A. G. REED.

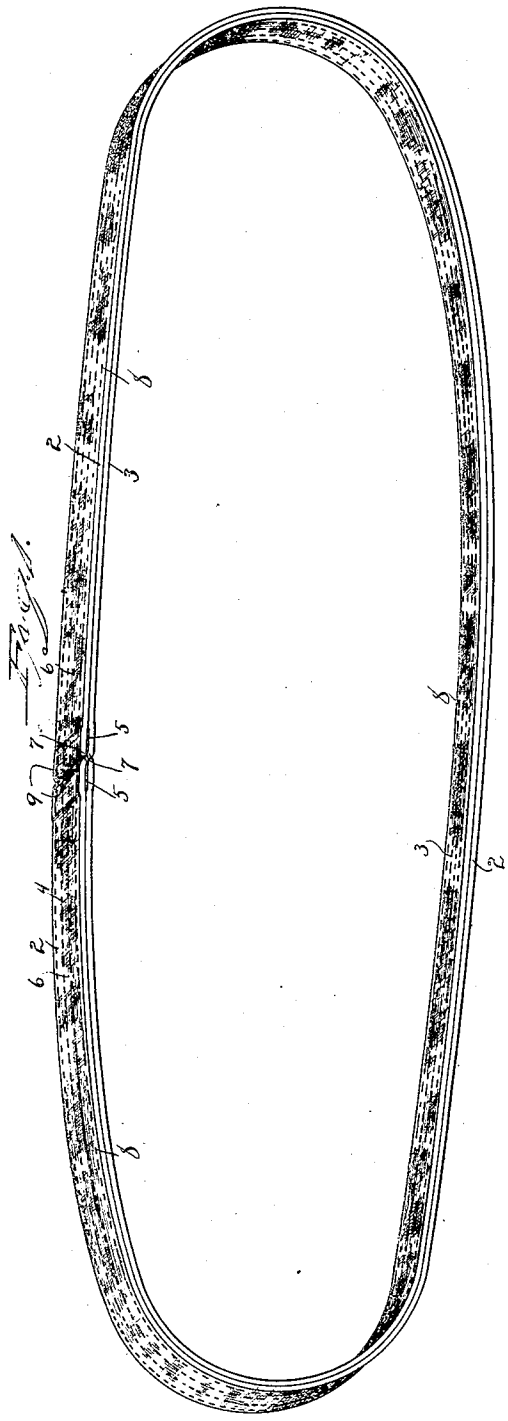
WOVEN FABRIC ENDLESS BELT.

APPLICATION FILED JUNE 7, 1916.

1,219,151.

Patented Mar. 13, 1917.

2 SHEETS—SHEET 1.



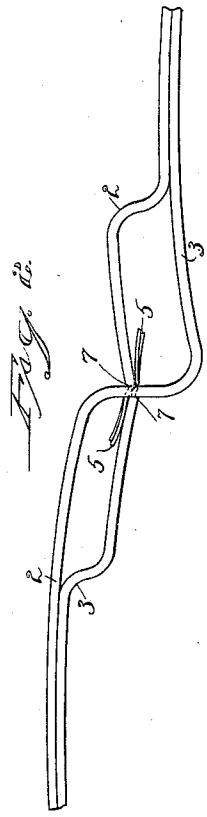


Fig. 2.

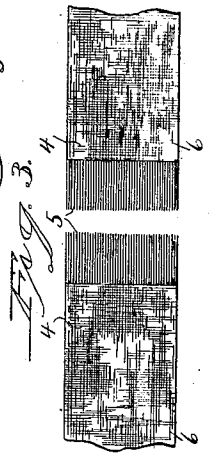


Fig. 3.

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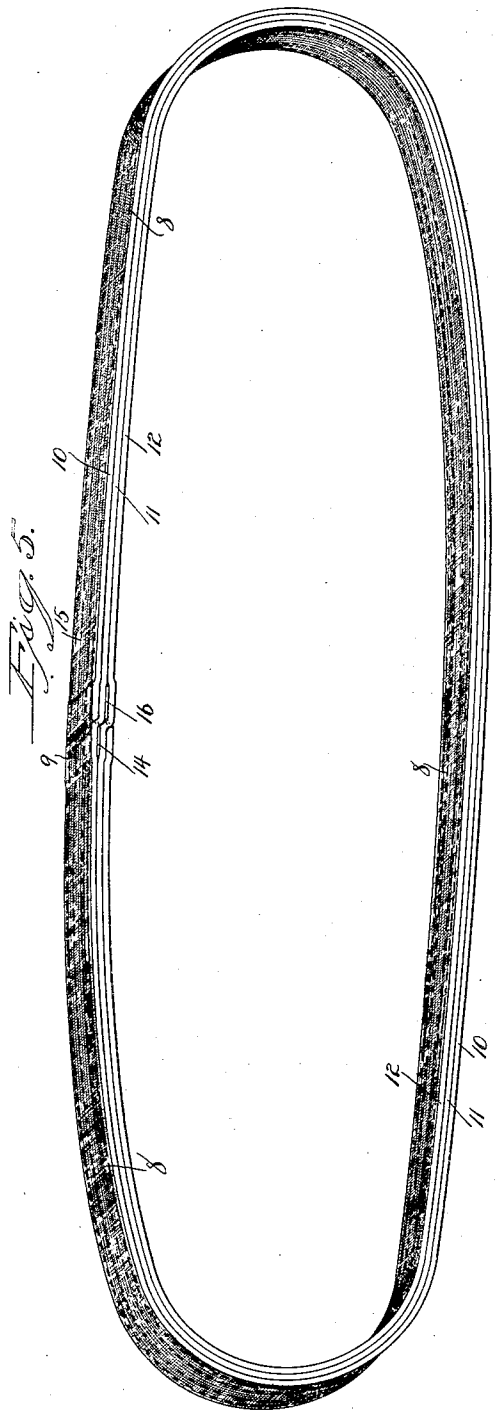


Fig. 5.

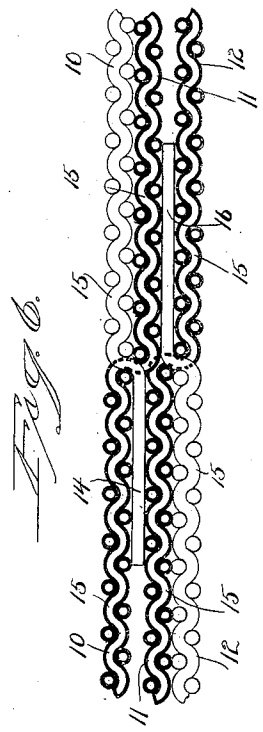


Fig. 6.

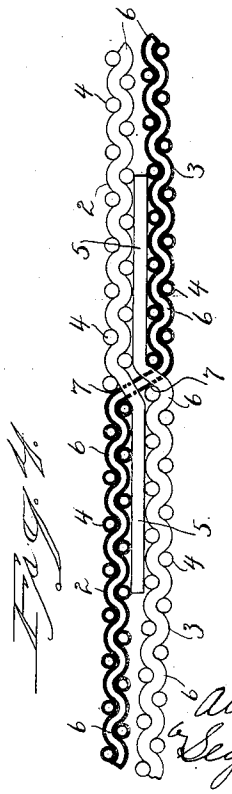


Fig. 4.

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UNITED STATES PATENT OFFICE.

ALBERT G. REED, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO RUSSELL MFG. CO., OF MIDDLETOWN, CONNECTICUT, A CORPORATION.

WOVEN-FABRIC ENDLESS BELT.

1,219,151. Specification of Letters Patent. Patented Mar. 13, 1917.

Application filed June 7, 1916. Serial No. 102,217.

To all whom it may concern:

Be it known that I, ALBERT G. REED, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Woven-Fabric Endless Belts; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a perspective view of one form which an endless woven belt embodying my invention, may assume.

Fig. 2 a broken edge view thereof showing the mode of splicing the ends of the belt-strip into the body thereof.

Fig. 3 a broken view showing the ends of the belt as unraveled preparatory to the splicing operation.

Fig. 4 a schematic longitudinal sectional view showing the splicing of the unraveled ends of the strip into the body thereof.

Fig. 5 a perspective view of one of the modified forms which my improved belt may assume.

Fig. 6 a schematic longitudinal sectional view of the splice thereof.

My invention relates to an improvement in spliced endless woven belts and methods of producing the same, the object being to produce a spliced endless woven belt which shall be smooth on both sides at the splice and supple and of full strength at such point at which the belt is not appreciably thickened.

With these ends in view, my invention consists in a woven fabric endless belt spliced by having the unraveled ends of its warp-threads passed transversely through the body of the belt-strip.

My invention further consists in a method of producing woven fabric endless belts consisting in winding a belt-strip upon itself to produce a plurality of convolutions or belt-layers, then passing the unraveled ends of its warp-threads transversely through the body of the strip.

My invention further consists in further details and steps as will be hereinafter described and pointed out in the claims.

In carrying out my invention as shown in Figs. 1 to 4 inclusive, I take a suitable length of woven fabric, forming the initial belt-strip, and wind it upon itself to produce an outer belt-layer 2 and an inner belt-layer 3. The extreme ends of the strip are unraveled as shown in Fig. 3, by the removal of enough of the filling threads 4 to leave the ends 5 of the warp-threads 6 exposed and free. These exposed ends 5 of the warp-threads—say from one to three inches in length—are spread out to the width of the belt-strip and then passed transversely through the body of the belt-strip, at substantially the longitudinal center of the strip and drawn through the same until the filling threads 4 at the ends of the strip abut against the body thereof as at 7 in Fig. 2, in which the said unraveled ends 5 of the warp threads are shown as passed through the body of the belt-strip in opposite directions at the same point therein. The belt-layers 2 and 3 are now drawn taut; as shown in Figs. 1 and 4, whereby the unraveled ends of the warp-threads 6 are inclosed between the inner faces of the adjacent portions of the belt-layers 2 and 3 which are then stitched together in the usual manner by parallel lines of longitudinal stitching 8 which, if desired, may be supplemented at the point of splicing by transverse stitching as at 9, though this is not essential. Or the belt-layers might be secured together by an adhesive which may also be used for securing the ends 5 in place, either with or without the stitching 8, the particular means employed, if any, to fasten the ends 5 in place not being of the essence of my invention.

The splice thus produced is but little thicker than the other portions of the belt, is smooth on both sides, and practically as supple and as strong as any portion of the finished belt.

For the sake of clearness I have shown in the schematic representation of the splice in Fig. 4 of the drawings, the filling threads 4 and warp-threads 6 of the body-portion of the belt-fabric by heavy lines, while the raveled ends of the belt-fabric have their filling and warp-threads represented by light lines.

In Figs. 1 to 4, my improvement has been shown as applied to an endless belt of two belt-layers or convolutions 2 and 3. In Figs. 5 and 6 I have shown a belt produced

on the same plan but with three belt-layers or convolutions, viz., an outer layer 10, an intermediate layer 11, and an inner layer 12. In splicing the ends of this modified form of belt, the unraveled ends 14 of the warp-threads 15 at the outer end of the belt-strip are passed inward, transversely through the outer belt-layer 10 so as to lie between the same and the intermediate belt-layer 11, while the unraveled ends 16 of the warp-threads at the inner end of the belt-strip are passed outward, transversely through the inner belt-layer 12 so as to lie between the same and the inner face of the intermediate belt-layer 11. The said unraveled warp-ends 14 and 16 are pulled through the belt-strip until the filling threads at the respective ends thereof abut against the body of the said strip. The belt-layers 10, 11 and 12 are now secured together by stitching, or by an adhesive or in any other approved manner. In this modified construction, the respective unraveled warp-ends 14 and 16 do not pass through the same portion of the belt-strip as will clearly be seen by comparing Figs. 4 and 6. On the principle illustrated in Fig. 6, the number of belt-layers may be increased as desired.

I claim:—

1. As a new article of manufacture, a woven fabric endless belt comprising a belt-strip spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely through the body of the strip and drawn through the same, and means for securing the said warp-thread ends in place.

2. As a new article of manufacture, a woven fabric endless belt consisting of a belt-strip wound upon itself to produce a plurality of belt-layers and spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely through the body of said strip, and confined in place between the said belt-layers.

3. As a new article of manufacture, a woven fabric endless belt consisting of a belt-strip wound upon itself to form a plurality of belt-layers and spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely through the body of the strip and confined in place between the said belt-layers, and means for securing the said belt-layers together.

4. As a new article of manufacture, a woven fabric endless belt consisting of a belt-strip wound upon itself to produce an inner and an outer belt-layer and spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely in opposite directions through the longitudinal center of the body of the belt-strip and confined in place between the said belt-layers, and means for securing the said belt-layers together.

5. As a new article of manufacture, a woven fabric endless belt consisting of a belt-strip wound upon itself to form a plurality of belt-layers and spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely through the strip until the ends of its filling threads are abutted against it, and the said unraveled ends of the warp-threads being confined between the adjacent belt-layers, and means for securing the said belt-layers together.

6. As a new article of manufacture, an endless woven belt consisting of a belt-strip wound upon itself to produce a plurality of belt-layers and spliced by having its respective ends unraveled to free the ends of its warp-threads, the said warp-thread ends being passed transversely through the body of the strip, and lines of longitudinal stitching securing the said belt-layers together.

7. A method of making endless woven belts, consisting in winding a belt-strip upon itself to produce a plurality of overlapping belt-layers the respective ends of the said strip being unraveled to free its warp-threads, then passing the said unraveled ends of the warp-threads of the respective ends of the belt-strip transversely through the body of the same, and finally securing the belt-layers together with the said unraveled warp-ends disposed between them.

8. As an article of manufacture, an endless web belt, comprising a piece of a single ply webbing formed into superimposed layers and having each end provided with projecting warp threads, passing through the adjacent layer and extending lengthwise between adjacent superimposed layers.

9. As an article of manufacture, an endless web belt, comprising a piece of a single ply webbing formed into superimposed layers and having each end provided with projecting warp threads, passing through the adjacent layer and extending lengthwise between adjacent superimposed layers, and rows of stitches extending in the direction of the length of the webbing and passing through the superimposed layers to unite the same.

ALBERT G. REED.