E. KOELLA.

TUFT.

APPLICATION FILED SEPT. 12, 1908.

923,537. Patented June 1, 1909.

Fig. 2.

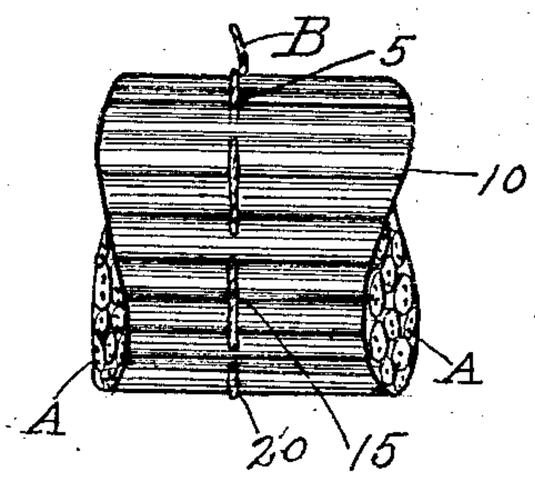


Fig. 1.

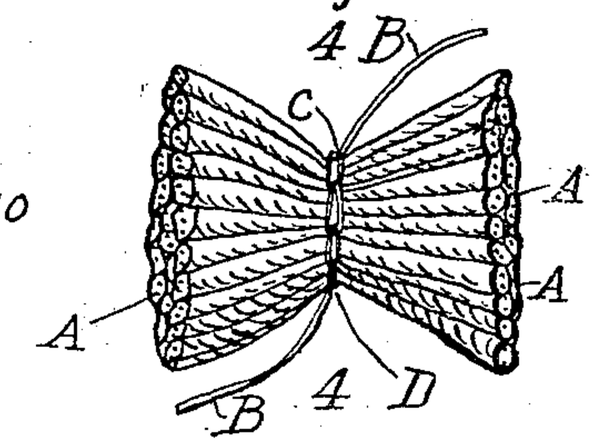


Fig. 3.

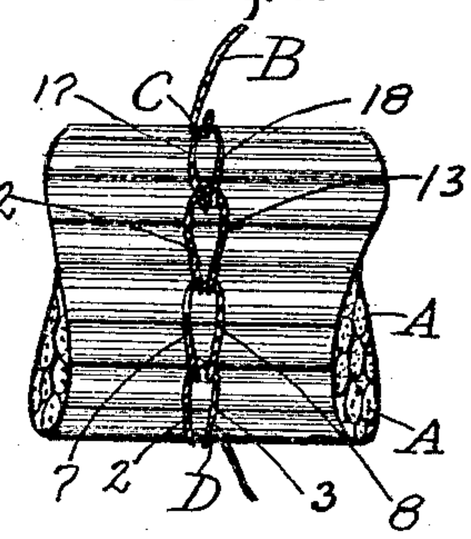
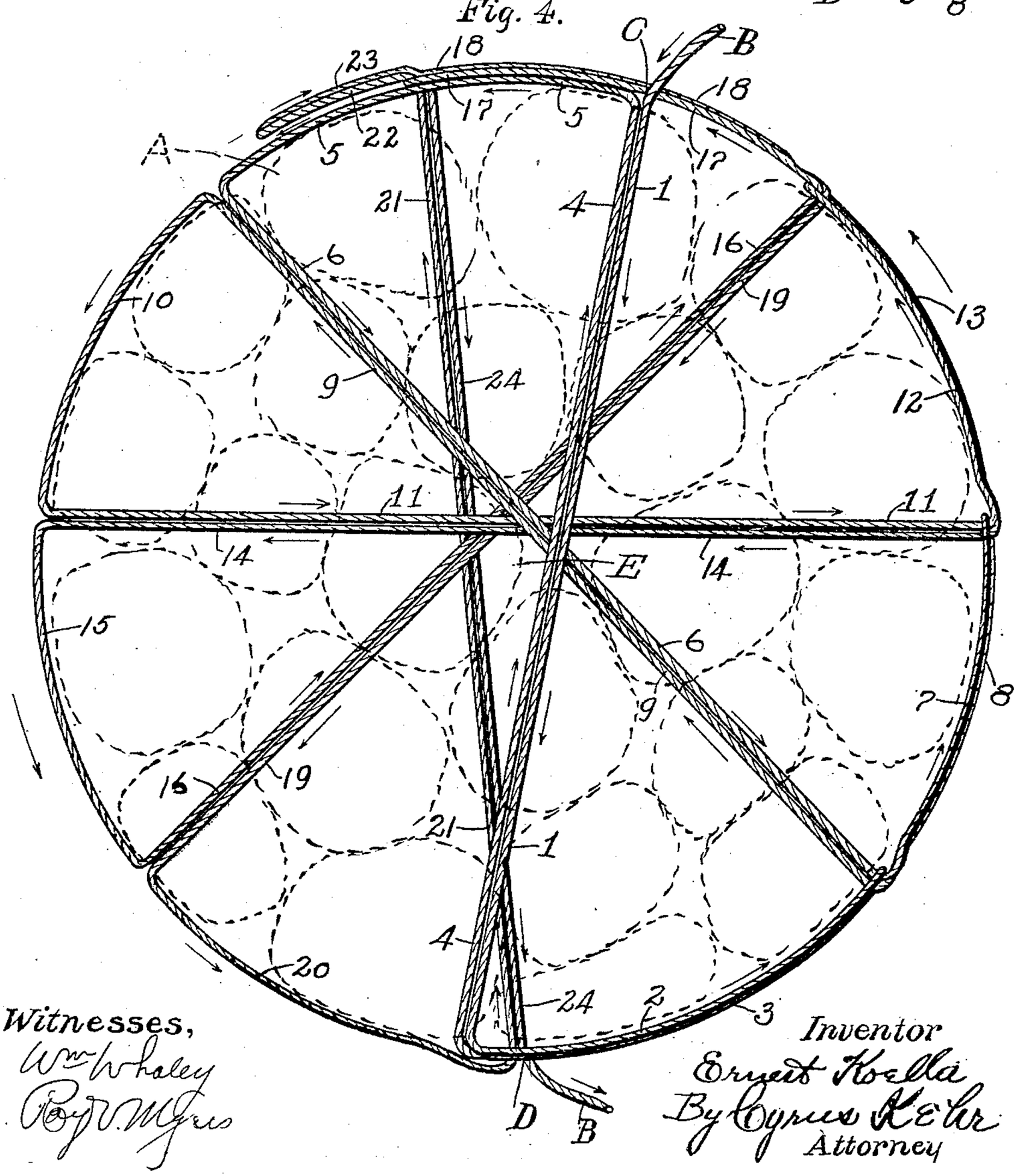


Fig. 4.



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TUFT.

No. 923,537. Specification of Letters Patent. Patented June 1, 1909.

Application filed September 12, 1908. Serial No. 452,781.

To all whom it may concern:

Be it known that I, ERNEST KOELLA, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Improvement in Tufts, of which the following is a specification, reference being had to the accompanying drawing.

My improvement relates particularly to tufts used in the manufacture of mattresses, cushions, etc., a tuft being placed between the thread and the outer fabric of the mattress or other similar article to prevent the thread from drawing or cutting through such fabric.

The object of the invention is to produce a tuft which is to the highest degree soft and fluffy and is at the same time durable, all the yarn sections of which it is composed being secured in such manner as to avoid withdrawal thereof when the mattress is being handled or cleaned. It is essential that such tufts be soft, in order that they may not be objectionable in the use of the mattress or similar article. Various materials or articles would answer merely the purpose of preventing the thread from drawing through the fabric. For example, an ordinary wooden or rubber button would serve that purpose; but its presence would always be noticeable and objectionable in the use of the mattress. Tufts have heretofore been made of yarn, the longitudinal strands or cords thereof being held together by winding a cord around the bundle of said cords and then knotting the cord. This tends to harden the tuft and at the same time leaves all the cords, excepting those on the outside, more or less free to be pulled out, and after a few of said cords have been pulled out, the entire tuft is soon destroyed and the thread which it was intended to support is drawn through the mattress.

In the accompanying drawings, Figure 1 is a side elevation of a tuft embodying my improvement; Fig. 2 is a side elevation of the middle portion of said tuft, the yarn sections being represented as straight and not expanded; Fig. 3 is a similar elevation of the opposite side of the middle portion of said tuft; Fig. 4 is an enlarged section on the line 4—4 of Fig. 1.

Referring to said drawings, A, A, A are sections of light cotton cord or yarn. These are arranged parallel to each other in sufficient number to produce the desired body or thickness for the tuft. Approximately twenty-five or thirty of such sections have been found satisfactory in practice. Such yarn should be so soft as to permit the middle portion (the portion in the stitching plane) of the tuft to be closely compressed throughout to a small diameter while at each side of the middle each of said sections expands or spreads sufficiently to make a soft, loose mass. Said cord or yarn sections are held to each other and closely compressed midway between their ends by thread extending through and around the bundle of cords in a plane transverse to the length of the tuft (the stitching plane), whereby substantially all of said sections are penetrated by threads and the entire group of sections drawn closely together, so that the portion of said group or bunch in the stitching plane is closely compressed throughout.

The sewing may be done in any desired manner. The drawing illustrate the sewing as having been done by what is known as chain stitches, only one thread being used, and that being carried by a needle which penetrates the fabric, a hook below the fabric being used to form the thread into a loop through which another loop of the thread is drawn during the making of the next stitch, and so on.

The course of the thread may be traced through the completed tuft by referring to Fig. 4, wherein each portion of thread extending through the tuft or lying over a portion of the rounded surface of the latter is given a distinct number, the numbers being made serial from the point at which the thread first enters the tuft.

For the sake of convenience in describing the courses of the thread on the exterior of the tuft, the course indicated by the small arrows in Fig. 4 will be called "forward".

B is the thread. This first enters the tuft at C and extends transversely through the tuft, preferably a little at one side of the axis, E, of the tuft, that portion of the thread being marked 1. The thread next turns forward and is folded upon itself and returned to make a loop, these two portions being marked, respectively, 2 and 3. Then the thread again enters the tuft and extends through the latter alongside the portion, 1. This last portion is marked 4. Then the thread turns forward across the surface of the tuft and again enters the tuft, this portion being marked 5. Then the thread again

passes transversely through the tuft preferably at one side of the axis, E. This portion is marked 6. Then it passes through the loop, 2—3, and turns forward over the surface of the tuft and folds upon itself and again passes through the loop, 2—3. The two portions forming this second loop are marked, respectively, 7 and 8. Then the thread again passes transversely through the tuft along the portion, 6, this portion being marked 9. Then it again extends forward across the portion of the surface of the tuft, this portion being marked 10. Then the thread again enters the tuft and passes transversely through the latter, preferably at one side of the axis, E, and through the loop, 7—8, this portion being marked 11 Then the thread turns forward across a portion of the surface of the tuft and folds upon itself and again passes through the loop, 7—8, the two portions forming this loop being marked, respectively, 12 and 13. Then the thread again passes along the portion, 11, through the tuft, this portion being marked 14. Then the thread again turns forward over a portion of the surface of the tuft. This portion is marked 15. Then the thread again extends through the tuft, preferably at one side of the axis, E, and through the loop, 12—13, this portion being marked 16. Then the thread extends forward over a portion of the surface of the tuft and is folded backward upon itself to form a loop and again extends through the loop, 11—12. The two portions of this new loop are designated, respectively, 17 and 18. Then the thread again extends through the tuft along the portion, 16. This new portion is designated 19. Then the thread again extends over a portion of the surface of the tuft and again enters the tuft. This portion of the thread is marked 20. Then the thread again extends through the tuft, preferably at one side of the axis, E, and through the loop, 17—18, this portion of the thread being marked 21. Then the thread again turns forward over a portion of the surface of the tuft and then backward to form a loop, the two portions of the loop being marked, respectively, 22 and 23. Then the thread again passes through the loop, 17—18, and then enters and passes through the tuft along the portion, 21, and emerges from the tuft at D, this portion of the thread being marked 24. Then the thread ends at any desired distance from the point, D. In the tuft illustrated in the drawings, the thread begins and ends at a distance from the point, D, equal to half the length of the tuft. This comes from sewing through a long group of cords at chosen distances, carrying the thread continuously from one sewing plane to the other, and then cutting said cords and thread midway between the sewing planes.

The loop, 22—23, is left free and it lies in the groove or valley extending around the middle of the tuft, after the ends of the tuft have expanded, and is usually covered by the tuft thread extending through the mattress.

For each stitch, the needle is preferably made to extend through the tuft a little at one side of the axis, E, of the tuft, as shown in Fig. 4 of the drawings, in order to avoid forming a mass of thread, at such axis, through which the needle can not well penetrate.

I claim as my invention:

1. A tuft comprising a bunch of short sections of cord or yarn and thread extending transversely through said bunch in straight stitches, the stitches crossing each other at diverse points in the stitching plane.

2. A tuft comprising a bunch of short sections of cord or yarn and thread extending transversely through said bunch in straight stitches, each stitch passing at one side of the axis of the bunch.

3. A tuft comprising a bunch of short sections of cord or yarn and tightly-drawn thread extending in straight stitches transversely through said bunch of cords between the ends of and at one side of the axis of said bunch and extending over the surface of said bunch.

4. A tuft comprising a bunch of short sections of cord or yarn and thread extending transversely through said bunch in straight stitches, the stitches crossing each other at diverse points in the stitching plane, the portion of the bunch in the stitching plane being closely compressed throughout.

In testimony whereof I have signed my name, in presence of two witnesses, this first day of September, in the year one thousand nine hundred and eight.

ERNEST KOELLA.

Witnesses:
CYRUS KEHR,
C. A. MORSE.