Oct. 26, 1954 E. B. LAMKIN ET AL 2,692,389

GARMENT STAY

Filed Sept. 12, 1951

FIG. 1

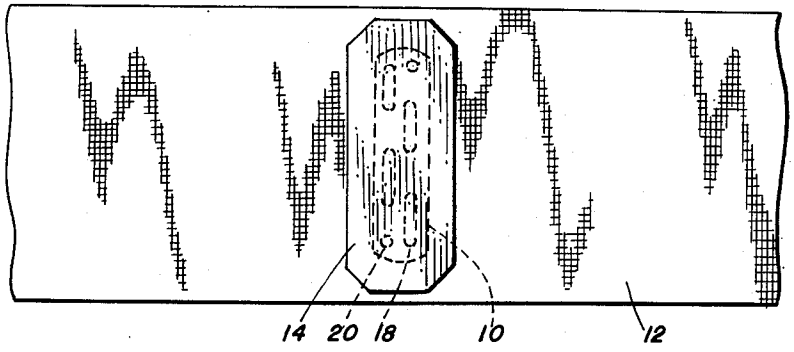


FIG. 2

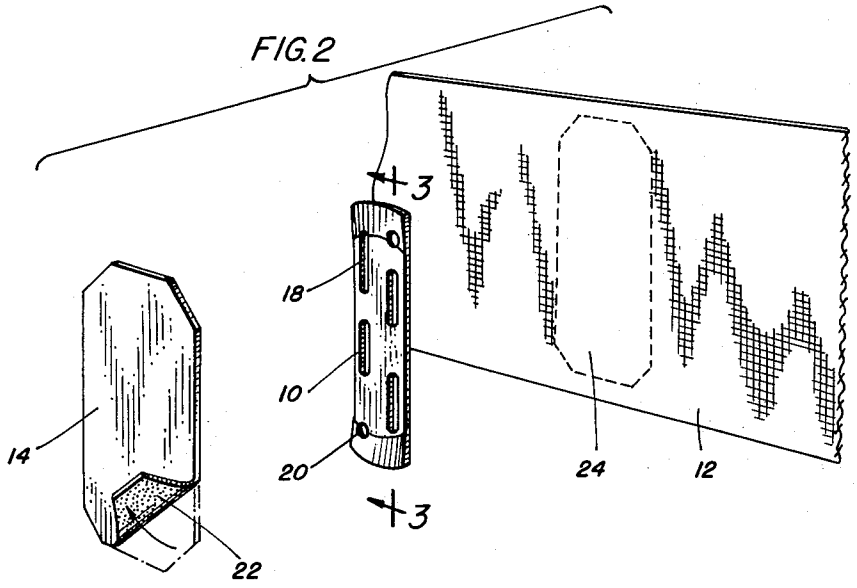
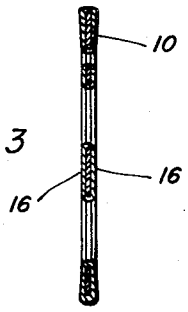


FIG. 3



INVENTORS:
ELVER B. LAMKIN
JOSEPH H. LAMKIN

BY Kent W. Worrall
ATT'Y

Patented Oct. 26, 1954

2,692,389

UNITED STATES PATENT OFFICE

2,692,389

GARMENT STAY

Elver B. Lamkin and Joseph H. Lamkin, Chicago, Ill., assignors to Lamkin Leather Company, Chicago, Ill., a corporation of Illinois

Application September 12, 1951, Serial No. 246,248

9 Claims. (Cl. 2—260)

1

This invention relates in general to the attachment of a spring steel stay to a garment without sewing it in place, and is more particularly described as a method of applying a coated spring steel stay which is waterproof as well as perspiration-proof to a garment or to a garment material by an adhesive thermosetting resin applied to a resilient rubberized fabric.

An important object of the invention is to treat a metal stay so that it is protected from rusting and at the same time to cover it by means of leather or fabric which overlaps the stay so that the cover is intimately bonded about the edges thereof to the fabric which is to be reinforced.

A further object of the invention is to provide improved means for bonding the cover to the fabric through the metal stay itself so that an increased bonding surface is provided for holding the stay in place.

A still further object is in the provision of a new and improved method of first coating the stay and thus protecting it from rusting and then by covering it with one or more overlapping plies of thin material which has been dipped or sprayed with a heat reactive adhesive, the cover being applied around the stay in overlapping relation by the application of heat and pressure.

Other objects of the invention will appear in the specification and will be more apparent from the accompanying drawings in which,

Fig. 1 represents a stay as applied to a piece of fabric such as used for corsets and other garments and covered in overlapping relation about the edges of the stay;

Fig. 2 is an exploded perspective view of the parts shown in Fig. 1; and

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2 and representing a protective coating on the metal stay.

It is known that metal stays are commonly applied to rubberized fabric for corsets and other garments by the parts being cemented in place by rubber cement and by securing the metal stays in pockets formed by stitching, but the present invention provides a new and improved method of applying a metal stay to a rubberized fabric protecting it against rusting and then securely bonding the metal stay in place without stitches and by the application of heat and pressure.

Referring now more particularly to the drawings, a metal stay 10 is represented as being securely attached to a flexible rubberized fabric 12 by means of a cover 14. The stay may be of any length but preferably it is of thin flexible spring steel and the fabric 12 is that commonly used

2

for corsets, girdles and similar women's garments. The metal stay is covered with a coating 16 of a thermo-setting resin by curing the coating upon the stay at high temperature and on all sides and edges thereof. If the stay itself is provided with slots 18 or holes 20 to give more attachment area for the stay, the edges of these perforations are likewise coated by the resin. This protects the spring steel from rusting by perspiration or repeated washings in dilute soapy solutions, while it is in use with the garment.

The metal stay is kept in place by one or more plies of a cover 14 which may be leather, fabric, or another resin. The cover is of a size to overlap all of the edges of the stay 10 so that there will be a suitable margin all around the metal stay by which it is secured in place to the fabric 12. The cover is dipped or sprayed with a heat reactive adhesive 22 which may be any of the conventional thermo-plastic aldehyde type resins fortified with a conventional phenolic type of thermo-setting resin and that portion 24 of the fabric 12 to which the stay and the cover are to be applied may or may not have a coating of this material of substantially the same area as that to be overlaid by the cover 14.

The treated stay after its coating is cured thereon is applied to that area or portion 24 which may or may not be treated by an adhesive coating, and then the cover is applied thereover and heat and pressure is applied pressing the cover tightly in place.

The resinous composition upon the cover and fabric 12 reacts upon heating and upon the application of pressure produces a very tenacious bond to the rubberized fabric which is unaffected by water, perspiration or hot soap solutions ordinarily used in laundry.

A stay thus attached does not protrude from the garment which makes it possible to laminate the stay and coating on the inside of the garment so that it will wear smoothly and produce no discomfort to the wearer. This feature produces a much improved looking garment in which the inside of the stay and cover are substantially flush with the inside surface of the fabric.

The use of leather produces a pocket for the stay which is much more durable than fabrics such as muslin, cotton, nylon, and the like. At the same time, leather affords a more pleasing soft surface when next to the skin. For large stays or wherever desired, fabric may be used in place of leather, particularly if economy is a factor.

The purposes of using a thermo-setting type of adhesive as described herein are:

(*a*) The bond obtained is very tenacious and cannot be delaminated from a garment unless great force is applied. Thermoplastic sealants as commonly used do not offer this advantage.

(*b*) The heat reactive resin when completely set is unaffected by perspiration, hot water, and hot soap solutions. All thermo-plastics soften and degenerate to some extent, thus weakening the bond.

(*c*) The adhesive resin upon the application of heat and pressure does not penetrate the back or opposite side of the rubberized fabric. This does occur with thermo-plastic heat sealants which are apt to exude through the fabric.

Upon the application of heat and pressure, the resin of this invention polymerizes and sets as a hard flexible bonding agent, attaching the leather (or other material) to the rubberized fabric only at the surfaces that are exposed to the fabric. The metal stay with the special coating does not adhere to the rubberized fabric when the surface 24 is not treated but is kept in place by the overlapping of the impregnated leather or fabric cover which is applied to the fabric by a thermo-setting cement.

To improve the bond between the rubberized fabric and the impregnated leather or other cover, the metal stay after being coated may also be treated with a thermo-setting sesin, thus fastening the metal stay to the garment as well as the leather to the garment. To obtain a more efficient bond, a metal stay which has perforations in the form of slots or holes may be used. This will eliminate the necessity of the resin treatment of the metal stay; and also will obviate the necessity of coating the fabric of the garment.

In ordinary practice, a metal strip one-quarter of as inch to two inches or more in width is bonded to an elastic tape which serves to stiffen it as a stay but not to flex and break the metal strip as a loose metal or whalebone stay. In this case, the stay is bonded in place eliminating a poking action of the stay and preventing it from traveling from one location to another. The bonding consists in applying an adhesive coating of resinous material to the rubberized fabric and to the cover, the fibers of which are dipped or impregnated with the material and cured by heat of the order of 200° F. for one hour varied, depending upon the material such as cloth or leather and then when the cover is applied over the metal stay, pressure is applied with heat, the pressure being of the order of 300 lbs. per square inch at a temperature of approximately 250° F. for at least one minute, and more, depending upon the material and the size of the stay.

Thermo-plastic heat sealers such as celluloid and guttapercha tend to penetrate the fabric completely when heat treated, unless controlled by special handling, causing soiled sections on the outer side of the garment. With the use of the present thermosetting resin, a very tenacious bond is obtained which does not penetrate to the opposite side of a rubberized fabric to which it is applied.

Although the preferred construction and method of applying garment stays is described in some detail, it should be regarded by way of illustration and example rather than a restriction or limitation of the invention as various changes may be made in the construction, combination and arrangement of the parts without departing from the spirit and scope of the invention.

We claim:

1. A garment stay comprising a flexible sheet metal strip, a thermo-setting resin coating cured thereon at high temperature, a flexible fabric and a localized coating of thermo-setting resin thereon, a cover larger than the strip in length and width to project beyond the sides and ends of the strip on one side face thereof, a heat reactive adhesive applied tp the cover, and the cover applied over and around the stay against the localized coating on the fabric, and the cover being fixed in place on the fabric by the application of heat and pressure bonding the cover to the fabric around the edges of the metal strip.

2. A garment stay comprising a flexible rubberized fabric, a strip of thin flexible spring metal and a cover of a size slightly longer and wider to extend beyond the edges of the metal strip and at one side face thereof for engagement with the fabric beyond the edges of the strip, a thermo-setting resin coating cured on the strip at high temperatures sufficient to cure and set the resin and on all sides and edges thereof, a heat reactive adhesive impregnating the rubberized fabric and the cover, and the cover being applied to the fabric with the metal strip therebetween by the application of heat and pressure.

3. A garment stay comprising a rubberized fabric, a stiff resilient flat strip having perforations therethrough, a cover at one side of the stay of a size to fit over and beyond the longitudinal and lateral edges of the strip, a thermo-setting resin with which the cover and the corresponding surface of the rubberized fabric are treated, the cover engaging the fabric through the perforations of the metal strip and beyond the edges thereof, and the cover bonded to the fabric by the application of heat and pressure to the outer faces of the cover and fabric.

4. The method of coating a thin metal strip with a thermosetting resin and curing it at high temperature to protect the strip from rusting, bonding the strip to a fabric by means of a cover which is longer and wider than the strip to extend beyond the strip at all edges and from the outer sides thereof, treating one side of the cover and a corresponding surface of the fabric to which the strip is applied with a thermo-setting resin and curing this resin thereon, and thereafter applying the strip between the cover and the treated surface of the fabric under heat and pressure to bond the strip in place between the fabric and the cover.

5. In a method in accordance with claim 4, the steps of curing the thermo-setting resin upon the metal strip before the strip is applied to the fabric, treating one side of the cover and the corresponding surface of the fabric with the thermo-setting resin at a temperature of about 200° F. for approximately one hour and thereafter applying the cover to the fabric with the metal strip therebetween with pressure and heat of the order of 300 lbs. per square inch at a temperature of 250° F. for a period of at least one minute.

6. In the method of coating according to claim 4, the step of additionally retaining the metal strip in place which comprises perforating the metal strip with holes sufficiently large so that in applying the cover with its thermo-setting coating to the strip, the material of the cover and the material of the fabric to which the strip is attached will be connected through the perfora-

tions of the strip as well as by those portions of the cover which extend beyond and overlap the edges of the strip.

7. A garment stay for a rubberized fabric comprising a flexible resilient sheet metal strip, a thermo-setting resin coating cured thereon at high temperature, and a cover larger than the stay and disposed to project beyond the sides and ends of the stay entirely at one side thereof and to be secured to a fabric to which the stay is applied, a heat reactive adhesive with which the cover is treated and the cover being applied to the fabric with the metal strip therebetween and secured by the application of heat and pressure to the adhesive.

8. A garment stay in accordance with claim 7, in which the metal strip has a plurality of perforations therethrough and the cover is bonded to the fabric from one side of the blade and around the edges and through the perforations of the metal blade.

9. The method of coating a thin metal strip with a thermo-setting resin and curing it at high temperature to protect the strip from rusting,

bonding the strip to a fabric by means of a cover which is longer and wider than the strip to extend beyond the strip at all edges thereof, treating one surface of the cover with a thermo-setting resin and thereafter applying the stay to a fabric without attaching the stay itself to the fabric but including it between the cover attached at its edges to the corresponding surface of the fabric under heat and pressure to bond the stay in place.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,147,454	Somers	July 20, 1915
1,951,236	Donahue	Mar. 13, 1934
2,126,833	Steinberger	Aug. 16, 1938
2,230,788	Ullendahl	Feb. 4, 1941
2,231,529	Dey	Feb. 11, 1941
2,316,766	Beckwith et al.	Apr. 20, 1943
2,393,612	Bullinger	Jan. 29, 1946
2,403,077	Hershberger	July 2, 1946
2,595,133	Golden	Apr. 29, 1952