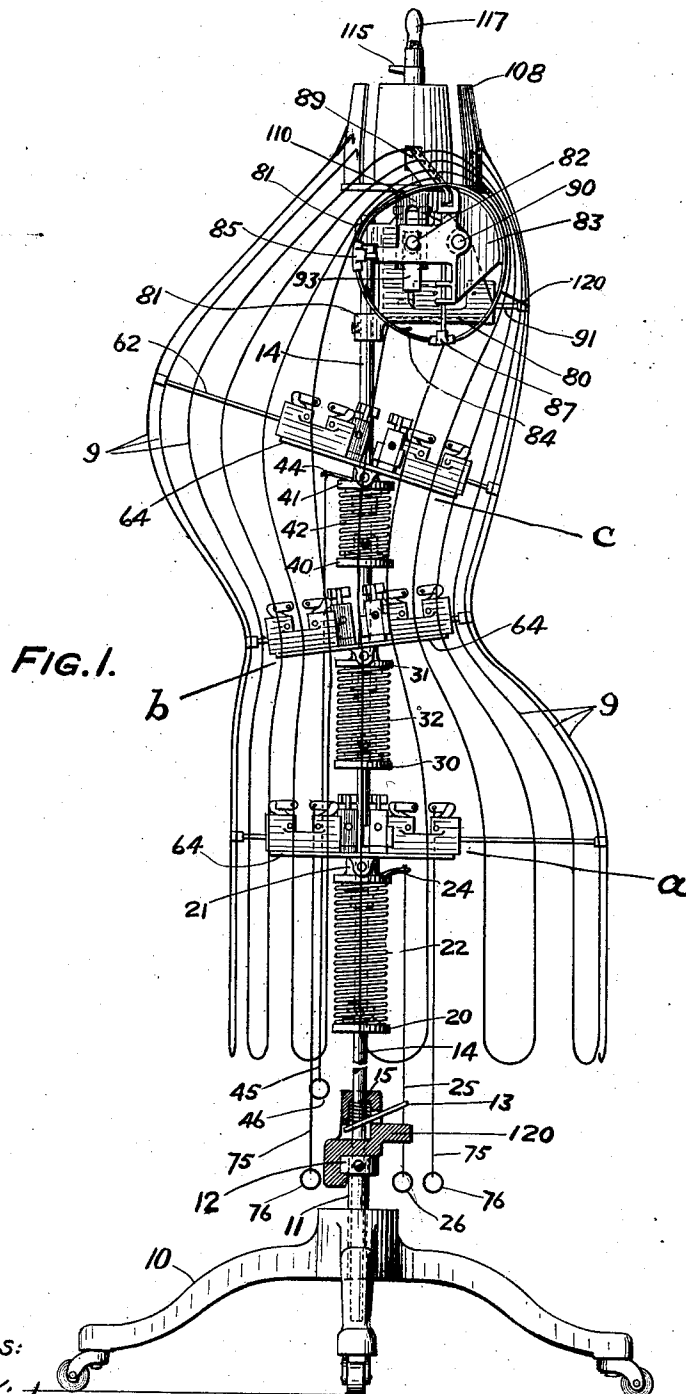


991,455.

J. RAE.
DRESS FORM.
APPLICATION FILED JULY 9, 1909.

Patented May 2, 1911.

5 SHEETS—SHEET 1.



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5 SHEETS-SHEET 2.

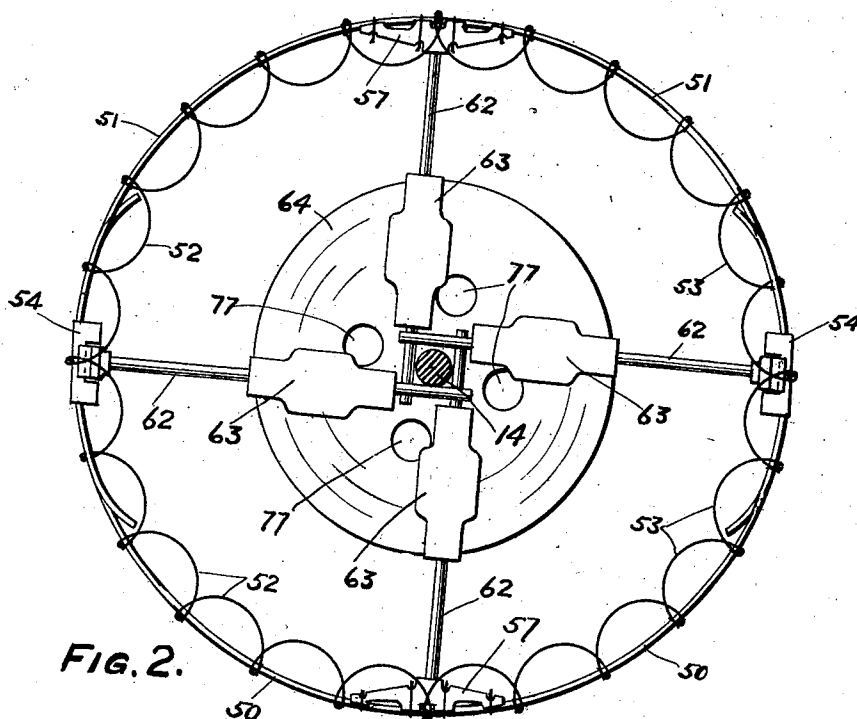


FIG. 2.

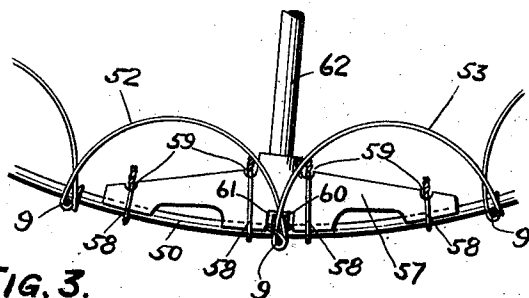


FIG. 3.

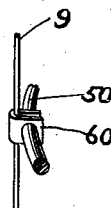


FIG. 4.

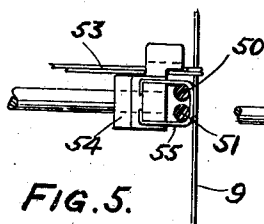


FIG. 5.

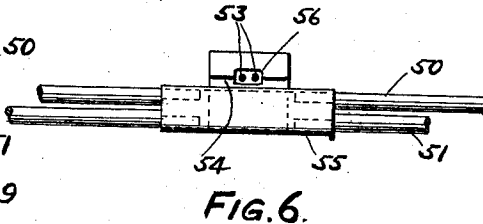


FIG. 6.

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APPLICATION FILED JULY 9, 1909.

Patented May 2, 1911.

5 SHEETS-SHEET 3.

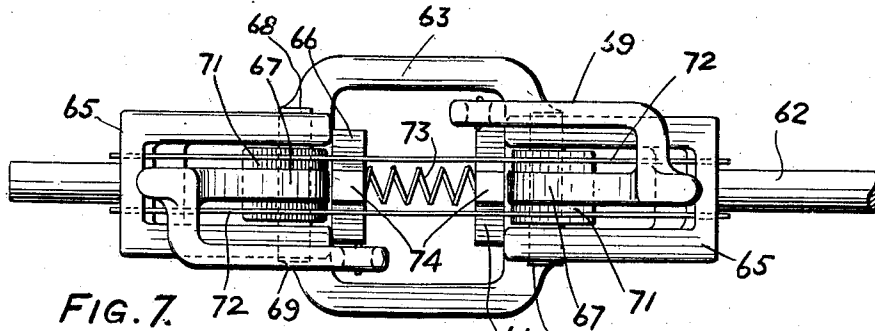


FIG. 7.

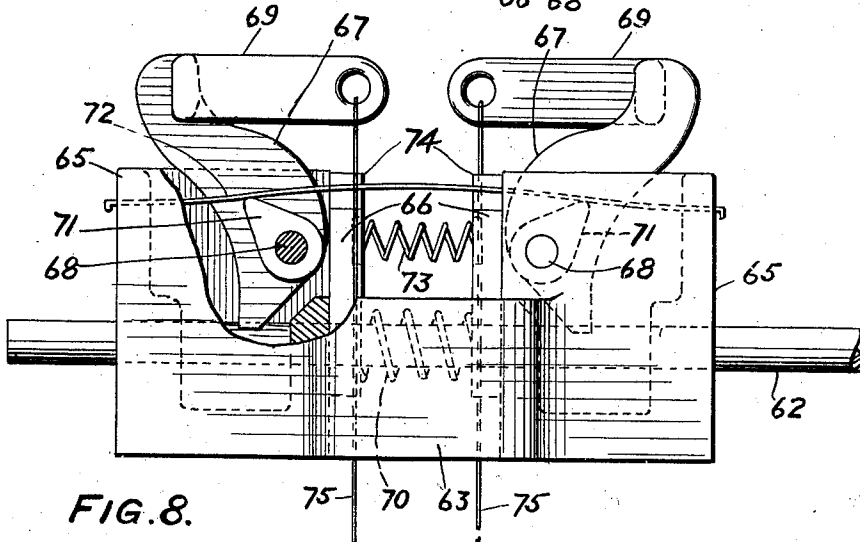


FIG. 8.

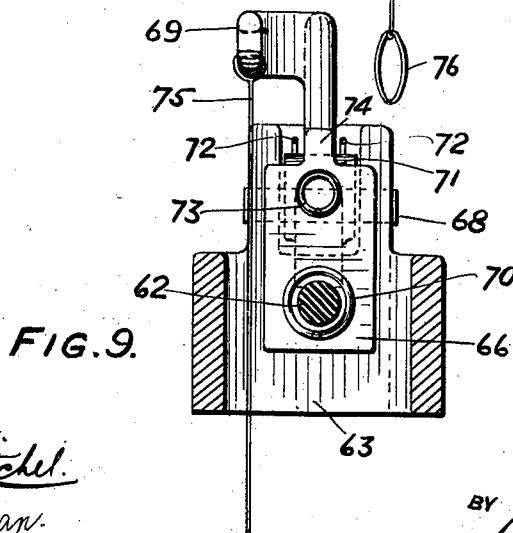


FIG. 9.

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APPLICATION FILED JULY 9, 1909.

Patented May 2, 1911.

5 SHEETS—SHEET 4.

FIG. 10.

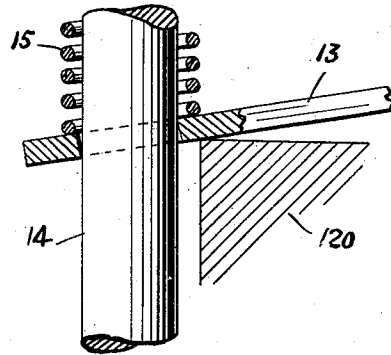
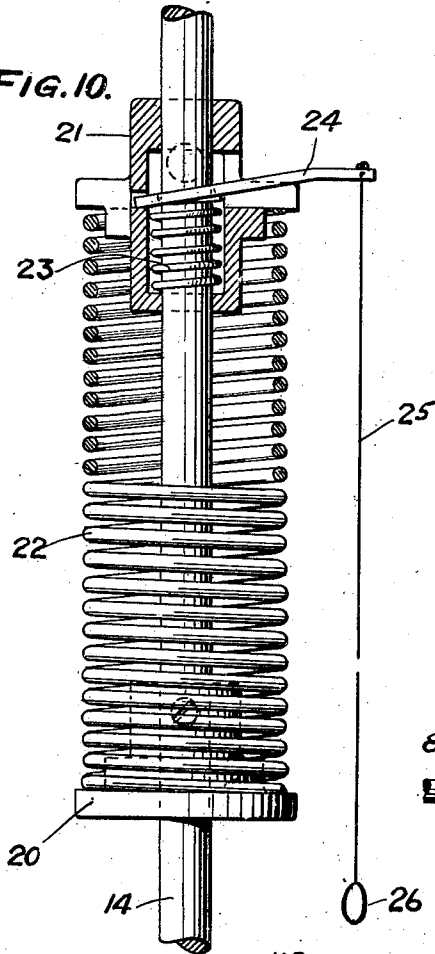


FIG. 11.

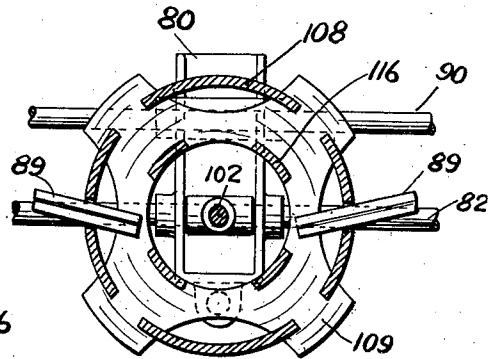
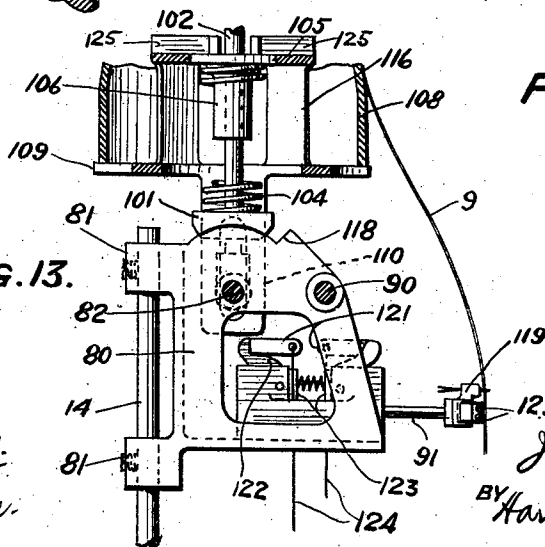


FIG. 12.

FIG. 13.



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DRESS FORM.
APPLICATION FILED JULY 9, 1909.

Patented May 2, 1911.

5 SHEETS-SHEET 5.

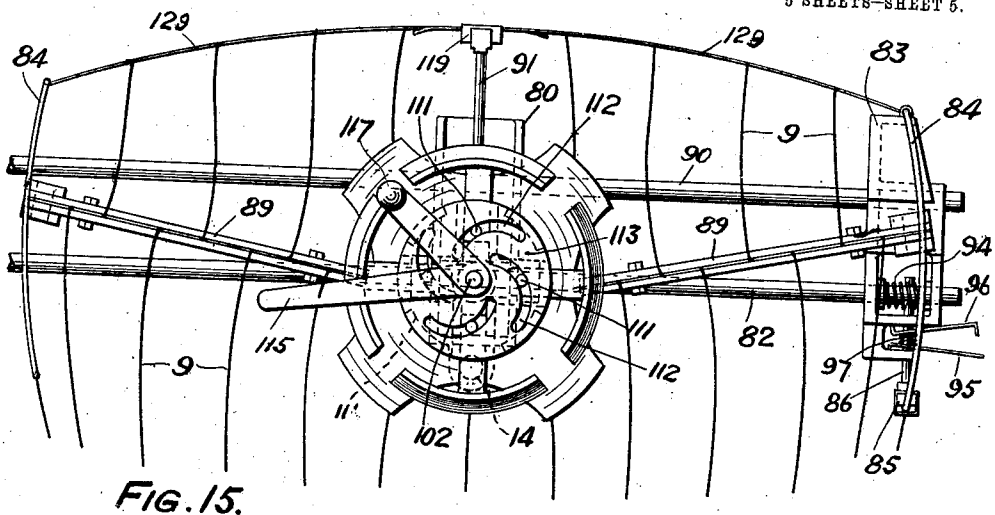


FIG. 15.

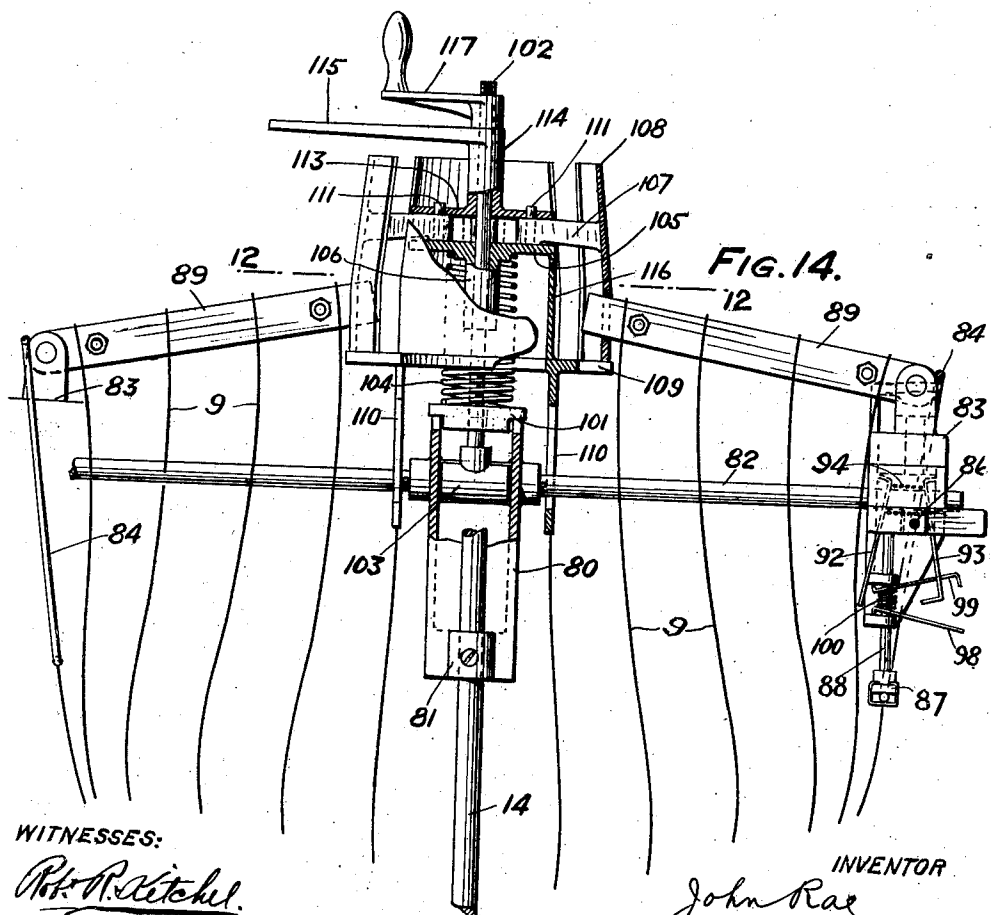


FIG. 14.

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UNITED STATES PATENT OFFICE.

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DRESS-FORM.

991,455.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed July 9, 1909. Serial No. 506,647.

To all whom it may concern:

Be it known that I, JOHN RAE, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Dress-Forms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to produce a dress form corresponding to that of a typical human figure from the neck to below the hips, which may be adjusted to lengthen and shorten the form, to contract and expand it at various points, and to vary its contour at any part thereof, either symmetrically or arbitrarily, to accommodate the form to all ordinary diversities of the human figure.

Another object of the invention is to separately effect any particular local adjustment without incidentally effecting any other local adjustment, whereby any part of the form may be adjusted independently.

Another object of the invention is to construct substantially the whole of the exterior skeleton of the form of material of maximum lightness, elasticity and pliability extending substantially throughout the length of the form, so as to preserve the continuity and smoothness of the form under all adjustments while enabling it to readily flex and bend under the influence of the adjusting mechanism.

Another object of the invention is to enable the adjustment to be effected when a garment is in place on the form by so constructing the adjusting devices that such of them as necessarily engage the form at points inaccessible to the operator when the garment is in place may be manipulated from points distant from such point of engagement, preferably at a point contiguous to the base or standard on which the form is supported.

The invention also has for its object to so construct the adjusting mechanism that the same will operate automatically to effectually hold the parts engaged thereby in the position to which they have been adjusted.

The invention has for its more general object to produce a dress form excelling in the

qualities of scope, flexibility, simplicity and durability.

The means whereby the above objects are effected may be understood by reference to the annexed drawings and the following general and particular description thereof, which illustrate a preferred embodiment of my invention.

In the drawings: Figure 1 is a general side elevation of the dress form. Fig. 2 is an enlarged plan view of the bust-expander. Figs. 3, 4, 5, 6, 7, 8 and 9 are detail views of parts of the bust-expander. Fig. 10 is an enlarged detail view, partly in section, of the means for vertically adjusting the hip-expander. Fig. 11 is a greatly enlarged detail view showing the way in which the main supporting post is gripped and locked in a given position, which construction is also typical of the means for locking or actuating various other adjusting parts. Fig. 12 is a section on the line 12—12 of Fig. 14. Fig. 13 is an enlarged side view of a part of the neck-forming and back-adjusting mechanism. Fig. 14 is a front elevation of the shoulder and neck portions of the form. Fig. 15 is a plan view of the same.

The main body of the dress form comprises an exterior wire skeleton composed of a series of contour wires 9, 9, etc., each of which extends from the top of the skeleton down to the bottom thereof, where it is bent upon itself and extends upward, the two ends being secured at the top to the neck and shoulder portions of the form as hereinafter described. These main contour wires are also attached, at points corresponding to the bust, waist and hip portions of the form, to contrivances adapted for adjustment vertically, radially and angularly as hereinafter described. The wires are preferably of about .05 diameter and are of sufficient elasticity to enable them to yield to effect the variations in contour dictated by the adjusting mechanism. At the same time the main contour wires are of sufficient rigidity to cause them to hold the "set" effected by the adjusting devices under the influence of the comparatively simple locking action of the adjusting mechanism.

10 is the portable base and 11 a tube extending upwardly therefrom, said base and tube forming a standard on which the dress-

form is supported. Secured to the tube 11 is a collar 12.

120 is a casting embracing the collar 12.

13 is a hand lever having at its inner end an orifice surrounding a post 14, which is slidably mounted in the tube 11. Confined between the lever 13 and the casting 120 is a spring 15. The lever 13 extends outwardly through an opening in the casting, and the spring 15 normally holds it in the inclined position shown in Fig. 1. The orifice in the hand lever 13 is of slightly greater diameter than the post 14, but when the lever assumes the normally inclined position described, the edges of the orifice engage the post and prevent any downward movement of the same. This will more clearly appear from an inspection of Fig. 11.

The post 14 supports the entire form, as will be understood from subsequent description. If it is desired to lower or raise the form, the operator with one hand depresses the lever 13 and at the same time with the other hand grasps the post 14. When the lever 13 is depressed, the post 14 is free to be moved either upwardly or downwardly until it is adjusted to the proper height. The operator then releases the lever 13 and the spring 15 immediately returns the lever to its normal gripping position.

Slidably mounted on the post 14 are a series of members which may be designated respectively as the hip-, waist- and the bust-extendors, *a*, *b* and *c*. Each extender is vertically adjustable relatively to the post 14 and to the remaining members. The means of supporting and adjusting the hip-extender on the post 14 will first be described (see Figs. 1 and 10).

Secured to the post 14 is a fixed flange 20. Above and spaced from the fixed flange 20, and loose on the post 14, is a bearing 21, on which is pivotally mounted the hip-extender *a*, hereinafter described in detail. Between flange 20 and bearing 21 is confined a coil spring 22. Within the hollow interior of the bearing 21 is a small and relatively weak coil spring 23, which bears against a lever 24. This lever has an orifice slightly larger than the diameter of the post 14, through which said post extends. The inner end of the lever 24 extends into a recess formed in the interior wall of the bearing 21. The outer end of the lever extends out through a hole in the bearing. The spring 23 normally holds the lever 24 in the inclined position shown in Fig. 10, in which position the lever bites the post 14 and prevents any vertical movement of the bearing 21 under the influence of the spring 22. When, however, the outer end of the lever 24 is depressed, thereby causing the end of the lever surrounding the rod to assume an approximately horizontal position, the bearing 21 is free to move vertically. If the

downward pressure upon the lever 24 is slight, the pressure of the spring 22 is sufficient to elevate the bearing 21. But if downward pressure is applied to the lever 24 sufficient to overcome the tension of the spring 22, the bearing 21 will be moved down. Thus the operator, by manipulating the lever 24, may elevate or depress the hip-adjusting contrivance.

To enable the lever 24 to be manipulated when a garment is in place on the form, a cord or wire 25 is attached to the outer end of the lever, and to the lower end of the cord is secured a ring 26, which may be grasped by the operator. When the bearing 21 is adjusted to its desired position, the lever 24 is released, permitting the spring 23 to return it to the normally inclined position, in which position it again grips the post 14 and holds the bearing 21 in its adjusted position.

Secured to the post 14, above the hip-extender *a*, is the waist-extender *b*, which is pivotally mounted on a sliding bearing 31. This bearing is subject to the upward pressure of a spring 32 resting on a flange 30 fixed to the post 14, and is normally held in fixed relation to the post 14 by means of a lever (not shown) which corresponds in its construction and mode of operation to lever 24 and is normally held in gripping position by a spring (not shown) similar to spring 23 and is manipulated by means of a cord and hand ring (not shown) similar to cord 25 and ring 26.

Secured to the post 14, above the waist-extender *b*, is the bust-extender *c*, which is pivotally mounted on a sliding bearing 41. This bearing is subject to the upward pressure of a spring 42 resting on a flange 40 fixed to the post 14, and is normally held in fixed relation to the post 14 by means of a lever 44, which corresponds in its construction and mode of operation to the lever 24 and is normally held in gripping position by a spring (not shown) similar to spring 23 and is manipulated in the same manner by means of a cord 45 and hand ring 46.

The extenders *a*, *b*, and *c*, for expanding and contracting the form at the hip, waist and bust respectively, are of the same construction, differing only in dimensions, and it will therefore be sufficient to describe only one of these contrivances in detail.

In Figs. 2 to 9 is shown the bust-extender and this will now be described. Extending around the form and within, and in contact with, the wires 9, is the ring 50, 51, which is composed of two wires, each extending somewhat more than half-way around the form when the bust is in its most extended position. The ends of the wires 50, 51, where they overlap at the opposite sides of the form, are held in position by means of two holders, each of which comprises a frame 54 and a

channel-plate 55 secured thereto, the wires 50, 51 extending between the holder frame and the plate, the plate being held in position by bending the inner ends thereof inwardly against the inner face of the holder frame. To hold the wires 9 apart at uniform distances, there are provided the two spacing wires 52, 53. The wire 52 is bent, at one of its ends, once or twice around the wires 9 at the center of the front of the form, thence is bent or looped inwardly and thence outwardly in the shape of an arc of a circle, thence is bent around the wire 50 and around the next adjacent wire 9, thence is bent inwardly and outwardly to form another loop, thence is bent around the wire 50 and the next adjacent wire 9, and so on until the center of one side of the form is reached, where the wire extends through an orifice 56 in the corresponding holder frame 54, where it is bent twice around the adjacent wire 9 only, and not around either of the wires 50 or 51. Thence the wire 52 extends, in a series of loops, each engaging the wire 51 and one of the wires 9 until the wire 9 at the center of the rear of the form is reached, around which the other end of the wire 52 is bent. The other spacing wire 53 extends from the wire 9 at the center of the front of the form around the other semi-circumference of the form, being looped, similarly to wire 52, around successive wires 9 and wires 50 and 51 until the wire 9 at the center of the rear of the form is reached, around which the other end of the wire 53 is bent. These spacing wires are preferably of substantially lighter weight than the contour wires and may be about one sixteenth of an inch in diameter. They are preferably not bent to shape before application to the form, but are applied thereto as straight wires and are curved or bent in the operation of applying them.

At the front and rear respectively of the form are the holders 57, 57, each consisting of a frame having an outside longitudinal groove in which rests the wire 50 or 51. The wires 50 and 51 are held from springing out of the grooves by means of wires 58 engaging notches 59 and looped around the holder frames and the wires 50 and 51.

60 represent cleats embracing respectively the wires 9 at the front and back of the form and extending into recesses 61 in the holders 57. The legs of each cleat are orificed to permit the wire 50 or 51 to extend there-through.

By means of the construction just described, the holders 57 are held from moving circumferentially and the wires 50, 51, are held in fixed relation to the holder frames 57.

The holders 54, 54, 57, 57, are secured respectively to four rods 62, slidably mounted respectively in frames or standards 63, all of which are secured to a common base or

table 64. The table 64 is pivotally mounted on the hereinbefore described bearing 41, but the mounting is of a frictional character so that the table will remain at any angle to which it may be adjusted on its pivot. Each standard 63 is composed of two members 65, 65, spaced apart. Against the inside of each member rests loosely a plate or lever 66 having an orifice through which the rod 62 extends. The orifice in each plate 66 has preferably what is known in the mechanical arts as a sliding fit with the rod 62, so that when the upper end of the plate is moved away from its corresponding member on its lower end as a pivot, the edges of its orifice engage the rod 62 and move it in the direction in which the plate is moved, but do not bite into the rod as in certain other embodiments of the same constructional feature hereinafter described. When the plate 66 is returned to its normal position it does not retract the rod. By thus moving the plate back and forth, the rod may be moved in one direction step by step, thus moving the corresponding holder frame 54 or 57 outwardly or inwardly, depending upon which of the two plates 66 is thus manipulated.

The plates 66 are each given the movement above described by the following mechanism. 67 is a cam secured to a cross pin 68 turnable in the corresponding member 65 of the standard. 69 is a horizontally extending arm on the upper end of the cam. By depressing the arm 69, the cam 67 is turned, thereby pressing out the plate 66. By means of the coil spring 70, encircling the rod 62 and confined between the two plates 66, the lower ends of the plates are always held against the respective member of the standard, so that the pivotal movement described is necessarily imparted to a plate 66 when its corresponding cam 67 is turned as described. On each pin 68 is an arm 71 engaging two spring wires 72, 72, extending from one end of the standard to the other end thereof and secured thereto at their opposite ends. When downward pressure upon the arm 69 is relieved, the springs 72 act upon the arm 71 to return it, the cross pin 68 and the cam 67 to their normal positions. When the cams 67 are in their normal positions, the lower ends thereof engage the rod 62 and prevent any movement thereof. A coil spring 73, weaker than the spring 70, extends between the upper ends of the plates 66 and operates to return to its normal position the plate 66 that has been previously swung out by its corresponding cam 67. Each plate 66 is always held in an upright position by means of a neck 74 on the upper end thereof extending between the wires 72, 72. To the outer end of each arm 69 is attached a cord 75, to the lower end of which is attached a hand ring 76, which may be grasped by the operator.

Each of the tables 64 of the extenders *a*, *b* and *c* is provided with orifices 77. The orifices in the base plate of the waist-extender *b* accommodate the cords for manipulating the arms 69 of the bust-extender *c*. The orifices in the base plate of the hip-extender *a* accommodate the cords for manipulating the arms 69 of the bust-extender and the arms 69 of the waist-extender. The orifices shown in the base plate 64 for supporting the bust-extender may accommodate the cords for manipulating the upper-back extenders.

By means of the extenders *a*, *b* and *c*, the dress form may be expanded and contracted to the extent desired in the bust, waist and hip portions thereof. At the same time, by reason of the spacing wires 52 and 53, the upright wires 9 will in all positions be maintained at uniform distances apart. By elevating and depressing the bearings 21, 31 and 41 supporting respectively the extenders *a*, *b*, and *c*, the form may be shortened or lengthened in the bust, waist and hip portions to the degree required.

The means for regulating the width and shape of the form at the shoulder portion thereof will now be described. 80 is a frame comprising side plates and a front plate and having lugs 81, 81, secured to the upper end of the rod 14. Extending across the form to the outside of the arm holes are two rods 82, 90, which, at their central portions, extend through the frame 80 and are secured in fixed relation thereto. Sleeved on the rods 82 and 90, at each outer end, is a shoulder frame 83. Each frame is surrounded by a ring 84 formed of a wire bent into an approximately circular form with its ends overlapping. The ring 84 defines or forms the corresponding arm hole, and the upper ends of certain of the main wires 9 of the form are secured thereto, as shown. The ring 84, at its upper rear part, directly rests upon the frame 83. The front portion of the ring 84 is engaged by a holder 85, constructed similarly to one of the holder frames 54, and secured to a horizontally extending rod 86 slidable in guides on the frame 83. The lower portion of the ring 84 is engaged by a similar holder 87 secured to a vertically-extending rod 88 slidable in guides on the frame 83. Pivotaly mounted on the upper end of the frame 83 is a bar 89 extending inwardly toward the neck portion of the form and there slidably supported as hereinafter described. The upper ends of certain of the main wires 9 are bent downwardly and clamped between the two strips of which the bar 89 is composed. It will be understood that by moving out the frames 83, the rings 84 and bars 89 and consequently the upper end portions of certain of the main wires 9 will also be moved outwardly, thereby widening the form at the shoulder por-

tion; while if the frame 83 is moved inwardly, the shoulder portion will be narrowed. It will also be understood that by moving in and out the rods 86 and 88, carrying respectively the holders 85 and 87, the ring 84 will be expanded or contracted, the construction of the holders permitting the ring wire to slide circumferentially with respect thereto. By extending the ring 84 along the projecting part of the frame 83 for a part of the length of the ring, this part of the ring is held with a permanent set, the adjustment of the front and lower parts of the ring by means of the rods 86 and 88 providing for as great a range of adjustability as is required.

Each frame 83 is locked to and unlocked from the rod 82 by means of the following mechanism. 92 and 93 are two levers whose upper ends are bent and inserted into recesses in the frame 83. These levers, near their upper ends, are orificed to accommodate them to the rod 82. 94 is a coil spring surrounding the rod 82 and bearing against the levers 92 and 93 and normally holding them in the inclined positions shown. The orifices in the levers 92 and 93 are slightly wider in diameter than the rod 82, but when the same are in their normally inclined positions, the upper and lower edges of each orifice engage the rod 82 and are thereby held from movement thereon, whereby the frame 83 is also held in fixed relation with the rod. If, however, the outer ends of the levers 92 and 93 are grasped and moved toward each other into a position approximately at right angles to the axis of the rod 82, the edges of their orifices are freed from the rod 82, thereby unlocking the frame 83 and permitting it to be moved outwardly or inwardly. When the frame 83 is adjusted to its proper position, the levers 92, 93, are released and the spring 94 returns them to their locking position.

To move the front portion of the ring 84 forwardly and backwardly, the rod 86 carrying the holder 85 is moved longitudinally by means of the following mechanism. 95 and 96 are a pair of levers sleeved on the rod 86 and having their inner ends bent in opposite directions against the frame 83. 97 is a coil spring surrounding the rod 86 between said levers and normally holding them in the inclined position shown. In this position, opposite edges of each orifice, which is slightly wider than the rod 86, bear against the rod and hold it in fixed relation to the frame, but if the outer ends of the said rods be moved toward each other, the rod 86 is released and may be moved forwardly or backwardly as desired, thereby enabling this portion of the ring 84 to be moved correspondingly. The lower portion of the ring 84 is moved upwardly or downwardly by sliding the rod 88 carrying the holder 87. This rod is locked or unlocked by means of

a pair of levers 98 and 99 sleeved on rod 88 and constructed like the levers 95 and 96 hereinbefore described. These rods are held in locking position by means of a coil spring 100, and are manipulated to lock and unlock the rod 88 and holder 87 in the same manner as levers 95 and 96 are manipulated. 91 is a rod slidable on the frame 80 and carrying the holder 119 which is constructed similarly to holder frame 54 and carries the overlapping ends of the two wires 129, 129, extending across the back and connected with the contour wires 9 and respectively to the two arm-hole rings 84. This rod 91 is operated back and forth by means of arms 121, cams 122 and plates 123, operated, by cords 124, similarly to arms 69, cams 67 and plates 66 of the hip extenders.

The neck-forming device, the means for supporting it, for varying its diameter, for raising and lowering it, and for varying the angle of its inclination with respect to the body portion of the form, are constructed and operated as follows. The top of the frame 80 is convexly rounded, as shown, and on said rounded part rests a concavely rounded shoe 101. Secured to, and extending through, the shoe 101 is a rod 102, the lower end of which is seated in or secured to a sleeve 103 on the rod 82. Resting on the shoe 101 is a coil spring 104, upon which is supported the disk 105 having a depending sleeve 106 surrounding the rod 102. Upon the disk 105 rest the inner ends of arms 107. These arms are adapted to slide between guides 125 on the disk 105. The outer ends of arms 107 are secured to four bars or uprights 108, forming sections of the neck portion of the form. These sections at their lower ends rest upon the plate 109 which is suspended from the disk 105 by means of hangers 116 and from which depend guide bars 110 slotted to engage the rod 82. Secured to the inner ends of the arms 107 are pins 111, which project above the arms 107 and engage curved cam slots 112 in a disk 113. Secured to this disk is a sleeve 114 which surrounds the rod 102 and has secured to it an arm 115. The arm 115 is intended to be grasped and turned by hand, and when by this means the disk 113 is turned, the pins 111 engaging the slots 112 will be moved radially inwardly or outwardly, thereby imparting a similar movement to the sections 108, thereby expanding or contracting the neck portion. It will be observed that the upper ends of certain of the main wires 9 located at the front and rear of the form are secured to the sections 108, whereby these main wires are also, at their upper ends, moved outwardly or inwardly simultaneously with the operation of the sections 108. Threaded on the upper end of the rod 102 is a handle 117. By rotating the handle in one direction, the sleeve

114 and the entire neck portion of the form connected therewith are depressed against the pressure of the spring 104. The inner ends of the bars 89 extend loosely through orifices in opposite neck sections 108, and as these sections are depressed the inner ends of bars 89 are also depressed, thereby elevating the shoulder portion of the form relatively to the neck portion. When the handle 117 is turned in the opposite direction, the spring 104, acting against the disk 105, raises the neck portion and the inner ends of the bars 89. As the shoe 101 rests loosely on the rounded top of the frame 80, the neck portion may be moved forwardly or backwardly on the frame 80, being limited in its rearward movement by the shoulder 118 on the frame 80 and in its forward movement by the horizontal upper edge of the forwardly extending part of the frame.

The invention is not limited to the precise details of construction and arrangement shown, as various modifications thereof may be made without departing from the essential features of my invention. Nor is it intended to limit the application of certain specific features of novelty to the precise location to which said features are applied nor to the precise means described for embodying said features in practically operative form. For example, the devices comprising orificed levers or plates sleeved on rods and adapted to effect adjustments by varying the angle thereof to the rods are shown in a number of different forms having different modes of operation; and such devices might be embodied in still other forms, or certain embodiments thereof embodying specific novelty might be applied to other portions of the form, without departing from this feature of my invention as expressed in the broader claims therefor.

While the contour wires are spoken of as "wires", they need not necessarily be wires in the strict sense of being of circular cross-section, so long as they have sufficient pliability to adapt them for the purpose; although it is decidedly preferable to employ wires in the strict sense of the term, and many of the leading features of the form are arranged with a view to their utilization in substitution for plates of a rigid or semi-rigid character.

While the drawing illustrates a form corresponding to that of a portion of a typical woman's figure, it will be understood that the invention may be equally embodied in forms corresponding to the typical masculine figure when it is desired to employ the same for fitting men's garments.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:—

1. In a dress form, the combination with elastic contour wires, and a circumferen-

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tially extending expansible and contractible ring engaging the contour wires, of means for supporting said ring and contour wires and adjusting them outwardly and inwardly, thereby increasing or decreasing the distance between adjacent contour wires, and independent circumferentially expansible and contractible means engaging both said ring and said contour wires and adapted to maintain the latter at uniform distances apart notwithstanding said adjustment.

2. In a dress form, the combination with main contour wires, of one or more elastic spacing wires composed of inwardly extending curved sections each extending in a plane intersecting the contour wires, the ends of which sections are connected to the successive contour wires, and means to move the contour wires inwardly and outwardly, thereby expanding or contracting said elastic sections.

3. In a dress form, the combination with main contour wires, of one or more spacing wires composed of successive sections each curved at an angle to the circumferential extension of the form, the end portions of adjacent sections extending at an angle to each other and connected to the contour wires at their junction.

4. In a dress form, the combination with longitudinally extending contour wires, of a circumferentially extending expansible and contractible ring engaging the contour wires, and a spacing wire or wires composed of successive curved sections extending from one contour wire to another and looped about said ring and the contour wires at the junction of adjacent sections.

5. In a dress form, the combination with elastic contour wires, of a circumferentially extending wire or wires engaging and slidable relatively to the contour wires, a holder engaging the circumferentially extending wire or wires and one or more of the contour wires, and means to move said holders outwardly and inwardly.

6. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring arranged within and in contact with the contour wires and overlapping at the ends thereof, a spacing wire or wires composed of successive curved sections extending from one contour wire to another and looped about said ring and the contour wires at the junction of adjacent sections, holders within and engaging the ring, and means to move said holders outwardly and inwardly.

7. In a dress form, the combination with longitudinally extending contour wires, of a central support, extenders supported thereon and connected with certain of the contour wires at different points about the circumference of the form and adapted to be adjusted to move said contour wires in and out,

and an expansible and contractible ring engaging the contour wires and having overlapping ends freely slidable relatively to each other and to the contour wires, whereby the form may be expanded or contracted solely by manipulation of the extenders.

8. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring composed of a plurality of wires engaging the contour wires and overlapping at their adjacent ends, a central support, and extenders supported thereon and connected with said contour wires and ring wires between the overlapping ends of the latter.

9. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring overlapping at the ends thereof and engaging the contour wires, a holder or holders engaging the overlapping ends of said ring, a holder or holders engaging said ring between the overlapping ends thereof, and means to move said holders outwardly and inwardly.

10. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring overlapping at the ends thereof, an internal post, an extender supported therefrom, a holder carried by the extender and engaging said ring between the overlapping ends thereof, and means connecting the holder and one of the contour wires permitting the holder to slide thereon while maintaining it otherwise in fixed relation thereto.

11. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring connected therewith, a holder provided with a longitudinal groove in which said ring rests, and means securing the holder to the ring and one of the contour wires.

12. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring connected therewith, a notched holder engaging said ring, and tying wires extending around the holder and ring and extending into said notches.

13. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring connected therewith, a holder engaging said ring having a central recess located substantially opposite one of said contour wires, and a staple, through which said ring extends, engaging said contour wire and extending into said recess.

14. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring overlapping at the ends thereof, an internal post, an extender supported therefrom, and a holder carried by the extender, said holder

receiving the overlapping ends of said ring but permitting them both to slip longitudinally in relation thereto, and means to retain said holder in fixed relation to one of said contour wires.

15. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring overlapping at the ends thereof, and a holder or holders provided with a longitudinal channel through which the overlapping ends of said ring extend and within which they are free to slide longitudinally, a central post, and an extender between said post and the holder adapted to be adjusted to move said holder in or out.

16. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring overlapping at the ends thereof, and a holder comprising a frame arranged within said ring adjacent to the overlapping ends thereof and an open-ended channel plate confining said overlapping ends from substantial outward or upward movement relatively to the holder frame and provided with ends turned inwardly against the inner wall of the holder frame.

17. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring engaging said wires, a spacing wire or wires composed of successive curved sections engaging said contour wires at the junction of adjacent sections, and a holder engaging said ring and provided with means to accommodate the ends of two adjacent wire spacing sections, whereby said holder is held from movement away from said contour wires.

18. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring having overlapping ends, a spacing wire or wires composed of successive curved sections engaging said contour wires at the junction of adjacent sections, and a holder provided with a longitudinal channel through which the overlapping ends of said ring extend and an orifice through which extend the ends of two adjacent spacing wire sections.

19. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring engaging said contour wires and composed of two wires, each of said ring wires at each of its ends overlapping the corresponding end of the other wire, two holders respectively engaging the two ring wires in their middle portions and held in fixed relation to two opposite contour wires and two holders engaging the overlapping ends of the ring wires and held in fixed relation to two opposite contour wires located substantially midway between the contour wires engaged by the first named holders.

20. In a dress form, the combination with longitudinally extending contour wires, of an expansible and contractible ring engaging said contour wires and composed of two wires, each of said ring wires at each of its ends overlapping the corresponding end of the other wire, a spacing wire or wires composed of successive curved sections engaging said contour wires at the junction of adjacent sections, two holders arranged substantially opposite to each other and respectively engaging the two ring wires in their middle portions, and two holders arranged substantially opposite to each other and substantially midway between the first named holders and engaging the overlapping ends of the ring wires.

21. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a swinging lever loosely sleeved on said rod, and means to swing said lever, thereby causing the sleeved part of said lever to engage and shift said rod longitudinally for the purpose of contracting or expanding the part of the skeleton connected with said rod.

22. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a pair of levers loosely sleeved on said rod, and means to independently swing said levers in opposite directions, whereby, by the engagement of the sleeved part of a lever with the rod, the rod will be moved longitudinally in one direction or the other dependent upon which lever is operated.

23. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a frame comprising two members on which said rod is slidably supported, upright levers resting against opposing faces of said members and loosely sleeved on said rod, and means to move either lever into an inclined position, thereby causing the sleeved part thereof to engage and shift the rod in one direction or the other dependent upon which lever is operated.

24. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a frame comprising two members on which said rod is slidably supported, upright levers resting against opposing faces of said members and loosely sleeved near their lower ends on said rod, a spring coiled about said rod between said levers, and means to move either lever toward the other on its lower end as a pivot.

25. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said

rod with the skeleton, a frame comprising two members on which said rod is slidably supported, upright levers resting against opposing faces of said members and loosely sleeved near their lower ends on said rod, a spring coiled about said rod between said levers, a spring confined between the upper ends of said levers, and means to move either lever toward the other on its lower end as a pivot.

26. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a lever loosely sleeved on said rod, and a cam adapted when operated to swing said lever and change the angle thereof relatively to the rod.

27. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a lever loosely sleeved on said rod, a cam adapted when operated to swing said lever and change the angle thereof relatively to the rod, an arm on said cam, and actuating means connected to said arm and extending below said skeleton.

28. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a lever loosely sleeved on said rod, a frame on which said rod is slidably mounted, a cam turnable on said frame adapted when turned to change the angle of said lever relatively to the rod, a spring, and an arm turnable with said cam and adapted to engage said spring when the cam is turned and to be returned to normal position by said spring when the cam is released.

29. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a frame comprising two members on which said rod is slidably supported, upright levers resting against opposing faces of said members and loosely sleeved on said rod, cams adapted when operated to swing the respective levers and change the angle thereof relatively to the rod, and means to operate said cams independently.

30. In a dress form, the combination with an external skeleton, of a longitudinally movable rod or rods, means connecting said rod with the skeleton, a frame comprising two members on which said rod is slidably supported, upright levers resting against opposing faces of said members and loosely sleeved near their lower end on said rod, a spring coiled about said rod between said levers, a spring confined between the upper ends of said levers, a cam and an arm turnable on each member, other arms one on each cam by means of which the cam is

turned and caused to push the upper end of the corresponding lever away from the member against which it rests, a pair of spring wires suspended at their opposite ends on said members and adapted to be engaged by the last named arms when their respective pins are turned, said cam being adapted when the same is in inoperative position to engage said rod, necks on the upper ends of the levers extending between said spring wires, and cords depending from the cam arms by means of which the latter may be independently operated to turn their respective cams and actuate the corresponding levers.

31. In a dress form, the combination with an external skeleton, of a post within said skeleton, a base mounted on, and adjustable relatively to, said post, standards on said base, rods slidably mounted on said standards, means connecting said rods to the skeleton, and means for sliding said rods to contract or expand the parts of the skeleton connected therewith.

32. In a dress form, the combination with an external skeleton, of a post within said skeleton, a bearing on said post, means to adjust said bearing vertically on said post, a base mounted on, and adapted to be arranged at different angles to, said bearing, and an extender carried by said base and comprising a plurality of parts connected with said skeleton at different points in its circumference and adapted to be independently operated to expand or contract said skeleton in the vicinity of the several points of connection.

33. In a dress form, the combination with an external skeleton conforming substantially to a portion of the shape of the human figure, of a plurality of extenders arranged at different heights within said skeleton, each of said extenders comprising independently operated parts connected with the skeleton at a plurality of points about its circumference and levers by means of which said parts are independently operated to distend or contract the corresponding parts of the skeleton, bearings on which said extenders are supported, means for supporting said bearings, means including and controlled by levers by which said bearings are rendered vertically adjustable, and means depending from each of said levers whereby they may be operated independently from a point below said skeleton.

34. In a dress form, the combination with an external skeleton conforming substantially to a portion of the shape of the human figure, of a plurality of extenders arranged at different heights within said skeleton, each of said extenders comprising independently operated parts connected with the skeleton at a plurality of points about its circumference and adapted when operated

to distend or contract the corresponding parts of the skeleton, bearings on which said extenders are supported, means for supporting said bearings, means including and controlled by levers by which said bearings are rendered vertically adjustable, and means depending from each of said levers whereby they may be operated independently from a point below said skeleton.

35. In a dress form, the combination with an exterior skeleton, of a post projecting upwardly within the skeleton, a bearing movable on said post, an extender carried by said bearing and connected with said skeleton, a lever having an orifice surrounding said post, said lever being normally inclined in relation to the post and fulcrumed on said bearing beyond said orifice and normally obliquely inclined in relation to the post to cause opposite walls of the orifice through which the post extends to bear against the post and normally lock the bearing thereto.

36. In a dress form, the combination with an orificed lever and two members, one of which is a rod extending loosely through said orifice, said lever being arranged to swing at an oblique angle to said rod to cause the opposite walls of the orifice therein through which the rod extends to operatively engage said rod, and devices connected with one of said members adapted when actuated to affect the shape or contour of the form.

37. In a dress form, the combination with a standard comprising a base and a tube projecting upward therefrom, a post slidable in said tube, an exterior skeleton, skeleton adjusting and supporting means carried on said post, a casting secured to said tube, and a lever loosely sleeved on said post and engaging said casting beyond its sleeved portion, and normally obliquely inclined in relation to the post, to cause opposite walls of the orifice through which the post extends to bear against the post and lock it in a given position.

38. In a dress form, the combination with a standard comprising a base and a tube projecting upward therefrom, a post slidable in said tube, an exterior skeleton, skeleton adjusting and supporting means carried on said post, a casting secured to said tube, a lever sleeved on said post and engaging the casting beyond its sleeved portion, a spring surrounding said post and confined between the lever and the said casting and normally forcing said lever into an obliquely inclined position in relation to the post to cause the opposite walls of the orifice in the lever through which the post extends to bear against the post and lock it in a given position.

39. In a dress form, the combination with an exterior skeleton, skeleton adjusting and supporting means, a standard, a post, pro-

jecting upwardly from the standard, on which said means are supported, a lever loosely sleeved on one of the two last named members and engaging the other member beyond its sleeved portion, said lever normally assuming such an angle to the member on which it is sleeved that opposite walls of the orifice in the lever through which the last named member extends grip said member and hold both members in fixed relation, said lever being movable to release its grip and permit the post to be elevated.

40. In a dress form, the combination with an exterior wire skeleton, of expansible and contractible rings located at opposite sides of the skeleton near the top thereof and forming the arm-holes of the form, a frame adjacent to each arm-hole having a projecting portion along which the corresponding ring extends for a part of its length, and one or more rods slidably mounted on each frame and connected with the corresponding ring.

41. In a dress form, the combination with an exterior wire skeleton, of rings each composed of a wire overlapping at its ends, and to which said skeleton is connected, said rings being located at opposite sides of the skeleton near the top thereof and forming the arm-holes of the form, holders engaging said ring wires and relatively to which said wires are longitudinally slidable, radially-extending rods secured to said holders, a frame on which said rods are slidable, and means to slide said rods longitudinally, thereby expanding or contracting said rings.

42. In a dress form, the combination with an expansible and contractible ring, of holders engaging said ring and within which said ring is slidable in the direction of its circumference, a frame, radially-extending rods supporting said holders and slidable in the direction of their length upon said frame, and means to so slide said rods.

43. In a dress form, the combination with an exterior wire skeleton, of expansible and contractible rings located at opposite sides of the skeleton near the top thereof and forming the arm-holes of the form, a frame adjacent to each arm-hole on which the corresponding ring is supported, a transversely extending rod on which said frame is movable inwardly and outwardly, means supporting said rod, a pair of levers loosely sleeved on said rod and engaging said frame, a spring acting upon said levers to normally hold them in an inclined position relatively to said rod, whereby the levers are caused to grip the rod and hold the frame in fixed relation thereto and whereby the frame is movable along the rod when said levers are moved to release their grip.

44. In a dress form, the combination with an exterior wire skeleton, of expansible and contractible rings located at opposite sides

of the skeleton near the top thereof and forming the arm-holes of the form, a frame adjacent to each arm-hole, a rod slidably mounted on each frame and connected with the corresponding ring, a pair of levers loosely sleeved on said rod and engaging said frame, a spring acting upon said levers to normally hold them in an inclined position relatively to said rod, whereby the levers are caused to grip the rod and hold it in fixed relation to said frame and whereby when said levers are moved to release their grip, the rod and the part of the ring connected thereto are movable relatively to the frame.

45. In a dress-form, the combination with a main supporting post, of a frame secured thereto, a separate post supported by said frame, a spring surrounding the second post and resting on said frame, a neck-forming device resting on said spring and slidable upon the second post, and means to depress the neck-forming device in opposition to the spring.

46. In a dress form, the combination with the neck-forming device, supporting means therefor, and means to raise and lower the neck-forming device, of a transversely extending rod, and guide bars secured to the neck-forming device and engaging said rod, thereby preventing the neck-forming device from twisting on its axis.

47. In a dress form, the combination with a frame having a rounded top, a rounded shoe resting on the frame, a vertically extending rod engaging the shoe, a neck-forming device movable vertically on the rod, and a spring confined between the neck forming device and the shoe.

48. In a dress form, the combination with a post, of a frame mounted thereon, a neck-forming device mounted on said frame, a transversely extending rod carried by said frame, a sleeve thereon, and a vertically extending rod projecting upwardly from said sleeve and engaging the neck-forming device.

49. In a dress form, the combination with a post, of a frame mounted thereon, a transversely extending rod carried by said frame, a sleeve thereon, a vertically extending rod projecting upwardly from said sleeve, a neck-forming device movable vertically on said rod, and a spring confined between the neck-forming device and the frame.

50. In a dress form, the combination with a post, of a frame mounted thereon, a transversely extending rod carried by said frame, a sleeve thereon, a vertically extending rod projecting upwardly from said sleeve, a neck-forming device movable vertically on said rod, a rounded shoe engaging a rounded upper face of the frame, a spring confined between the neck-forming device and the

shoe, and guide bars depending from the neck-forming device and engaging said rod.

51. In a dress form, the combination with a series of upright neck sections spaced apart, of arms attached to the neck sections, means to move said arms and neck sections outwardly and inwardly to expand and contract the neck, a support for said arms, a support for said neck sections, means for raising and lowering said supports, and guides on one of said supports determining the direction of movement of said arms and neck-sections.

52. In a dress form, the combination with a post, of a frame secured thereto, a transversely extending rod supported on the frame, a sleeve on said rod, a rod projecting upwardly from said sleeve, a shoe on the upright rod resting on and movable upon said frame, a disk sleeved on said upright rod, a spring between said disk and shoe, radial arms resting on said disk, neck-sections carried by said arms, pins on said arms, a second disk sleeved on said upright rod and having cam slots engaging said pins, hangers depending from the first disk, a plate carried by said hangers on which said neck-sections rest, guide bars depending from said plate and engaging said transverse rod, a handle on the sleeve of the second disk, and a handle threaded on the rod above the sleeve of the second disk.

53. In a dress form, the combination with a neck-forming contrivance and a shoulder frame, of a bar extending between said members and pivoted to one of them so as to be movable up and down on its pivot and loosely connected to the other so as to be movable up and down thereby and longitudinally thereof by swinging it upon its pivot.

54. In a dress form, the combination with a neck-forming contrivance and a shoulder frame, of a bar pivoted to the shoulder frame and slidably engaging and supported by the neck-forming contrivance.

55. In a dress form, the combination with a series of neck sections spaced apart, of shoulder frames, bars pivoted to the latter and extending into and slidable radially in orifices in said sections, means to raise and lower said sections, and means to move said sections radially.

56. In a dress form, the combination with vertically extending contour wires, arm-hole rings at the sides of the form near the upper end thereof, wires engaging said rings and extending transversely toward each other and overlapping at the middle of the back of the form, a holder engaging the overlapping ends of said transverse wires, said ends being slidable longitudinally of the holder, an extender within the form supporting said holder, and means to adjust said extender

backwardly and forwardly to contract and expand the part of the form adjacent to the holder.

57. In a dress form, the combination with
5 a skeleton comprising expansible and contractible wires arranged to approximate the shape of a portion of the human figure, of a rod and a frame, one of which is connected with said skeleton and is movable
10 relatively to the other to vary the shape of the skeleton at the point of connection therewith, and a lever loosely sleeved on said rod and engaging the frame and adapted to be moved to change the angle thereof
15 relatively to the rod, thereby locking the rod and frame in fixed relation or permitting one member to move relatively to the other member dependent upon the angle of inclination of said lever to the rod.

58. In a dress form, the combination with
20 a series of vertically extending contour wires, of a standard, a post mounted thereon, means to adjust said post vertically on the standard, hip-, waist- and bust-extend-
25 ers carried by said post and each connected with the contour wires at various parts of the circumference of the form, means whereby said extenders may be tilted at different angles to said post, a frame on the upper
30 end of the post, a transverse rod carried by said frame, arm-hole adjusting contrivances connected with the contour wires and movable longitudinally and radially of said rod, neck adjusting contrivances supported on said frame and connected with

the contour wires and movable vertically, radially and angularly relatively to said frame, bars connecting the neck- and arm-hole-adjusting contrivances and connected with the contour wires, and adjustable means
40 slidable on said frame and connected with the contour wires at the upper portion of the back of the form.

59. In a dress form, the combination with
45 a skeleton composed of a series of contour wires extending continuously substantially from the top to the bottom of the skeleton, of a second series of intersecting wires connected with and extending at an angle to said contour wires and slidable thereupon
50 longitudinally of the contour wires and longitudinally of the intersecting wires.

60. In a dress form, the combination with
a skeleton composed of a series of vertically
55 extending contour wires arranged to conform approximately to the shape of a portion of the human figure, expansible and contractible rings engaging said contour wires at different elevations and slidable thereupon in the direction of extension of
60 said rings, means to expand and contract said rings and means to move said rings vertically with relation to the contour wires.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on
65 this 6th day of July, 1909.

JOHN RAE.

Witnesses:

M. M. HAMILTON,
A. M. URIAN.