Oct. 19, 1937. R. C. SCHEMMEL 2,096,008

FINISHING WELT

Filed Dec. 17, 1934

Fig. 1.

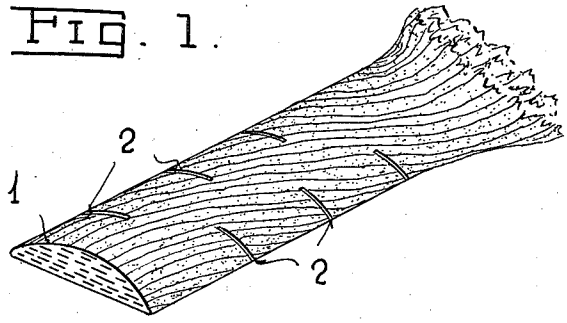


Fig. 2.

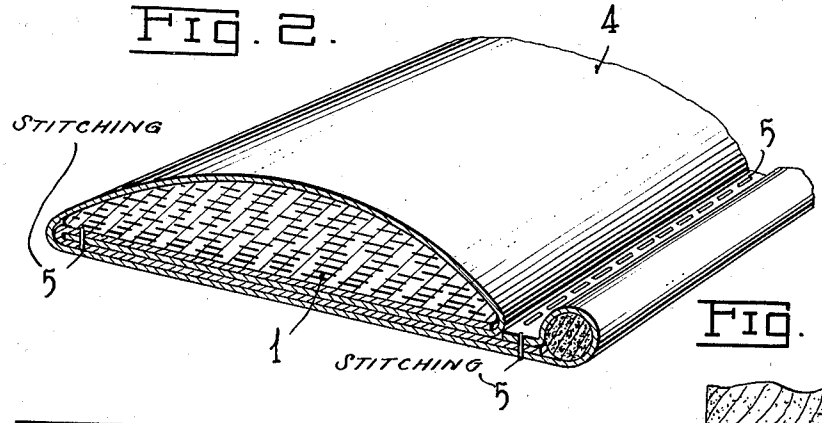


Fig. 3.

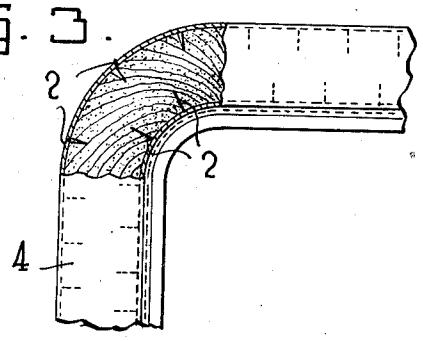
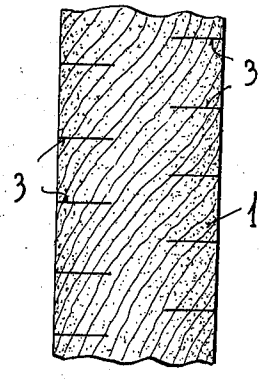


Fig. 4.



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FINISHING WELT

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2 Claims. (Cl. 20—74)

My invention relates to finishing welts of the type used in trimming motor vehicle bodies, seats, interior wall panels, etc., and more particularly provides an improvement in the internal core element for rendering the welt capable of being disposed around short lateral curves.

Welts of the types to which my present invention is applicable have long been known. They comprise essentially a strip of covering fabric folded on itself and include one or more cores used to give body and thickness to the welt. Usually one of the enclosed cores is hinged, by means of its covering or otherwise, to the remainder of the welt structure to adapt the welt to be blind nailed, that is, the hinged portion overlies a base portion through which tacks may be driven to secure the welt in place and which may be subsequently covered and concealed by the hinged core.

The type of core to which the present improvement has particular application is substantially half round or of equivalent shape, that is to say, the core is of greater width than thickness. This form is required by the current style in welts and by the tack concealing function of the core just explained. Cores of this shape have been made in a variety of materials. Such cores, and consequently welts including them, have been easily flexible in the direction of their shorter dimension, i. e., their thickness, but it has been impossible to dispose such welts neatly about lateral curves of short radius. The core and the welt in which it is embodied comprise a somewhat tape-like body which is obviously easily bendable sharply out of the plane of the tape, but which puckers and buckles objectionably when an attempt is made to bend the body around a curved line on a substantially plane surface. Welts of the prior art have uniformly presented an unsightly appearance when disposed around such lateral curves, due to the inherent tendency of the relatively wide, thin body to pucker and buckle in its curved portion, and have required considerable skill and entailed much loss of time on the part of the operator in attempting to make the installation as neat as possible.

The industry has made numerous attempts to correct the above described defect, and these attempts have thus far been only indifferently successful. In my United States Patent No. 1,857,877 of May 10, 1932, I describe a welt core formed of stranded material braided together or equivalently associated to provide a body of independent elements capable of slight relatively sliding movement on each other. The construction there shown is capable of being disposed in lateral curves of comparatively short radius because on lateral bending the several strands move on each other, the body "opening up" more or less, and the stranded elements accommodating themselves to the respective conditions of tension and compression obtaining respectively at the outside and inside edges of the curved portion of the body.

My present invention is an improvement on my patented braided strand construction, and by the present invention I provide a welt core and a welt made therefrom capable of being disposed around lateral curves of very much shorter radius. The ideal, which is probably unattainable, is a welt which can be disposed in substantially a lateral right angle. My present invention provides a welt which approaches this ideal as closely as any automobile trimming constructions require. Not only is an installation of welt made according to the present invention very considerably neater in appearance, but the installation may be made in an appreciably shorter time because little skill is required on the part of the workman to minimize unsightly puckering about the curve.

The invention will now be explained in a preferred form of embodiment, reference being made to the attached drawing which forms part of this application for Letters Patent and in which:

Figure 1 is a perspective view of a core body;

Fig. 2 is a perspective view on a relatively enlarged scale of a complete welt of one form of construction including the improved core;

Fig. 3 is a plan view of a laterally curved length of welt showing the cover broken away at the bend; and

Fig. 4 is a plan view of an alternative form of core.

The invention, broadly considered, comprises a finishing welt including a covering fabric and a core. The latter comprises a body made up of twisted sheet material, and the body is broken at intervals along its edges. I have found that this broken condition of the edges permits the body material to undergo a high degree of rearrangement, both in itself and with relation to the covering fabric, when the body is laterally bent, as will be explained hereinafter.

In the drawing I show a core body 1 made up of compactly twisted sheet material. The material is preferably paper or the like, provided in a single strip or a plurality of superposed strips. The material is twisted helically on itself and compacted and formed to provide a relatively dense and comparatively hard body having a

fairly smooth surface, somewhat like the well known twisted paper twine or cord. The body is in any suitable manner reduced to any desired cross-sectional shape, preferably the comparatively flat, half round form generally used in welt constructions. Of course the specific shape of the core is immaterial, being governed by the style of the welt which is to be made, the function which the core portion is to discharge, and other considerations.

In Fig. 1 the core body is shown slotted at a plurality of points **2**, and in Fig. 4 the core body is shown slitted at a plurality of points **3**. In both cases the edges of the body are broken at intervals; in Fig. 1 a small amount of material is removed from the body where it is broken, and in Fig. 4 the body is cut merely but no material is removed. In both cases I prefer to dispose the breaks along both sides of the body in staggered relationship, and in each case the breaks enter from a side edge of the body and extend well toward the median line thereof.

The core is suitably enclosed in a strip of covering fabric **4**. Substantially any type of fold may be used, and a plurality of core bodies may be employed to give any desired welt construction. To enhance the lateral flexibility of the welt I prefer to use the fabric known as coach lace, or any other textile material not doped or coated in imitation of leather.

Preferably the core is secured in the fabric by a cement which, protected substantially from the air, has the property of remaining tacky for a considerable period of time. Lines of stitching **5** are used to maintain the covering fabric permanently in its enclosed relation with the core according to well understood practice.

The completed welt, shown in Fig. 2, may be disposed around a lateral curve of heretofore unattainably short radius. As shown in Fig. 3, when so bent, the longitudinal sections of the core body separate where the body is broken along the outer edge of the curve, and crowd together where it is broken along the inner edge of the curve. Heretofore most of the difficulty has been experienced with the inside of the curve, where the new, decreased length of the edge has been insufficient to accommodate all of the core material there presented. By my improved construction the short sections of body material along the inner edge of the curve undergo considerable shortening, responsive to the compressive forces imposed upon them, and in addition, the ends of the short lengths of body penetrate each other somewhat. This penetration action is facilitated by the twisted construction of the body, which "opens up" at the breaks along the inside curve providing enough looseness in the ends of each short body section to accommodate entrance of the opposed section. It is likely that along the inside of the curve the compressed and shortened lengths of core body increase somewhat in thickness at the ends of the lengths or sections of core body, due perhaps to the expansive separation of the plies of sheet material consequent upon the release of twisting stress at the breaks. Such increase in core thickness is not objectionable, inasmuch as it occurs within and is concealed by the covering fabric **4**. The effect is to render the end walls of each core section or length yielding or "soft", so that compressibility of the individual lengths is increased, thereby enhancing the capacity of the welt to be bent laterally without puckering.

The median line of a laterally curved portion of core body of course undergoes no elongation or contraction in the process of bending. The outer edge of the curve is elongated, and this elongation is permitted and accommodated by the breaks in the outer edge, which widen so that there is no tendency for the outer edge of the body to move in toward the median line and buckle the welt.

It will be understood of course that the crowded inside edge and the opened breaks in the outside edge of the core body are fully concealed by the covering fabric **4**. The opened breaks in the outer edge are collectively so numerous and individually so narrow that sufficient support and foundation are given the covering fabric by the body and the external appearance of the covering fabric remains smooth.

As heretofore indicated, two forms of break are shown. It is preferable to employ the slotted or kerfed break shown in Fig. 1 where the core body is relatively wide or the turn is unusually short. The slitted break shown in Fig. 4 may be used where the core body is relatively narrow or the turn is not exceptionally short. Both types of break, however, give to the core body in which they are provided a materially increased ability to be disposed neatly around short lateral curves.

Most welts are applied once only in their permanent position on a motor vehicle body or the like. There is practically never any occasion to remove and replace them. The type of cement which I prefer to use remains tacky much longer than the average time intervening between manufacture of the welt and its installation. Hence, this type of cement cooperates with the basic features of my invention by permitting the component parts of the core to slide relatively to the covering fabric during their automatic rearrangement as the welt is curved. Subsequent slow drying and hardening of the cement securely bonds these parts together in their new arrangement and securely fixes the covering fabric to the modified disposition of the core. The ultimate result is a complete welt whose elements are securely and permanently bonded together much as though they had been initially fabricated in curved form.

There is a distinct advantage in making the covering fabric of coach lace or some similar unstiffened textile fabric because such material more readily and neatly accommodates itself to bending than does a doped fabric like imitation leather or the like, probably because the constituent threads of my preferred fabric are to a considerable degree free to slide on each other and thus rearrange themselves under the bending stresses and because there is no hard, unyielding coating to crack or lock the threads together.

It is believed that the essence of the invention will be clear from the foregoing. It is to be distinctly understood that the style or type of welt is immaterial, one only being selected in this disclosure to illustrate the invention. The invention is capable of embodiment in very many forms and constructions, and all such modifications, to the extent that they embody the principles of the invention as defined in the appended claims, are to be deemed within the scope and purview thereof.

I claim:

1. A finishing welt including a flexible fabric covering and an internal core comprising a body of tightly twisted fibrous sheet material, each side edge of the body being broken at intervals to form short lengths of body material between the

breaks whereby the welt may be disposed in lateral curves of short radius without objectionable puckering or buckling, the walls of the body at said breaks becoming relatively yielding by expansive separation of the plies of sheet material consequent upon release of twisting stress at said breaks, the breaks along the outside of the curve being adapted to widen and the short lengths of body material along the inside of the curve being adapted to become compressed, all within and concealed by the covering fabric.

2. A finishing welt as claimed in claim 1, including a coating of slow-drying adhesive securing the covering fabric to the core, said adhesive being adapted to permit rearrangement of the material in the core and of the core body with relation to the covering fabric when the welt is bent around a short curve and thereafter to set slowly, fixing the welt elements in their new relationships.

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