May 6, 1941. F. BLATTER 2,241,289

SEAMLESS TUBULAR WOVEN FABRIC

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Fig. 5.

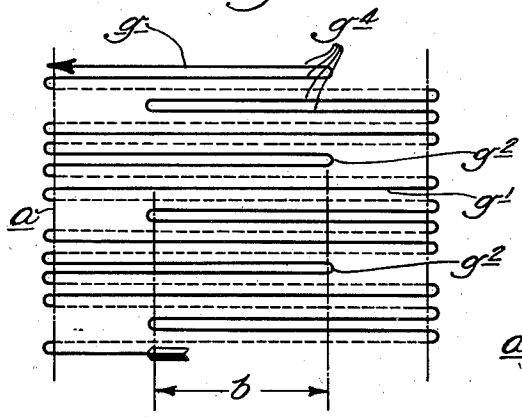


Fig. 1.

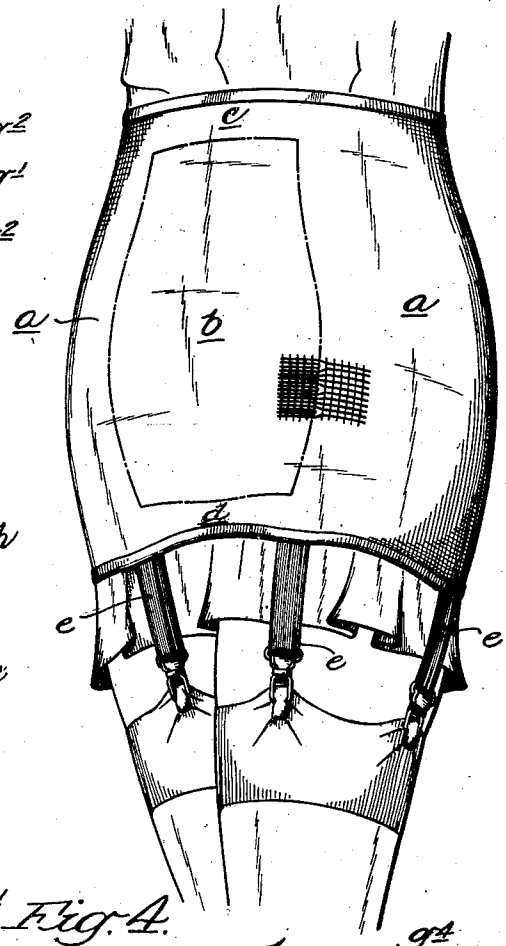


Fig. 2.

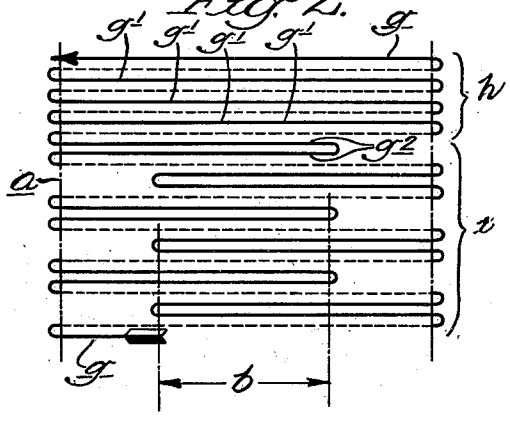


Fig. 3.

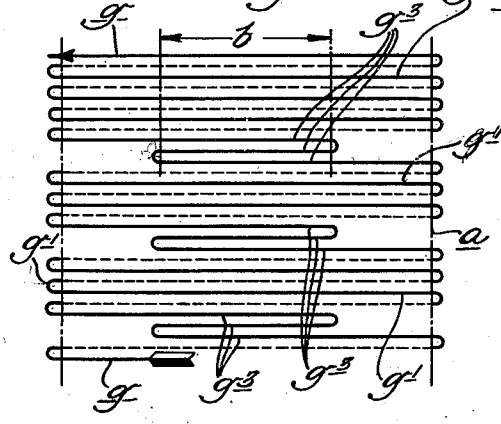


Fig. 4.



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Fig. 6

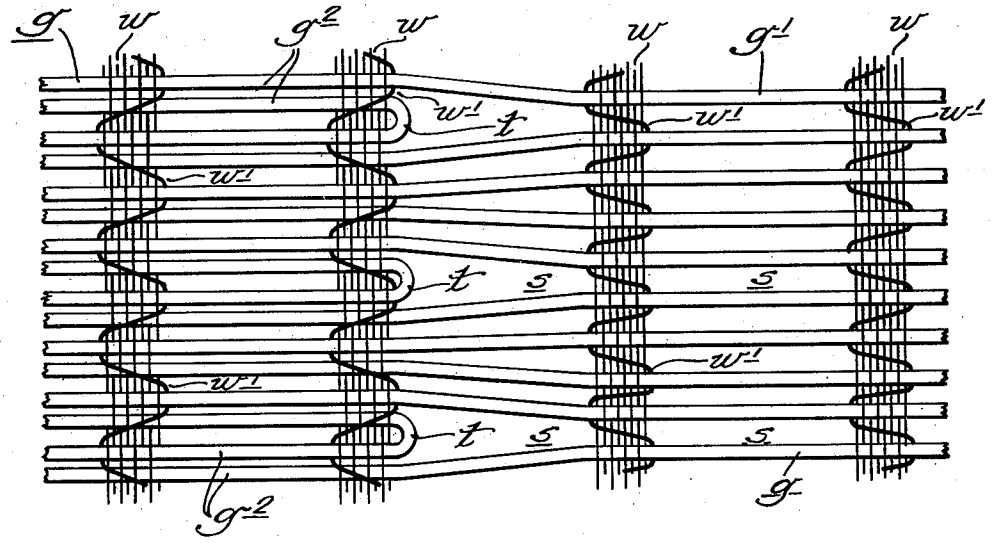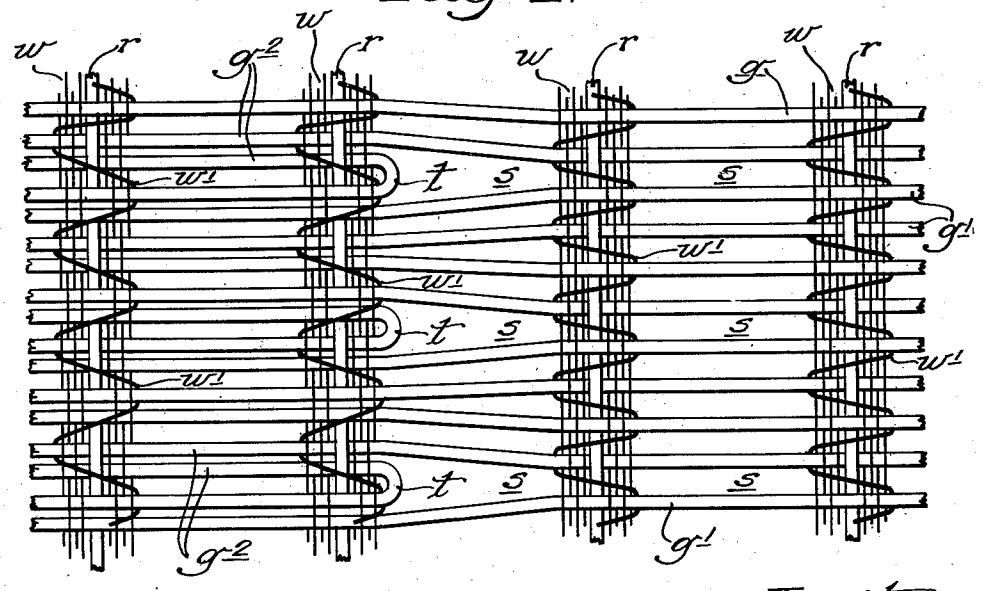


Fig. 7



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SEAMLESS TUBULAR WOVEN FABRIC

Fritz Blatter, Zofingen, Switzerland, assignor to Fritz Blatter and Max Aeschbach, both of Zofingen, Switzerland, copartners in a joint-stock company, trading under name Jhco Aktiengesellschaft vormals J. Hollenweger & Company, Zofingen, Switzerland, a firm of Canton Aargau

Application July 27, 1939, Serial No. 286,908
In Switzerland October 24, 1938

3 Claims. (Cl. 139—387)

The present invention relates to improvements in corsets, girdles, and similar abdominal supporters.

In women's girdles it is often desirable to reinforce the stomach and abdominal portions of the girdle, in order to secure a good tense support. This reinforcement is as a rule accomplished by means of an elastic or inelastic pad sewed on the front side of the girdle. The girdle thus reinforced becomes thereby not only unsightly, but the reinforcing pad bulges outward and requires a disagreeable edge seam.

According to the present invention the unsatisfactory condition noted above is remedied by working a reinforcing insert into the weave of the abdominal supporter at the point to be reinforced in corsets, girdles, and similar abdominal supporters. In the present case, for example, of an abdominal supporter, such as a woman's girdle made of a fabric in which the weft at least is composed of rubber thread, the intended reinforcement can be effected by inserting a number of multiple rubber weft threads in at least some of the weft courses at the point of the fabric which is to be reinforced, these weft threads being possibly composed of single rubber thread or, if required, of rubber thread in combination with some inelastic type of thread.

In the accompanying drawings is shown a specimen embodiment of the subject of invention in the form of a seamlessly woven girdle.

Fig. 1 shows the same in use;

Figs. 2, 3, 4 and 5 show diagrammatically a number of different ways of inserting the rubber weft; and

Figs. 6 and 7 show enlarged details of the weave at the edge of the reinforced area.

The girdle designated as a whole by *a* in Fig. 1 is made substantially of a seamless tubular fabric whose warp may be of fibrous material and whose weft is of rubber thread. It exhibits an area of reinforcement *b* extending substantially over the abdominal region and serving the purpose of elastically retaining this part of the body. This area *b* is formed by a multiple insertion of rubber weft threads in every weft course or in only some of the weft courses, which insertion is intended to give an increased tension at these points and thus to be able to give shape to the part of the body lying thereunder. The reinforcement extends over all or the greater part of the vertical width of the girdle. The upper and lower bands *c* and *d* are of normal type of weave, the lower band *d* having mounted on it in known manner means *e*, *e* for the suspension of stockings. It may, however, also occur that the reinforcement extends all the way to the upper edge of the girdle.

Figs. 2, 3, 4 and 5 show various possible ways of guiding the rubber thread *g* so as to produce a fabric with an area of reinforcement. The zone designated by *h* exhibits the normal type of weave occurring in one or the other or both bands *c* and *d* with one rubber weft thread *g* to each weft course, while within the zone *i* a weave which forms an area of reinforcement throughout the width *b* is used. The weave shown in Fig. 2 contains within the zone *i* a double weft thread *g2* of rubber to every single weft course within the area of reinforcement. The weave shown in Fig. 3 contains within the same zone a triple weft thread *g3* of rubber to each set of several single weft courses, while in the weave shown in Fig. 4 two successive double weft threads *g4* of rubber alternate with a set of several single rubber weft threads *g1*. In the weave of Fig. 5 two successive upper double rubber weft threads *g4* are followed by a single rubber weft thread *g1*, a double rubber weft thread *g2*, a single rubber weft thread *g1*, and so on in continual alternation.

The relation of the number of single rubber weft threads to the number of multiple rubber weft threads in the area of reinforcement can, of course, vary. On this particularly will depend the degree of reinforcement.

Fig. 6 shows the double rubber thread *g2* in each course within the reinforced area *b* for a single thread *g1* in each course in the normal area adjacent the reinforced area, with the warps *w*, *w* composed solely of inelastic threads, while Fig. 7 shows the same arrangement as in Fig. 6 but using rubber warps *r*, *r* in combination with the inelastic warps *w*, *w*.

The warps *w*, *w* are interwoven with the elastic wefts *g* in an ordinary plain weave with a doup warp *w1* binding the group of several warps *w* together laterally to provide and maintain open spaces *s* whereby the fabric is rendered porous.

The warps *w* and *w1* are actuated to produce open sheds for reception of the elastic weft *g* which, in making a circular seamless garment according to the present invention, is laid in the direction of the arrowhead and tail in Figs. 2, 3, 4 and 5, i. e. where single elastic wefts solely are to be incorporated, the weft layer travels continuously in one direction as the warp shed opens and closes ahead and behind it but where a plurality of wefts are to be laid in a course the weft layer reverses its direction of movement as re-

quired to lay the desired number of rubber wefts in each course while the warp shed opens and stays up to receive the multiple wefts and the doup warps *w* operate to tie rubber in at the reverse turns *t* along the edges of the reinforced area *b*.

Obviously the warp arrangement may vary to suit the type of fabric desired in either a porous or close weave without departing from the spirit of the invention which consists broadly in incorporating plural strands of rubber in predetermined areas of a fabric normally having a single rubber weft throughout the whole thereof.

I claim:

1. A seamless tubular woven fabric comprising longitudinally extending warps interwoven with circumferentially extending wefts formed of a rubber strand which within a certain number of picks included in a certain area less than one half the circumference of the fabric is doubled back upon itself at least twice to increase the length of said rubber strand contained in said area as compared to other areas of the fabric of equal dimensions, whereby the fabric portion having the doubled-back rubber weft will have greater resistance to circumferential stretch.

2. A seamless tubular woven fabric comprising longitudinally extending warps interwoven with a circumferentially extending rubber strand which in adjacent pairs of successive picks included within a certain area less than one half the circumference of the fabric is doubled back upon itself first in one direction and then in an opposite direction to increase the length of said rubber strand contained in said area as compared to other areas of the fabric of equal dimensions, whereby the fabric portion having the doubled-back rubber weft will have greater resistance to circumferential stretch.

3. A seamless tubular woven fabric comprising longitudinally extending warps interwoven with circumferentially extending wefts formed of a rubber strand which within a group of three successive picks included in a certain area less than one half the circumference of the fabric is twice doubled upon itself to increase the length of said rubber strand contained in said area of the fabric as compared to other areas of the fabric of equal dimensions, whereby the fabric portion having the doubled-back rubber weft will have greater resistance to circumferential stretch.

FRITZ BLATTER.