L. HEIMANN.

BELT AND BELTING MATERIAL.

APPLICATION FILED FEB. 9, 1915.

1,319,337. Patented Oct. 21, 1919.

FIG. 1.

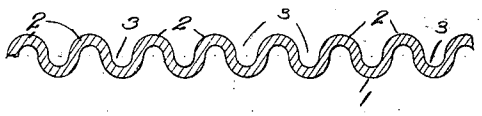


FIG. 2.

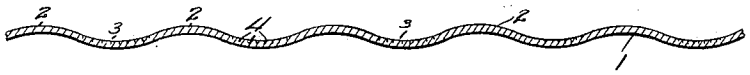


FIG. 3.

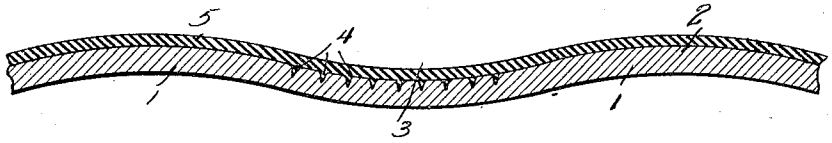


FIG. 4.

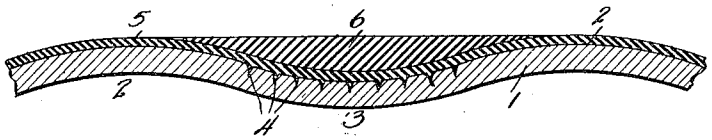


FIG. 5.

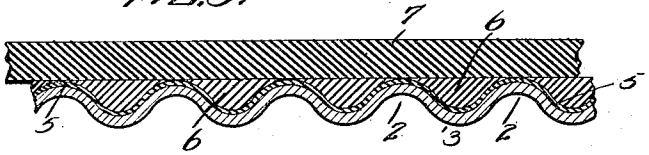


FIG. 6.

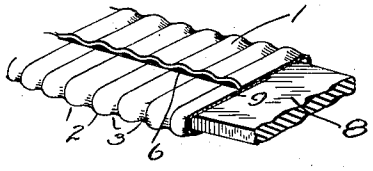


FIG. 8.

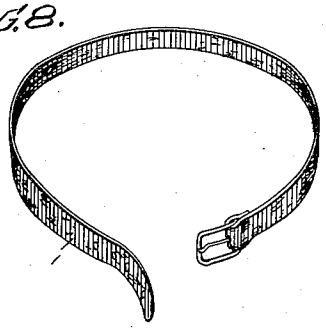
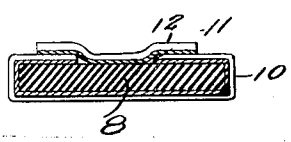


FIG. 7.



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UNITED STATES PATENT OFFICE.

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BELT AND BELTING MATERIAL.

1,319,337. Specification of Letters Patent. Patented Oct. 21, 1919.

Application filed February 9, 1915. Serial No. 7,066.

To all whom it may concern:

Be it known that I, LEON HEIMANN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Belts and Belting Materials; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to fabrics, and more especially to those which are elastic; and the object of the same is to produce an elastic fabric from leather.

This object is carried out by crimping the leather sheet or strip transversely, expanding or stretching it so as to flatten out the crimps and open the pores of the leather in those portions thereof which constituted the depressions of the crimps on one side of the sheet or strip, then applying to this side a rubberizing agent in its plastic condition so that it enters the open pores (the application being made under pressure or not and while the sheet or strip is under its initial tension or under a tension of less degree), relaxing said tension slightly so that the crimps begin to reassert themselves, continuing or repeating the application of the rubberizing agent so that it becomes thicker in the depressions of the crimps, and finally entirely relaxing the tension and permitting the leather to resume its original crimped condition as thoroughly as it may with the rubberizing agent applied, and now allowing said agent to set.

In an amplified or elaborated embodiment of this idea, the leather material includes all that is above stated, and in addition it includes an elastic base as of rubber applied to the treated face of said sheet or strip and caused to adhere thereto by the agent itself.

The following specification describes the manufacture of this leather material—with or without its base or body—in strip form for use as a belt for personal wear, but I do not wish to be limited to this use. Reference is made to the accompanying drawings wherein—

Figure 1 is a longitudinal section through a sheet of leather crimped and ready to be treated;

Fig. 2 is a similar section after the sheet has been put under tension to cause the crimps to nearly disappear;

Fig. 3 is an enlarged sectional detail so as to illustrate the pores in the depressions of the crimps which open up as the sheet is flattened out under tension as shown in Fig. 2, and this view is employed to show the application of the rubberizing agent;

Fig. 4 is a second enlarged detail showing the rubberizing agent as applied to fill the depression in a crimp;

Fig. 5 is a sectional detail showing an amplification of the idea by means of the use of a piece of elastic material applied to the top of the rubberizing agent and caused thereby to adhere to the leather;

Fig. 6 is a perspective detail of a strip of this improved material wound upon a base which here constitutes a core; and

Fig. 7 is a cross section showing another means of winding the strip on the core.

Fig. 8 is a perspective view of a belt made of this improved material.

While this leather material may be in sheet form, I prefer to illustrate and describe it as in strip form so that its use as a belt can be set forth in the specification. On that understanding, let the numeral 1 designate a strip of leather which is transversely crimped or corrugated by suitable machinery or means not essential to describe in the present specification, so as to produce the hills or projections 2 and the valleys or depressions 3 as seen in Fig. 1. This strip is then stretched by being put under more or less tension so that the corrugations are nearly or wholly flattened out, and such stretching will cause the pores to appear in the depressions 3, as indicated at 4 in Fig. 2 and as shown on a larger scale at 4 in Fig. 3. The reason these pores will appear in the depressions 3 rather than in the projections 2, is because in stretching out the strip after it has been corrugated the surface within the depressions is given more tension than the surface over the projections. While it will be obvious without further illustration that both faces of the strip 1 might be treated as I am describing, we are dealing now only with the upper face. The next step is to apply a rubberizing agent 5 as indicated by the heavy section in Fig. 3, the same by preference being applied while hot so that it enters the pores 4.

For this purpose these pores must be open, and therefore the agent is applied while the strip is under tension although it may not be the extreme initial tension. Before this plastic agent has set, the tension is relaxed slightly as indicated in Fig. 4, whereby the depressions between the projections of the corrugations become more pronounced, and additional agent is applied to the face of the strip so as to substantially fill these depressions as indicated at 6 in Fig. 4. The agent may be applied under pressure or otherwise and by suitable means forming no part of this invention. The tension on the strip is then entirely relaxed or still further relaxed, and the agent allowed to set. The result will be that the leather will seek to resume its original corrugated condition, but cannot quite entirely do so because all of the pores in its depressions and some of the depressions themselves have been filled to a greater or less extent with the agent. After the latter has set, a leather material is produced which is composed of leather and rubber so intimately connected that they will not become detached; and this material will be found to possess pliability and elasticity to a high degree. When thereafter it is put under tension, the rubberizing agent expands, but when the tension is removed the agent automatically contracts and therefore assists the leather to resume its corrugated condition.

In order to give this material great strength I preferably apply to it a base or wrap it around a core, and if the finished article is yet to have elasticity this base or core may itself be elastic. Fig. 5 shows the application of a base sheet 7, the same being therein indicated as about to be applied to the surface of the rubberizing agent designated by the numeral 5 where it passes over the projections 2 of the leather sheet 1, and designated also by the numeral 6 where it is a little thicker within the depressions 3 of said sheet. This base may be and by preference is applied to the agent before the latter sets, and preferably while it is hot; and if said agent be of rubber or rubber composition it may well serve as a cement to attach the base to the leather.

In Fig. 6 the treated leather sheet is shown as wound around a base which latter here takes the form of a core 8, the sheet therefore being rather narrow or more properly speaking a strip, and its edges overlapping each other as at 9. The rubberizing agent is indicated on the inner face of this strip, and will serve to attach it to the core 8 and cement its overlapping edge to its own underlapping edge. In Fig. 7 the same core 8 is employed, a treated strip is carried around the edges of the same as at 10, and the edges of the strip may be spaced slightly from each other as at 11; and across these edges is applied another strip 12, which is preferably of the same material treated on its under side (or treated on its upper side and inverted) so that the rubberizing agent causes the strip 12 to adhere to the top of the core and to connect the edges of the first-mentioned strip. These illustrations will be sufficient to show that my improved leather material, which is perhaps complete within itself in the forms illustrated in Figs. 3 and 4, and may be said also to include a core 8 or a base strip 7 when the material is to be used in such places as call for considerable strength and perhaps stiffness. I have said that the base or core may itself be of rubber or rubber composition, but do not wish to be limited thereto. This leather material is also capable of other uses which need not be amplified herein.

What is claimed is:

1. As a new article of manufacture, a belt for personal wear comprising an elastic core, and a strip inclosing said core and composed of transversely corrugated leather with a rubberizing agent on its inner face uniting it to the core and entering its pores.

2. As a new article of manufacture, a belt for personal wear comprising an elastic core, a transversely corrugated strip of leather inclosing said core, and a rubberizing agent on the inner face of the leather strip cementing it to said core and entering the pores of the leather.

3. As a new article of manufacture, a belt for personal wear comprising an elastic core, a transversely corrugated strip of leather inclosing said core, and a rubberizing agent on the inner face of said leather strip cementing it to said core and cementing its edges to each other, the agent being thicker within the depressions of said corrugations.

In testimony whereof I affix my signature in presence of two witnesses.

LEON HEIMANN.

Witnesses:
GEORGE L. THOM,
HUGO MOCK.