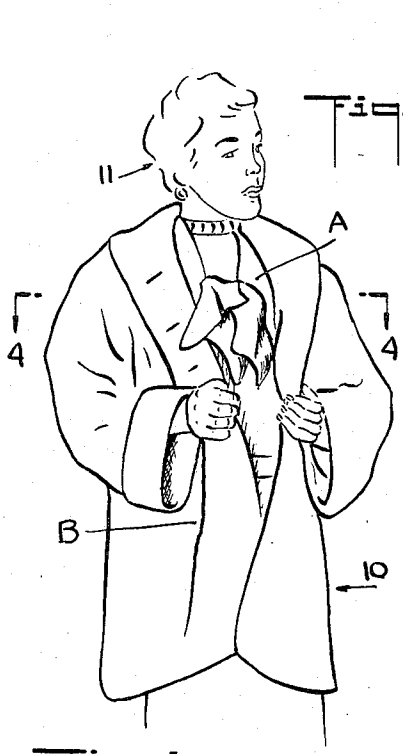


Fig. 1.

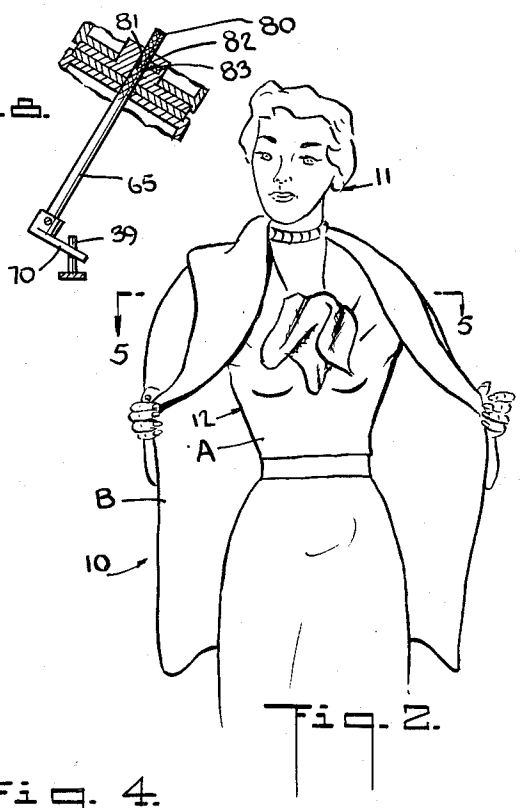


Fig. 2.

Fig. 4.

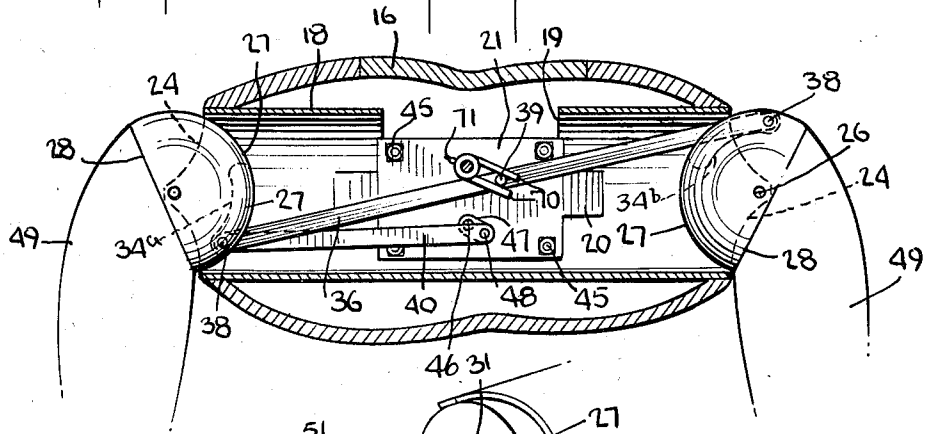
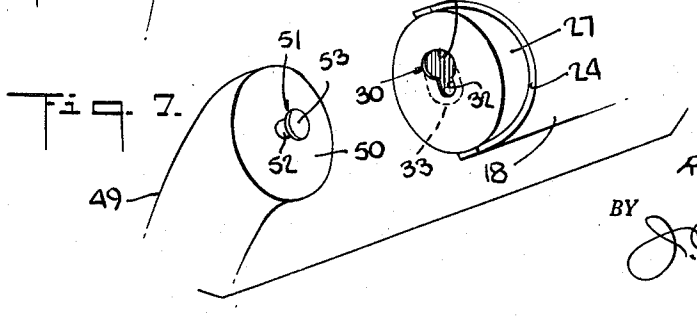


Fig. 7.



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Fig. 3.

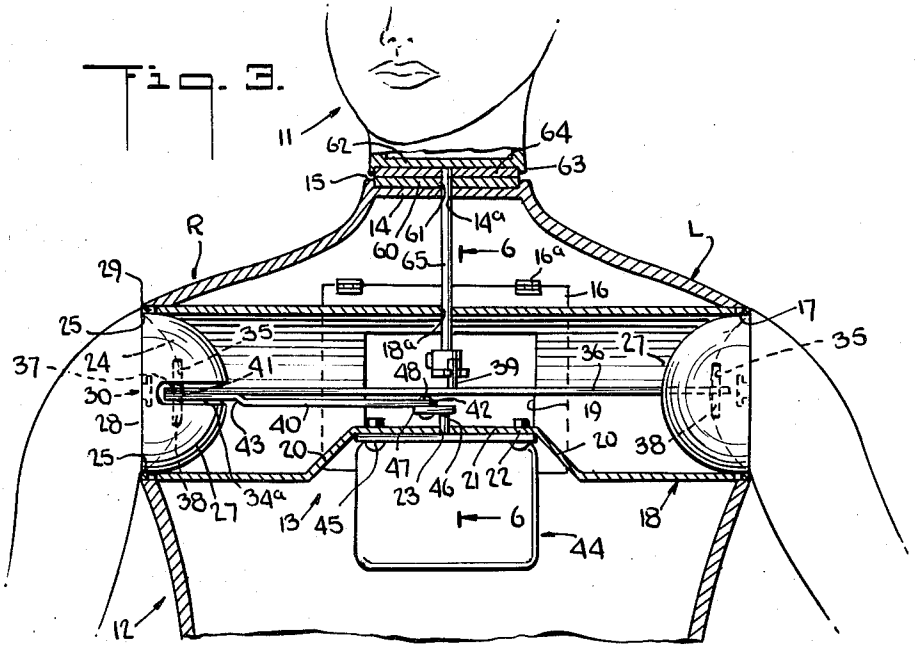


Fig. 5.

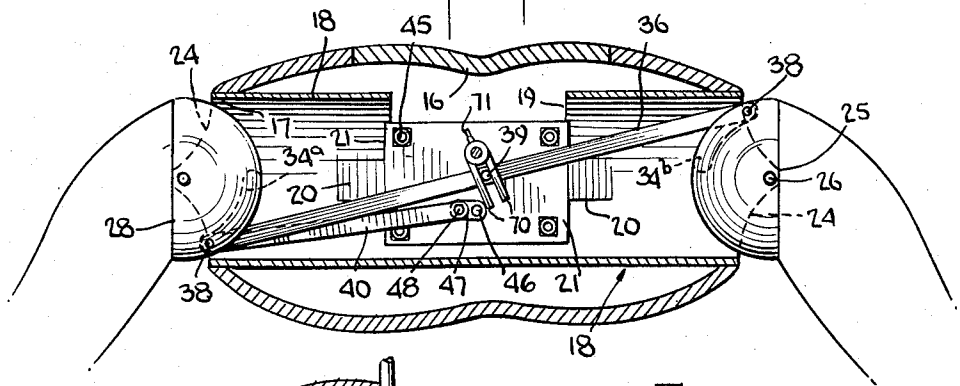
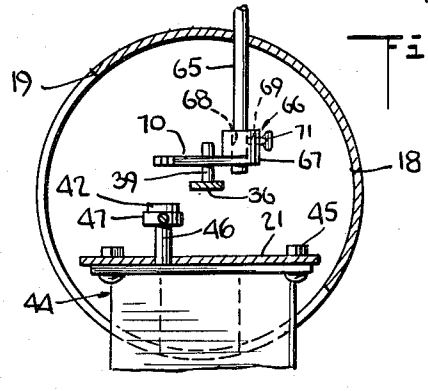


Fig. 6.



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MECHANICALLY ANIMATED MANIKIN

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17 Claims. (Cl. 223—68)

This invention relates to a mechanically animated manikin of the usual display window type. It is particularly directed to means for actuating the arms and head of the manikin. The manikin body may be formed of plaster, plastic, composition, or similar material.

An object of this invention is to provide a manikin of the character described having improved means for spreading apart and bringing together its two arms simultaneously, so as to display the combination of a coat and dress, by opening and closing the coat over the body or for other display purposes.

Another object of this invention is to provide a manikin of the type described having means whereby the head will move simultaneously with the arms.

Yet another object of this invention is to provide a mechanical manikin motivating means as described, which will be simple and efficient to manufacture and install, be durable, trouble-free and efficient in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the appended claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention;

Fig. 1 is a perspective view of a manikin embodying the invention shown displaying a dress and coat holding the lapels closed and with the arms brought together and head turned one way;

Fig. 2 is a perspective view of the manikin in Fig. 1 with the arms moved apart, holding the coat open, and with the head turned the other way;

Fig. 3 is a fragmentary, cross-section through a manikin embodying the invention;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1, showing the arms closed;

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 2, with the arms extended open;

Fig. 6 is a partly sectional view through line 6—6 of Fig. 3;

Fig. 7 is a perspective exploded view showing a means of connecting the arms to the arm sockets; and

Fig. 8 is a partly sectional view through a modified structure.

Referring now to the accompanying drawings, Figs. 1 and 2 illustrate the desired effect and purpose accomplished by this invention. Fig. 1 shows a manikin **10** costumed in a dress A and coat B. The arms and head of the manikin are jointed and movable. The lapels of the coat are attached to the hands of the manikin in any ordinary way. Note that the head is turned to the manikin's left. Previously in an immobile manikin, it was impossible to display both the dress bodice and the effect with the coat closed. Fig. 2 shows the same manikin with the arms extended. The hands have pulled

the coat lapels apart and it is now possible to view the entire dress without the obstruction of the coat. However, the coat is not so well displayed as in Fig. 1, although the lining may now be seen. The obvious advantages of both positions of the manikin are realized through the use of this invention. Note that in Fig. 2 the manikin's head is turned to the right. Note also, that in both figures the arms are crooked, or bent at the elbow and the elbows are slightly separated from the sides of the manikin. Therefore, it is only necessary to rotate the shoulders on a horizontal plane to get the desired result.

A device for accomplishing this can be seen in Fig. 3. The head **11** and upper body **12** of the manikin **10** are shown in Fig. 3 containing the mechanism **13** embodying the invention. The body is hollow. The head is a separate unit from the body. The neck of the body is formed with a flat cover piece **14** which has a central opening **14***a* and upstanding flange **15** thereon. A flap **16** is hinged to the back of body **12** by hinges **16***a*. A pair of arm openings **17** are formed at the sides of the shoulders and are meant to receive the arms. The device **13** embodying the invention is located between the arm holes **17**. It comprises a part cylindrical horizontal tube **18** located between the arm holes **17**. A portion of the back of tube **18** is cut away forming opening **19**. A portion of the bottom of the tube **18** extends upwardly into the tube to form a flat plate portion or shelf **21**. The shelf is connected to the bottom of tube **18** by a pair of upwardly inclined support members **20**. The flat top plate portion **21** is rectangular in shape and is formed with an opening **22** in each corner thereof, and an opening **23** at the center. The ends of the tube **18** are fitted from the inside into arm holes **17** and secured adjacent the outside edge thereof by any suitable means.

It may be seen in Fig. 5 that each end of tube **18** is formed with a pair of concave edges **24** on each side of an axial vertical plane to form a pair of points **25** extending outwardly from the opening **17**. The points **25** of each pair, as shown in Fig. 3, are located above and below each other. Each point **25** is formed with an opening **26** adjacent the end thereof. A somewhat larger than hemispherical socket member **27** is located in each end of the tube **18**. Each socket member **27** has a flat circular outer face **28**. A pair of pegs **29** are formed opposite each other extending from the curved side of each socket member **27** and adjacent the flat front face **28** thereof. Each peg **29** is located in an opening **26** of points **25** of tube **18**. Flat faces **28** face outwardly while the curved faces face inwardly, thus making the socket members rotatable in the ends of tube **18**. Each flat face **28** of each socket **27** is formed with a recessed central bayonet or key opening **30**. Fig. 7 shows opening **30** to be key-hole shaped and formed with a large circular opening **31** narrowing to a smaller portion **32** at the bottom. However, the cavity **33** behind the opening **30** remains as wide as portion **31** of the opening and extends slightly below portion **32** of the opening.

Each socket member **27** is formed with a horizontal slot on the curved surface thereof. The socket **27** in the manikin's right shoulder R is formed with a slot **34***a*. The socket in the manikin's left shoulder L is formed with slot **34***b*. Each slot extends from the center of the curved portion, halfway between top and bottom, around one side. However, slot **34***a* is formed around the front half of socket **27** in shoulder R, and slot **34***b* is formed around the rearward half of socket **27** in shoulder L. The far end of each slot is formed with a pair of vertical indentations **35**.

A flat steel bar **36** formed with an opening **37** in each end, extends between the two sockets **27**, is secured in

each socket by a pin 38 which is seated in each hole 35 and runs through opening 37 in bar 36. A short peg 39 extends upwardly from the center of bar 36. Also secured by the pins 38 at slot 34*a* is bar 40 which is formed with an opening 41 at one end thereof and an opening 42 in the opposite end. Bar 40, however, extends only halfway through tube 18 and is joined by a pin 38 only in slot 34*a* of right shoulder of the manikin. Bar 40 may be formed with a crimp 43 to separate the inward end from bar 36.

An electric motor 44 is mounted underneath the flat portion 21 of tube 18 and secured by nuts and bolts 45 through openings 22 in the flat plate portion. A drive shaft 46 extends upwardly from the motor through opening 23 in flat plate portion 21 and is formed with a short horizontal arm 47 at the end of shaft 46. Rivet 48 through hole 42 connects arm 47 to the inner end bar 40. It may now be seen that rotation of drive shaft 46 will bring arm 47 around in a circular motion. The circular motion of arm 47 will be transmitted to bar 40 as a side to side motion at the pivot point in the socket 27 to which bar 40 is attached. Socket 27 in shoulder R will therefore be pivoted back and forth about the vertical axis of pegs 29. This movement will also be transmitted through bar 36 to socket 27 in shoulder L. However, since bar 36 crosses from the front of the socket 27 in the right shoulder to the rear of the socket 27 in the left shoulder, the two shoulder sockets move in opposite directions at the same time.

The two sockets are adjusted with the flat faces 28 parallel to each other when in a neutral position, as shown in Fig. 5. In Fig. 4 the motion has been started and the once parallel flat faces 28 are now rotated about their axes at the same angle.

Fig. 7 shows a manikin arm 49 with a flat surface 50 at the inward end thereof where the manikin arm is meant to meet the socket 27. At the center of the circular flat face 50 is a button 51 having a short circular neck portion 52 and an enlarged head 53. To attach the arm 49 to the socket 27, head 53 of the button 51 is inserted into portion 31 of opening 30 in the socket. The head 53 is then forced down into recess 33 with the neck 52 extending through portion 32 of opening 30. The enlarged head 53 will hold the arm secured to the socket 27. As previously described in Figs. 4 and 5 when the arm sockets 27 are rotated about their axes the arms 49 open and close together again.

Inserted over the neck piece portion 14 and seated within the annular flange 15 is a bearing disc 60 which is formed with a central through opening 61 coaxial upon opening 14*a*, the head 11 is formed with a neck closing piece 62 and a downwardly extending annular flange 63 about the lower circumference of the neck portion of head 11. A bearing disc 64 is seated below the neck piece portion 62 of the head abutting the circular flange 63 and is fixed in this position by any ordinary means. The two bearing discs 60 and 64 are preferably made of metal, or any other similar material. Extending downwardly from the center of the upper bearing disc 64 is a metal shaft 65. Shaft 65 extends downwardly through hole 61 in the lower bearing disc 60, through hole 14*a* in the body neck piece 14, and down through hole 18*a* in tube 18 to a point just overlying bar 36 and slightly behind said bar.

As may be seen in Fig. 6 an arm socket 66 is secured to the lower end of shaft 65. The arm socket 66 is comprised of a socket portion 67 having a vertical through opening 68 and horizontal threaded screw opening 69, and is former with a pair of outwardly extending rocker arms 70. A winged set screw 71 is located in the screw hole 69. The two extended arms 70 of socket 67 extend outwardly, one on each side of the peg 39 on bar 36. Their adjustment to this position is made by use of the winged lock nut 71. When peg 39 is moved back and forth by bar 36, the extended arms 70, moved by peg 39, will move the socket assembly 66 in a turning motion because the shaft 65 cannot be moved from side to side, the reciprocating action will be transmitted to shaft 65. Shaft 65 will turn the bearing plate 64 which is attached to the head 11. Thus, when bar 36 moves the arms of the manikin to one position, the head 11 will be turned to one side and when bar 36 moves back in the opposite direction, the head 11 will also turn to the other side.

The actuating mechanism 13 may be reached by lifting flap 16 and extending a hand therethrough.

To remove the manikin's head, the flap 16 is opened and the lock nut 71 is reached through opening 19 in the tube 18. The arm socket assembly 66 is removed and shaft 65 may be pulled out of the body 12 with the head 11.

An alternate method of mounting the manikin head on the shaft 65 is illustrated in Fig. 8.

The upper end of the shaft is knurled at 80. The shaft extends through a hole 81 in bearing plate 64 instead of being joined to it. Plate 64 has a built-up portion 82 at the center; and a spring loaded ball 83, mounted in portion 82, presses on the knurled portion 80 of shaft 65. Also note that, following the natural contours of a figure manikin the shaft 65 is on an incline so that fingers 70 meet peg 39 at an angle.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A manikin animating device for a manikin having a body formed with armholes and movable arms and head, said device comprising a support adapted to be fixed within said body, an electric motor mounted on said support, a pair of arm carrying members mounted on said support for oscillation about vertical axes and adapted to be located at said armholes, a link connecting the front of one of said members to the rear of the other, and means connecting said motor with one of said members to oscillate said member when said motor operates.

2. The combination of claim 1, a pin adapted to be attached to said head and journalled in said support, and means connected to said link to oscillate said pin for oscillating said head.

3. A manikin animating device comprising an integral tubular housing to be located between the armholes of a manikin body having a head, a rotatable socket at each end of said tubular housing means, means connecting the front of one of said rotatable sockets to the rear of the other, means to oscillate one of said sockets, and means to transmit said oscillating action to the head of said manikin.

4. A manikin animating device for a manikin having a body with armholes, and a head, comprising a housing to be fitted between the armholes of said manikin, said housing being formed with vertically aligned pointed ends at each armhole, an arm receiving means pivotally mounted between each pair of said pointed ends of said housing, link means interconnecting said arm reeciving means, a motive means, and means connecting said arm receiving means to said motive means.

5. The combination of claim 4, and a member adapted to extend downwardly from said head, said means interconnecting said arm receiving means engaging said head member to cause oscillation thereof.

6. The combination of claim 4, said arm receiving means comprising a semi-spherical socket formed with a flat outer face and also formed with a slot around sub-

stantially half of the said spherical portion to receive the ends of said link means interconnecting said arm receiving means.

7. The combination of claim 4, said motive means comprising an electric motor, said housing being formed with an opening therein, said electric motor being mounted on said housing, a drive shaft extending from said electric motor, said drive shaft extending into said housing, rotating means located on said drive shaft, and means connecting said rotating means to said arm receiving means.

8. In combination, a manikin body, a manikin head, a pair of manikin arms, said body being formed with armholes at the shoulder sides, a tubular means extending between said arm holes, said tubular means formed with vertically aligned outwardly extending extensions at the ends thereof, a motive means mounted on said tubular means, hemispherical arm sockets rotatably mounted between said points at each end of said tubular means, said sockets being formed with slots about the spherical surfaces thereof, a link member having its end projecting into said slots and interconnecting said sockets, and means connecting one of said sockets to a motive source for oscillating said sockets.

9. The combination of claim 8, and a downwardly extending shaft connected to said manikin head, means extending outwardly from said shaft, an upstanding member fixed to said link member, said outwardly extending means on said shaft engaging said upstanding member on said socket connecting link member.

10. The combination of claim 9, and said manikin head shaft extending downwardly at an angle to the axis of the body of the manikin.

11. In combination, a manikin comprising a hollow body having a neck, a head having a neck complementary to the neck on the body, said body having arm holes, a tubular member fixed in the body horizontally with the ends of said tubular member at said armholes, hemispheres having outer flat surfaces and pivoted to the ends of said tubular member about vertical axes, manikin arms detachably attached to said hemispheres, a link connecting the front of one hemisphere to the rear of the other, an electric motor fixed to said tubular member, and having a motor shaft, a crank on said motor shaft, and a link connecting said crank to one of said hemispheres, a pin attached to said head and projecting down from its neck, the neck on said body having an opening, said tubular member having an opening, said pin being slidably and rotatably received in said openings, a slotted arm on said pin, and means on said link engaging said slotted arm.

12. In combination, a manikin comprising a hollow body having arm holes, a tubular member fixed in the body horizontally with the ends of said tubular member at said arm holes, hemispheres having outer flat surfaces and pivoted to the ends of said tubular member about vertical axes, manikin arms detachably attached to said flat surfaces of said hemispheres, a link connecting one hemisphere to the other, motive means to reciprocate said link causing said hemispheres to rotate back and forth about their vertical axes, and said arms being detachable from said hemispheres in any rotated position thereof.

13. The combination of claim 12, said tubular member being formed with pointed ends and concave edges to each side of said pointed ends, and said hemispheres being pivoted at said pointed ends of said tubular member.

14. In combination with a manikin body having arm holes, an animating device comprising a tubular member formed wtih pointed ends, hemispherical arm sockets pivotally connected about vertical axes between said pointed ends of said tubular member, a motor mounted on said tubular member and interconnected by an offset link with one of said hemispherical arm sockets for rotating said hemispherical arm socket back and forth through a partial arc about its vertical axis, a link interconnecting the front of said arm socket to the rear of the other arm socket and arms detachably attached to said hemispherical arm sockets and detachable in any rotated position thereof.

15. In combination, a manikin comprising a hollow body having an arm hole, a tubular member fixed in the body with an end of said tubular member at said arm hole, a hemispherical member having an outer flat side, pivoted to said end of said tubular member about a substantially vertical axis, a manikin arm detachably attached to said outer side of said hemispherical member, motive means on said tubular member, comprising a motor shaft, a crank arm on said shaft, a link connecting said crank arm with said hemispherical member at a point spaced from said axis, to oscillate said member about said axis, and said manikin arm being detachable from said hemispherical member in any angular position of the latter.

16. The combination of claim 15, said tubular member being formed with vertically aligned, pointed extensions at said end of said tubular member, and with inwardly curved edges at each side of said pointed extensions, and said hemispherical members being pivoted at said pointed extensions of said tubular member.

17. The combination of claim 15, a manikin head on said manikin body, a shaft fixed to said head and projecting down into said body, and means connecting said hemispherical member to said head shaft, to oscillate said head when said hemispherical member is oscillated by said motive means.

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