Jan. 3, 1939. W. C. VIZARD 2,142,228

BEADED WELTING AND ITS MANUFACTURE

Filed March 10, 1937

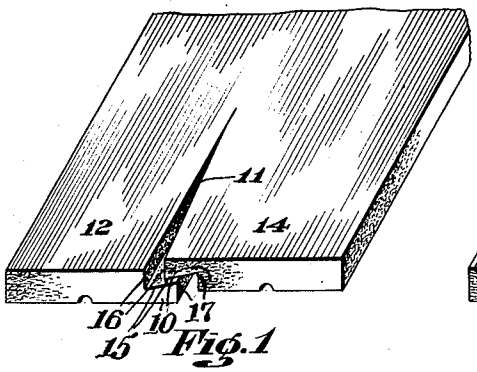


Fig. 1

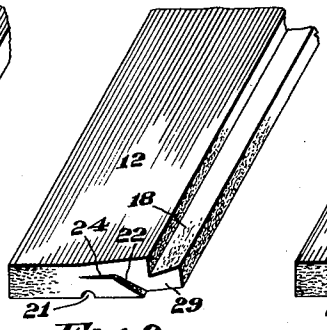


Fig. 2

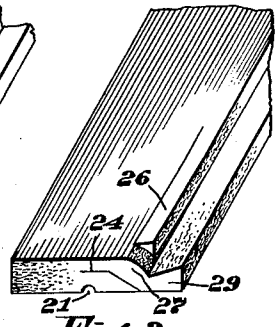


Fig. 3

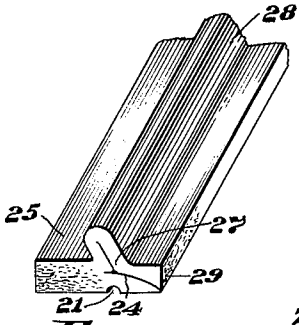


Fig. 4

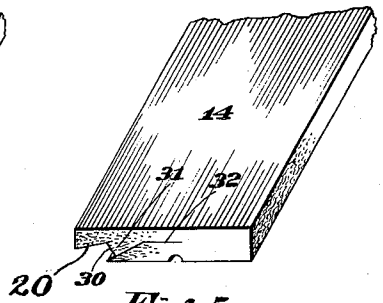


Fig. 5

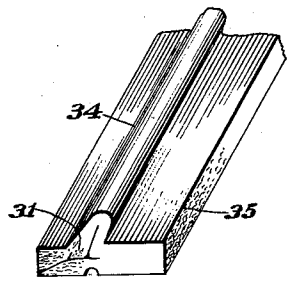


Fig. 6

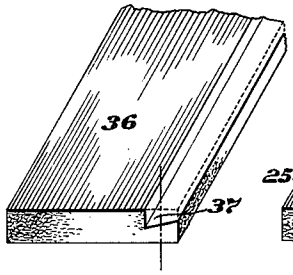


Fig. 7

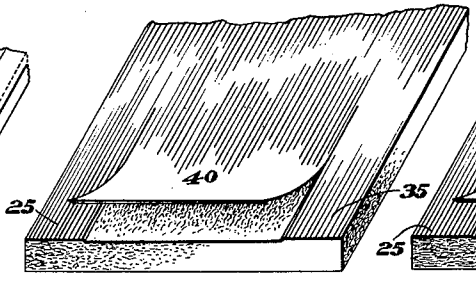


Fig. 8

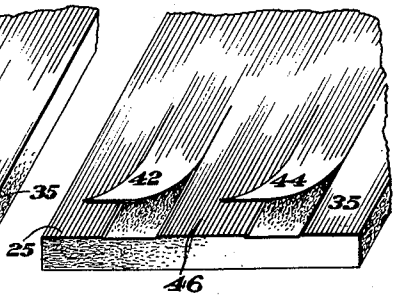


Fig. 9

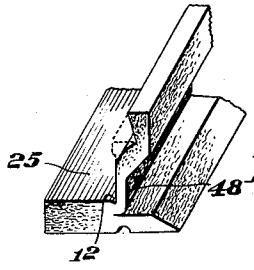


Fig. 10

INVENTOR
William C. Vizard
BY
Warren G. Ogden
ATTORNEY

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UNITED STATES PATENT OFFICE

2,142,228

BEADED WELTING AND ITS MANUFACTURE

William C. Vizard, Brockton, Mass., assignor to Barbour Welting Company, Brockton, Mass., a co-partnership composed of Perley E. Barbour, Walter G. Barbour, and Richard H. Barbour

Application March 10, 1937, Serial No. 130,095

14 Claims. (Cl. 12—146)

This invention relates to welting for shoes and to its method of manufacture. More particularly the invention relates to the production of grain leather welting but the process may advantageously be practised in the preparation of welting from other suitable materials.

One type of shoe welting wherein the improvement gained by the novel process is particularly marked is known as "beaded welting" and especially the kind of beaded welting wherein a bead formed by folding a flap of the material is supported and held in its position at the inner edge of the welt extension by a relatively thick portion of stock that is integral with the folded material. In grain leather welting the bead supporting stock is preferably formed from an integral portion of the flesh of the leather although the invention in some of its aspects is advantageous in the manufacture of other kinds of beaded welting.

One object of the present invention is to effect a saving of stock in the manufacture of beaded welting. In order to obtain sufficient stock for folding into a bead a fillet must be used that is wider than the finished welting. A stock saving obtained by reducing the width of the fillet even by a fraction of an inch will result in a very considerable saving in the cost of manufacture because daily orders for a million and more yards of welting are common.

Another object of the present invention relates to a preservation of the full thickness of a grain leather fillet at the outer or welt extension edge while still treating the bead material in an approved manner for folding and the taking of color to match the finish of the upper leather. Because welting is sold by its thickness at the extension edge the price becoming less as the thickness decreases, a considerable price advantage is obtained by preserving the full weight of the original fillet from which the bead is formed-up.

Another object of the present invention relates to a novel method of severing and slitting a double fillet and particularly useful in forming grain leather beaded welting of the type in which a bead, formed by a folded flap split from the grain face of the fillet, is thickened and supported by an integral inner or core portion of flesh stock.

A still further object of the present invention relates to a novel grain leather beaded welting having an inner or sewing edge that may be thinner than the extension edge and sufficiently flexible for bending into the angle at the outer side of the insole sewing rib as it is stitched in place.

To the accomplishment of these objects and such others as may hereinafter appear the invention comprises the novel welting and the method of making it from either a single or a double fillet as hereinafter described in connection with the accompanying drawing which illustrates the best form of the welting now known and its preferred method of manufacture. In the drawing, in which each of the views shows a fillet or the welting in perspective, Figs. 1 to 6 show the preparation of the novel welting from one half of a double fillet and

Figure 1 represents the first step in severing a double fillet into two single fillets by a special, central longitudinal cut;

Figs. 2 and 3 represent the further treatment of the single fillet at the left in Fig. 1 prior to forming-up the bead;

Fig. 4 represents the novel beaded welting after final molding as produced from said single fillet at the left in Fig. 1;

Figs. 5 and 6 represent, respectively, the treatment of the single fillet at the right in Fig. 1 and the beaded welting finally produced;

Fig. 7 represents the first cutting on a single fillet of sufficient width to produce the novel welting shown by Fig. 4;

Figs. 8 and 9 represent a modification comprising a pre-treatment of the grain face of a double fillet before its severance into two single fillets as shown in Fig. 1; and

Fig. 10 represents the severed fillet at the left in Fig. 9 after treatment as shown in Figs. 2 and 3 with its split grain flap lifted for cementing before forming up the bead as shown in Fig. 4.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the particular types of welting illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practised or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the scope of the invention beyond the terms of the appended claims as considered in view of the prior art and the requirements thereof.

In the manufacture of beaded welting from a single fillet it is necessary to strip the fillet considerably wider than the width of the finished welting in order to provide sufficient grain stock from which to form up a folded bead resulting

in a material waste of stock as is well illustrated by the patents to White 997,350 (Fig. 4), Arnold 1,597,874 (Fig. 4), Lyon 1,656,564 (Fig. 9) and others. It will be observed that in all of these patented weltings the treatment for producing a bead forming flap is such that the bead is grain covered and the waste is all flesh stock. In practising the method of the present invention two types of beaded welting are produced from the two halves of a double fillet the treatment being such that there would be a material waste of the grain stock on one type if it were made from a single fillet, but yet by the new method of manufacture a considerable part of this is saved and in the finished welting a grain covering is preserved over the ridge of the bead.

In the embodiment of the invention illustrated by Figs. 1 to 6 of the drawing, showing the manufacture from a double fillet of the type of beaded welting last referred to, Fig. 1 shows how the double fillet **10** is severed longitudinally as at **11** to produce a sufficient width of each single fillet **12** (left) and **14** (right) for forming up a grain covered bead with an integral inner support while starting with a double fillet that is of less overall width than the combined overall widths of the two single fillets produced by the severing cut. The severing is a three part or Z-cut (viewing the fillet when on edge) comprising a center bar **15** and two end legs **16** and **17** both preferably normal to the faces of the fillet, the former emerging at the grain face and the latter emerging at the flesh face. The two end legs are each deeper than one-half the fillet thickness so that the buried center bar lies in a plane at a slight obliquity to the planes of said two faces. For producing the two types of beaded welting illustrated by Figs. 4 and 6 wherein a slightly narrower single fillet is required for the former, the double fillet severing Z-blade knife is set slightly off center, as shown by Fig. 1, the shorter flesh face of the single fillet **14** being the final overall width of the beaded welting formed from that fillet.

The single fillet **12**, as a result of the Z-cut severance, has a grain side rabbet **18** along one margin (Fig. 2) while the single fillet **14** has a flesh side rabbet **20** (Fig. 5) along one margin.

To prepare the single fillet **12** for forming up into the beaded welt of Fig. 4 three cutting operations are performed. First, an inseam stitch receiving groove **21** is cut at the proper point in the flesh face. Second, an angle-slit is cut through the flesh face, the slit for the oblique leg **22** thereof starting at a distance from the extension edge **23** that preferably is slightly less than the width of the finished welting and terminating preferably slightly above the center of the fillet, and then continuing to form a leg **24** parallel to the grain face which leg terminates at substantially the inner edge of the welt extension **25** (Fig. 4). This cut forms an integral flap leaving flesh stock having a chamfered end section beneath it. Third, the shoulder of the rabbet **18** is chamfered removing a string **26** and preferably leaving a rounded surface on the said shoulder. Since the chamfer exposes the flesh the shoulder is colored to match the color of the grain on the fillet.

Upon completing this treatment the flap or cover strip formed by the angle-slit is broken upward and backward to permit cementing the two inner faces thus exposed. A preliminary moulder then sets the body, or bead supporting stock **27** of the flap into the angle of the shelf formed by the parallel leg **24** of the angle-slit, simultaneously folding the flange to produce a bead **28** and laying the rabbet lip **29** against the chamfered leg **22** of the angle-slit. The welting then passes through a harder moulder which crushes the welt to the final shape shown by Fig. 4. It will be observed that the thickened edge form of the rabbet lip **29** builds up the sewing edge to a desirable thickness which, however, is slightly less than that of the extension edge due to the depth of the cuts **16** and **17** on severing the double fillet. This provides a more flexible sewing edge adapted readily to be bent and worked into the angle at the outer side of the insole sewing rib as the inseam stitching operation proceeds. The final moulding tools are so shaped as to tilt the bead **28** toward or over the welt extension **25** so that, in the shoe, it will lie in the crease of the shoe snugly against the upper.

The beaded welt formed from the second single fillet **14** is treated substantially as described in the Arnold and Vizard Patent 1,828,728, Oct. 27, 1931 as is illustrated by Figs. 5 and 6, the cutting being refined by beveling the end of the bead body stock as shown at **30** (Fig. 5) so that when said body stock **31** is set on the shelf **32** the bead **34** will be naturally tilted toward or over the extension edge **35** and thus assist in holding its final moulding set.

It will be observed the special three part cut for severing the double fillet **10** is an important step in the process because it produces the grain and flesh rabbets required for forming up two different types of beaded welting, it provides wedge shaped lips for building up the sewing edge to a desirable thickness and it permits a considerably narrower double fillet to be used resulting in a material saving of stock.

Obviously either beaded welt may be made from a single fillet but, as shown by Fig. 7, a single fillet **36** for the beaded welting of Fig. 4 would require a width greater than the single fillet **12** (Fig. 1) by the portion to the right of the dot and dash line and furthermore the portion enclosed by the dotted lines, removed when producing the rabbet **37**, would become waste grain stock.

A most advantageous improvement in the manufacture of grain leather beaded welting of the kind in which the bead is formed by folding a portion of the grain stock is illustrated by Figs. 8 and 9 as applied, for purposes of explanation, to the types of beaded welting hereinbefore described. Obviously the improved method of manufacture may be applied to the manufacture of beaded welting from single fillets as well as to its manufacture from double fillets.

The hides from which shoe welting fillets are stripped carry, as is characteristic of leather, a stiff, hard or harsh outer grain surface that does not have either the strength, flexibility or fine texture of the stock just beneath it. If a strip or flange retaining this harsh outside grain is bent or folded to form a bead the applied coloring which matches the color of the upper leather will check, that is, the appearance will be spoiled by the pores of the outside grain opening, permitting spots of the natural color to show through the applied color. Furthermore the smooth and softer grain just below the outside surface will take a finishing color to greater advantage and because of its smoothness will better match the upper leather.

If the harsh grain is removed across the en-

tire width of the fillet then the extension edge thickness is reduced and loss is sustained by having to sell the welting at a lower price. In addition to maintaining the full thickness at the extension edge it is highly desirable, in the manufacture of Goodyear welt or other shoes where the outseam is stitched aloft, to preserve the outside grain on the extension. The harder outside grain will prevent the stitches from being drawn down, that is, hold them on the surface, whereas if the extension carries only the softer under grain the tension on the thread may be sufficient to pull the stitches down into the softer surface.

In order to gain the advantages and at the same time avoid the disadvantages above referred to the welt fillet may first, before coloring, be treated for removal of the harsh outside grain but only throughout the area or areas of the grain face where its removal is desirable to improve the welting produced from the fillet. As shown in Fig. 8, in treating a double fillet a thin paper like skiving **40** may be removed from the central portion of the grain face leaving the harsh outside grain on the full width of both welt extensions **25** and **35**. A preferable treatment is to remove two separate paper like skivings **42** and **44** as shown in Fig. 9 the outside edge of each however being at the inside edge of the adjacent extension **25** or **35**. This gains the further advantage of preserving the original thickness of the center stock **46** for forming the sewing edge on welting of the type illustrated by Fig. 6. In Fig. 10, wherein the depth of the grain cut is exaggerated in order to afford a visual comparison between the cut and uncut surfaces, it will be seen that the extension **25** retains its original thickness while the flange **48** is thinner across a portion of its width, the thinness starting from the inner edge of the extension and extending outward beyond the stock which forms the ridge of the bead, or over the fold line in the completed welting. When the flange **48** is folded and moulded in place after cementing the beaded welting has the same appearance as shown in Fig. 4 except that the finish color over the portion of the bead adjoining the upper leather is unchecked and uniform throughout.

The nature and scope of the invention having been indicated, and illustrative types of beaded welting and processes of their manufacture having been specifically described, what is claimed as new, is:—

1. The method of forming welting which comprises severing a double fillet longitudinally by a three-part cut of which the two end legs emerge, respectively, at opposite faces of said fillet forming a rabbet at one edge of each welt strip to be produced by said severance, slitting each of said welt strips from the same face of said fillet along a longitudinal line substantially opposite the heel of its rabbet, each slit proceeding first obliquely upwardly past the rabbet and then parallel to the opposite face of said fillet forming on each welt strip a liftable flap having the flange of the rabbetted edge as a terminal, folding each flap back upon itself to form a bead, laying the flange of its rabbet upon the sloping shelf exposed by said folding, and, the under faces of said flaps having been cemented at a convenient time, securing the folded flaps in position by pressure.

2. The method of forming welting which comprises severing a grain-leather double fillet longitudinally by a Z-cut of which the two end legs are parallel, are of greater length than one-half the thickness of said fillet and emerge, respectively, at opposite faces of said fillet, forming a grain face rabbet at one edge of one welt strip and a flesh face rabbet at one edge of the other welt strip to be produced by said severance, slitting each of said welt strips from the flesh face of said fillet along a longitudinal line substantially opposite the heel of its rabbet, each slit proceeding first obliquely upwardly past the rabbet and then parallel to the grain face of said fillet forming on each welt strip a liftable grain faced flap having the thick-edged flange of the rabbetted edge as a terminal, folding each flap back upon itself to form a bead at the grain face of each welt strip, laying its thick-edged terminal flange upon the sloping shelf exposed by said folding to build up a substantial sewing edge on each felt, and, the under faces of said flaps having been cemented at a convenient time, securing the flaps in position by molding pressure.

3. The method according to claim 2 in which the upper face of each combined flange and flesh shelf is molded to a lower level than that of the grain faced extension at the other side of the bead.

4. The method according to claim 2 in which the grain corner of said flesh face rabbet is removed prior to folding that flange to form a bead.

5. The method of making beaded welting which comprises producing a fillet having a rabbet along one edge providing a lip at the edge of one face, slitting said fillet obliquely through said flanged face inward of the lip and then parallel to the other face producing an integral flap, at the inner edge of the welt extension, chamfering the upper corner from said rabbet, lifting and folding said flap to form a bead while turning said lip upward and seating it on the oblique leg of said slit, and moulding said last two parts to form a sewing edge with its upper face in a plane substantially parallel to but below the plane of the welt extension.

6. The method according to claim 5 in which said rabbet is so shaped as to provide an outer edge on said lip equal to more than one-half the thickness of said fillet.

7. The method of making beaded welting from grain leather having a grain faced bead which comprises producing a fillet having a grain side rabbet along one edge, slitting said fillet through its flesh face inward of said rabbet first inward and upward toward the grain and then parallel to the grain to the inner edge of the welt extension, chamfering the upper corner from said rabbet, lifting and folding the grain flap thus produced to form a bead back of the welt extension, and securing the flesh lip formed by the rabbet upon the oblique leg of said flange-forming slit.

8. The method according to claim 7 including a moulding pressure for crushing the sewing edge to a lower level than the welt extension and for tilting the bead toward and over the welt extension.

9. Beaded grain leather welting having a grain-faced bead comprising a flap split longitudinally from beneath the grain of the welting fillet, the free end of said flap having an edge thickness slightly greater than one-half the thickness of the fillet, said flap having its inner portion folded forming a bead at the inner edge of the welt extension, and said welt having a flat flesh face and a sewing edge formed in part

by said free end of the flap of less thickness than the thickness of the welt extension with its upper face in a plane below the plane of the welt extension.

10. The method of preparing a grain leather welting strand for the manufacture of beaded welting of the type having a bead formed-up by a folded portion of the welt stock, which comprises producing a relatively soft and readily bendable longitudinal band along the grain face of the strand where the bead is to be formed-up by removing the outer harsh layer of the grain throughout a width at least equal to the distance from the base of the bead which adjoins the welt extension and over its ridge while maintaining the inner edge of said extension as the outer boundary line of said band, leaving said extension faced with the full thickness of the grain for receiving outsole stitching and preserving the original thickness of the extension edge of the beaded welting.

11. The method of preparing a grain leather double welting strand to be severed into two single strands for the manufacture of two beaded welts each of the type having the bead formed-up by a folded portion of the welt stock, which comprises stripping a longitudinal band of the outer harsh layer of the grain from said double strand before its severance, said band being stripped from an area at each side of the line of severance sufficiently wide to provide the bead, to be formed-up on the welt of each single strand, with a facing of the soft under grain that is exposed by removal of the outer harsh grain, but not wide enough to encroach on the marginal areas reserved for the extensions of said two welts, thus preserving an extension edge on both welts surfaced by the original grain and of the original thickness of the strand from which it is made.

12. The method of preparing a grain leather double welting strand to be severed into two single strands for the manufacture of two beaded welts, each of the type having the bead formed-up by a folded portion of the welt stock according to claim 11 in which the outer harsh layer of the grain is removed in two separated bands, one at each side of the line of severance of said double strand, and each band having its outer edge defined by the inner edge of the welt extension of the single strand on which a bead is to be formed-up from stock comprising said soft under grain that is thus exposed.

13. Grain leather beaded welting having its bead formed of folded stock and surfaced at least on its outer face and upon its ridge with only a partial thickness of the grain, and having its extension surfaced with the full thickness of the grain preserving the full thickness of the leather at its extension edge.

14. The method of making beaded grain leather welting which comprises forming a grain flap by slitting the fillet longitudinally through an edge face of the fillet, the unslit body portion forming the welt extension, lifting the flap and cementing the exposed faces, folding the flap to form a bead at the inner edge of the extension and pressing to shape, and at a convenient time previous to forming the bead removing a longitudinal band of the outer harsh grain from between the edges of the fillet of a width sufficient to cover at least the face and ridge of the bead with the exposed soft under grain while leaving the original grain on the face of the welt extension.

WILLIAM C. VIZARD

CERTIFICATE OF CORRECTION.

Patent No. 2,142,228. January 3, 1939.

WILLIAM C. VIZARD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 28, after the word "is" insert by; line 29, for "or Z-cut (viewing" read cut (which looks like a Z viewing; line 36, for "obliquity to" read inclination to both of; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of February, A.D. 1939.

Henry Van Arsdale.
Acting Commissioner of Patents.

(Seal)