Dec. 25, 1934. T. LA MAIDA 1,985,507

COMBINATION SUSPENSORY

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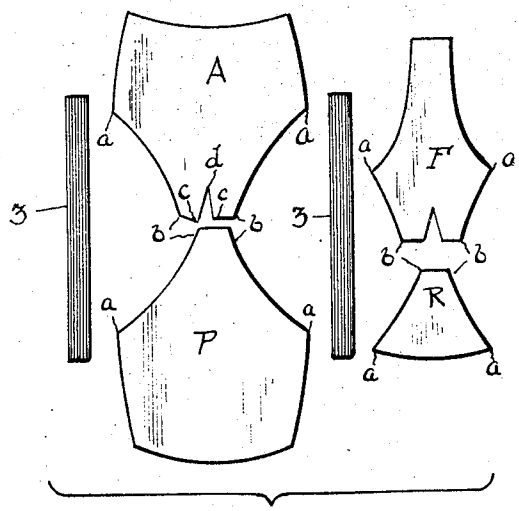


Fig. 1

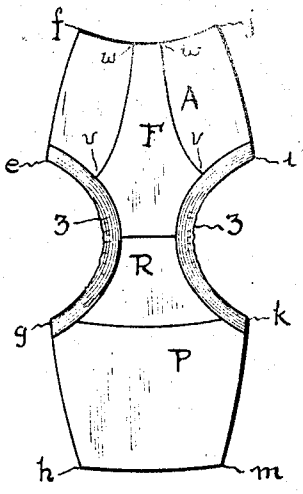


Fig. 2

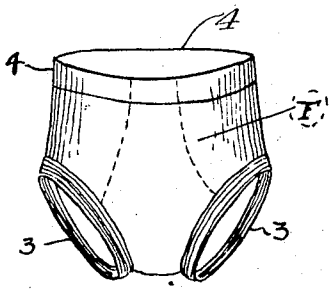


Fig. 3

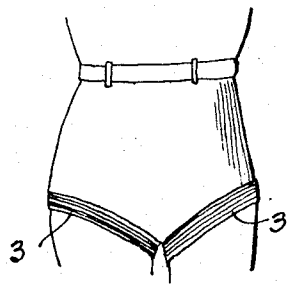


Fig. 4

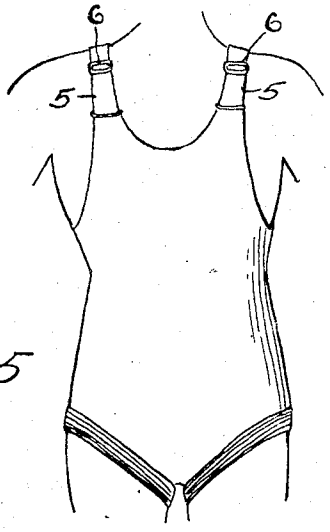


Fig. 5

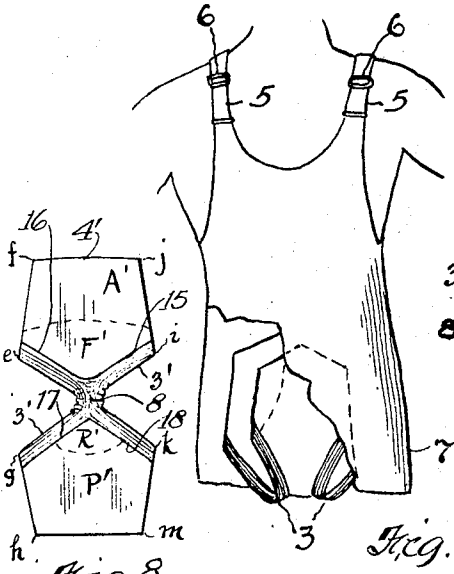


Fig. 8

Fig. 6.

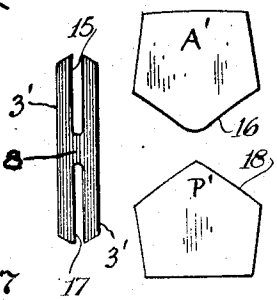


Fig. 7

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COMBINATION SUSPENSORY

Thomas La Maida, Cleveland, Ohio

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3 Claims. (Cl. 128—159)

In customary suspensory construction, mechanical principles as bearing upon differential stresses encountered such as in body movements and varying conditions of use have heretofore been overlooked, and structures which might fit in one position of the body are deficient in others. By the present invention however, there is now made possible a construction which is snug fitting and comfortable in all conditions, and which can be embodied in simple or in more complex forms, as desired.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:—

Fig. 1 is a plan view of blanks employed; Fig. 2 is a similar view of the same in course of assembly; Fig. 3 is a perspective view of the completed assembly; Fig. 4 is a front view of the assembly of the blanks shown in Figs. 7 and 8; Figs. 5 and 6 are similar views of modifications; and Figs. 7 and 8 are plan views corresponding to Figs. 1 and 2 respectively, showing slightly modified blanks.

Referring more particularly to Fig. 1 of the drawing, there is shown a set of blanks cut ready for assembly into a crotch-element of secure but comfortable fit and providing front and back coverage, and here comprising inside fore and aft blanks F, R respectively, and outside anterior and posterior backing blanks A, P respectively. These blanks are leg-notched as at *a*, *b*. A zone or section of greater fullness or pocketing is provided at the lower portion of the anterior blanks, and while this may be attained by suitable shaping, preferably a lower dart *c*, *d*, *c* is provided adjacent the juncture line with the posterior blank. The respective dart seams are completed, and the blanks F and R, and the blanks A and P are joined at *b*, *b*, and with blanks F, R, superposed on blanks A, P, stay-blanks 3 are secured, as by seaming, to the leg-notch edge *a*, *b*, *a* at each side. The material of which the various blanks are made up may be any suitable fabric, woven or knitted, which of itself or as modified by suitably-directed corrugations or elastic addenda supplies a differential resiliency. That is, the portion F, R, has slight longitudinal resiliency, but has much greater transverse give and resiliency. Similarly the outer portion A, P, has like properties and backs up the inner portion. With the blanks assembled together, as in Fig. 2, the edges *e*, *f*, and *g*, *h* are secured together, and likewise the edges *i*, *j* and *k*, *m*. The inner blank F is thus full or capable of pocketing at its lower zone and is seamed along its lower truncated end and also along its top, but the edges *v*, *w* are free from the outer blank A and allow additional compensative adjustment. The assembly then is in form somewhat as illustrated in Fig. 3, upper anchoring means for holding the crotch-element being involved as abdomen-encircling means. The upper edge 4 may be finished as a belt, or a belt may be employed therewith about the waist line.

The crotch-element as a whole has slight longitudinal resiliency, just sufficient to allow some give and compensation for active body movements. Transversely however, there is much greater resiliency, and particularly at the lower zone sufficiently enhanced lateral resiliency is had whereby comfortable fitting results, with full compensative allowance. At the same time, over-distensibility at the lines corresponding to the edges *a*, *b*, of the blank-portions (as would otherwise be prone to occur where such edges are cut on the bias) is prevented by the associated stays 3, 3, which are of limited distensibility. Knitted fabric is preferred especially for athletic usage, as being of particular applicability, since its resiliency or yield longitudinally is slight, but its transverse resiliency is considerable. Where employing knitted fabric as the material, the blanks are accordingly laid out with the grain, or in such direction that the least distensible meridian of the material is longitudinal of the crotch-element, and the most distensible meridian is transverse thereof. Similarly, where the stays 3 are made up of knitted material, the orientation is such that the least resiliency or distensibility is longitudinal of such blank. With knitted blanks assembled then, the lower zone of the anterior blank-portion is distensible, but the crotch-element as a whole is without longitudinal stretch, or only sufficient to provide compensative yielding in active body movements. Since the stay elements 3 forming the edge are of slight distensibility, these maintain a snug fit sealing against the groins, and remain in secure position irrespective of whatever movements be made by the wearer, and even with extremely active movements such leg-encircling edges are of comfortable character. The suspensory as a whole is characterized by comfort to the wearer, the adaptation of differential resiliencies affording yielding compensa-

tion where desirable, while preventing slacking and lack of support and protection otherwise. As applicable for special support, or for athlete's use, my construction is thus of highly advantageous utility. Special suspensories in addition to garments may by such means be obviated, with particular advantage to athletes and other users where simplification of wear and lightness of equipment is important.

In particular, by suitably contouring or extending the upper anchoring means for holding the crotch-element, sufficient garment-addition may be incorporated to meet the full requirements of athletes, for instance swimmers, etc. Where desired, the upper anchoring means for holding the crotch-element may embody a further modification in the form of shoulder extensions of such width as may be desired. Advantageously, for instance, these may be shoulder-straps 5 (Fig. 5), preferably with buckle or like adjustable take-up 6. In some instances it may be preferred to embody the upper anchoring means in a form such as illustrated in Fig. 6, in which such support is a body-envelope from shoulder to thigh, having the shoulder portions 5, preferably with take-up buckles or the like 6, and terminating below in a shirt-like end 7 to whose inner front and back wall the crotch-element is seamed. Such crotch-element may be made up of cooperating blanks as aforedescribed seamed together with stays 3.

As another refinement, the stay-blanks or cross ties 3′ (see Fig. 7) may be cut in a manner to remain connected at the middle 8 or be cut separately and be seamed together so. From an inspection of this figure it will be seen that the cross tie 3′ has an initial shape of an elongated H and that the inner edges 15 are adapted to be opened or spread apart to receive the edge 16 of the blank A′. The same is true of the inner edge 17 which is united to the edge 18 of the blank P′. The anterior and posterior blanks A′, P′ are assembled with the stay-blanks or cross-ties 3′ and the connecting portion 8 of the latter is between and spaces the blanks A′ P′, as shown in Fig. 8. The securing of the edges *e*, *f* and *g*, *h*, together, and likewise the edges *i*, *j*, and *k*, *m* is carried out as with the form in Fig. 2, that is, it is closed up at the sides so that the exterior view again is as illustrated in Fig. 4, upper anchoring means for holding the crotch-element being involved as abdomen-encircling means. The upper edge 4′ may be finished as a belt, or a belt may be employed therewith about the waist line, and again the general external appearance of the finished article is similar as embodied in the final forms of Figs. 4 or 5, with as much upper garment extension portion as desired. The blank A′ (Fig. 7) permits of being rounded more or less at its lower point to provide a pouching anterior to the cross-tie 8 when assembled therewith and the blank P′ projects to a snug fit and the stay-portion extends from side to side. From this construction it is seen that stay means is had such as to provide anchorage laterally to the legs and insuring comfortable fitting, while allowing the utmost freedom of bodily movement without risk of displacement. Since anchorage is had laterally to both legs, and since the front and back members are also anchored above, complete security of holding in all angular directions is assured. Wear under all conditions, whether in athletic usage or underwear, thus provides new standards of comfort and utility not heretofore had. Where preferred, inner blanks F′ R′ may be superposed within the blanks A′ P′, as shown in Fig. 8. By cutting all blanks with the grain of the goods longitudinally, there is slight longitudinal yield but ample transverse yield.

It is thus seen that the construction provides a suspensory of particularly effective character and comfortable wearing qualities irrespective of great body activity, and being accordingly highly useful for special support or for general application or for athletic wear, etc.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. Personal wear construction having abdomen-encircling and leg-encircling portions, and comprising front and back crotch-parts, said front-crotch part shaped to the corresponding lower front body portion of the wearer and having a lower converging edge, bias-cut, and being of limited yield longitudinally but permitting transverse yield required in body movements, and a cross-tie intervening between said front and back crotch-parts and connecting the same and providing leg-anchorage laterally and inhibiting stretching out of shape of the converging edge of said front crotch-part, said cross-tie having edges of limited yield forming leg-engaging margins.

2. Personal wear construction having abdomen-encircling and leg-encircling portions, and comprising front and back crotch-parts, said front-crotch part shaped to the corresponding lower front body portion of the wearer and having a lower converging edge, bias-cut, and being of limited yield longitudinally but permitting transverse yield required in body movements, a cross-tie intervening between said front and back crotch-parts and connecting the same and providing leg-anchorage laterally and inhibiting stretching out of shape of the converging edge of said front crotch-part, said cross-tie having edges of limited yield forming leg-engaging margins, and upper holding means for the assemblage at least as high as the waist of the wearer.

3. Personal wear construction having abdomen-encircling and leg-encircling portions, and comprising front and back crotch-parts, said front-crotch part shaped to the corresponding lower front body portion of the wearer and having a lower converging edge, bias-cut, and being of limited yield longitudinally but permitting transverse yield required in body movements, a cross-tie intervening between said front and back crotch-parts and connecting the same and providing leg-anchorage laterally and inhibiting stretching out of shape of the converging edge of said front crotch-part, said cross-tie having edges of limited yield forming leg-engaging margins, and shoulder extensions secured to said front and back crotch-members and anchoring said members above, and buckle take-up means for regulating said shoulder extensions.

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