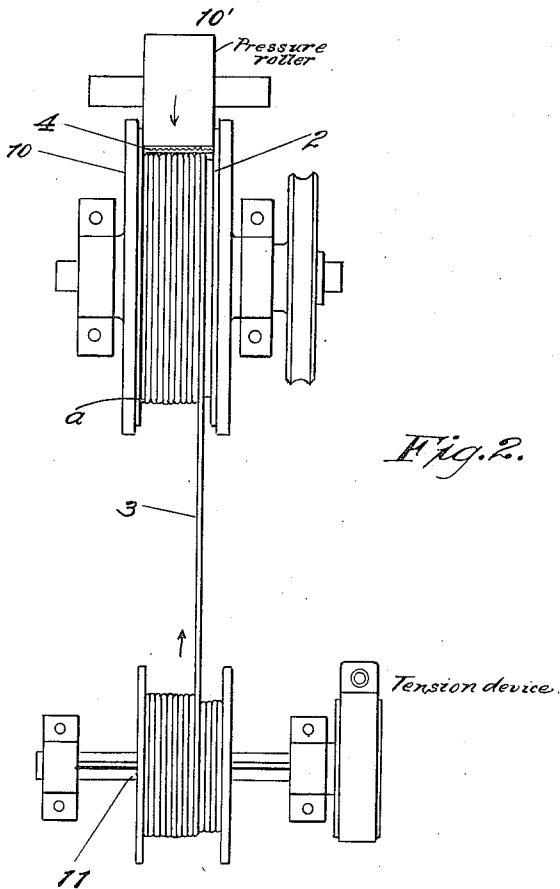
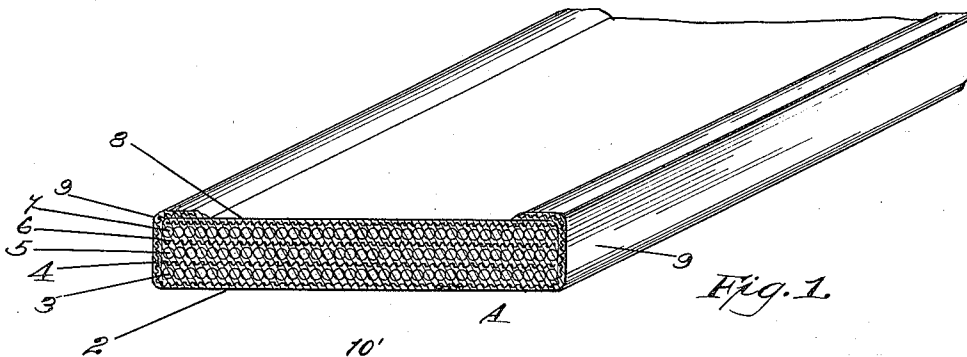


H. M. LAMBERT.
BELT.

APPLICATION FILED JULY 28, 1914. RENEWED APR. 8, 1918.

1,287,703.

Patented Dec. 17, 1918.



WITNESSES:

F. E. Maynard.
Irvine Sinnett.

INVENTOR

Henry M. Lambert

BY

G. H. Strong

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY M. LAMBERT, OF PORTLAND, OREGON.

BELT.

1,287,703.

Specification of Letters Patent.

Patented Dec. 17, 1918.

Application filed July 28, 1914, Serial No. 853,617. Renewed April 8, 1918. Serial No. 227,388.

To all whom it may concern:

Be it known that I, HENRY M. LAMBERT, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Belts, of which the following is a specification.

This invention relates to belting.

It is an object of the present invention to produce a substantially non-stretchable, yet flexible, belt. While of general utility it is especially suited for use in elastic vehicle wheels of the type shown in my co-pending application, Serial No. 748,615.

Generally stated, the belt of this invention comprises longitudinally extending cords laid under tension in single layers, superposed and stretched to their approximate limit of elongation while being laid, and layers of fabric between said layers of cord adhesively bound thereto.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of the belt or strap in cross section.

Fig. 2 is a diagrammatic view, showing a type of apparatus used in the method of producing an endless belt of one form.

In Fig. 1 a portion of the belt A is shown, which comprises a base or foundation 2 of a sheet or strip, which is preferably of a substantial fabric, such, for example, as canvas, and which is preferably rubberized, or otherwise treated, so that, during the process of manufacture, the base or foundation may be adhesively bound with contiguous elements of the belt. Upon the base or foundation 2 is a layer of cords 3, preferably of some stout material, rubberized, or otherwise treated, to become adhesive. Upon the first layer of cord 3 on the foundation 2 is superposed a layer or winding of fabric 4 of such a nature as to be adhesive. Upon this is superposed a layer of cord 5, covered in turn with a lamina 6 of fabric, this being in turn covered by a layer of cord 7 which is again covered with a strip 8 of fabric. It is to be understood that as many of the alternate layers of fabric and cord may be employed as is desired, and that the fabric and cord laminae may be of suitable material and have the desired characteristics and may be of any length or width to produce the desired size belt A.

Preferably the foundation fabric 2 is of sufficient width so that its edges may be turned perpendicular to its width so as to form binders or covers for the longitudinal edges of the laminated belt, as shown at 9—9.

In the course of manufacture, the foundation 2 is laid while under a desired degree of stress or tension, and upon this is laid the layer of cord 3; this layer also being laid while under stress or tension of desired degree. Preferably the tension of the members is such as to substantially prevent further elongation of the belt after it has been finished.

A method practised in manufacturing the belt consists in placing the foundation member 2 upon a support or drum 10, and under suitable tension, and then winding upon the surface of the foundation 2, a cord, as 3, which is wound helically, commencing from one side of the foundation 2 and then continuing across the surface thereof to its full width. The cord is subjected to the desired tension from a suitable tensioning apparatus which may include an arbor 11, upon which the reel of the cord 3 is mounted. The drum 10 being rotated will unwind the cord from its reel; the cord binding helically and tightly the foundation 2. In this manner the cord is laid in a single piece, beginning at one end as *a*, and extending entirely across the surface of the foundation member 2; the helical binding being laid under tension throughout its length. The tension preferably is such that all of the elongation of the cord 3 has been taken up during the tensioning process so that when wound upon the foundation 2 it is substantially non-stretchable. Then upon the layer or helix of cord upon the foundation 2 on the drum 10 there is wound a layer 4 of fabric which is also laid under tension so as to prevent further elongation after the layer has been applied. Upon this layer 4 of fabric there is then wound another helix of cord, indicated at 5, Fig. 1, this being placed under suitable tension also while being laid. The belting is constructed with as many alternate layers of tensioned fabric and cord as is desired to produce the required thickness.

The method adopted in the apparatus shown in Fig. 2 is designed to produce a belting of any desired diameter, width and thickness, in which each layer of cord 3 is a helix starting at one side and continuing

across the width of the foundation or belt to the opposite side and laid under tension.

As the fabric layer is applied to the cord layer the mass is subjected to the desired pressure by a pressure roller 10', so that the laminae will bind adhesively. When compiled the belt or strap is then vulcanized. The endless belt may be cut into sections of any length for straps.

10 The invention resides in the article which consists of a laminated belt comprising alternate laminae or strips of fabric and layers of cord both wound or superposed while under tension, so as to be devoid
15 of subsequent elongation; the laminae being cohesively bound.

Such a belt as above described is practically non-stretchable for the reason that all stretch is first removed from the individual cords which compose the belt. The belt
20 can be advantageously used for ordinary power transmission purposes; in automobile tires of the type mentioned and also it has been used with great success in the manufacture of harness in lieu of leather.

25 Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A stretchless, pliable belting comprising
30 a base layer of fabric of greater width than the finished belting, and alternate layers of cord and fabric adhesively secured thereon, the sides of the base layer which project beyond the edges of the alternate
35 layers being folded up over the side edges of the alternate layers and adhesively secured in overlapping relation to the uppermost of said alternate layers, said cords being laid under tension and stretched to their approximate limit of elongation while being
40 laid.

2. A belt comprising alternate layers of fabric and cord, each layer of cord consisting of a single cord spirally wound under
45 tension on a layer of fabric, and stretched to its approximate limit of elongation while being laid, and means adhesively securing the layers of cord in their tensioned state to the layers of fabric.

50 3. A belt comprising a base layer of fabric, a plurality of layers of cord and a plurality of layers of fabric arranged in alternation with the cord layers and adhesively secured thereto and to the base layer
55 of fabric, the latter being of greater width than the other layers and the side edges of said base layer being folded up against the edges of said other layers to inclose the same and being adhesively secured in overlapping
60 relation to the uppermost of said other layers, each layer of cord constituting a single cord spirally wound under tension on a layer of fabric, and stretched to its approximate limit of elongation while being laid.

65 4. A stretchless, corded belting comprising

rubber-coated longitudinal cords laid under tension in superposed layers, and stretched to their approximate limit of elongation while being laid, and rubber-coated reinforcing means between the layers of
70 cords, the whole being united by vulcanization.

5. A stretchless, corded belting comprising alternate layers of longitudinal cords laid under tension and stretched to their approximate limit of elongation while being
75 laid, intermediate layers of fabric, means for adhesively binding said fabric and cords together, and covering means for the whole.

6. A stretchless, corded belting comprising
80 longitudinally extending endless cords laid under tension helically in single layers, superposed and stretched to their approximate limit of elongation while being laid, and means for reinforcing the belt transversely and vulcanized rubber for uniting
85 the whole.

7. A stretchless, corded belting comprising longitudinally extending endless cords laid under tension helically in single layers,
90 superposed and stretched to their approximate limit of elongation while being laid, and intermediate layers of fabric.

8. A stretchless, corded belting comprising longitudinally extending endless cords
95 laid under tension helically in single layers, superposed and stretched to their approximate limit of elongation while being laid, layers of fabric between said layers of cords, and means for adhesively binding said
100 fabric and cords into a whole.

9. In stretchless corded belting, at least one layer of longitudinally extending cords consisting of a length laid helically under
105 tension, the cord being stretched to its approximate limit of elongation while being laid, and an agglutinant embedding the same.

10. In stretchless corded belting, at least one layer of longitudinally extending cords
110 consisting of a length laid helically under tension, the cord being stretched to its approximate limit of elongation while being laid, and an agglutinant embedding the same, said agglutinant being such as to restrain said cords against shrinkage after being stretched and laid.

11. In stretchless corded belting, a base layer of fabric and at least one layer of longitudinally extended cords consisting of a
120 length of cord laid under tension helically in adjacent convolutions, the cord being stretched to its approximate limit of elongation while being laid, and means for adhesively binding said fabric and cords together
125 into a unitary structure.

12. In stretchless corded belting, a layer of longitudinal cords impregnated with an agglutinant and consisting of a length of
130 cord laid helically under tension and

stretched to its approximate limit of elongation while being laid, the adjacent cord loops being united by vulcanization.

13. In stretchless corded belting, a base
5 layer of fabric, a layer of longitudinal cords impregnated with an agglutinant, and consisting of a length of cord laid helically under tension in adjacent convolutions, the
10 cord being stretched to its approximate limit of elongation while being laid whereby the entire cord element will be placed under

its maximum uniform elongation throughout its length, the adjacent cord loops being united together and to said base layer of fabric by vulcanization.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY M. LAMBERT.

Witnesses:

D. G. WOODWARD,

H. A. SHEARGREEN.

15