Nov. 10, 1931. H. A. EVANS 1,831,349

PIPING FOR SEAM ORNAMENTATION

Filed March 13, 1928

Fig. 1.

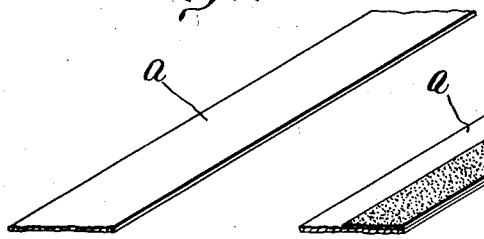


Fig. 2.

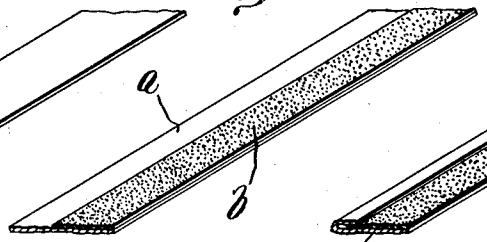


Fig. 3.

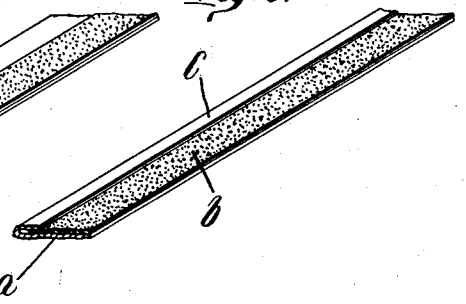
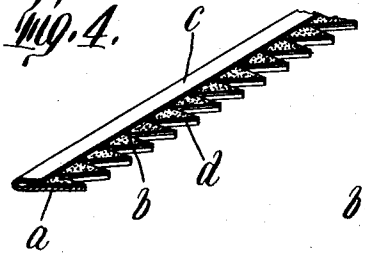


Fig. 4.



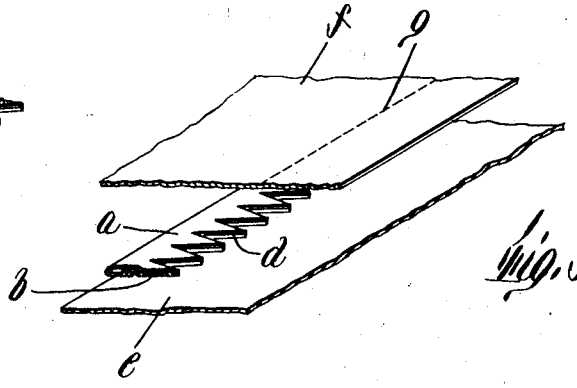
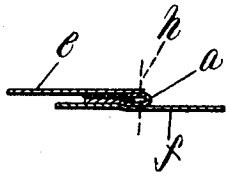


Fig. 5.

Fig. 8.



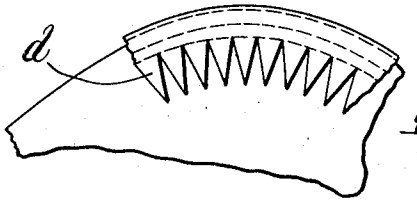


Fig. 6.

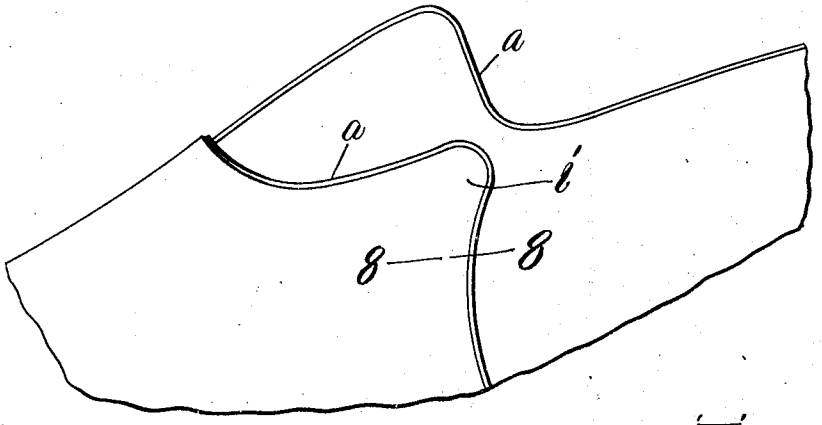


Fig. 7.

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UNITED STATES PATENT OFFICE

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PIPING FOR SEAM ORNAMENTATION

Application filed March 13, 1928. Serial No. 261,237.

The present invention relates to strips for ornamenting sheet articles such as leather particularly, but other fabrics permissible also, for example the seams between sheets which are stitched together, and also to composite articles of manufacture and parts thereof comprising such pieces stitched together with strips interposed in the seams between such parts. The invention also comprises a new method in the application of ornamental strips or piping in the environment here indicated.

One important use and combination to which the invention is particularly adapted, and in which it is claimed herein, although it is not by any means limited to such use, as will appear hereinafter, is in shoe manufacture as an ornamentation to the seams between the parts or at the edges of shoe uppers; and also in similar situations in other leather goods, such as pocketbooks, etc. In illustration and explanation of the value and utility of this invention I will briefly describe the difficulties which have been encountered heretofore in applying piping to the seams between parts of shoe uppers and the manner in which I have enabled these difficulties to be overcome.

The use of piping in shoe uppers has long been known and valued as a very effective means of ornamentation, particularly of shoes for women's wear, since the piping obscures the raw edge of the outermost piece of the upper leather at the seam, and in addition enables striking and beautiful ornamental effects to be obtained. The material used for such piping is a thin ribbon skived from the grain side of leather, as sheepskin, kid, calf, etc., folded longitudinally so as to present a smooth rounded surface in the part which projects from the seam. This material can be, and is, dyed, coated, enameled, or otherwise finished to give a great variety of desirable color effects.

Heretofore it has been found universally necessary in commercial manufacture, in applying piping to shoe uppers to stitch the piping material independently to one of the pieces of the upper, setting the piping in course of stitching so that it projects to the desired distance from the edge of the piece. Then the piece with the attached piping is laid against the other piece to which it is to be joined in making the complete shoe upper and a second seam is stitched passing through the overlapping pieces of the upper and that part of the piping which lies between them. Since ornamental appearance is a vital factor in this part of shoe making, it is essential that these seams be sewed with a fine thread and short stitches, and that both seams be sewed in the same line. Ordinarily the length of the stitches is in the neighborhood of 1/30 of an inch and is practically never longer than 1/20 of an inch. In sewing the second seam, it is practically impossible to pass the needle through the holes made by the stitching of the first seam, owing to the speed at which the sewing machines used in this class of work are run and the necessity of rapid production. Hence in most cases the piece to which the piping was first attached becomes pierced with two sets of needle holes, of which the distance between adjacent holes may be in some cases so slight as to cause tearing of the leather between them, and by which, together with the tightening of the stitches, the leather is greatly weakened. Consequently the leather is liable to tear along the line of the seam in the course of lasting or other subsequent operations in shoe making, particularly the seam between the vamp and quarter, when piping is so applied there, where an especially heavy strain is placed on the seam in lasting. The spoilage of shoes from this cause in course of manufacture, and the liability of tearing apart after a short life in use if they have survived the shoe making processes, has been so great as to exclude piping from any seam to which any considerable strain is applied either in lasting or in subsequent wear.

In accordance with this invention I eliminate one of these operations and seams by making the piping strongly adhesive on one side, without impairing its flexibility, so that it may be laid against the surface of one of such pieces following the outline thereof, however sharply curved or irregular such outline may be, and will be so strongly re-

tained there that it will not creep or shift in the course of machine stitching the seam which unites the overlapped pieces together. One seam thus suffices to connect the pieces of the upper and secure the interposed piping.

In the drawings furnished with this specification, I have shown the steps of manufacture and the physical characteristics of my improved flexible adhesive piping and the mode of its use in application to shoe uppers.

Fig. 1 is a fragment of the leather ribbon from which piping for shoe uppers is made;

Fig. 2 is a similar fragment of the ribbon after having received a strip of thin fabric impregnated with adhesive, or a coating of adhesive, on one surface;

Fig. 3 is a similar view of the piping after one edge of the ribbon has been folded over and laid down against the adhesive to form the finished edge which is ultimately the only part exposed to view;

Fig. 4 is a view similar to Fig. 3 after the adhesively treated part of the piping has been pinked or notched;

Fig. 5 is a fragmentary view showing the application of the piping to a seam between two pieces of leather;

Fig. 6 is a plan view showing the mode of application of the piping to a single piece of leather prior to stitching the seam which unites such piece to another piece;

Fig. 7 is an elevation showing part of a shoe upper having a seam, and its top edge ornamented with piping according to this invention;

Fig. 8 is a cross section of the seam thus ornamented taken on line 8—8 of Fig. 7.

Like reference characters designate the same parts wherever they occur in all the figures.

The material of the piping is, or may be, the same as that heretofore customarily used, namely, a thin skiving from the grain side of any suitable leather, as kid, sheepskin, calfskin, etc., in a strip or ribbon sufficiently wide for the purpose, and of uniform width, composed of pieces joined together to a suitable length. Such ribbon is designated in all the figures by the reference letter *a*. In the manufacture of the piping a layer of adhesive *b* is placed on the back side of the ribbon, that is, the skived or flesh side. This layer does not extend the full width of the ribbon, or even as far as the line on which the ribbon is to be folded over, but preferably extends just far enough to underlie the edge of the folded over part and serve as the bond for holding such part. The adhesive layer is preferably formed by a thin strip of textile fabric or other suitable material impregnated, or at least coated on both sides, with an adhesive. It is within my contemplation, however, to apply a film of adhesive directly to the piping ribbon instead of using an impregnated or coated strip as the vehicle. Either mode of making the ribbon adhesive on one side is equivalent to the other.

After having been thus treated, the edge portion of the strip, along the zone which has not received the adhesive coating, is folded over, forming a flap *c*, the edge of which is laid on the adhesive and pressed against the same, whereby it is held fast as shown in the accompanying drawings, the flap preferably has a width less than half the width of the folded strip, thus leaving an ample adhesively coated area to permit the attachment of the strip to sheet articles. Attention is called to the fact that the adhesive layer does not extend all the way to the fold, but goes only far enough under the flap to retain the latter securely. Hence a sufficient space is left between the edge of the adhesive coating and the fold for passage of the needle in later stitching the parts of an upper and the interposed piping together, without having to pass through the adhesive and either disturbing the latter or being made sticky by it.

For some purposes the piping shown in Fig. 3 is complete or finished, that is, for purposes which do not require sharp bending of the piping in its application; but for other purposes, which require sharp bending and in order that the piping may be so bent without forming puckers, the adhesively coated zone is notched or pinked, as shown in Fig. 4, making pointed tongues *d*. This is the final finished form suitable for all applications.

In use the piping is applied to the surface of a piece *e* with its adhesive coating next to such piece and the fold projecting to the desired distance from the edge of the piece, and is pressed down so as to be firmly bonded thereto by the adhesive coating, after which the piece *e* is laid against another piece *f*, to which it is to be attached in making the finished article, with the piping between the pieces, and all three are then stitched together by a single seam shown at *g*. The location of this seam is close to the edge of the piece *e* and between the fold in the piping and the termination of the adhesive zone *b* indicated by the broken line *h* in Fig. 8. Thus the needle passes through the piping without also passing through and becoming coated by the adhesive, and therefore without the liability of soiling or tearing the leather and without the resistance to its passage through the leather or to the drawing off of the thread which would occur if it passed through the adhesive.

In the application of piping to parts of shoe uppers particularly, but also to other classes of goods, it frequently must be bent sharply in order to conform to the sharply curved or pointed portion of a piece of upper

leather, as the angle *i* of the vamp of an upper shown in Fig. 7, the extremity of an instep strap, such as provided in some styles of shoes, etc. The pinking of the piping enables it to be bent as sharply as necessary at all points.

There is a strong tendency for a thin and light strip of material, such as piping, to creep and shift out of place when a seam is stitched through the parts between which the piping has been laid. This tendency and the impossibility of controlling the piping heretofore has been the cause for the prior universal practice of first stitching the piping in its required relation to one of the pieces before sewing the two pieces together. But I have discovered that by using a strong, thick and flexible cement, I can unite the piping to the leather strongly enough to control it in the sewing of the parts together by machine stitching with the rapid travel and quick turning of the goods incidental to machine stitching in factory practice. Thus I am able to dispense with the old step of independently stitching the piping to one of the pieces and at the same time to produce finished goods in which the piping is accurately and correctly placed. I may use for this purpose cements or adhesives of already known character, containing rubber in their composition, such as those provided with surgical take, etc., which are sticky and flexible, but not objectionably sticky, and retain these qualities for long periods of time without substantial deterioration. But I may use other adhesives, whether now known or which may appear in future, having qualities comparable to those above indicated as desirable.

The same or similar piping, having leather as the foundation, may be used in the manufacture of pocketbooks and other leather goods; while piping of which fabric as well as leather is the foundation may be provided for use with articles of clothing made of textile fabrics, as well as shoes. Hence the fundamentals of the invention are applicable to a wide variety of uses and are so claimed herein. The term "article of manufacture", used in a generic sense in this specification and in the claims, is intended to include not only shoes and other leather goods, but also garments and other manufactures made of textile fabrics. Even when the piping is applied to the exposed edge or boundary of the article, its adhesively coated zones or web is ordinarily confined between two pieces which are stitched together; that is, between an outer ply of the article and a facing, lining, or backing ply. For instance, Fig. 7 shows piping at the bounding edge of a shoe upper. The lining or inner facing of the upper extends to this edge, and the piping extends between such facing and the outer ply of the upper; a seam being sewed through all. Similar conditions obtain in most of the other articles contemplated in this specification.

While the invention herein claimed has for the purpose of illustration been described for use as piping, it will of course be understood that it has other uses and that the claims cover the material for any use to which it is applicable.

What I claim and desire to secure by Letters Patent is:

1. An ornamental strip for application to sheet articles consisting of a strip of material having on one side a layer of substantially non-drying adhesive material, one edge of the strip being folded over a relatively small part of the adhesive surface and in contact therewith.

2. An ornamental strip for application to sheet articles comprising a base strip, a strip of material impregnated with cement laid on and stuck to one face of the base strip, and a flap formed by one edge portion of the base strip folded over and laid against the adhesive strip, the latter terminating at a line intermediate the edge of such flap and the fold on which the flap is doubled back.

3. An article of manufacture comprising a piping having an adhesive coating on one side and a folded edge, the flap of which partially overlies such coating, the coating, however, terminating under said flap at a line spaced apart from the folded edge, two pieces of an article of manufacture laid against one another with the piping between them and stitched together, one of such pieces being in contact with the cement coated face of the piping and the stitches of the uniting seam passing through both pieces and the piping and located between the folded edge of the latter and the terminal edge of the adhesive layer.

4. The method of applying piping to the parts of a manufactured article which consists in laying and adhesively uniting a piping to one of such parts, laying such part against another part of the article with the piping between them, and uniting the parts together by a seam, the stitches of which pass through both pieces and the piping without passing through the adhesive.

5. The method of applying piping to an article of manufacture which consists in cementing a piping strip to one of the component pieces of such article with the edge of the piping projecting beyond the edge of the piece and the bonding adhesive terminating on a line back from the last mentioned edge, laying the said piece with the connected piping against another piece of the article, and stitching both pieces together through the piping in a line between the edge of the first named piece and the boundary of the adhesive coating.

6. An ornamental strip for application to sheet articles having a folded edge with a

flap extending a portion only of the width of the strip from the folded edge, said portion being less than half the width of the strip, and a layer of non-drying adhesive disposed between the edge of the folded flap and the main portion of the strip and extending to the opposite edge of the strip, thereby providing a permanently adhesive surface of ample area to permit the ready subsequent attachment of the strip to a sheet article.

7. Method of trimming sheet articles, which comprises adhesively coating a marginal surface of a strip of ornamental material with adhesive, while leaving the adjoining marginal surface untreated, folding the strip longitudinally so that the uncoated surface engages the edge of the adhesive coating and is held in folded position thereby, and pressing the exposed coated portion of the strip into adhesive engagement with the marginal portion of a sheet with the folded edge projecting beyond said marginal portion, whereby the adhesive coating is used not only to secure the flap in folded position, but also to secure the ornamental strip to a sheet article.

In testimony whereof I have affixed my signature.

HAROLD A. EVANS.