April 21, 1936. C. SANDERS 2,038,318

ELASTIC UNDERGARMENT

Filed June 2, 1933

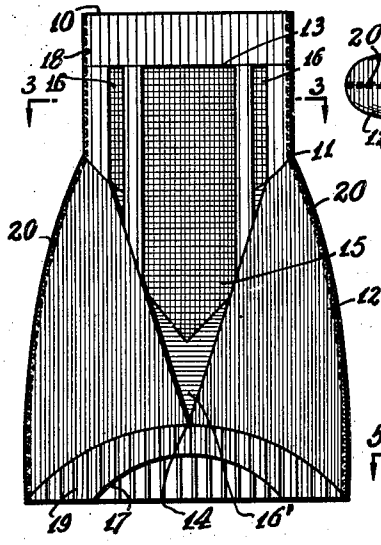


Fig. 1.

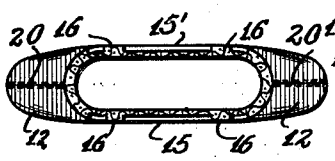


Fig. 3.

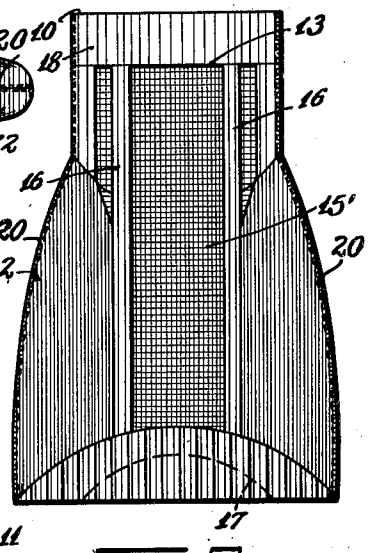


Fig. 2.

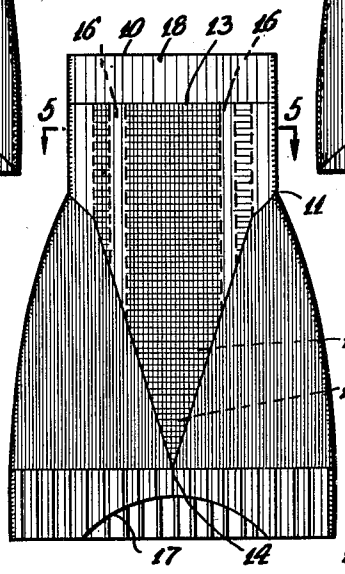


Fig. 4.

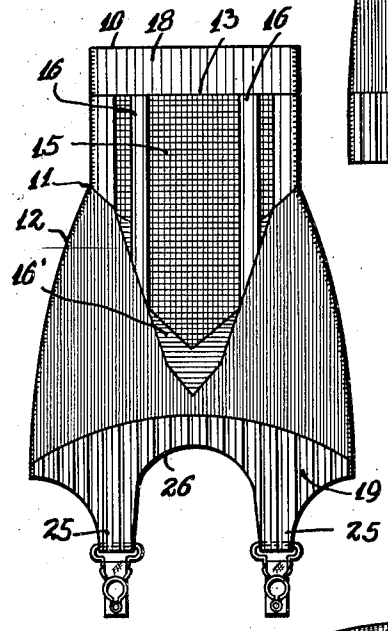


Fig. 6.

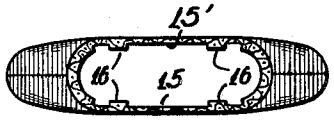


Fig. 5.

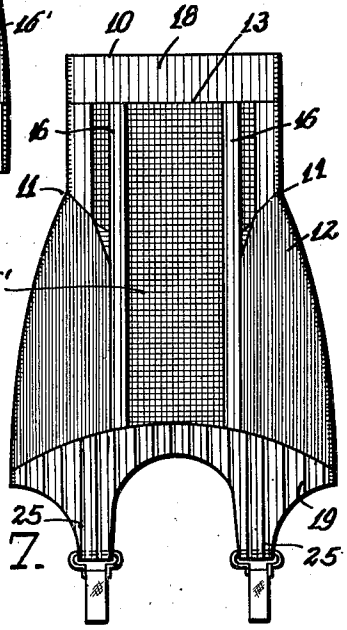


Fig. 7.

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ELASTIC UNDERGARMENT

Charles Sanders, New York, N. Y.

Application June 2, 1933, Serial No. 673,979

7 Claims. (Cl. 66—176)

This invention relates to new and useful improvements in corsets, corselets, girdles, abdominal supports or similar articles and textile fabric for manufacturing the same. Still further the invention relates to a method for constructing and shaping the articles mentioned to cause them to fit and properly form the human figure.

The invention has for an object to provide a corset, corselet, girdle or abdominal support or similar article which conforms fully to the figure and sets snugly and firmly and supports, decreases and diminishes and shapes the diaphragm, abdomen, and buttocks and keeps the hips and waist in proper form, at the same time yielding easily to every movement of body and shaping it and causing no discomfort to the wearer. It is particularly proposed to construct the article without bones, steels, stays or seams which generally cause discomfort.

It is proposed to obtain the objects mentioned in the previous paragraph by a unique and novel manner of constructing the garment and the fabric contained therein and teaching the way to work the material to produce the shape for a proper fit and to possess the aforementioned qualities.

The invention has for an object the construction of an article or articles as mentioned which are characterized by the fact that they are knitted and fashioned to shape.

As another object of this invention it is proposed to arrange the articles to include knitting lightweight and heavyweight portions arranged to give advantages hereinafter further pointed out.

As another object of this invention it is proposed to so construct the article or articles mentioned that they have absolutely no seams whatsoever, or that they are fashioned from two or more pieces joined together.

Still further the invention proposes arranging the light-weight and heavy-weight portions so that the article gives greatest pressure at certain advantageous portions when worn simulating conventional steels and other similar articles worked into conventional articles as mentioned.

As another object of this invention it is proposed to so arrange the light-weight portions so that certain portions of the article or articles are in certain relation to portions of the body since certain portions of the body become heated more readily than other portions and it would be advantageous to release the heat.

Still further the invention contemplates the teaching of a method for producing articles of the class described in which they are fashioned in or fashioned out as previously mentioned.

Still further as another object of this invention it is proposed to teach the construction of an article or articles as mentioned in which sections of the knitting are firmer or tighter so as to produce the fashioning when desired, and also so as to produce the light-weight and heavy-weight portions.

The invention also proposes arranging the articles in a manner so as to have rib or plain portions at the top or bottom.

Still further the invention proposes teaching the construction of an article or articles as mentioned in which the elasticity of certain portions vary so as to produce greater pressure at areas desired, said changes of elasticity to be controlled by the lengths of loops being drawn during the knitting operation and the number of needles knitting.

Still further as another object of this invention it is proposed to teach a method for producing the article or articles mentioned so that the method may be carried out on a conventional circular type of knitting machine or upon a conventional flat type of knitting machine or similar machines.

This invention has for a still further object the construction of an article as mentioned which is constructed and arranged to have garter portions.

Still further the invention contemplates the teaching of a method for constructing the article as mentioned so that it is provided with garter portions.

The invention still further proposes the construction of an article as mentioned which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:—

Fig. 1 is a front elevational view of an article constructed according to this invention.

Fig. 2 is a rear elevational view of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 1 but illustrating another embodiment of the invention.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a front view of another article according to this invention but including a slightly modified form.

Fig. 7 is a rear elevational view of Fig. 6.

This specification is addressed to those skilled in the art, and familiar with conventional types of knitting machines, and for these reasons the details of the knitting machine and their manipulation will not be given. The operation of the

machine, and the method of constructing the articles will be given in sufficient detail so that skilled persons may readily understand and be capable of working the invention. Several facts and definitions in the art will be given as this specification proceeds so as to connect that which is new to that which is old to insure a proper understanding of the invention.

Concerning the material or finished goods of which the fabric is made, it is knitted of a yarn that has a rubber base or a treatment which causes the yarn to possess an amount of elasticity which of course still remains in it after it is knitted up into goods and naturally causes the goods or fabric to have elasticity. "Fashioning" consists of putting needles in and taking needles out of the knitting action of the knitting machines so as to secure shape in the material being knitted.

Concerning the material and the assistance of shaping it through the changing of stitches, it is a known fact in the knitting trade that a plain rib stitch is one that has a rib or wale on both sides of the cloth. It has much more strength and elasticity than other stitches, but, however, the elasticity of any stitch may be varied to a marked degree by changing the length of the loop being drawn. Those skilled with the knitting machines will know the manner in which to adjust the machines to change the length of the loop and so the elasticity. This is of importance since hereafter it will become necessary to change the elasticity of certain portions of the article according to this invention.

A plain rib stitch is a stitch produced by one needle working in the front bed and one needle working in the back bed, and so on, a one and one needle all the way through. Any stitch by manipulation of the yarns or needles can produce a number of fabrics both different in appearance and feel.

Fashioned goods are garments which while being knitted on the machine are made the proper shape to fit the wearer. There are three advantages in fashioning garments in the knitting operation. First, there is a saving in material so that there is no material cut off in order to get the shape. Second, the fashioned goods make up into better looking garments than cut goods. Third, in the case of goods being made on a flat type machine on account of the edges being selvage not cut and raw, it is possible to join two edges together so that the joining will be very smooth thereby avoiding unsightly seams, or when the goods is made in the manner described therein on a circular machine, no seams at all result. Crosswise of the fabric is the direction in which the yarn feeds while in the process of construction. Lengthwise in the fabric is the direction in which the fabric is built up by drawing one loop through another.

The width of a fabric depends largely in the number of needles used as a base or as a foundation on which to build. The length of a fabric has no restrictions other then the supply of yarn or how long a knitter wants the fabric or garment to be. All machines capable of knitting rib stitches have two needle beds but for jersey fabric only one is used.

Articles according to this invention may be constructed according to any type of knitting stitch possible on a knitting machine. The stitches can be a plain stitch, rib stitch, half cardigan, full cardigan, single bed, rack stitch, tuck, and any and all combinations that may be desired or other stitches. The type of a stitch makes no difference when the articles are made in the manner hereinafter further described, the results will always be the same. The types of stitches on all of the conventional knitting machines can be changed at any point selected in the construction of a fabric.

The corset, corselet, girdle or abdominal support or other article according to this invention is very similar to an article now generally on sale on the market, said article comprising a knitted material from a yarn having an elastic base, and which article is substantially of cylindrical form and is intended to be worn to engage the body snugly and firmly, to decrease the dimensions and shapes of the diaphragm, the abdomen, the buttocks and keep the hips and waist in proper form. The garments now generally sold are substantially of cylindrical form and consequently not fashioned and therefore pressures will be produced at undesirable places, while at the places where pressure is desired there will relatively be no greater pressure than at other places.

The article according to this invention, see Figs. 1–3 inclusive, is constructed of two similar fashioned pieces secured together along the edges **20**. These pieces may be made on machines of the plain or flat type. Preferably it should be composed only of two pieces so that there are two seams along opposite sides only, which are not very objectionable. These seams will not be prominent in that the edges of the fashioned front and rear pieces will automatically be selvage which may be joined without producing a bulky seam. The article is formed with a cylindrical upper portion extending from the top **10** to the point **11** and then a fashioned lower portion **12**. This is one feature of the invention, that is, fashioning the garment so as to have the cylindrical upper portion which is adapted to engage the waist and a fashioned lower portion **12** which engages the hips and buttocks. A still further feature of the article according to this invention resides in the fact that certain portions thereof are of light-weight and other portions of heavy-weight so as to gain numerous advantages.

More particularly, an area **15** extending from a point **13** slightly below the top edge **10** to a point **14** slightly above the crotch of a person, is manufactured of lighter weight then the other portions. This area is formed so as to have a pointed bottom. Furthermore a pair of parallel spaced strips **16** of thickened area extends through the light-weight area. The extreme apex **16'** of the light-weight area is also produced with a different stitch, which is more open than the other portions. In Fig. 2 the back of the garment is illustrated and it should be noticed that the construction is identical except for the shape of the light-weight area **15'**. Of course this is not necessary since other designs may be used.

The main feature of the light-weight and heavy-weight areas is that a sturdy and strong garment can be produced which is light-weight at portions more sensitive to sweat of the body than other portions. For example the area extending below the stomach necessarily heats faster than for example the hips and for this reason the front portion of the garment is of lighter weight so that the heat may pass and produce a garment which is not as uncomfortable if such passage were not produced, or entirely restricted.

The light-weight portion **15** and **15'** is provided

with the heavy-weight strips 16 which are the equivalent of steels, and other stiffening members used in corsets and similar garments for the same purpose. These members are made of material having more wales per unit of measure than adjacent areas. The front of the garment is shown with a curved bottom edge 17 to allow easiness of bending of the legs at the hip joints. Preferably the garment should be finished by a rib stitch area 18 along the top and another rib stitch area 19 along the bottom. The garment illustrated in Figs. 1–3 but without the seams 20 may be made on a machine of the circular type having jacks or a jacquard attachment and consequently is of one piece and has absolutely no seams but it must be fashioned.

In Figs. 4 and 5 a variation of the invention has been disclosed. One of the varied features resides in the fact that the garment is substantially of cylindrical form except for the fact that it is fashioned to fit the body. Another distinction between the arrangement illustrated in Figs. 4 and 5 and the previous arrangement, lies in the fact that the reduced areas, that is, the thin areas have been thinned from the inner side of the garment distinguishing from the previous arrangement, see Fig. 3, which shows the thinned areas thinned from the outside of the garment. These constructions may be obtained by proper setting of the needles of the machine in and out of operation.

The construction of the articles may better be understood by the following additional description. In a given space in a knitting machine one may have drawn out or have out of action needles which are not knitting or drawing yarn or making stitches and are standing idle in that given space, while other needles which are not drawn out of action in the same given space are knitting and drawing yarn and making stitches. These working needles may be drawn out of action while some out of action may be engaged into action all according to one's desires.

With less needles knitting within a given space in a knitting machine the goods or fabric is made narrower as there are less stitches being formed and less yarn being knitted into that given space because some needles in that given space are knitting and forming stitches and some are not, therefore the less needles knitting in a given space of a knitting machine within the same scope of the fabric being made, the narrower the goods comes out. Hence it can be seen that the less needles knitting in a fabric or knitting in a machine which is making a certain piece of goods, the narrower this goods will be.

If one gradually adds or fashion in or fashion out, for example, puts into action these needles which have been standing idle in a given space or spaces in a knitting machine they will make stitches and draw yarn. As these needles are put into action the goods widens out gradually, as gradually there are more stitches being formed and more yarn being knitted into the section of the fabric that is being made, wherever the needles are put into operation. These knit stitches made on these needles which are gradually added and introduced in the knitting action serve to shape the garment, that is fashion it.

If the machine by which the girdle is to be made is of the circular type having a circumference of 36 inches it is necessary to start and finish on the same amount of circumference but at the start to have less needles in the knitting action or working, than at the finish. When the start is with less needles knitting in the same given space the action is such as to cause the goods to be made to come out narrower. When other needles are gradually introduced that have been standing idle in this 36 inch circumference the material produced will become wider. The more needles introduced knitting in the given space, the wider the goods comes out, or in other words more goods is produced in the same circumference.

The same rule applies in the case of the flat bed straight bar machine. Here over the same given space it will be necessary to have a number of needles standing idle and gradually introduce them into working action so as to cause more goods or wider goods to be made in the same given space.

Also, shape may be procured on this type of garment because of the elasticity of the yarn or raw material as it is worked or knitted. There is considerable tension on the yarn. Whenever in a knitting machine there is a number of needles not working or knitting in a given space and only some of the needles are working in that space and the yarn is being worked with considerable tension it causes the goods wherever these needles are drawn to be made firmer and knitted tighter and narrower especially with this type of yarn which has an elastic base as previously described. Still further shape may be introduced by the fact that the machine or machines may be equipped with cams and needles which are equipped so as to knit tighter in one or more places in the fabric being made, than in another across the face of the fabric.

As one particular illustration, the rib portion 18 may be made from a stitch known as two needles up and one down in the knitting trade. Concerning rib worked as known in the knitting trade, the rib may be made coarser for example by making a rib known as two in working and two out of working or two in working and three out of working or four in working and two out of working. The garment may be manufactured with a rib and design made on both sides of the fabric which gives much greater pull when on a human figure. However it may also be designed with a rib and design on one side only. When the rib is on one side only it has not as great a contracting power as when it is made on both sides.

The top portion 18 of the garment necessarily need not be a rib top. It could be constructed of any stitch and still accomplish the results as long as needles are left out of action which may later be introduced into the knitting action as the fabric is being made. However in the case of a hand fashioned design or automatic designing or fashioning machine, to leave out needles in the top is not necessary in order to secure the shape as I can introduce in the knitting action or take out of the knitting action any needles which are knitting or in another case introducing into action any needles that have been standing idle or not knitting.

The manufacture of the light-weight area 15 and the operation so as to shape the garment, and secure pressure where most is needed may be understood from the following: Immediately below the rib area 18, the stitch can be changed, if desired, but needles must be left out to produce the light-weight and other needles added for the shaping of the garment, or the same results may be produced by varying the knit. The tighter or tightly knitted area forms semi-stiff portion

or portions in the garment which act as a panel or panels and these panels produce greater pressures in the same piece of material without the use of steels, seams, or stays when the garment is on the human figure, since great pressure is bound to bear on the figure at this place, of less give or stretch in a garment of this kind. It is also necessary that these panel sections are knitted on the spaces on the knitting machine which have needles drawn out of action and only some needles are working or knitting stitches to produce these panels while these needles that are out of action are not using yarn or making stitches, but are standing idle to be gradually put to work to properly form and shape the garment so as to mould a human figure. The heavy-weight areas are obtained by putting more needles into action. The fashioning is obtained also by gradually fashioning in or out, and causing the needles to knit and take yarn and form stitches. This introduction of needles into the knitting action creates a different type of goods or material and also serves to take away from the tighter portions and add to the other portions which acts in a garment of this kind by widening it out to create more goods as in this case, more elasticity than is contained in other portions thereof.

The construction of light-weight portions on the outside is shown in Fig. 3 or on the inside as shown in Fig. 5 may be obtained merely by placing in or taking needles out of action from one of the beds of the knitting machine to knit less material at the reduced areas.

In the modified form of the article illustrated in Figs. 6 and 7, portions of the article are arranged to simulate garters. More particularly the corselet or similar article shown is knitted as previously described and includes the various heavy-weight and light-weight portions obtained as described. In addition the articles are provided with garter portions **25** both on the front and back layers thereof. These garter portions are produced by knitting the garment slightly longer than its regular length and then cutting out portions so as to shape the lower edge of the garment to have the garter portions **25**. These garter portions are elastic since the yarn from which the article is constructed is elastic. It is merely necessary to add conventional garter hooks to complete the garter construction. The cut edge **26**, that is the bottom edge of the garment can be finished with any type of a stitch so that a rough edge is avoided. Since it is not necessary to form a seam along the bottom edge the finishing of the edge will not be thickened so as to protrude through the outer garments of a wearer.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

1. A corselet comprising a piece of elastic knitted fabric of fashioned shape and having light weight and heavy weight areas, said light weight areas being of knitted fabric with less wales per unit of measure than said heavy weight areas, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet and having heavy weight strips extending vertically therethrough.

2. A corselet comprising a piece of elastic knitted fabric of fashioned shape and having light weight and heavy weight areas, said light weight areas being of knitted fabric with wales on one side only of said fabric and said heavy weight portions being of knitted fabric with wales on both sides of said fabric, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet and having heavy weight strips extending vertically therethrough.

3. A corselet comprising a piece of elastic knitted fabric of fashioned shape and having light weight and heavy weight areas, said heavy weight areas being of knitted material with wales on both sides thereof, said light weight area being of knitted material and having wales on one side only, and said light weight area having less wales per unit of measure than either side of said heavy weight area, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet and having heavy weight strips extending vertically therethrough.

4. A corselet, comprising a piece of elastic knitted fabric of fashioned shape, and having light weight and heavy weight areas, said light weight areas being of knitted fabric with less wales per unit of measure than said heavy weight areas, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet, and garter portions integral with said corselet.

5. A corselet, comprising a piece of elastic knitted fabric of fashioned shape and having light weight and heavy weight areas, said light weight areas being of knitted fabric with wales on one side only of said fabric and said heavy weight portions being of knitted fabric with wales on both sides of said fabric, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet, and garter portions integral with said corselet.

6. A corselet comprising a piece of elastic knitted fabric of fashioned shape and having light weight and heavy weight areas, said heavy weight areas being of knitted material with wales on both sides thereof, said light weight area being of knitted material and having wales on one side only, and said light weight area having less wales per unit of measure than either side of said heavy weight area, said light weight areas being arranged at the front in the abdominal region and at the back of said corselet, and garter portions integral with said corselet.

7. A corselet, comprising a piece of elastic knitted fabric of fashioned shape having light and heavy weight areas knitted integrally having various pressure resisting areas said light weight areas being of knitted fabric with wales only on one side of said fabric, and said heavy weight portions being of knitted fabric with wales on both sides of said fabric said light weight areas being arranged at the front in the abdominal region and at the back of said corselet and having heavy weight strips extending vertically therethrough, said light weight portions gradually emerging into a portion of all heavy weight fabric having wales on both sides.

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