

A. LUCKWEIL.

ROPE BELT.

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992,725.

Patented May 16, 1911.

Fig. 1.

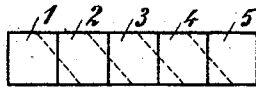


Fig. 2.

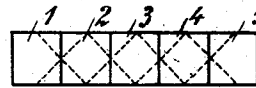


Fig. 3.

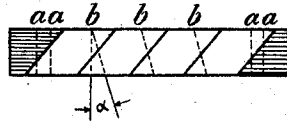


Fig. 4.

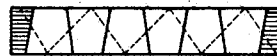


Fig. 5.



Fig. 6.



Fig. 7.

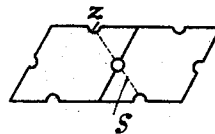
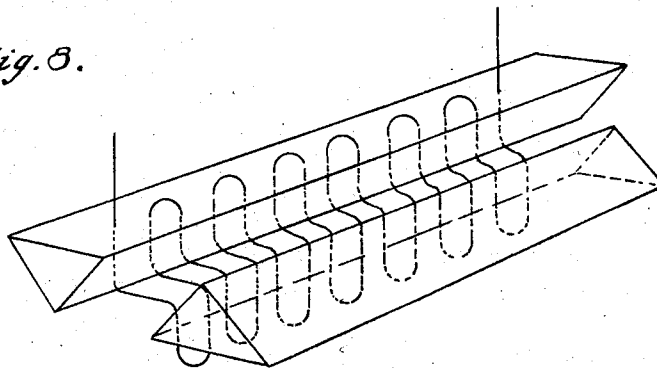


Fig. 8.



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ROPE BELT.

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To all whom it may concern:

Be it known that I, ARTHUR LUCKWEIL, a subject of the Grand Duke of Baden, residing in the city of Mannheim-Neckarau, Grand Dukedom of Baden, German Empire, have invented certain new and useful Improvements in Rope Belts, of which the following is a specification.

The present invention relates to rope belts made from ropes of polygonal cross section, the adjacent ropes being sewn together in the longitudinal direction at a given angle to the plane of the belt. By this construction the whole fibrous material, that is to say both the ropes forming the belt and the sewing yarn, are subjected to longitudinal strains alone. Heretofore ropes of this kind have been made by connecting the ropes by wires threaded transversely through all the ropes and riveted at the ends. Such wires in belts constructed in this manner are liable to frequent breakage, so that repairs are constantly necessary. According to the present invention, however, this objection is removed. There is also thus attained the further advantage that belts made according to the invention are elastic in the transverse direction, which is not the case with those held together by wires. Ropes of any cross section may be used, but the most suitable are those of square, rectangular, rhombic, rhomboidal, trapezoidal or triangular cross section.

Various forms of belts constructed in this manner are shown in diagrammatic cross section in the accompanying drawings, Figures 1 and 2 showing a belt made of ropes of square cross section, Fig. 3 a belt of ropes of rhomboidal cross section, Fig. 4 a belt of ropes of trapezoidal cross section, Fig. 5 a belt of trapezoidal and rhomboidal cross section, Fig. 6 shows a belt made up of ropes of triangular cross section. Fig. 7 shows a detail. Fig. 8 is a diagrammatic view showing the manner in which the thread is passed through two contiguous sides of two adjacent ropes.

Ropes of square cross section, as shown in Fig. 1, can be sewed together by an inclined stitch extending through ropes 1 and 2, the angle of inclination of the stitch to the vertical through the plane of the belt being 45° as shown in the drawing. The rope 3 is then sewn to the rope 2 by a stitch extending from 2 to 3 and so on throughout the series. Besides these stitches there may be another

row of stitches made by passing the yarn through the rope 2 and the rope 1 and through the rope 3 and the rope 2 and so on, as shown in Fig. 2, so that the two rows of stitches cross each other and the connection becomes symmetrical. Instead of ropes of square cross section, ropes having rectangular cross sections may be used. The angle of inclination of the stitches may also be different from that indicated in the drawing.

The belt shown in Fig. 3, comprised of ropes of rhombic cross section has proven especially suitable. In this case the connecting stitches may be in any direction as for example that shown by the lines *b*, or at right angles to the surface of the rope as at *a*. The belt shown in Fig. 4 is composed of ropes of trapezoidal cross section which are sewn together in the manner shown in the figure. If the angle of inclination of the inclined sides of the trapezoid is small the sewing may be vertical to the plane of the belt. Fig. 5 shows a belt comprising ropes of rhombic and trapezoidal cross section which has the great advantage of being completely symmetrical, ropes of trapezoidal cross section being placed at each end and in the middle while the ropes of rhombic or rhomboidal cross section are placed between them. Finally, Fig. 6 shows a belt made of ropes of triangular section, the direction of the stitches also being shown; but this may be varied. The belts shown in Figs. 3-6 owing to the oblique cross section of the ropes used do not give a rectangular cross section when completed, and for obtaining this result, ropes of trapezoidal or triangular cross-section have to be added at each side of these belts to give the required rectangular cross section, as seen in Fig. 5. In accordance with my invention however instead of these ropes of trapezoidal cross section, supplement-pieces of resisting material such as leather or rubber, are added as indicated in Figs. 3, 4 and 6, in which the supplemental pieces are shown cross-hatched. By making these edge pieces of leather, rubber or the like driving belts do not get worn so quickly by the belt fork as when using fiber materials. The belts may also be constructed of alternate ropes or strips of resisting material of the kind aforesaid, this material being also used for the outside strips; thus in Fig. 1, sections 1, 3 and 5 would be of the resisting material while 2 and 4 would

be ropes. Since with plaited ropes there is a depression z at each place where the strands cross, which traverses the whole length of the rope, the stitches s are preferably so made that, as seen in Fig. 7, they pass through these depressions so that the thread is not subject to wear. A longer life for the thread is thus obtained.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A belt comprising a plurality of ropes each of polygonal cross-section and arranged side by side, the adjacent ropes being sewn together along their lengths, the stitches connecting the ropes being arranged at an angle to the plane of the belt, whereby the ropes forming the belt and the sewing material will be subjected mainly to longitudinal strains.

2. A belt comprising a plurality of ropes

having a polygonal cross section, and arranged side by side, a face of one rope engaging a corresponding face of another rope, and separate rows of stitches connecting the adjacent ropes together, the stitches extending longitudinally of the ropes and passing through two contiguous sides of adjacent ropes, the stitches being at an angle to the plane of the belt.

3. A belt consisting of a plurality of ropes each having a polygonal cross-section, and rows of stitches extending longitudinally of the ropes, each row of stitches connecting together two adjacent ropes, the stitches passing through the ropes from the upper surface of one rope to the lower surface of the adjacent rope.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
