(No Model.)

R. F. M. CHASE.

BELTING FOR MACHINERY.

No. 336,990. Patented Mar. 2, 1886.

Fig. 1.

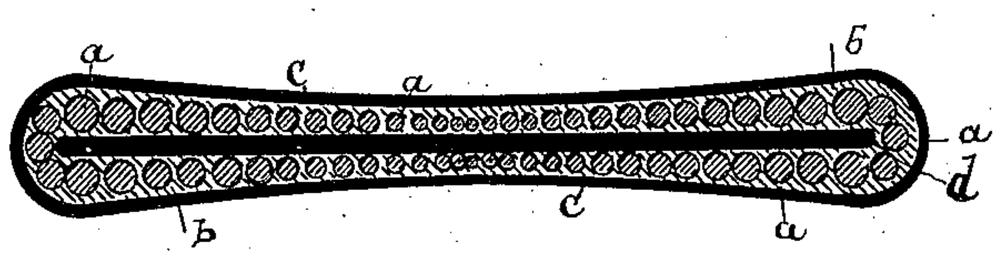


Fig. 2.

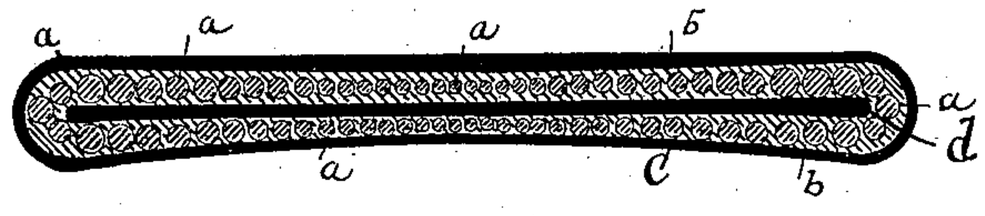


Fig. 3.

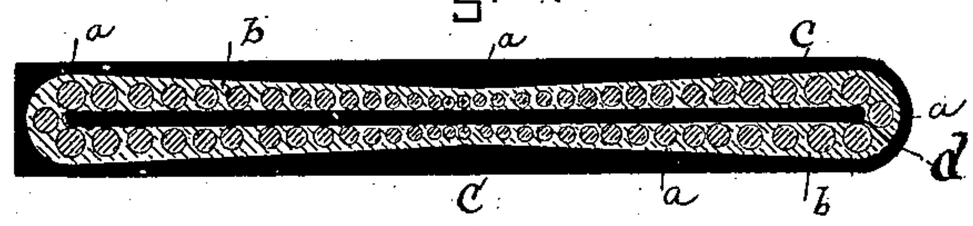
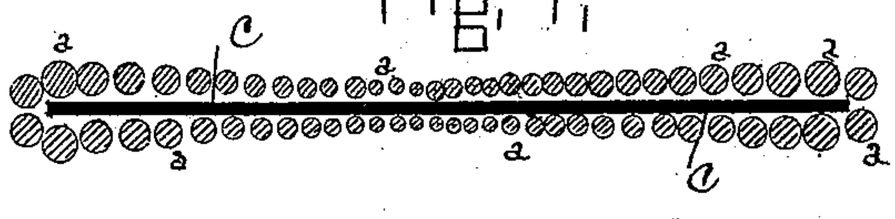


Fig. 4.



WITNESSES:

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BELTING FOR MACHINERY.

SPECIFICATION forming part of Letters Patent No. 336,990, dated March 2, 1886.

Application filed February 2, 1885. Serial No. 154,659. (No model.)

To all whom it may concern:

Be it known that I, RICHARD F. M. CHASE, of New York, in the State of New York, have invented certain new and useful Improvements in Belting for Machinery, of which the following is a specification.

My invention has for its object the production of a belt having either one or both sides concave, adapted to fit crowning pulleys, one or both sides convex to fit concave or grooved pulleys, and flat belts having greater strength at the edges, where the most wear and tear as well as strain come.

My improvement may be applied to any knit or woven fibrous belt, whether covered with vulcanized rubber or other suitable material or left uncoated; but it more especially applies to the belting described and claimed in United States Letters Patent No. 306,131, granted to me October 7, 1884.

My invention consists in using warp-threads of varying size. These are not necessarily used with a uniformly-diminishing size; but preferably they would be so arranged.

In constructing a belt with a double-concave section, which form is adapted to fit a crowning pulley using either side of the belt, the warps would gradually diminish in diameter from the edges toward the center. The largest-size warp-threads are thus placed in the edges of the belt, where the most strength is required, and where the belt is most liable to extra strains and injuries. In the case of a seamless tubular knit fabric, which is the best way of making these belts, beginning at one side, the warps will preferably gradually diminish in size upon each side of the largest warp-threads until the half the circumference of the tube is reached, when they will increase upon each side until they meet in the maximum warps opposite those at the starting point. For convenience in folding the tube into a flat belt or band, the warps at the portions of the tube that are intended to form the edges of the belt may be somewhat smaller than those immediately adjacent upon either side. In the case of a doubly-convex belt, the largest warps would be in the center, and in the case of a belt flat upon one side the warps upon one-half of the tube may be of a uniform size.

It is obvious that a tube knit for a doubly-concave belt may be used for a doubly-convex belt by flattening it together, with the larger threads in the center line of the belt, instead of at the edges.

In the drawings, Figure 1 is a cross-section of my improved belt, in which both sides are concave. Fig. 2 is a cross-section of my improved belt, in which only one side is concave, the other being flat. In both sections the belt is shown coated with india-rubber or other suitable compound on the outside, as well as between the layers of knit or woven fabric; but, if desirable for any reason, the outer coating may be omitted. Fig. 3 is a section of this form of belt in which both sides are flat and parallel, one end being shown square and one rounded. Fig. 4 is a cross-section of a form of my improved belt, in which the rubber is used only in the center, the outside of the belt being left uncovered.

a a are the warp-threads. *b* is the weft of knit or woven fabric indicated by section-lines. C is india-rubber or other material forming the outer coating. *d* is the layer of india-rubber or other suitable material between the two sides of the knit tube on the inside. The warp-threads are seen to diminish in size from the edges toward the center, and may be, as shown, a little smaller at the edges where the turn is made, though this is not absolutely essential.

The belt having one flat face and one concave may be produced by merely pressing into shape, by adding more rubber on one side and pressing, or by making the warp-threads on one side all of a size. A belt having both faces flat and parallel may also be produced by adding more rubber and pressing or rolling into shape.

The advantages of this form of flat belt over the ordinary flat belt are, that its edges are much stronger, and its center being more yielding it will also conform to crowning pulleys.

The advantages of my improved belting when made with one or both sides concave are, that it fits a crowning pulley exactly, and its edges are very much stronger in proportion than the center, rendering the belt more lasting. By putting the small warp-threads on

the edges and the larger ones in the center of the belt it may be adapted to conform to hollow pulleys; but in this case the advantage of having stronger edges would of course be lost. In this kind of belt, however, it is not so important to have the edges strong.

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

1. Knit or woven belts or bands having warp-threads of graduated sizes and all of one series, as described, and for the purpose set forth.

2. Belting for machinery, made of a circular seamless knit or woven tube or tubes, with warps of different sizes graduated to conform to a crowning or concave pulley, rolled or pressed together in the form of a belt or band.

3. Belting for machinery, made of a circular seamless knit or woven tube or tubes, with warps of varying size graduated to conform to a crowning or concave pulley, in combination with vulcanized rubber or other suitable compound, and rolled or pressed together in the form of a belt or band.

4. Belting for machinery, made of a circular seamless knit or woven tube or tubes, with warps of graduated size, in combination with vulcanized rubber or other suitable material, so placed and pressed or rolled as to make the section of the belt rectangular, or with parallel faces and rounded ends, substantially as shown and described.

In witness whereof I have hereunto set my hand.

RICHARD F. M. CHASE.

Witnesses:

H. WHITE,

N. V. QUINN.