Sept. 24, 1940. S. WOLF ET AL 2,215,748

COLLAPSIBLE-SHOULDER DRESS FORM

Filed Oct. 19, 1938

Fig. 1.

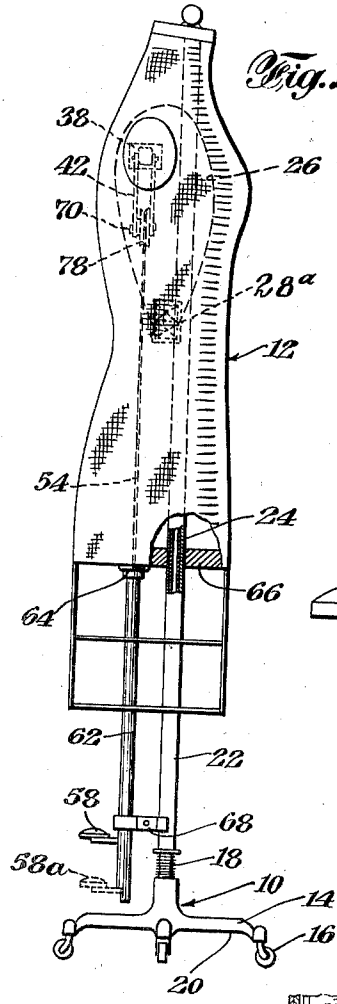


Fig. 5.

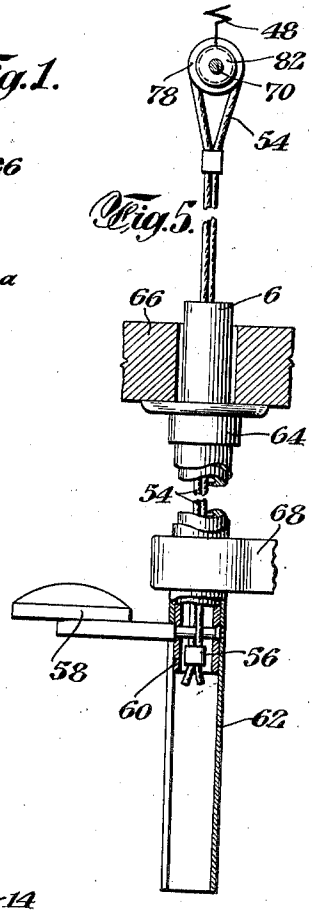


Fig. 2.

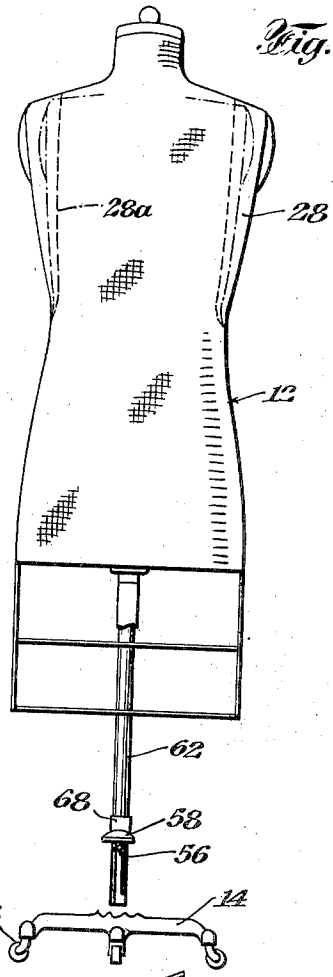


Fig. 3.

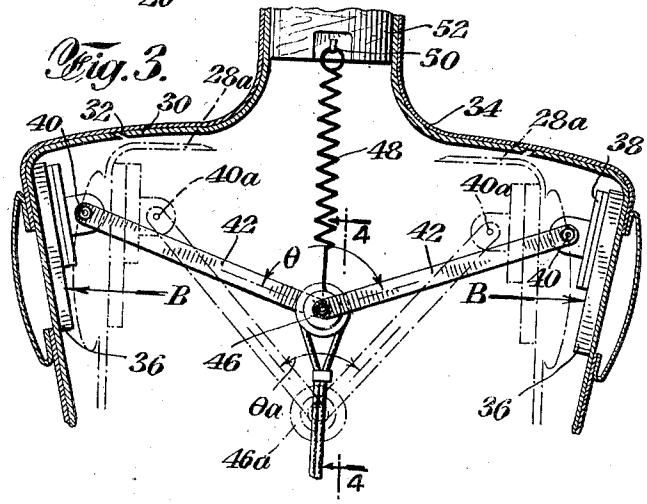
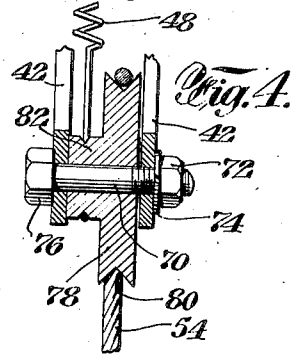


Fig. 4.



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COLLAPSIBLE-SHOULDER DRESS FORM

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7 Claims. (Cl. 223—68)

This invention relates to collapsible-shoulder dressmakers' forms and more particularly to pedal actuated mechanism for same.

This invention has particular reference to the type of forms illustrated in the patent to Simon Wolf, Patent No. 1,905,202.

One of the principal objects of this invention is to provide a simple, rugged and inexpensive pedal actuated mechanism cooperatively associated with the collapsible shoulders of the form, whereby the operation thereof is facilitated.

Ordinarily the papier mâché bodies of dressmakers' forms are mounted upon a stand including a vertically extensible post projecting upwardly from the center of a pedestal having casters. This construction enables the bodies to be raised or lowered on the post and permits the entire device to be easily moved about. The extensible post is generally disposed through the vertical center of the body and the pedal actuating mechanism controlling the support and vertical position is usually disposed within or coaxially around this extensible supporting post. This mechanism may be disposed immediately adjacent the post, if desired.

The pedal actuated mechanism operatively associated with the collapsible shoulders however, is generally rearwardly offset from this body supporting post and the vertical center of the body. This offset arrangement is highly desirable and is prescribed for several reasons, one of the major being that structurally, it is considered impractical to crowd shoulder actuating mechanism together with the said positioning mechanism, all in the vicinity of the central supporting post, in view of the fact that the body is essentially rotatable upon the post. This rotating requirement would unduly further complicate the structure, especially in view of the fact that the points of attachment of the shoulder-collapsing mechanism to the shoulder elements is in a plane offset with respect to the central supporting post and toward the rear of the body of the form. Such shoulder collapsing mechanism, if disposed adjacent the central supporting post would inherently invite cantilever stresses in extending from the center, rearwardly, to the said plane between the shoulder elements. Furthermore, it is also considered desirable to present the shoulder-operating foot-pedal outward, and extending rearwardly, from under the skirt of a garment upon the form.

This last consideration places the point of application of manual foot pressure, in collapsing the shoulders, further rearwardly and further offset with respect to the central axis or supporting center of the entire device. Actuating forces upon this offset pedal therefore result in component forces having horizontal effects which render the device extremely unstable. There is a tendency of the form to shift bodily on the casters. Coupled with this is the tendency of the body to turn on the supporting post under the influence of such horizontal reactions of lateral components of manual pressure on the offset pedal when applied in a downward but slightly angularly oriented direction.

The fabric covering the body of the form is essentially taut throughout and it is of course understood as essential, that the covering be taut particularly at the juncture of the body and shoulder elements of the form in their normal outward positions. This requires strong springs offering high resistance to initial retraction of the shoulder elements.

Another object of the invention is to provide a toggle arrangement included in the shoulder-collapsing mechanism whereby the manual force particularly the initial manual force necessary to retract or collapse the shoulders is relatively low.

Another object of the invention is the provision of such mechanism which is easy to assemble and to adjust in the field.

These advantageous objects are accomplished by the novel construction and combined arrangement of parts hereinafter described and illustrated in the accompanying drawing forming a material part of this disclosure, and in which:

Figure 1 is a side elevation partly broken away, of a collapsible shoulder dress form and stand therefor.

Figure 2 is a rear view.

Figure 3 is a fragmentary section of the upper portion of the form.

Figure 4 is a detail section substantially on the line 4—4 of Figure 3, and,

Figure 5 is an enlarged fragmentary view of the lower portion of the pedal actuated mechanism as seen in Figure 1.

The stand 10 for the form 12 comprises a base or pedestal 14 having casters 16, and a vertical supporting post 18 forming part of a telescopic arrangement.

A clutch-releasing pedal 20 is adapted to operate a clutch mechanism (not shown) disposed inside the post 18 for frictionally retaining the desired elevation of the form 12. The form 12 is suitably secured to a sleeve 22 surrounding the

post 18 and contains the clutch mechanism including an operating rod 24 therefor.

This mechanism is not shown in detail in that it is well known and forms no essential part of the invention.

The body of the form is provided with openings 26 at the shoulders, said openings substantially, but not essentially, extending to the waist.

Shoulder elements 28 are adapted to fit in these openings and extend therefrom, as in the natural shape and contour of the human form. The edges of the openings 30 are bevelled and the mating edges 32 of the swingable shoulder members 28 are also correspondingly bevelled so as to enable the upper portions of the shoulder elements to be moved inwardly, at the same time providing a smooth exterior surface at their juncture with the body in their normal outward positions. To provide for this swinging movement of the shoulder element, tabs 28*a*, under the exterior covering, are attached to the body and to the lower portion of each of the shoulder elements.

This enables the outer coverings 34 to smoothly span a small gap at the exterior surface of the juncture of the bevelled edges of the body and the shoulder elements.

Suitably secured as by means of nails or adhesive or the like, to the shoulder elements on the inside thereof and substantially at the zone of the arm joint and internally thereof, are pads 36. Secured to these reinforcing pads are brackets 38 providing a pivotal support for pins 40 or the like adapted to cooperate with links or arms 42 in the form of a toggle-link generally indicated at 44. This toggle-link includes the middle pivotal connection 46 common to the arms 42 of the toggle-link, and which is a floating pivot, it being free to move up and down with the inner ends of the links 42.

An expansion spring 48 is connected at one end to the pivot 46 and at the other end as at 50 to a neck block 52, provided in the neck of the form.

The tendency of this spring is to urge the pivot 46 upwardly, thus spreading the ends of toggle-arms 40 outwardly.

In view of the obtuse angle θ in normal condition, little effort of the spring in the vertical direction is required to exert a relatively high outward force in the direction of the arrows B—B upon the shoulder elements. This little effort required can naturally be supplied by a relatively light spring, due to the mechanical advantage had by the direction of force of the spring.

Suitably secured to or at the central toggle-pivot 46 of the toggle-link 44 is a cable 54 connected at its lower end as at 56 to a pedal 58 secured to a tubular member 60. This tubular member 60 is slidably disposed within a stationary tube 62 fixed at its upper end as at 64 to a bottom board 66 forming part of the body of the form. A spacer bracket 68 may be provided at the lower end of the stationary tube 62.

The toggle-pivot 46 may comprise a shouldered bolt 70 (Fig. 4) and a nut 72 threaded on the reduced end thereof. A lock washer 74 may be provided. Pivotally mounted on this bolt 70 between the washer and the head 76 thereof are the link members or arms 42 forming part of the toggle-link arrangement.

In a preferred assembly of this central pivot 46 there may be provided a grooved pulley-like member 78 having an annular groove 80 adapted to receive and retain the end of the cable 54 in a relatively large loop in the return bend thereof, thus reducing localized strain of sharp return bends in the cable. A hub 82 of the pulley-like member may also be grooved to receive the looped end of the spring 48.

In the construction illustrated in Figure 4, the points of application of the manually applied and reacting forces on the toggle-pivot are relatively close, thereby reducing the torque upon the inner ends of the links of the toggle-link.

It is of course understood that the structure in Figure 4 for obtaining this torque feature is merely illustrative and other arrangements may be had without departing from the spirit of this toggle-link arrangement.

In normal condition the pedal 58 is up as illustrated in Figures 1 and 2 and the toggle-links or arms are at a position shown in full lines and at an obtuse angle to each other as illustrated in Figure 3.

Upon depression of the pedal 58 to the dotted position 58*a* or therebelow, the central pivot 46 is drawn down to the position 46*a* (Figure 3) thus reducing the angle θ between the arms of the toggle to θa and causing the pivotal ends 40 to be drawn inwardly toward each other to the points 40*a*, thus collapsing the shoulder elements to the positions shown in 28*a*.

During such depression of the pedal, it is most natural that the operator stand with one foot at a substantial distance from the casters and therefore, particularly upon initial application of downward pressure of the foot on the pedal, a horizontal component of the operator's efforts affects the stability of the entire device unless of course the force required to collapse the shoulders is extremely light. While this feature requires a light spring the requirement for a taut covering at the shoulders of the body calls for heavy forces or springs.

Both of these apparently contrary requirements are effectively accomplished with a single spring by providing a toggle-link device between the shoulder elements, and the single spring operating at the center thereof. With this arrangement little force is initially necessary to retract the shoulder elements, in view of the fact that at this stage the movement or stroke at the pedal is relatively long to affect substantially short or minute contracting movement of the shoulder elements. Towards the end of the pedal stroke, when the spring reaction has increased, the foot of the operator is much lower down and in this position almost close to the ground, the manually contributed horizontal components tending to move the stand or rotate the body, are substantially ineffective during final movement of the pedal.

It will also be seen that with the toggle arrangement and the one spring, the effect of this single spring is reacted in both shoulder elements in opposition to each other. This is distinguished from the prior art wherein each of the shoulder elements was urged outwardly by an independent spring against a spring block or blocks, or the like.

Having thus described the invention in a preferred embodiment thereof, it will be understood that the principles embodied in the invention may be employed with various equivalents in minor structure without departing from the spirit and scope of the invention as defined in the claims.

We claim:

1. In a dress form of the character described, a body having openings at and including the shoulders and extending down toward the waist, hinged shoulder elements for closing the openings, and a single toggle-link means comprising a pair of links pivotally connected together at their inner ends and pivotally connected to adjacent shoulder elements at their outer ends, whereby said elements are simultaneously retracted by collapsing the toggle-link means by movement of the inner ends of the links in the same direction.

2. In a dress form of the character described, a body having openings at and including the shoulders and extending down toward the waist, hinged shoulder elements for closing the openings, a single toggle-link comprising a pair of links operatively connected at their inwardly directed ends to each other and to their respective shoulder elements at their outwardly directed ends, and resilient means connected to said toggle-link and adapted to normally urge said shoulder elements outwardly.

3. In a dress form of the character described, a rotatable body having openings at and including the shoulders and extending down toward the waist, hinged shoulder elements for closing said openings, a single toggle-link comprising a pair of links connected to each other at their inner ends and connected at their outer ends to their adjacent shoulder elements and adapted to form an obtuse angle between the links in expanded and projected position of said shoulder elements, said angle being downwardly directed, and means for collapsing said toggle-link whereby a central downwardly directed acute angle is formed between the links when said shoulder elements are in retracted position.

4. In a dress form of the character described, a body having openings at and including the shoulders and extending down toward the waist, hinged shoulder elements for closing said openings, a single toggle-means providing a pair of links pivotally connected at their outer ends to the shoulder elements and pivotally connected to each other at the center, a pivot connecting the inner ends of the links, and pedal actuated means connected to said pivot.

5. In a dress form of the character described, a body having openings at and including the shoulders and extending toward the waist, shoulder elements hinged at their lower portions to the body and adapted to project outwardly from said openings, a single toggle-link means comprising links pivotally connected at their outer ends to the shoulder elements and at their inner ends to each other, a floating pivot means connecting the inner ends of the said links, a spring connected to said pivot means, a pedal, and a cable connected to the pedal and to the pivot means.

6. In a dress form of the character described, a rotatable body having retractable shoulder elements, a toggle-link means comprising a pair of links connected to each other and to said shoulder elements, spring means connected to said links at their juncture and adapted to urge the inner ends of said links upwardly and the outer ends of said links outwardly, said links forming an obtuse angle in the outward and normal position of said elements, a pedal member connected to said links whereby downward movement thereof is adapted to oppose the action of said spring, and whereby upon initial downward movement of the pedal member the total retracting movement of the shoulder elements is less than the downward movement of said pedal member.

7. In a dress form of the character described, a rotatable body having retractable shoulder elements, a single toggle-link means between the shoulder elements, said toggle-link means comprising a pair of links connected to each other connecting said shoulder elements and arranged to form an obtuse angle between the links during the normally extended position and an acute angle in the retracted position of said elements, spring means adapted to urge said shoulder elements into said extended position, and a pedal connected to the inner ends of said links whereby the downward foot pressure is adapted to oppose the action of said spring, and whereby during initial movement of said pedal the total contracting movement of both of said shoulder elements is considerably less than the downward movement of the pedal and during further movement the corresponding relative movement of the shoulder elements is increased.

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