May 9, 1950 W. BISHOP 2,506,915

BINDING STRIP JOINT

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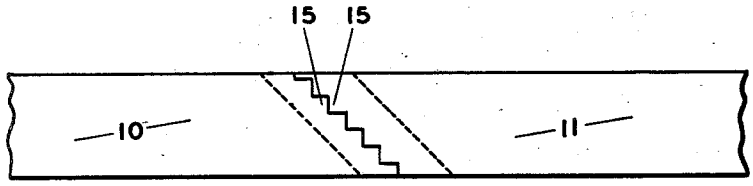


fig. 1

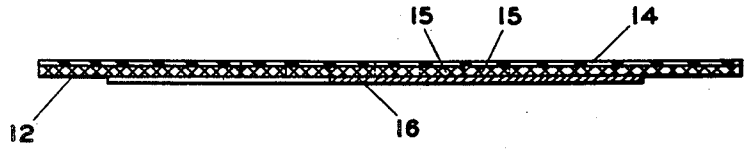


fig. 2

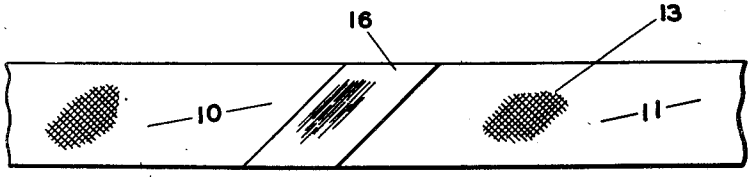


fig. 3

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BINDING STRIP JOINT

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1 Claim. (Cl. 154—46)

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This invention relates to a seam or joint structure applicable to a flexible binding tape, and particularly relates to such structure wherein said tape is coated with a plastic material and comprises a plurality of sections of fabric material cut on the bias.

In the manufacture of automobiles, there are a variety of places, such as in the upholstering or along the edges of fabric covers and tops, where it is desirable to place a strip of concealing or binding tape for the sake of providing an improved appearance. In the normal use of binding tape of this character, it has been found desirable to provide rolls or spools containing several hundred feet of the material in continuous strip form. However, in order that the tape can be bent and shaped to lie smoothly around curved edges of either a long or a short radius, it is desirable that the material comprising such tape be cut on the bias. In so doing, any given strip of cut material is relatively short so that a large number of joints must be made between these several individual sections to form a unitary, relatively long strip.

In fabricating such a product on a production scale, it has been customary to bend a relatively wide strip longitudinally to form a substantially cylindrical shape and to then join the meeting edges by stitching. The relatively large tube thus formed is then cut helically at substantially a 45° pitch to provide a continuous strip of practically indefinite length cut on the bias. Such strips may be cut either as a relatively wide strip to be later split into narrower strips of desired width for use, or the initial cutting may be so spaced as immediately to provide a strip of the desired width for final use.

The stitching, when the helical strip is ultimately cut from the tube as aforesaid, constitutes the means for joining the relatively short individual bias cut sections thereof. Such a stitched joint, however, is unsightly in appearance and, especially where the finished strip is relatively narrow, such as one-half inch in width, constitutes a relatively weak joint which will permit a certain amount of displacement, both longitudinally and laterally, of the joined sections with respect to each other. In the finishing of automobile upholstery, fabric tops, and especially in the making of high grade seat covers, such a joint is undesirable in the extreme.

Accordingly, it is a major object of the invention to provide a binding strip comprising a plurality of sections secured together by a type of joint which is capable of rapid and continuous

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fabrication by production machinery and yet which will be smooth and neat in appearance and will effectively hold the several individual strip sections together.

Another object of the invention is to provide a binding strip as aforesaid in which the joint itself will be capable of bending around a curved edge surface in the same manner as the remainder of the strip without bunching, buckling or exposing any cut edges.

A further object of the invention is to provide means for joining individual strip sections, as aforesaid, which will be applicable to textile fabrics coated with a plastic material.

A further object of the invention is to provide a means for joining a plurality of individual strip sections, as aforesaid, which will have a high degree of strength and durability.

A further object of the invention is to provide a seam or joint, as aforesaid, which will be pliable and, when carefully made, substantially invisible.

Other objects and purposes of this invention will become apparent to those familiar with this type of equipment upon referring to the accompanying drawings and upon reading the following specification.

In providing a seam meeting the objects and purposes above pointed out, I have found it effective to provide means for joining the strips which is freely pliable but substantially unyielding under tension in any direction. In accomplishing this I cut the edges to be joined in a zig-zag pattern of which the general direction is parallel to the warp of the textile fabric, interfit such zig-zag cutting, hold the strip sections together by placing a strip of adhesive coated paper across the joint and finally effect a welding together of the plastic coating by softening it with a solvent and subjecting it to a joining pressure. This provides a joint of sufficient strength to prevent any relative displacement of the individual strip sections, but which is substantially invisible and yet sufficiently flexible to enable the unitary strip to extend smoothly around curved edges.

In the drawings:

Figure 1 represents a top plan view of a piece of tape embodying the improved joint.

Figure 2 represents a side view of the material shown in Figure 1.

Figure 3 represents a bottom view of the material shown in Figure 1.

Reference numerals 10 and 11, respectively, indicate two individual strip sections to be joined, each of which may comprise a suitable woven fabric base 12 having warp and weft threads 13

and an exterior plastic coating 14, such as pyroxylin, applied to one side thereof providing a composite material having the desired characteristics of flexibility and elasticity.

As shown, the adjoining edges of the strip sections 10 and 11 are pinked or cut in a zig-zag pattern extending across the strip in a diagonal direction, here at an angle of about 45°, with respect to the longitudinal axis thereof and in parallel relationship to the warp of the textile fabric 12 to provide interfitting tongue members 15 lying wholly in the plane of the body of the strip. By the provision of these closely interfitting tongue members 15, which extend generally longitudinally of the strip at an angle to the joint, the adjacent edges of the strips 10 and 11 to be joined may be easily located with respect to each other. Moreover, after the joint has been completely assembled, the interengaging tongue members 15 materially assist in preventing lateral displacement of the strip sections 10 and 11 with respect to each other. Otherwise stated, the elimination of a single, straight line end boundary on each strip, which boundary is at an angle to the strip's length, and replacement by a plurality of boundaries whose segments are either parallel to or transverse of said length, prevents the sidewise drawing of said strips which often takes place when said strips, having the single straight line angular type boundary, are placed under tension.

The individual strip sections 10 and 11 are connected by means of an adhesive coated, fibrous strip 16 extending along the joint and secured at either side thereof to the woven fabric bases 12 of the respective strip sections 10 and 11. The fibrous joining strip 16 may be of any suitable material, such as a relatively strong paper having a high wet strength which is readily pliable and may be shaped on a curved surface in the same manner as the remainder of the binding strip, but which is not elastic or resilient.

In particular one should not use for this purpose any form of woven fabric, such as that from which the base 12 is made, for the reason that it will yield when pulled at an angle with its warp threads.

There is then applied to the plastic coating of the fabric base 12 in the region of the joint a quantity of material comprising a solvent for the said plastic material, which in the case of the pyroxylin coating above mentioned may be acetone, ether or some mixture thereof, in which is suspended a quantity of whatever coloring pigment is used in said plastic coating. The solvent softens the plastic material and makes it possible to effect a slight welding together of the abutting ends of the plastic coating. The presence of the pigment in the solvent will insure that the plastic coating can spread sufficiently to become satisfactorily welded together without undesirable lightening in color when the plastic is spread over a slightly greater area.

The joint is then finished by effecting a pressing together of the abutting softened plastic ends. This may be accomplished by running across the said plastic coating of both abutting strips in the region of, and across, the joint a roll having the same surface pattern, whether smooth or embossed, as is provided on the rest of the tape by

which to make said pattern continuous across the joint. It will be evident that this roll, in addition to embossing the surface of the plastic, will force a quantity of the softened plastic material down between the abutting ends of the sections 10 and 11 to surround the fibers thereof and cooperate with the adhesive on the strip 16 to hold said fibers firmly in place.

In this manner the adjoining strip sections 10 and 11 are unyieldingly secured against relative displacement but at the same time the joint is pliable and, when molded upon a curved surface, is flat, smooth and unbroken in appearance. With the joint so made, on the facing side of the strip it is barely discernable to the naked eye.

It will thus be seen that by the present invention a bias-cut binding tape has been provided having a plurality of individual strips joined together in such a manner as to prevent relative longitudinal and lateral displacement of the adjoining strip sections but which is soft and pliable to such a degree that it may be easily shaped around a curved edge surface, presenting a smooth, unbroken, exterior finish. Moreover, the cost of manufacturing binding tape of this general character is not materially increased over prior products.

It will be obvious to those skilled in the art that various modifications in the invention as herein shown and described may be made without departing from the spirit or scope thereof which is to be limited only by the appended claim.

What is claimed and desired to be secured by Letters Patent is:

An article of manufacture comprising a binding strip of bias-cut woven textile fabric having one side coated with a plastic composition, the binding strip being composed of a plurality of individual sections adapted for flexing freely in any direction, the adjacent edges of said sections extending generally diagonally with respect to the longitudinal axis of said binding strip and being provided with interfitting zig-zag ends, the line of said interfitting being substantially parallel to one set of threads of the woven fabric lying entirely within the plane of said binding strip, and a strip of pliable non-stretchable material overlying said tongue portions on the uncoated side of said binding strip and adhesively secured to the adjacent edges of said individual sections, the plastic composition with which the said fabric is coated being substantially continuous from one of said sections to an adjacent section.

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