

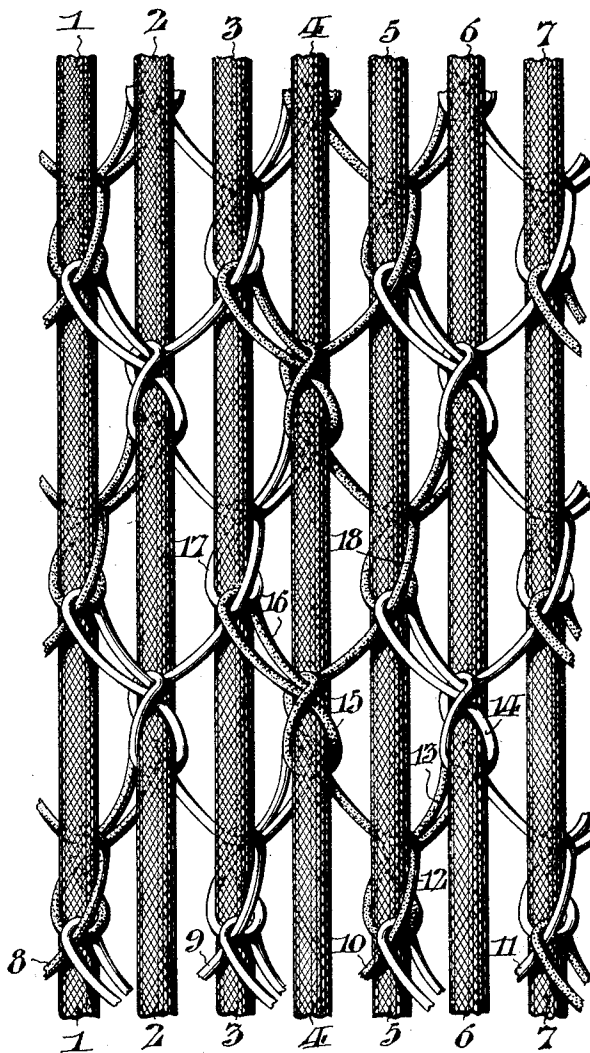
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1,451,975

T. BRANSON

REINFORCING FABRIC FOR TIRES

Filed Dec. 18, 1919



WITNESSES:

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REENFORCING FABRIC FOR TIRES.

Application filed December 18, 1919. Serial No. 345,824.

To all whom it may concern:

Be it known that I, THOMAS BRANSON, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Reinforcing Fabrics for Tires, whereof the following is a specification, reference being had to the accompanying drawings.

The invention relates to reinforcing fabric more particularly useful in the manufacture of vehicle tires of the "cord" type, and is intended as an improvement over the structure shown and described in a Patent 1,300,696 granted me under date of April 15, 1919.

In tires of the class referred to, reenforcement is obtained by a series of cords, which, when incorporated in the tire, run longitudinally of the structure.

The primary object of the invention is to provide a fabric in which the reenforcing cords are predominant, and held in proper relative positions against displacement by a ground work of extremely light binding threads, of such gauge, as to be only sufficiently strong to prevent disintegration of the fabric in ordinary handling incidental to the process of tire manufacture, and moreover, so interknitted with the cords as to permit absolute individual freedom of self adjustment, both longitudinally and laterally when the tension is placed upon the fabric.

The invention is also directed to a fabric of the specified character which is of such construction as to be capable of being cut longitudinally into strips, which are complete in themselves and proof against raveling.

The specific structure embodying the characteristics above pointed out will be better understood from the detailed description which follows. The illustration represents more or less diagrammatically, a fragment of a fabric structure conveniently embodying my invention.

In this illustration, the reinforcing cords are designated respectively at 1, 2, 3, 4, 5, 6 and 7. These run longitudinally of the fabric, and are incorporated therein by a ground work formed through the interknitting of a number of binder threads 8, 9, 10 and 11, which are comparatively, of an extremely light gauge,—possessing only sufficient ten-

sile strength to insure integrity of the fabric under ordinary circumstances. Of the binder threads shown, those marked 8 and 10, have been stippled so as to be conveniently distinguished from the others. Following, for example, the course of the thread 10, upwards from the bottom of the illustration, it will be noted that it is first formed into a chain loop 12, which embraces the cord 5, and is thence tied by a plain secondary loop 13, to a chain loop 14, formed about the cord 4, by another binder thread. Following still further, it will be observed that the thread 10, leads from the loop 12, and is thence formed into a second chain loop 15, which encircles the cord 4, and is thereafter tied by means of another secondary loop 16, to a chain loop 17, of the binder thread 9, embracing the cord 3. Beyond loop 16, thread 10, is again formed into a chain loop 18, embracing the cord 5, in a manner similar to loop 12. From this point on, the process is simply duplicated. By similarly following the course of any of the other binder threads, it will become apparent that they follow the same predetermined rule.

From the above, it will be seen that each binder thread zigzags back and forth from one to another of two adjacent cords of the series, which it embraces, thus serving as a common tie for them independently of adjacent binders and that it is also connected by a series of secondary loops, disposed intermediate the embracing chain loops, to corresponding chain loops of adjacent binders and hence to the cords at either side of those above mentioned. As shown, the secondary loops are inter-linked with the chain loops that embrace the said cords. By this arrangement, I not only effect economy of material, but what is of more importance, am enabled to produce a more satisfactory product from the commercial standpoint, than the structure of the patent previously referred to, since in the present instance, only a negligible portion of the ground work intervenes between the longitudinally running cords, thereby permitting greater lateral compaction when placed under tension during the manufacture of tires. Furthermore, the inherent characteristics of the structure are such as to permit severance into strips of various widths, each of such strips being complete in itself and proof against ravel-

ling, since the embracing loops of each binder are complete and are formed independently of adjacent binders.

It will be understood by those skilled in textile manufacture, that the fabric embodying my invention may be readily produced upon an ordinary knitting loom, by a predetermined ordering of the shifting of the guides for the cords and binder threads, with respect to the knitting needles.

Having thus described my invention, I claim:

1. A textile structure of the character described, including in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a number of inter-connected binder threads each forming embracing loops completely surrounding and tying together two adjacent cords of the series.

2. A textile structure of the character described including, in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a number of interconnected binder threads each serving, by means of embracing loops, to tie two adjacent cords of the series together independently of adjacent binder threads connecting a pair of their adjoining cords.

3. A textile structure of the character described including, in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a number of interconnected binder threads each forming complete embracing loops about and tying together two adjacent cords of the series, and each also connected by secondary loops to two cords at either side of those first mentioned.

4. A textile structure of the character described including, in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a number of binder threads each serving, by means of embracing loops, to tie together two adjacent cords of the series independently of adjacent binders connect adjoining pairs of cords, and each also connected to adjacent binders by means of secondary loops.

5. A textile structure of the character described including, in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a num-

ber of interconnected binder threads each forming complete embracing loops about and tying together two adjacent cords of the series, and each also having secondary loops interlinked with corresponding binder loops embracing the cords at either side of those first mentioned.

6. A textile structure of the character described including, in combination, a series of cords extending longitudinally of the fabric; and a ground work comprising a number of binder threads each serving, by means of embracing chain loops, to tie two adjacent cords of the series independently of adjacent binders, and each also united by means of secondary loops to the corresponding chain loops of the adjacent binders.

7. A textile structure of the character described including, in combination, a series of cords running longitudinally of the fabric; and a ground work comprising a number of interconnected binder threads zigzagged from one to another of two adjacent cords of the series and binding the same by embracing loops.

8. A textile structure of the character described including, in combination, a series of cords running longitudinally of the fabric; and a ground work comprising a number of binder threads zigzagged from one to another of two adjacent cords of the series, and binding the same by means of embracing loops, each of said binding threads having also formed in them, in alternation with said embracing loops, secondary loops tied to the embracing loops of adjacent binder threads.

9. In a fabric comprising contiguously running cords, transverse binder threads connecting together adjacent pairs of the cords by loops, each loop completely embracing one of the cords only, and inter-looping portions formed of the binder threads and connecting one of said loops of one pair of cords with a loop of an adjacent pair of cords to bind the pairs of cords together to form the fabric.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 13th day of December, 1919.

THOMAS BRANSON.

Witnesses:

JAMES H. BELL,

E. L. FULLERTON.