July 29, 1941. H. J. LUNNEY 2,250,807

ABDOMINAL SUPPORTER

Filed July 17, 1939 2 Sheets-Sheet 1

FIG. 1.

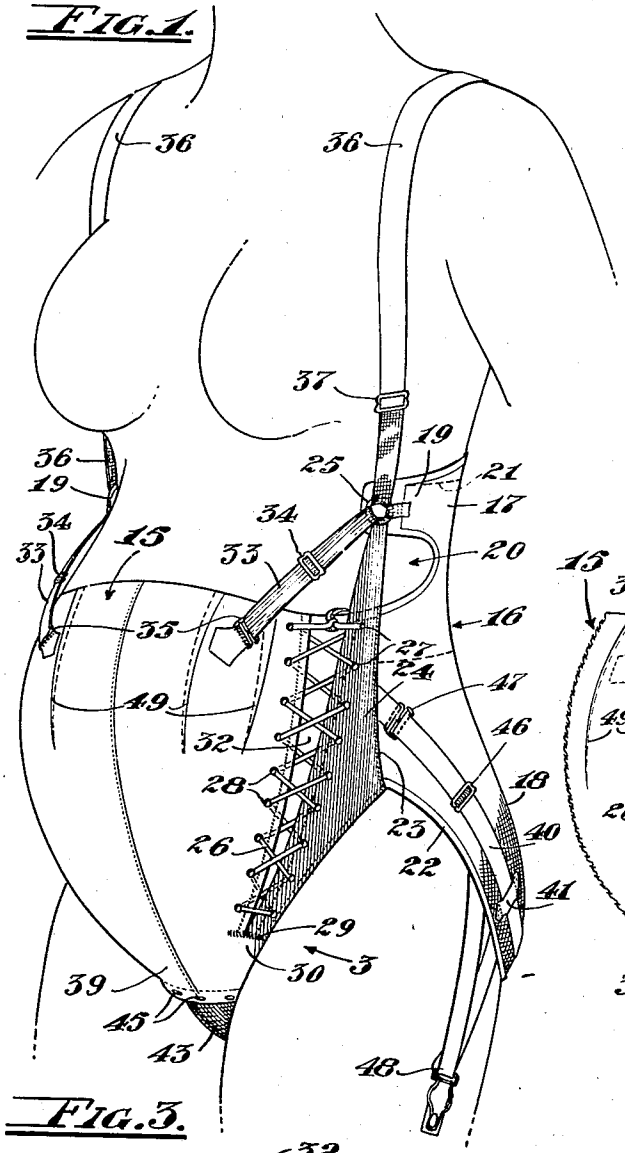


FIG. 2.

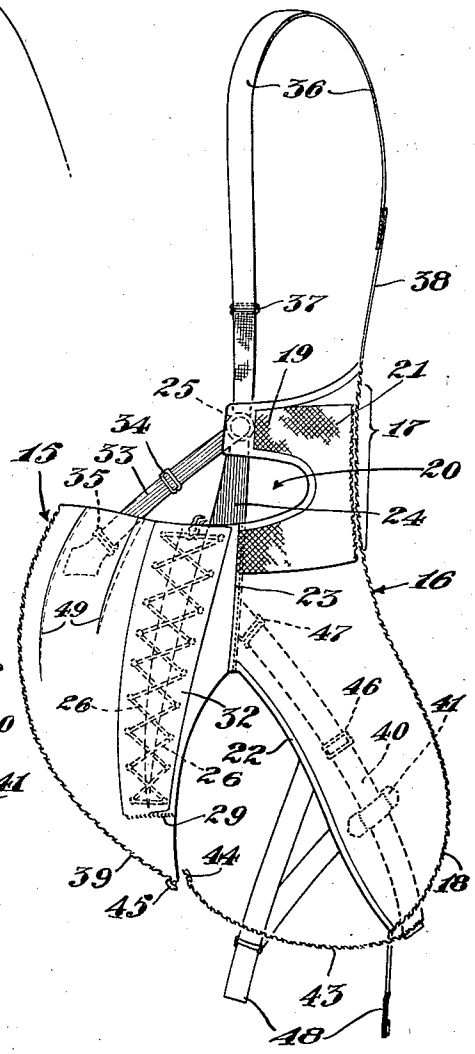
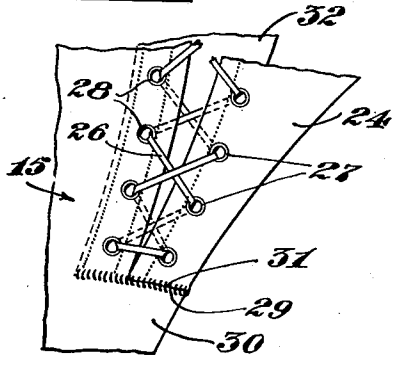


FIG. 3.



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July 29, 1941. H. J. LUNNEY 2,250,807

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Filed July 17, 1939 2 Sheets-Sheet 2

FIG. 5.

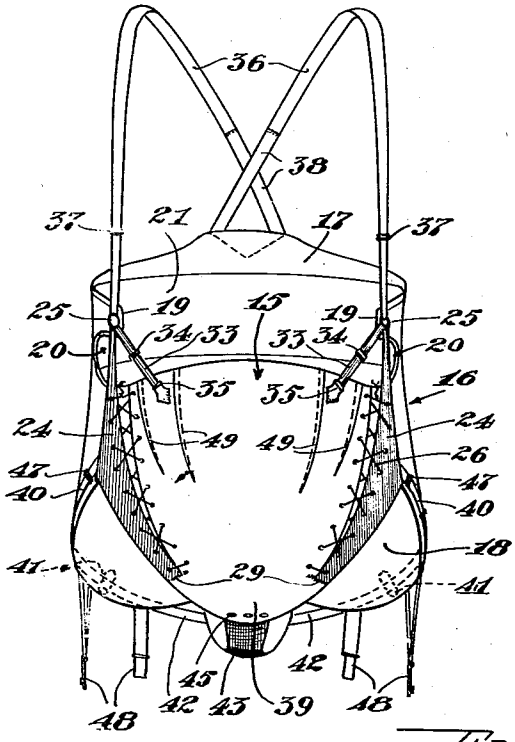


FIG. 4.

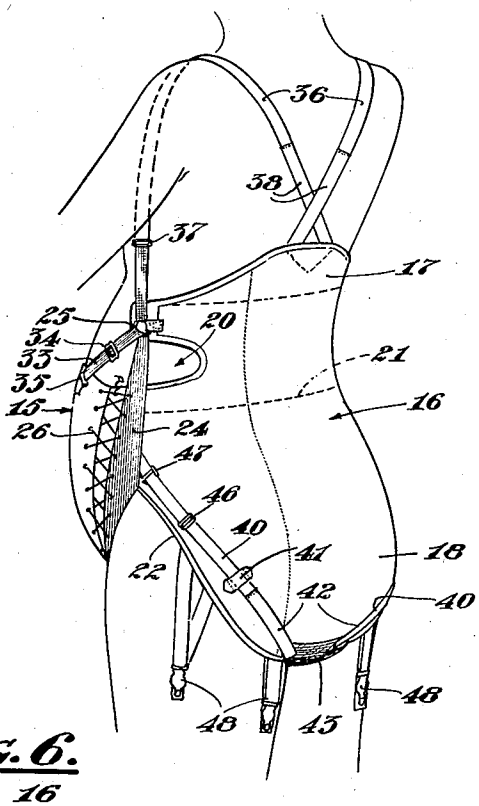
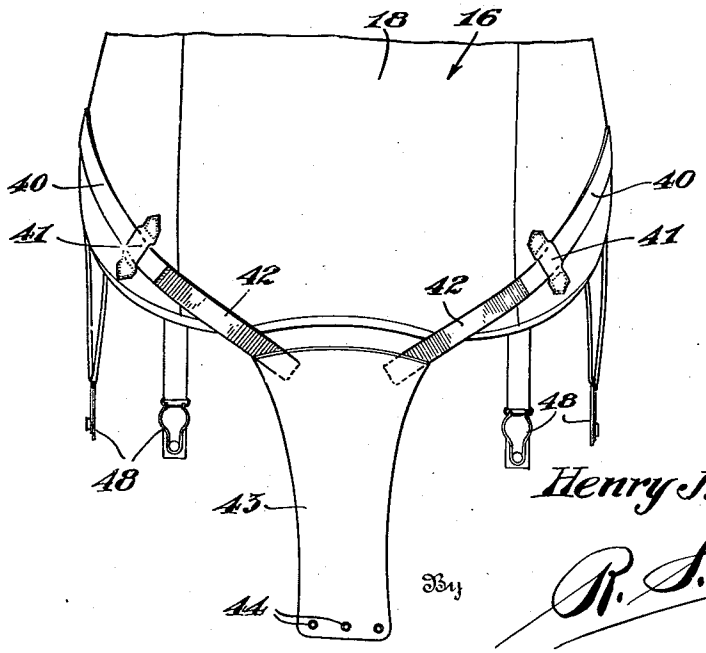


FIG. 6.



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UNITED STATES PATENT OFFICE

2,250,807

ABDOMINAL SUPPORTER

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Application July 17, 1939, Serial No. 284,909

9 Claims. (Cl. 2—41)

This invention relates to an abdominal supporter of the prenatal type and more particularly pertains to improvements in maternity supports of the character set forth in my co-pending application for United States Letters Patent Serial Number 117,256, filed December 23, 1936 which are characterized by the embodiment of an abdomen supporting cup and means for suspending the load imposed on the cup from the shoulders and back of the wearer.

An object of the present invention is to provide a construction in the abdominal supporter whereby the load of a pendulous or protruding abdomen will be mainly supported from the shoulders and partly from the hips and medial and lower portions of the back in a fashion to brace the back and impart an upward lift to the under portion of the abdomen and thereby afford comfort to the wearer.

Another object is to provide an arrangement of adjustments in the abdominal supporter whereby initial fitting of the supporter to the individual may be readily effected, and whereby various adjustments may be made from time to time according to the requirements of changing conditions.

Another object is to provide a construction whereby the load imposed on the abdomen supporting cup will be carried by suspensorial members leading upwardly from the region of the groins along opposite sides of the abdomen and from which members the major portion of the load is carried by the shoulders while a portion thereof will be distributed over the hips and the medial and lower portions of the back of the wearer.

Another object is to provide a construction whereby the abdominal supporting cup may be readily applied to and removed from the suspensorial members, whereby the cup is rendered easily interchangeable as in providing a cup of larger size where the abdominal enlargement during pregnancy is abnormal and such as to exceed the range of adjustments of the supporter.

A further object is to provide a construction in the supporter to afford means for accommodating an absorptive sanitary pad and such that the latter may be readily removed and replaced, which means embodies a crotch engaging strip that may be detached for cleansing purposes.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention is carried into effect as illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a perspective view of the supporter as seen from the front and one side thereof and showing it as applied;

Fig. 2 is a view of the supporter as seen in vertical section;

Fig. 3 is a view of a fragmentary part of the groin portion of the supporter designated by the arrow 3 in Fig. 1;

Fig. 4 is a perspective view of the supporter as seen from the back and one side thereof;

Fig. 5 is a view of the supporter as seen in front elevation;

Fig. 6 is a view in elevation of the lower portion of the back of the supporter showing the manner of equipping the latter with the sanitary pad support and hose supporters.

Referring to the drawings more specifically, 15 indicates generally an abdomen supporting cup which may be formed of any suitable pliable material capable of being shaped to conform to the contours of an abdomen and which material may consist of either an elastic or inelastic fabric and may be made in one piece or in sections as is common in the construction of abdominal supporters.

In carrying out the invention a hip engaging and back supporting jacket 16 is provided as a partial support for the cup 15, which jacket embodies a sheet fabric structure having an upper section 17 formed to extend across and over the medial portion of the back and having a lower section 18 formed to overlie and brace the lower portion of the back and to extend downwardly over the buttocks and forwardly around and over the hips and above the thighs of the wearer; this jacket 16 being formed of a sheet of elastic fabric so as to snugly conform to the surfaces of the body contacted thereby and to effect a slight yieldable outward pull on the side margins of the cup 15 as will later be described.

The upper section 17 of the jacket 16 extends forwardly to overlie the rear portion of the sides of the wearer at and contiguous the waist line and has its upper margin extending contiguous the lower portion of the shoulder blades such as to afford a brace and support for the medial portion of the back.

The upper side portions of the lower section 18 extend forwardly to overlie the lower portions of the sides and also the hips of the wearer, the upper margins of which side portions are arranged to extend intermediate the waist line and groins and at or contiguous the upper margin of the cup 15.

The forward margins of the section 17 are

formed with ears 19 projecting forwardly substantially along the waist line and spaced above the forward upper margins of the hip and side engaging portions of the section 18 forming gaps 20 between the ears and such margins; the ears 19 terminating at or adjacent to the frontal portion of the sides of the wearer at points substantially in line with the side edges of the section 18.

An elastic supplemental back engaging and supporting strip 21 is arranged over the inner face of the upper section 17 of the jacket in reinforcement thereof, and has its ends extended over and affixed to the ears 19 and to the upper and forward margins of the section 18 in a fashion to extend around the margin of the gap 20; the strip 21 being formed to overlie the medial portion of the back to serve as an additional brace support for such medial portion, and being arranged with its lower margin located proximate to but spaced slightly below the waist line of the wearer.

The section 18 is formed with inclined frontal margins 22 which lead upwardly and forwardly from the lower central marginal portion of the section 18 and extend over the hips and above the thighs and terminate adjacent the upper ends of the groins of the wearer in the forward margins 23 of the section 18 which lead upwardly at the sides of the wearer from the margins 22 and intersect the protruding upper margin of the section 18 at points spaced below the tip portions and the ears 19.

An important feature of the invention resides in the provision of a pair of pliable but non-elastic suspensorial strips 24 which are affixed to and extend along the upper forward edges 23 of the section 18 of the jacket 16 with their lower end portions projecting below such edges and overlying the upper portions of the groins of the wearer and with their upper end portions projecting above such edges for connection with shoulder straps or suspenders as will be later described; the upper portions of the strips 24 being here shown as connecting with the ears 19 through rings 25 secured to the outer faces of the latter. The forward edges of the strips 24 and the side margins of the cup 15 are designed to extend in slightly spaced relation to each other and the strips and cup are connected together by draw strings 26 laced back and forth through eyelets 27 and 28 spaced apart along the contiguous margins of the strips and cup as particularly shown in Figs. 1 and 3. The lower ends of the strips 24 are temporarily fastened by stitching 29 to the cup 15 which latter is formed with groin overlying marginal portions 30 terminating in inwardly extending upper margins 31 for connection with the lower ends of the strips 24 by the stitching 29 and which margins 31 extend substantially perpendicular to the eyelet equipped side margins of the cup 15. Flaps 32 are affixed to the side portions of the cup 15 and are arranged to overlap the under sides of the strips 24 to span the gaps formed between the margins of the cup and the strips to underlie and cushion the lacings formed by the draw strings 26. The strips 24 constitute suspensorial members that overlie the opposite sides of the abdomen and extend upwardly from beneath the abdomen along the upper portions of the groins to approximately the waist line or slightly thereabove where the strips 24 connect with shoulder straps 36 and the side portions of the back section 17 and also the ends of the reinforcing elastic back supporting strap 21 through the medium of the rings 25. By this arrangement the load imposed upon the cup 15 by a pendulous or protruding abdomen is transmitted laterally through the draw strings 26 to the suspensorial strips 24 and in part laterally and obliquely upward to the lower section 18 of the jacket 16, and through the upper portions of the strips 24 to the shoulder straps.

Diagonal straps 33 lead downwardly and forwardly from the ears 19 and connect with the upper portion of the cup 15 at points intermediate its side margins and the vertical medial line thereof, which straps are preferably formed in continuation of the strips 24 and connect with the latter and with the shoulder straps 36 through the rings 25 in slidable relation thereto; the straps 33 being adjustable as to length through the medium of conventional strap buckles 34 and being detachably connected to the cup 15 through the medium of conventional split rings 35 affixed to the cup.

The shoulder straps 36 are attached to the upper margin of the back section 17 at points spaced equi-distant on opposite sides of the mid length thereof and are crossed and carried upwardly to form shoulder engaging members and then are brought downwardly in the fashion common in suspender construction. The forward ends of the straps 36 are here shown as looped through the rings 25 on the ears 19 and being returned on themselves and engaged by conventional adjustment buckles 37 whereby the shoulder straps 36 may be adjusted as to their lengths and to regulate their upward pull on the cup 15 through the strips 24 and diagonal straps 33. Each of the shoulder straps 36 is fitted with an elastic section 38 in the back portion thereof to render the strap yieldable in the direction of its length and to impart a slight upward pull on the upper portion of the jacket.

The cup 15 is formed with a pendulous lower central portion 39 which is adapted to overlie the os-pubis and follow the groins of the wearer a short distance sideways and upwards to its side terminations in the inwardly extending margins 31 connecting with the lower ends of the strips 24. As a means for holding this lower pending central portion 39 of the cup 15 in its proper place and at the same time afford a support for an absorptive sanitary pad, and also afford a means for holding the lower end portions of the strips 24 against excessive forward movement, a pair of hip engaging straps 40 are connected to the lower rearward portions of the strips 24 and lead downwardly through guide loops 41 on the jacket and connect through elastic sections 42 with the enlarged end of a tapered strip 43 adapted to extend through and snugly fit in the crotch of the wearer, and which strip 43 is fitted with snap fasteners 44 detachably engageable with companion fastening members 45 on the lower end of the extension 39 of the cup 15. The strip 43 may be utilized as a support for a sanitary pad if need be as before stated. The hip engaging straps 40 are detachably engaged with the suspensorial strips 24 by forming loops in the outer ends of the straps 40 through the medium of conventional adjustment buckles 46, and engaging such loops in conventional split rings 47 connected to the strips 24 whereby the straps 40 and the crotch engaging strip 43 may be removed for cleansing purposes.

The lower margin of the jacket 16 is fitted with pairs of hose supporters 48 which when fastened to the hose of the wearer cooperate with the

shoulder straps 36 in assisting to maintain the jacket 16 taut and free of wrinkles.

In order to permit enlargement of the cup 15 to accommodate it to increasing distension of the abdomen during the pregnancy period and to supplement the lacings, a series of tucks 49 are provided and arranged so that on letting out the tucks increased lateral spread of the cup will be effected. However, it is contemplated to effect substitution of a cup 15 of larger dimensions where enlargement by the letting out of tucks is unfeasible and which substitution may be readily effected by detaching the straps 33 from the split ring fasteners 35, removing the draw strings 26 and ripping out the short lengths of temporary stitching 29.

In the application and use of abdominal supporters embodying my invention the garment is applied by drawing it upwardly over the limbs to encompass the trunk in the fashion commonly employed in donning continuous elastic girdles, and thereafter inserting the arms through the shoulder straps 26 to draw the mid back section 17 taut across the back. On thus initially applying the supporter it is brought into proper fitting position by manipulation of the several adjustments; the cup 15 being brought into snug abdominal supporting position by adjustment of the draw strings 26 such as to draw the cup laterally taut across the abdomen and at the same time stretch the hip and lower back engaging section 12 taut across the hips and rump. The crotch engaging strip 43 is then fastened to the lower extension 39 of the cup by the snap fasteners 44—45, whereupon the thigh engaging straps 40 are adjusted through the medium of the buckles 46 to bring the strip 43 into snug engagement with the crotch and at the same time draw the lower portion of the cup 15 taut under the overhanging portion of the abdomen both laterally and downwardly. The shoulder straps 36 are adjusted through the medium of the slide buckles 37 to take up slack therein and draw the upper section 17 of the back support taut and at the same time impose such upward pull on the suspensorial strips 24 as to bring the latter into snug engagement with the side portions of the abdomen and at the same time impart an upward and outward lift to the lower portion of the cup 15 through the connection of the strips 24 with the cup. The straps 33 are adjusted as required to take up slack in the upper marginal portion of the cup 15 and at the same time impose a portion of the load of the upper forward portion of the cup on the shoulder straps 36. The requisite adjustment having been made the garment may be removed and replaced with little or no further manipulation of the adjustments except such as may be occasioned by stretch of the garment fabric and also as may be required to accommodate the cup 15 to abdominal enlargements.

It will be seen that by the provision of the construction set forth adequate support of a protruding and pendulous abdomen may be accomplished without constriction and that the frontal portion of the abdomen will be snugly engaged in the supporting wall of the cup in such fashion that the load imposed on the cup will be carried in most part on the shoulder straps 36, and in part on the hips and mid back section of the wearer. It will also be noted that by the construction shown the use of objectionable waist encircling belts may be dispensed with thus obviating the constrictive action of such belts.

In applying the garment to the wearer the draw strings 26 are let out to permit the cup 15 being freely passed over the abdomen into its proper position after which the draw strings are tightened to draw the cup snugly against the abdomen.

It is to be noted that the suspensorial strips 24 extend from the inguinal regions and lower portion of the abdomen upward along the frontal portion of the sides of the wearer with the upper portions thereof leading substantially in line with the downwardly extending forward portions of the shoulder straps 36, since by this arrangement the highly desirable result of carrying the major portion of the under load of the abdomen on the shoulders is attained, and that by continuing the suspensorial strips through the rings 25 in slidable relation thereto into mergence with the diagonal straps 33, the load of the upper portion of the abdomen will likewise be carried in most part on the shoulders.

An important feature of the invention resides in forming the lower margins of the cup 15, strips 24, and the lower side margins 22 of the jacket section 18 to substantially clear the thighs so as to permit freedom of movement of the legs without effecting constricting action of the abdominal supporting cup when walking or sitting.

By the provision of the ears 19 and gaps 20 adjustment of the shoulder straps and of the diagonal straps 33 may be readily effected without objectionable distortion of the side portion of the jacket, and which arrangement also permits ready adaption of the side portions of the jacket to the sides of the body.

While I have shown and described a specific embodiment of my invention I do not limit myself to the exact details of construction and arrangement shown and accordingly the invention embraces such changes in the construction and arrangement of the parts as come within the purview of the appended claims.

I claim:

1. In an abdominal supporter having an abdominal supporting cup formed with a pendant central portion having groin conforming side portions, suspensorial strips leading upwardly from the upper terminus of said groin conforming portion and extending upwardly along the side margins of said cup, means detachably connecting the contiguous margins of said cup and strips adapted to take up slack in said cup and to draw the walls of the latter transversely outward toward said strips, and elastic means connecting said strips adapted to extend over the hips and around the lower portion of the back of the wearer to brace the back and also oppose strains imposed on said cup.

2. The structure called for in claim 1 in which said elastic means is formed with an upwardly extending portion adapted to overlie the mid portion of the back of the wearer having forwardly extending ears arranged proximate the waist line of the wearer and in which the upper end portions of said suspensorial strips extend above the upper margin of the abdominal supporting cup and connect with said ears.

3. The structure called for in claim 1 in which said elastic means includes a sheet formed with an upwardly extending portion adapted to overlie the mid portion of the back of the wearer having forwardly extending ears arranged proximate the waist line of the wearer and in which the upper end portions of said suspensorial strips extend above the upper margin of the abdominal

supporting cup and connect with said ears, and shoulder engaging straps on said sheet connected with said ears so as to lie substantially in alignment with said strip.

4. The structure called for in claim 1 in which said elastic means includes a sheet formed with an upwardly extending portion adapted to overlie the mid portion of the back of the wearer having forwardly extending ears arranged proximate the waist line of the wearer and in which the upper end portions of said suspensorial strips extend above the upper margin of the abdominal supporting cup and connect with said ears, and supporting straps leading downwardly and forwardly from said ears and connected to the upper marginal portion of the cup at points intermediate its side margins and the vertical center of the said cup.

5. In a supporter for pendulous or protruding abdomens, a back engaging member formed of elastic sheet material adapted to overlie the intermediate and lower portions of the back of a wearer and to extend downwardly over the rump and forwardly over the hips in conformity with the body contours, said member having vertically extending marginal portions terminating at their lower ends adjacent the upper ends of the groins of the wearer, suspensorial strips affixed to said margins of said back engaging member and leading upwardly from contiguous the groins and terminating proximate the wearer's waist line, and an abdominal supporting cup adapted to be positioned between the outer margins of said strips having side margins conformable to the outer margins thereof, and means for detachably and adjustably interconnecting the contiguous margins of said cup and strips.

6. In an abdominal supporter, an elastic sheet jacket formed to overlie the lower portion of the back and the hips of the wearer and terminating in margins extending upwardly from adjacent the upper ends of the groins, suspensorial strips affixed to said margins of said jacket so as to extend substantially vertically of the wearer, an abdominal supporting cup interposed between and carried by said strips having a pendulous intermediate portion, a crotch engaging strip, means for detachably connecting one end of said crotch engaging strip to the termination of said pendulous portion, and hip engaging straps leading from the other end of said strip and engaging the lower portions of said suspensorial strips.

7. An abdominal supporter comprising an abdomen supporting cup formed with a pendulous lower central portion having its edges conformable to the lower inner portion of the groins of the wearer, an elastic jacket formed to overlie the hips and lower portion of the back of the wearer and to project over the buttocks and formed with side margins terminating at their lower ends contiguous the groins, connections between the side margins of said cup and the side margins of said jacket including suspensorial strips interposed between said cup and jacket and leading upwardly from contiguous the groin portions of said cup, and shoulder straps connected to the upper marginal portion of said jacket intermediate the sides thereof having downwardly extending forward portions, and means connecting said shoulder straps to said suspensorial strips to extend substantially in longitudinal continuation thereof.

8. The structure called for in claim 7 in which the connections between the shoulder straps and suspensorial strips embody rings to which said strips are attached and through which the forward end portions of said shoulder straps are looped, and means for adjusting the length of the looped portions of said shoulder straps.

9. In an abdominal support, an abdomen supporting cup having a pendulous lower portion formed with margins conformable to the groins of the wearer, elastic means connecting the sides of said cup extending over the hips and around the back of the wearer arranged to effect an outward pull on each side margin of said cup throughout the length thereof, elastic means for imparting a downward and inward pull on the lower pendulous portion of said cup, elastic means for imparting an upward pull on the marginal groin conforming portions of said cup, and means associated with said last named means for exerting a diagonally upward and outward pull on the upper marginal portions of said cup at points intermediate the side margins of said cup and its vertical center.

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