June 21, 1955 G. BOHM 2,710,967

GARMENT STAY

Filed April 16, 1954

FIG. 1.

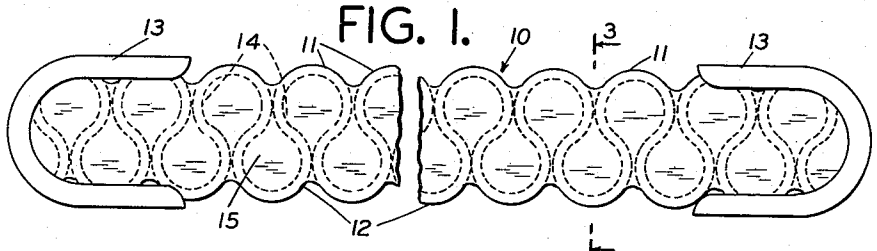


FIG. 2.

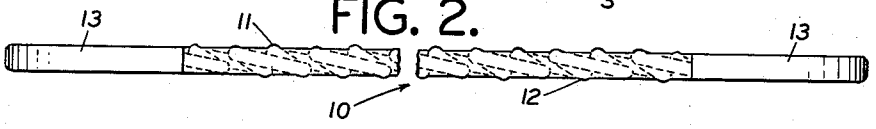


FIG. 3.

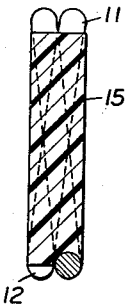


FIG. 4.

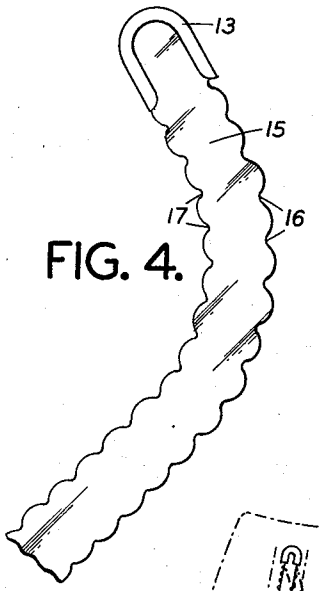
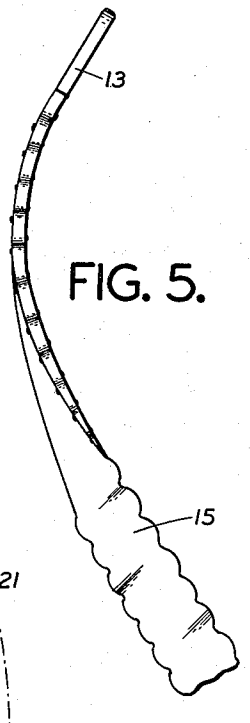


FIG. 5.



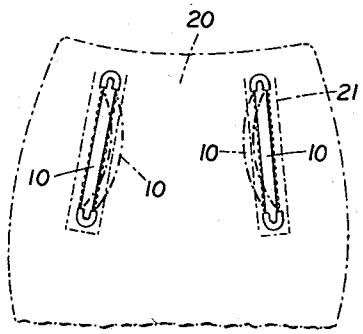


FIG. 6.

INVENTOR
GEORGE BOHM.

BY Mock & Blum

HIS ATTORNEYS.

United States Patent Office 2,710,967 Patented June 21, 1955

2,710,967

GARMENT STAY

George Bohm, New York, N. Y.

Application April 16, 1954, Serial No. 423,763

4 Claims. (Cl. 2—260)

The present invention relates to improvements in stays or stiffening inserts for garments and has particular application to a garment stay of the bent wire type which is flexible in both an edgewise direction and along the plane of its faces.

It has long been the practice to use stays, "steels" or "bones" for reinforcing portions of corsets and similar foundation garments, the stays normally consisting of a flat strip of metal or plastic which is bendable in a single direction, namely across the plane of its front and rear faces. Since such types of stays could not be bent along their edges, they were frequently found uncomfortable in the wearing of the garment, since they could not conform readily to the body movement of the wearer, and in a sitting position, for example, their ends often projected inwardly through the garment and pressed into the body of the wearer.

There has recently come into use a type of metal stay known in the trade as "spiralboning" and consisting of a length of spring steel wire bent in a serpentine manner to form rows of closely spaced, oppositely-facing loops. These stays have the particular advantage of being extremely flexible and being bendable in an edgewise direction as well as in the usual manner across the face thereof. The stays have found extensive use as stiffening stays in corsets, brassieres, swimsuits, and halterless garments providing increased comfort because of their flexibility in all directions.

I have found, however, that these "spiralbonings" are practical as stays only when made in relatively short lengths with a maximum length of approximately seven inches. If these stays are made longer, their extreme flexibility nullifies their effectiveness as reinforcing members for garments. In other words, there is too great a tendency for long stays to bend or sag in a face-wise direction.

It is an object of the invention, therefore, to provide an improved insert of the "spiralboning" type and a method of making the same in which the inserts are reinforced with a plastic filling which rigidifies the insert sufficiently to retard its normal bending movement in a surface-wise direction to some degree, thereby enabling such inserts to be manufactured in greater lengths for stiffening purposes.

Another object of the invention is the provision of an insert of the type described in which the plastic filling is so applied as to avoid interference with the edgewise flexibility of the insert.

Still another object of the invention is to provide an insert of the type described in which the plastic filling covers the greater portion of the metallic spring material, thereby protecting it against rust and other adverse effects of humidity and the like.

Other objects and advantages of the invention will become apparent in the course of the following specification when taken in connection with the accompanying drawings in which:

Fig. 1 is a plan view of the corset stay or insert made in accordance with the invention, the stay being broken away at the center for convenience of illustration.

Fig. 2 is an edgewise view thereof.

Fig. 3 is a section taken along line 3—3 of Fig. 1.

Fig. 4 is a plan view of a portion of the insert showing the manner in which it may be bent edgewise.

Fig. 5 is a perspective view showing the insert bent surface-wise and also twisted, and

Fig. 6 is an elevation showing the manner in which the inserts are utilized in a garment, the broken line representation showing the inserts in bent position.

In the drawings, Fig. 1 shows a typical garment stay **10** of the "spiralboning" type and comprising a single length of spring steel wire bent to form alternate and oppositely-facing loops **11** and **12** arranged in parallel rows. The loops of each row are substantially circular in shape and are closely spaced. As shown in Fig. 2, each loop **11** and **12** is bent slightly at an angle to the longitudinal axis of the stay, so that the sides of the loops partially overlap each other. An arcuate channelled tip **13** is affixed to each end of the stay in the usual manner, the tips rounding off the ends of the stay.

The stay described above is conventional and the exact structure of the particular stay is shown by way of example only. Spiralbonings are also commercially marketed in forms in which the loops are elongated instead of circular and are axially alined instead of staggered. These modified forms are equally adapted for use in the present invention.

In order to rigidify the spiralboning **10** in such a manner as to decrease its flexibility in a surface-wise direction, I fill the interstices **14** of the loops **11** and **12**, and also a portion of the space between the loops with a plastic material which is preferably water impermeable. This material may be latex or any of the semi-flexible, non-brittle plastics such as nylon, polyethylene, etc. The insert may be dipped in a solution of this material and upon withdrawal, the excess plastic removed from the outer surfaces of the loops and the treated band cured or dried by heat. Alternately, the loops may be filled in by the well-known method of cross-head extrusion with hot plastic which is then dried by the introduction of the article into the air.

It will be seen in the drawings that the plastic filler **15** fills the interstices of the loops **11** and **12**, and covers the side surfaces of the loops, but follows the outer peripheral contours of the loops at the side edges of the wire stay **10**, so that the outer peripheral surfaces of the loops are unconnected.

Fig. 4 shows the plastic-treated stay bent in an edgewise direction. It will be noted that in such bending, the loops on the outside of the bend, that is, at the edge away from the direction of bend, are separated as indicated by the reference numeral **16** in Fig. 4, while the loops on the inside of the bend are urged together as indicated by the reference numeral **17**. This relative movement of the outer portions of the loops provides the edgewise flexibility of the metal stay, and since the areas between these outer portions of the loops are free of the plastic filler, they are afforded substantially the same degree of edgewise flexibility as in the metal stay itself. On the other hand, the plastic filler **15** extends continuously through the center of the stay so that its semi-flexible body reinforces and stiffens the stay, retarding to some extent its surface-wise flexibility and enabling stays of substantial length to be produced without the usual limpness resulting. The stay may still, however, be bent or flexed in a surface-wise direction, as indicated in Fig. 5, when pressure is placed thereon in use.

Fig. 6 shows a garment such as a girdle **20** having pockets **21** for insertion of the stays. Such stays are usually inserted flat and straight as shown in full line in

Fig. 2 and often terminate at a point immediately below the waist. When the wearer assumes a sitting position, the bottom ends of the stays inserted in such a position invariably press into the thighs of the wearer causing considerable discomfort unless they are adapted to bend in an edgewise direction. The broken-line representation in Fig. 6 shows the degree to which the stays of the present invention may flex edgewise to avoid contact with the thighs or lap when the wearer is seated.

Fig. 2 illustrates the manner in which the plastic filler 15 covers the side faces of the loops 11 and 12 to provide smooth flat surfaces at the sides of the stay. The untreated metal "spiralboning" type of stay being of an irregular, open-work structure, tends to cause some discomfort when worn in garments of relatively light material such as bathing suits, sun dresses and the like. Such discomfort is eliminated by the smooth planar surfaces provided by the plastic filler.

While a preferred embodiment of the invention has been shown and described herein, it is obvious that numerous omissions, changes and additions may be made without departing from the spirit and scope of the invention.

I claim:

1. A garment stay comprising an open-work metal frame of spring wire material bent into a series of loops arranged alternately in oppositely-facing directions in a pair of rows forming the side longitudinal edges of said frame, said frame being bendable both in a surface-wise and an edge-wise direction, and a semi-flexible plastic filler bonded to said frame and filling the interstices within the loops to retard the surface-wise bending of said frame, said filler following the outline of the loops along the side longitudinal edges of the frame and leaving the loops unconnected by the filler at their outer edge portions to retain the edge-wise bending of the frame substantially unimpeded.

2. A garment stay comprising an open-work metal frame of spring wire material bent into a series of loops arranged alternately in oppositely-facing directions in a pair of rows forming the side longitudinal edges of said frame, said frame being bendable both in a surface-wise and an edge-wise direction, and a semi-flexible plastic filler bonded to said frame and filling the interstices within said loops and covering the outer faces of said frame to retard the surface-wise bending of said frame, said filler following the outline of the loops along the side longitudinal edges of the frame and leaving the loops unconnected by said filler at their outer edge portions to retain the edge-wise bending of the frame substantially unimpeded.

3. A method of reinforcing a garment stay having an open-work metal frame of spring wire material arranged alternately in oppositely-facing directions in a pair of rows forming the side longitudinal edges of said frame, and being bendable both in a surface-wise and an edge-wise direction, said method comprising the steps of introducing a hot flowable plastic material into said frame to fill the interstices within the loops and to form a coating on the outer faces of the frame, said plastic material being semi-flexible in an unheated state, removing the plastic material from the spaces between the outer peripheral portions of the loops along the side longitudinal edges of the frame, and allowing the plastic material to dry and harden.

4. A method of reinforcing a garment stay having an open-work metal frame of spring wire material arranged alternately in oppositely-facing directions in a pair of rows forming the side longitudinal edges of said frame, and being bendable both in a surface-wise and an edge-wise direction, said method comprising immersing said frame in a plastic filler solution, said filler being semi-plastic when dried, wiping the plastic filler from the spaces between the outer peripheral portions of the loops along the side longitudinal edges of the frame, and allowing the plastic filler to harden.

References Cited in the file of this patent

UNITED STATES PATENTS

1,503,128	Leland et al.	July 29, 1924
2,161,080	Murphy et al.	June 6, 1939

FOREIGN PATENTS

1,035,785	France	Apr. 22, 1953