Nov. 13, 1923. 1,473,765

T. W. HANRATH

BUFFING WHEEL

Filed Aug. 20, 1920

Fig. 1.

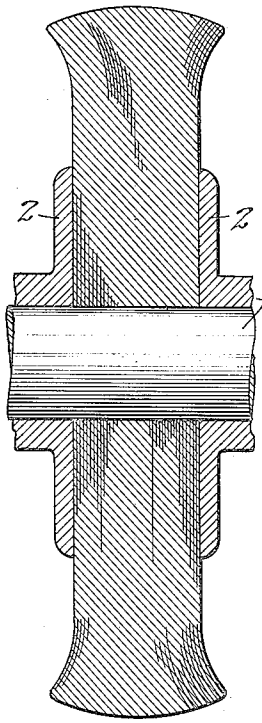


Fig. 2.

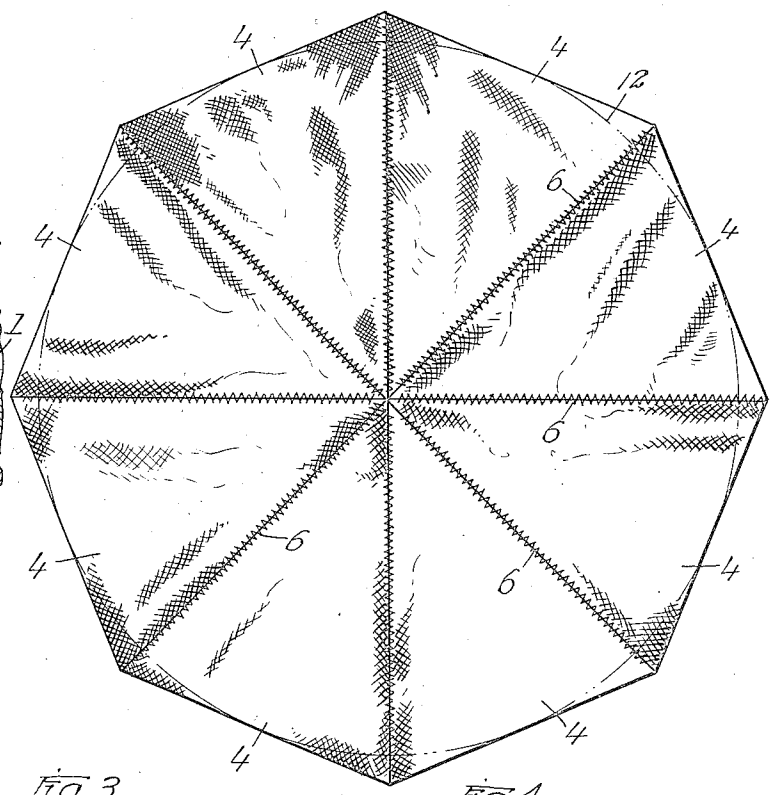


Fig. 3.

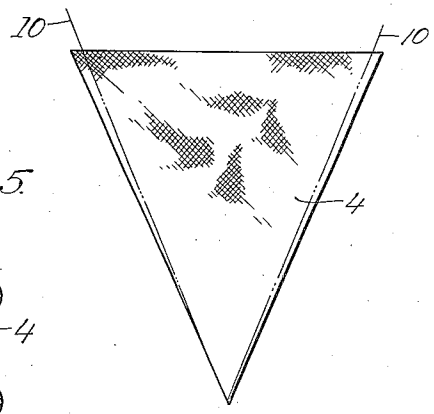


Fig. 4.

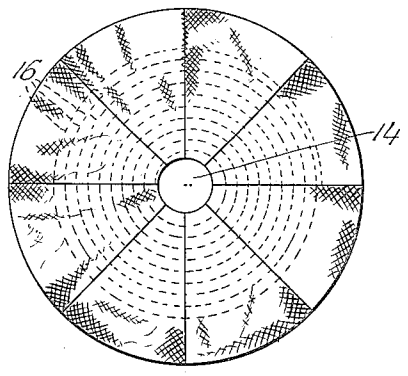


Fig. 5.



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UNITED STATES PATENT OFFICE.

THEODORE W. HANRATH, OF CHICAGO, ILLINOIS.

BUFFING WHEEL.

Application filed August 20, 1920. Serial No. 404,854.

To all whom it may concern:

Be it known that I, THEODORE W. HANRATH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Buffing Wheels, of which the following is a specification.

My invention relates to buffing wheels, of the type composed of a plurality of layers of fabric, and the object of the invention is to provide a wheel which when rotating will cause the periphery to flare or expand axially, thus giving a wider circumference or tread.

I obtain my object by the construction illustrated in the accompanying drawing, in which—

Figure 1 is an axial section of the assembled wheel;

Figure 2 is a face view of one of the composite layers or laminations prior to its center punching and circumferential trimming;

Figure 3 is a face view of a single sector illustrating the fact that its angular width is greater than 360° divided by the number of sectors in a layer.

Figure 4 is a face view of a completed lamination or layer and

Figure 5 is a fragmentary sectional view of one of the sectors, taken transversely to the plane thereof, and illustrating the fluting or fullness due to the fact that the aggregate angular width of the sectors is greater than 360°.

Like numerals denote like parts throughout the several views.

Referring to the drawings, the wheel is mounted upon a shaft or arbor 1 which in practice is rotated at high speed. Secured to this shaft are face plates 2 which operate in the usual manner. Located between the face plates and held together by them are layers of fabric which at one stage of manufacture appear as shown in Figure 2 and when finished, appear as shown in Figure 4. These laminations comprise a plurality of sectors 4 of cotton cloth or other suitable fabric. They are secured together at the edges by stitching 6. While the number of sectors may be varied, I prefer to employ eight, as illustrated. The sectors are cut from the cloth in such manner that none of the component threads, practically speaking, are tangential. In other words, they are all oblique to a tangent drawn to the peripheral circle at the point where the particular thread in question terminates. It will be understood that in buffing wheels the edges are raw, and in the buffing wheels heretofore made, there are four points in the circumference where the threads are tangential and interwoven with threads that are radial. Of course at high speed, the centrifugal force is considerable, and this, taken in conjunction with the loosening effect of the work on the threads, causes the tangential threads to become loosened and detached from the radial threads, in consequence flying off bodily from the wheel and soon making it out of round. Frequently, worn buffing wheels of this kind are referred to in shop parlance as being "square." With my construction, all of the threads run obliquely inward from the circumference and hence are firmly held by the threads crossing them and cannot become detached from the wheel. Consequently the wheel wears uniformly and maintains its circular outline.

The fact that the threads all run in obliquely from the circumference toward the body of the wheel does not prevent the ends of the threads from fraying, which is a desirable characteristic, as it promotes the polishing effect of the wheel upon the work. The loose ends of the sectors, of course, do not lie as compactly as they do prior to their fraying, and the result is that the periphery of the wheel automatically thickens, as illustrated at the upper and lower ends of Figure 1. It will be remembered that the threads all remain rooted in the body of the fabric, so to speak, and hence there is no thinning effect. On the contrary, there is a thickening effect due to the fact that the extreme ends of the threads become unwoven and it is this phenomena which, in part, produces the advantageous thickening and softening of the circumference. As a result of my construction, the life of the article is prolonged and the quality of its work improved.

According to my construction also, the aggregate angular width of the sectors is greater than 360°; for example, if eight sectors are employed, as illustrated in the drawings, each individual sector will have an angular width of something more than 45 degrees. This feature is illustrated in Figure 3 in which the dot-and-dash lines 10 are employed to indicate the 45 degree angular width, while the lateral edges of the sector lie outside of

these lines. The result is that when the sectors are trimmed upon the circle indicated by the dot-and-dash line 12, Figure 2, there will be a fullness or fluting indicated with more or less exaggeration in Figure 5. The resulting advantage is that the periphery will thicken to a still greater degree, the central portion being tightly clamped between the face plates 2.

After the sectors have been stitched together, as indicated in Figure 2, they are trimmed on the circle 12 as previously intimated, and they are punched at the center so as to form a hole 14 for receiving the shaft 1 in the usual manner. It will be understood that in manufacturing cloth articles, it is common practice to cut a number of layers at a time. In harmony with this practice, it is preferable in manufacturing my article to cut a number of layers at a time by means of a die, electric knife, or otherwise: and usually I take a multiplicity of layers of sectors, for example, 8 at a time, and stitch them simultaneously edge to edge to a corresponding number of layers of sectors. In other words, the stitching 6 will serve, for example, to secure 8 sectors to a similar group of 8 sectors, thus speeding manufacture.

Ordinarily, after I have produced a complete unit composed of a depth of 8 layers more or less, I lay them face to face with two additional similar units and then secure the three units together by means of spiral stitching 16, shown in Figure 4. This makes an element of 24 layers, and usually I assemble 3 or 4 of these elements side by side between the face plates to constitute a buffing wheel. It will be understood, however, that the number of layers in a unit and the manner of assembling them may be varied without departing from the underlying spirit of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

A buffing wheel having a plurality of laminations of fabric, face plates for securing the laminations together at the center, the layers being formed of a plurality of sectors stitched together at the edges, substantially all of the threads of the sectors running oblique to the tangents drawn to the circumference at the points where the individual threads terminate, the aggregate angular width of the sectors being somewhat in excess of 360°, thereby producing a moderate fullness and causing the buffing wheel to be thicker at the circumference than toward the center, the laminations lying in surface contact substantially throughout their extent.

In witness whereof, I have hereunto subscribed my name.

THEODORE W. HANRATH.