

June 30, 1970

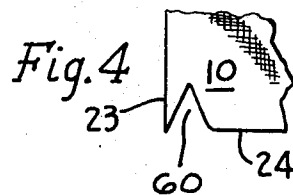
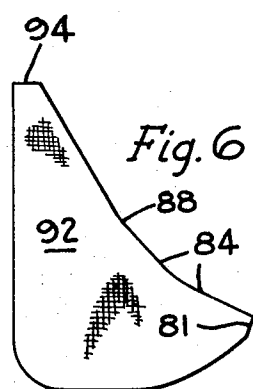
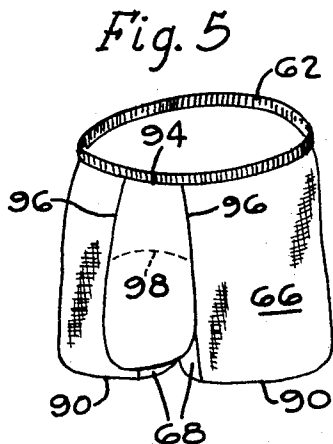
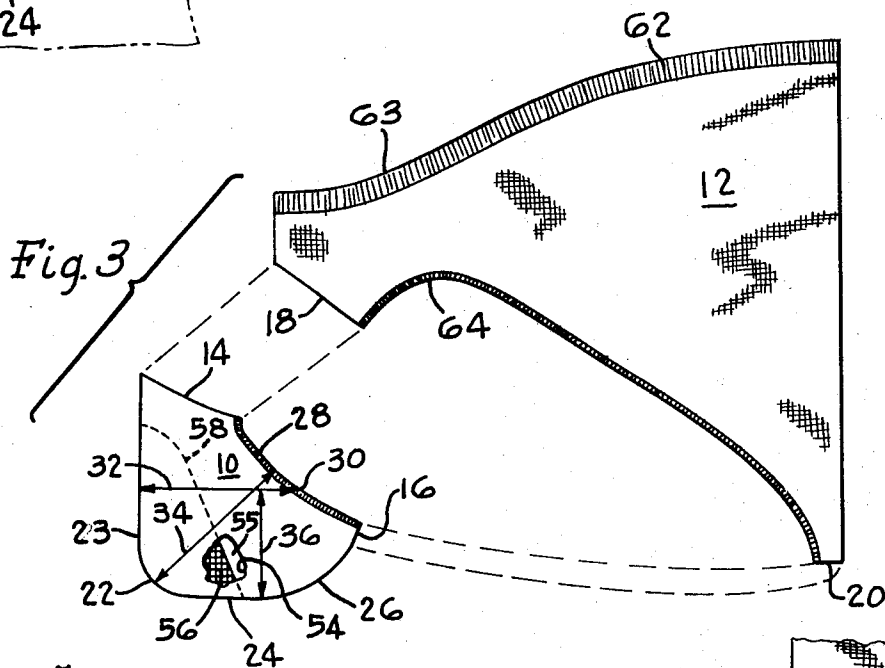
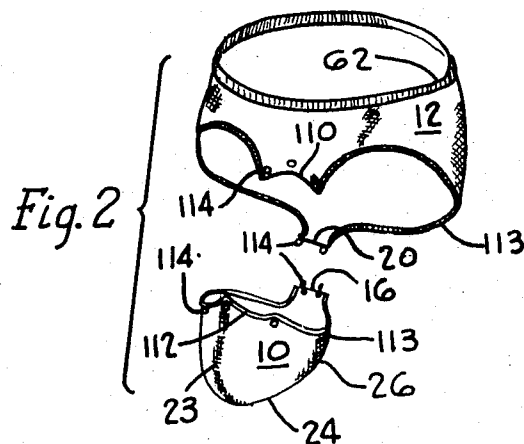
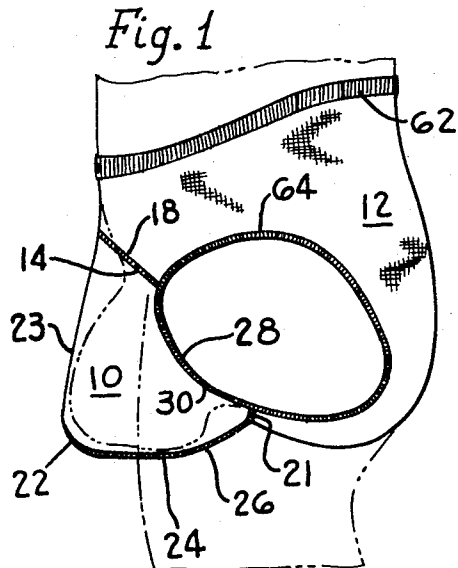
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3,517,666

MEN'S UNDERWEAR

Filed May 25, 1966

2 Sheets-Sheet 1



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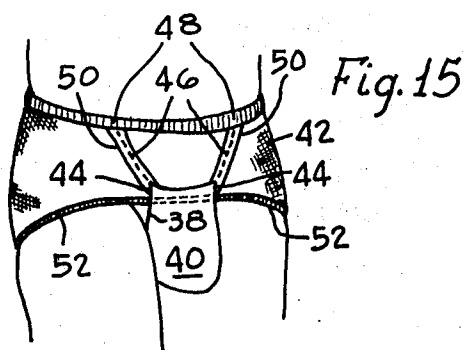
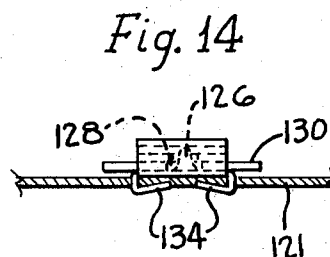
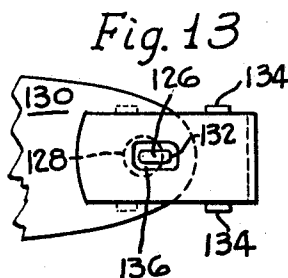
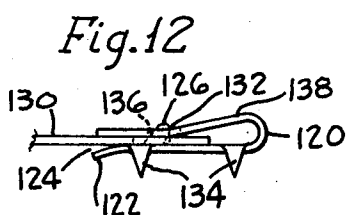
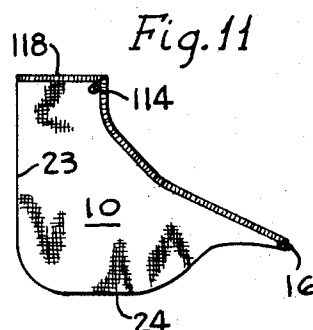
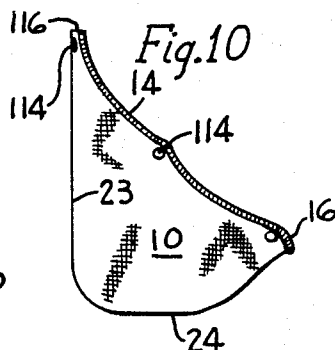
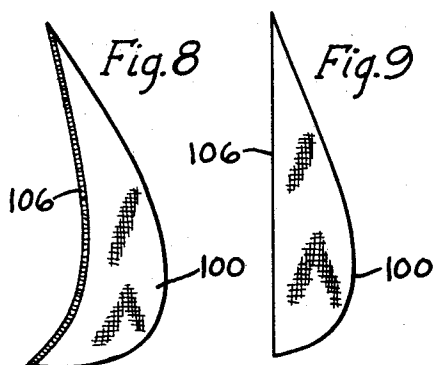
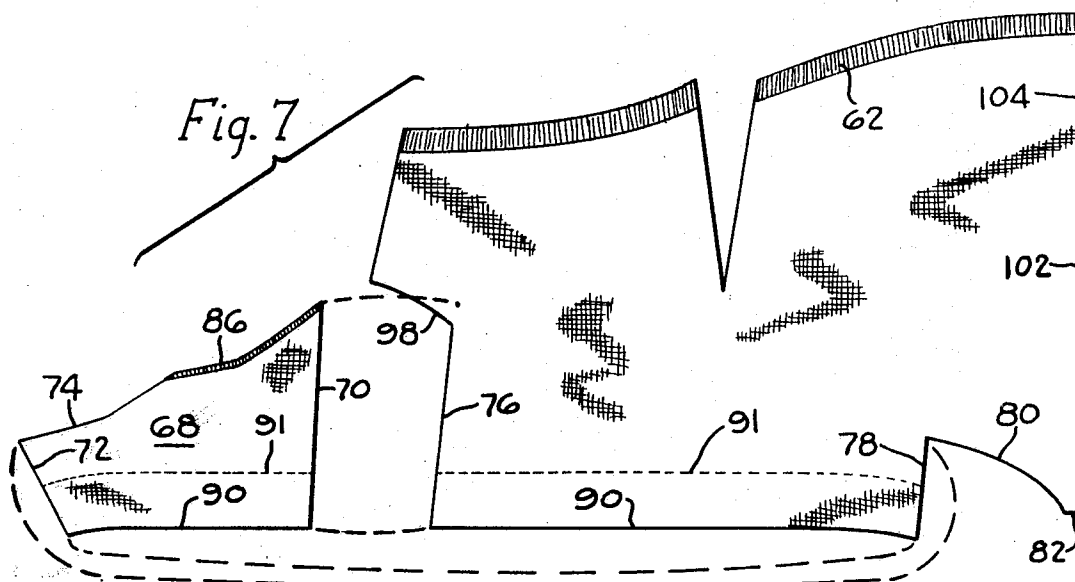
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MEN'S UNDERWEAR

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2 Sheets-Sheet 2



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MEN'S UNDERWEAR

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11 Claims

ABSTRACT OF THE DISCLOSURE

A man's undergarment in which the front and crotch portions are formed into a pouch of such size and shape as to cover the genitals with substantially no support or other restriction thereof, the pouch additionally being constructed of multiple plies which are vertically extensible and made of non-absorbent and urine-repellent fibers in a combination which inhibits seepage of moisture there-through but facilitates maximum ventilation.

This invention relates to men's nether undergarments. The primary function of a nether undergarment is sanitary protection for the outer clothing. The primary object of this invention is to perform this and other functions with maximum efficiency and minimum discomfort and inconvenience by providing in the undergarment a pouch or pouch-like portion of such shape and construction that it covers the normally disposed genitals with virtually no support or other restriction thereof and at the same time permits the garment to fit the wearer's body closely along the crotch and groin.

Most men's nether undergarments now in use are of two general types, namely shorts and briefs. Shorts, usually made of inextensible woven material, are similar to the usual design of outer trousers in the construction and general appearance of the front of the garment, with the two legs coming together at a seam in the forward crotch area of the garment and, like outer trousers, are usually worn with this seam disposed below the lower extremity of the genitals. The resulting freedom from restriction of the genitals tends to make this type of garment relatively comfortable, but its loose-fitting legs tend to make it unreliable in sanitary protection and in covering the genitals when wearing short outer trousers. Moreover, the relatively large amount of material in the garment puts a quite unnecessary burden on laundry facilities.

Briefs, in their most common design, are a closer fitting garment of knit material in which the leg-encircling portions are separated by a relatively wide double-ply panel of material extending from the waist band to the rear crotch area of the garment and incorporating a fly opening in front, said panel being inextensible in its longer (mainly vertical) dimension and designed to provide suspensory support for the genitals. Although there have been modifications of this design in which the portion of the garment overlying the genitals is expanded somewhat by means of pleating, shirring, darts or some other expedient, the restriction of the genitals which is inherent in any garment designed to provide support of the genitals necessarily tends to make this type of garment less comfortable to wear, particularly in hot weather and when the wearer must remain seated for long periods of time with little change of position, as when driving an automobile or engaged in desk work. It also tends to keep

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the material overlying the genitals relatively warm, thus facilitating the growth of odor-producing organisms.

The non-restrictive pouch of the present invention, which with minor variations may be embodied in any of the usual styles of knit men's underwear, such as regular briefs, bikini briefs, short-legged garments, long-legged drawers and union suits, overcomes the disadvantages of the conventional shorts and briefs described above, while retaining most of the advantages of both styles, and providing the following additional advantages:

(1) By permitting the leg-encircling parts of the garment to lie close to the wearer's crotch and groin, and thus closer to the axis of the hip joint, the pouch tends to minimize the stress on the garment caused by sitting down, walking, etc., thus minimizing the distortion caused by extended wear and permitting the use of lighter-weight material without sacrifice of durability.

(2) By eliminating the support function and by making possible a briefer, closer-fitting, lighter garment the pouch permits the use of a lighter and softer-stretch waist band which is more comfortable to wear, particularly for obese persons.

(3) By interposing between them its own fabric (and in legged garments also the inner leg fabric), the pouch tends to prevent the scrotum from chafing the thigh during walking or other exercise in hot weather, and also helps to inhibit the growth of the "athlete's foot" type of fungus known as "jock itch."

(4) With relatively few fastenings the pouch, which is the portion of the garment most subject to soil, may be made detachable without significant sacrifice of comfort, appearance or reliability of coverage, thus minimizing laundry and luggage requirements during travel and camping trips and making possible changes of this portion of the garment without removing the outer trousers, eliminating the need for separate undershorts under heavy winter drawers and making possible the use of disposable pouches for medical purposes or for travel where laundry is specially difficult.

In the foregoing general description of my invention I have enumerated certain advantages, purposes and objects of my invention. Others will become more apparent from the following description and the accompanying drawings in which:

FIG. 1 is a side view of the invention as embodied in a bikini style garment shown on a wearer with wearer's near leg omitted to show crotch area;

FIG. 2 is an exploded perspective view of a garment similar to FIG. 1 but with a detachable pouch;

FIG. 3 is a group view of the half-patterns of the body member and the pouch of the garment of FIG. 1, and also illustrates a 3-ply construction for the pouch;

FIG. 4 is a fragmentary view of the half-pattern of an alternative construction of the lower front apex of the pouch of FIG. 3;

FIG. 5 is a three-quarter view of a short-legged model according to the invention with the upper part of the pouch constructed to provide a fly opening;

FIG. 6 is a half-pattern of the pouch of the undergarment of FIG. 5;

FIG. 7 is a group view of the half-pattern of the body member of the undergarment and a layout pattern for the left inner leg panel of FIG. 5;

FIGS. 8 and 9 are half-patterns for the rear gusset of the anti-chafe short-legged model;

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FIG. 10 is a half-pattern for a detachable pouch with five fastenings;

FIG. 11 is a half-pattern for a detachable pouch with three fastenings;

FIG. 12 is a side view of a preferred fastener for disposable pouches;

FIG. 13 is a top view of the fastener shown in FIG. 12;

FIG. 14 is a front view of the fastener shown in FIG. 12; and

FIG. 15 is a three-quarter view of a brief-type undergarment embodying the invention, and shows the construction of the extensible fastenings for a pouch of non-extensible material.

Specific reference is now made to the drawings wherein similar reference characters are used for corresponding elements throughout.

The bikini style garment of FIGS. 1-3 most clearly illustrates the basic construction and advantages of the invention. This garment is comprised of two main portions: a pouch 10 and a body member 12, the pouch being joined at its upper edge 14 and its rear edge 16 to the corresponding lower edges 18 and 20 respectively of the body member to form leg openings.

The size and shape of the pouch are such that, in profile view on a standing wearer, its lower end protrudes substantially farther forward than its upper end in order to provide nonrestrictive forward room for the normally disposed genitals. Again conforming closely to the shape of the normally disposed genitals, the apex 22 between the profiles of the generally vertical front 23 and the bottom 24 is rounded with a curve of relatively small radius, e.g. about 35 mm., $1\frac{3}{8}$ ". Behind the curved apex the preferred bottom is approximately horizontal in its forward portion, but then rises quite sharply in its rear portion 26 to its rear edge 16 in order to provide the relatively narrow crotch portion of the garment. The crotch seam 21 which is the juncture of edges 16 and 20 is preferably easily extensible and located approximately at the narrowest point between the wearer's legs, for, when it is farther forward, such a narrow crotch seam may bind on the genitals in a bent-over or squatting position. The pouch's inner edges 28, that is, the edges which extend from the crotch seam 21 to the pouch's upper edge 14 and which form a portion of the leg openings, fit closely to the wearer's body, approximately along the creases between the legs and the crotch until they pass over the pubic bone (more precisely, the tendons of the adductor muscles approximately where they attach to the pubic bone) as at 30 and thence closely along the wearer's groins.

The size and shape of the pouch required to provide nonsupportive coverage of the genitals will best be understood with reference to the actual dimensions of the model of the pouch shown in FIG. 3 which is designed to fit what are, according to the best presently available information (Dr. Robert L. Dickinson, Human Sex Anatomy: a topographical hand atlas, Williams & Wilkins Co., 1933, pp. 72-75 and FIG. 107) average-sized genitals. Thus, the distance 32 between the front 23 and the point 30 on the inner edge of the pouch where said edge passes the pubic bone is about 115 mm., $4\frac{1}{2}$ ", the distance 34 from the lower front apex 22 to the inner edge 28 is approximately 120 mm., $4\frac{3}{4}$ ", the distance 36 from point 30 to the bottom 24 of the pouch is approximately 75 mm., 3". Since there appears to be no consistent correlation between the size of a man's genitals and his other bodily measurements, it is within the purview of the invention to produce each size garment in different pouch sizes.

The provision of vertical extensibility of the pouch in relation to the body portion of the garment may be desirable to prevent uncomfortable restriction in the event of an inconvenient enlargement of the genitals. This can be achieved by constructing the pouch of materials which are themselves highly and softly extensible vertically and

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by including in at least one of the plies of said pouch some spandex or similar substance to provide shape-retaining but low-modulus elasticity. In the embodiment of this invention wherein the pouch itself is constructed of relatively inextensible material, this vertical extensibility is achieved, as illustrated in FIG. 15, by providing that the side edges 38 of the pouch 40 (at least above the point where they pass over the pubic tendon) are not directly attached to the body member 42 of the garment and by attaching the upper corners 44 of the pouch to said body member by means of light elastic bands 46, said band means being attached to said body member preferably at the waist band 48 and preferably being enclosed in tubes 50 formed by sewing the outer edges of tape means to the body member, said tubes being preferably disposed approximately parallel with the wearer's groin. This construction is particularly appropriate for disposable detachable pouches and for legged-type garments, as described hereinafter. It is also adaptable to brief-type garments with leg bands where the outer portions of said leg bands 52 are secured to each other by connecting them across the front of the garment, as in FIG. 15.

The pouch of this invention is preferably constructed of materials which are relatively inextensible in a forward direction, in order that any inconvenient tendency towards genital enlargement will be deflected downwards by the above-described vertical extensibility.

Because the apex of the pouch of this invention is more apt to come in contact with the outer clothing than is the crotch portion of conventional briefs, at least the lower forward portion of the pouch is preferably comprised of two or three plies or layers of materials, as shown in FIG. 3. To minimize drying time, staining, and development of odors, and to preserve whiteness without bleaching, each ply (except in disposable pouches, as described below) is preferably made primarily of a substance such as olefin or polyester having very low moisture regain (low absorbency to water). Moreover, the outer ply 54 is preferably comprised of a water (urine) repellent material in order to give maximum sanitary protection to the outer clothing and to prevent soil from appearing on the outside of the pouch. Certain forms of olefin which naturally possess this characteristic will usually be most suitable for this purpose but other fibers may be used if specially treated to achieve water-repellency.

The second ply 56 is preferably made of a fabric able to absorb rapidly any drops of urine which may enter it and to dissipate them laterally so as to promote quick drying. Moreover, this ability must be achieved (in non-disposable pouches) almost entirely by capillary action resulting from the interstitial structure of the fabric and the surface characteristics of its component substance, since the substance itself is preferably non-absorbent. Normally this ply will be of knitted material, but it may also be made of a thin layer of foam.

Where a urine-repellent material is used for the outer ply, two plies are generally sufficient even where the inner ply is relatively thin. Where the outer ply is not urine repellent, three plies are preferable. Because the pouch of this invention tends to localize the area of soiling, for minimum bulk and maximum ventilation in summer-weight underwear the second ply may be limited to the lower forward part of the pouch and, in the three-ply construction, may be attached only to the inner ply so that its outline is not evidenced by any stitching on the outside of the pouch.

The pouch is preferably formed with a seamless front 23, the integral left and right sides being folded back upon each other and fastened together at their lower edges 24.

The lower front apex 22 of the pouch may be formed in two ways. The simpler two-dimensional curve formed by the pouch pattern shown in the left side of FIG. 3

is most suitable with soft bulky materials; but with thin crisp materials it is preferable to use the more complex pattern of FIG. 4 which tends to round the apex three-dimensionally by means of the darts 60 which bring the material from the vertical front 23 of the pouch down to meet the horizontal bottom 24.

The body member 12 of the bikini style garment of FIG. 1 is preferably cut from a half-pattern approximately as shown in the right side of FIG. 3, the waist line 62, particularly in front 63, being substantially lower, and the leg openings adjacent the front being somewhat higher as at 64 than in conventional men's nether undergarments. Because of the low-cut waist line and because the design of the garment requires that the pouch remain in its proper position at all times, it is essential that the material used in this garment be pre-shrunk, or that shrinkage be fully allowed for in the pattern. Furthermore, since bending at the waist (in bending over or sitting) tends to increase the distance between the rear portion of the waist band and the crotch, the material at least at the rear portion of the body member is preferably comprised of double-stretch material with high vertical extensibility and preferably containing enough spandex or similar material to provide shape-retaining but low-modulus elasticity. A relatively light, soft-stretch elastic material is preferably used in the binding of both the waist 62, 63 and the leg openings 64, 28, thus permitting easy access without a special fly opening.

The invention may also be embodied in a short-legged model as shown in FIGS. 5-7. In the preferred construction, the main body member 66 is fairly loose-fitting, cut from a half pattern, excluding hems, approximately as shown in the right side of FIG. 7; inner leg panels 68 having a pattern approximately as shown in the left side of FIG. 7 are attached at their front edges 70, back edges 72, and rear upper edges 74 to the corresponding edges 76, 78 and 80 of the main body member to form the leg portions of the garment; the pouch's rear end 81 is attached to the rear lower edge of the body member 82; the pouch's inner edges 84 are attached to the corresponding upper edges 86 of the inner leg panels, preferably by a seam which incorporates elastic or inelastic tape means to prevent distortion; and the lower edges 90 of the legs are finished by a relatively wide hem 91 or other suitable means.

This form of the invention preferably incorporates a fly opening constructed approximately as shown in FIG. 5, the upper part of the pouch being attached to the body of the garment only along its top 94, thus leaving its sides 96 unattached between the waist band and the groin, said unattached sides, hemmed or otherwise suitably finished and containing if desired an elastic band, cooperating with the suitably finished free lower edge 98 of the body member to form the fly opening.

The invention's hot-weather chafe-resistant properties mentioned above may be extended to the area between the buttocks by interposing between them a friction-absorbing double layer of thin smooth material, preferably by inserting in the rear center of the body member a gusset of such material with a shape approximately as shown in FIG. 8 or FIG. 9, the longer edges 100 of said gusset being sewn to the corresponding edges 102 of the two sides of said body member between its lower end 82, which is located approximately at the wearer's crotch (said crotch being located anatomically at the lower end of the crease between the buttocks), and a point 104 at the upper end of the crease between the buttocks, which is normally located a short distance below the waist 62. The simpler gusset of FIG. 9, made of a single piece of material folded on its straight edge 106, is satisfactory where the material has appropriate stretch characteristics. However, since the crotch of the buttocks is curved in cross-section, the double-curved gusset of FIG. 8, formed of two halves, is more satisfactory where the seam along

the shorter edge can be made sufficiently fine so as not to cause discomfort.

Garments of this invention may also be made with a detachable pouch. Whereas detaching the relatively wide crotch portion of the conventional briefs would present difficulties in arranging the fastenings and fly, the full and substantially non-supportive pouch of the present invention, with its narrow crotch section, can be made detachable quite simply and without significant sacrifice of comfort, appearance or reliability of coverage.

Such a construction of a detachable-pouch bikini model is shown in FIG. 2 where both the pouch 10 and body member 12 are preferably constructed approximately the same as in the integral pouch bikini model, as described above and shown in FIGS. 1 and 3, except for the following modifications. The lower edge 110 of the front of the body member, which underlies the free upper edge 112 of the pouch, extends somewhat further down so as to prevent any gaps between the body member and the pouch. The pouch is attached only with quick-detach fasteners 114 at its five corners, provision being made for reinforcement of the pouch and body material where the fasteners are attached and for suitable finishing of the free ends of both the body and pouch portions of the leg bands 113. The upper edge 112 of the pouch preferably includes a light elastic band, which can be an extension of the pouch portion of the leg band.

In the detachable-pouch legged garments, the preferred construction of the pouch and the method of its attachment to the body of the garment are approximately the same as for the detachable-pouch bikini model described above except for the following modifications. Because the fasteners at the side of the pouch tend to make side access inconvenient, the upper apex 116 of the pouch, as shown in FIG. 10, preferably extends to the waist band so as to provide a fly opening similar to the one in the integral-pouch legged model described above. The pouch's rear end is also shaped somewhat differently and the elastic band in its edge is preferably continuous from the top apex around said rear end back to top apex. Because of the absence of leg bands at the outer edges of the lower rear portion of the body member, special provision may be required in some models for anchoring the rear fastening elements. The free forward upper edge 86 of the inner leg panel is finished in such a way, preferably incorporating an elastic means, as to prevent its rolling down or becoming bunched or stretched out of shape. In long drawers made mainly of relatively inelastic material, the preferred construction also includes the use of spandex or similar material in at least the central rear portion of the body member and in the front part of the legs where they overlie the knees, so as to prevent the pouch area of the garment from being pulled out of its normal position by bending over or sitting.

An alternate construction for a legged-garment detachable pouch having almost equal advantages in comfort and convenience but requiring only three fastenings is made from a pattern approximately as shown in FIG. 11. In this construction the pouch's top 118 is square across and its rear end has an extension which permits the preferred lateral distance between the pouch's inner edges to be maintained with only a single fastening.

Although other types may be used, a fastening particularly suitable for a detachable pouch may be constructed as shown in FIGS. 12-14. The female element 120 is attached to the fabric 121 of the body member and is comprised of a spring clip having a cross-section shape of an elongated U, the lower leg 122 of said clip having an inclined finger 126 which fits into a corresponding aperture 128 in the male element 130, said finger being smoothly rounded on the side towards the mouth 124 of the clip so that said male element can slide easily over and onto it, but square-cut or slightly undercut on its inner side 132 so as to prevent said male element from slipping out in the direction of pull. To remove said male

element from said clip, said male element is slipped further into said clip until the aperture has passed beyond the finger, then slid out sideways.

Although the clip may be made of plastic or wire (the wire being formed somewhat like the hook element of a conventional hook-and-eye fastener) or any other material, and may be attached to the garment in any of several ways, it is preferably made of thin stainless steel and attached to the garment or an elastic band by means of prongs 134 which are formed on the sides of the lower leg 122 and which are clinched on the underside of the fabric. To provide maximum security of the fastening with a minimum of spring tension, the clip preferably incorporates an upward-disposed indentation or an aperture 136 in the upper leg 138 of the clip into which the finger of the lower leg can fit after passing through the aperture 128 of the male element 130.

Said male element 130 may be made of a piece of metal fastened to the corners of the pouch in a manner similar to that used in fastening the female clip to the body of the garment, or of a wire loop or other suitable means. In a disposable pouch it is preferably formed by an aperture in the corner of the pouch itself, the material of said pouch having been previously reinforced and stiffened by impregnating it with some hardening material or by bonding it to a plastic washer.

Like conventional hook-and-eye fasteners this type of fastener can be used without reinforcement on lighter weight materials than can conventional snap fasteners because less strain is involved in detaching the two elements.

For travel where laundering facilities are unavailable or very inconvenient, or for certain medical uses, the detachable pouch may be made of an inexpensive material, such as cellulose between layers of non-woven fabric, which can be disposed of after a single period of wear. If the appropriate material is itself relatively inextensible, extensibility may be provided by suspending the top of the pouch from light elastic bands attached to the body member of the garment, as described above and shown in FIG. 15. Because of the simplicity of the male element 130, the type of fastening described above is particularly suitable for the disposable type of pouch, and the clinched prongs 134 of the female elements or clips 120 are as suitable for grasping the free ends of the elastic bands 46 as for grasping the body material.

While I have illustrated and described certain preferred embodiments of my invention in the foregoing specification and drawings, it will be understood that the principles of the invention may be otherwise embodied within the scope of the appended claims. Thus, it should be understood that the preferred construction of the pouch and the body member of any particular embodiment of this invention depends in part on the specific characteristics of the materials used, and that since these will differ from one model to another depending on the desired style, on materials availability and on economic considerations, the dimensions and constructions described above are intended to be illustrative but non-limitative.

I claim:

1. A man's undergarment comprising a body encircling member including a waist band and front and back portions, a pouch to receive, cover and accommodate the genitals with substantially no restriction or support thereof, said pouch including an upper edge, a rear edge and inner edges between them, means joining said upper edge of said pouch to said front portion of said body member, and means joining said rear edge of said pouch to said back portion of said body member through the wearer's crotch, said pouch being of such size and shape that, as normally disposed on a standing man, it provides a vertically oriented front which is disposed beyond the forward extremities of the wearer's normally disposed geni-

tals with said inner edges disposed along and normally in contact with the wearer's crotch and lower groins.

2. The undergarment of claim 1 or 11 wherein said vertically oriented front and the bottom of said pouch provide front and bottom profiles which meet to form a slightly rounded apex, said front profile being generally straight and sloping outwardly towards said apex, said bottom profile being generally horizontal from said apex curve for a substantial portion of its length and then curving upwardly towards the crotch.

3. The undergarment of claim 1 or 11 wherein the material of said pouch is elastically extensible in its vertical dimension.

4. The undergarment of claim 1 wherein said means joining said upper edge of said pouch to said front portion of said body member and said means joining said rear edge of said pouch to said rear portion of said body member are separable, thereby rendering said pouch detachable from said body member.

5. The undergarment of claim 4 wherein each of said separable fastening means includes interengaging male and female members, said male member including a tongue provided with an aperture therethrough, and said female member including an open-ended slot to receive said tongue, said slot having a finger therein adapted to enter said aperture in said tongue, said finger having a smoothly rounded edge confronting the mouth of said slot to permit said tongue to pass thereover until its aperture receives said finger, the opposite inward-facing edge of said finger being angulated in a direction away from said open end of said slot.

6. The undergarment of claim 1 or 11 wherein said back portion of said body member includes a central gusset located to lie between the buttocks of the wearer to insulate the buttocks from friction, said gusset having a width which increases gradually from the top of the crease between said buttocks to a maximum at the point of maximum depth of said crease and then diminishes towards the lower end of said crease.

7. The undergarment of claim 1 or 11 wherein that portion of said pouch which normally overlies the genital extremities is comprised of three plies, the substance of each ply being characterized by low moisture regain and the fabric of the intermediate ply being additionally characterized by high urine absorbency.

8. The undergarment of claim 7 wherein said outer ply is substantially repellent to urine but permeable to air.

9. The undergarment of claim 1 or 11 wherein that portion of said pouch which normally overlies the genital extremities is comprised of two plies of material, the outer ply being substantially repellent to urine but permeable to air.

10. A man's undergarment comprising a body encircling member including a waist band and front and back portions, a pouch to receive, cover and accommodate the genitals with substantially no restriction and support thereof, and means joining said pouch to said front portion of said body member and to said back portion of said body member through the crotch, the size and shape of said pouch being such that, as normally disposed on a standing man, it provides a vertically oriented front which slopes downwardly and outwardly and is disposed beyond the forward extremity of the wearer's normally disposed genitals, said pouch including inner edges which extend along the wearer's crotch and lower groins, and a bottom which is disposed below the lower extremity of the normally disposed genitals.

11. A man's undergarment comprising a waist band and back and front portions connected through the wearer's crotch, the middle and lower part of said front portion being formed into a pouch to receive, cover and accommodate the genitals with substantially no restriction or support thereof, said pouch being of such size and shape that, as normally disposed on a standing man, it

provides a vertically oriented front which is disposed beyond the forward extremities of the wearer's normally disposed genitals.

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