Dec. 31, 1940. L. W. MacFARLAND ET AL 2,226,625

BUFFING OR POLISHING WHEEL

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FIG. 1.

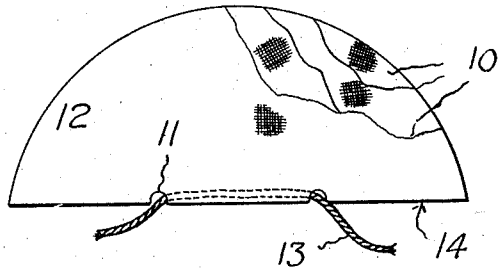


FIG. 2.

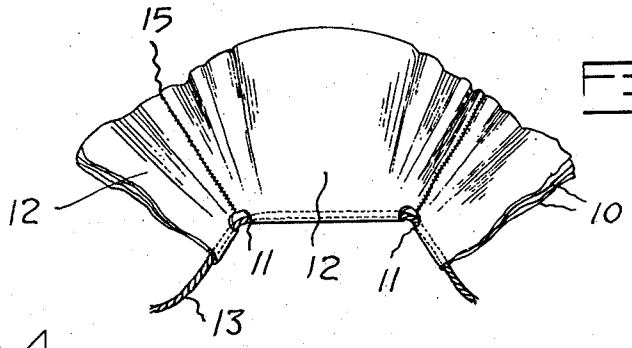


FIG. 4.

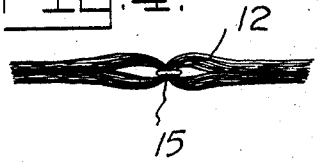


FIG. 5.

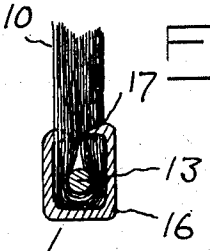
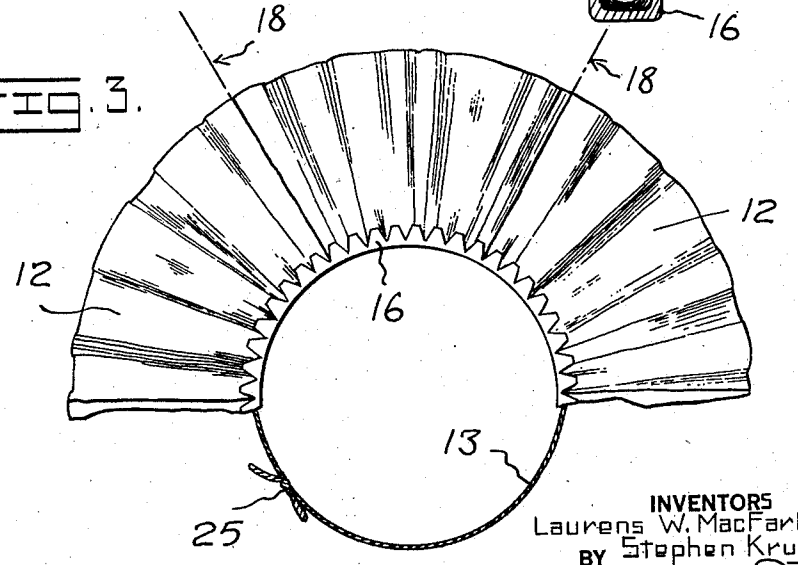


FIG. 3.



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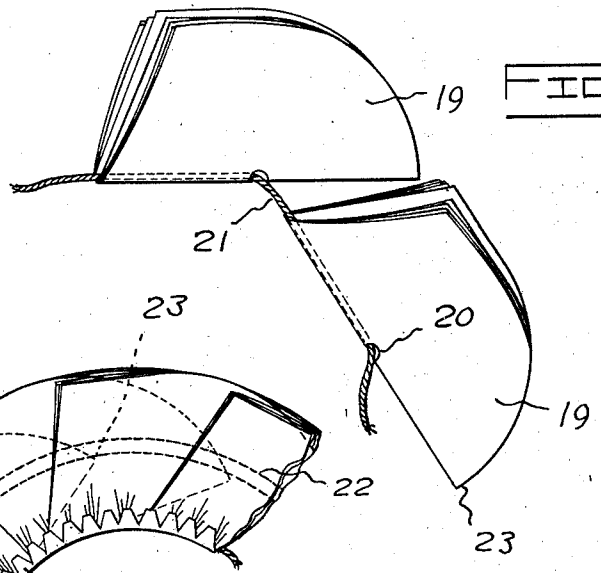


FIG. 7.

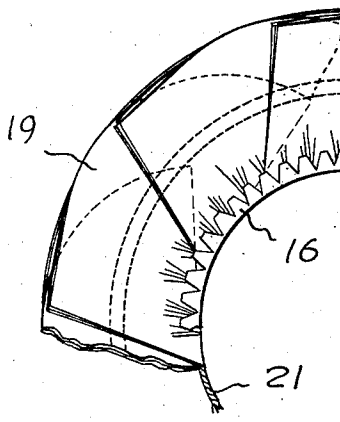


FIG. 8.

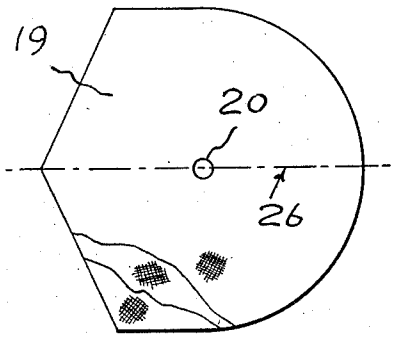


FIG. 6.

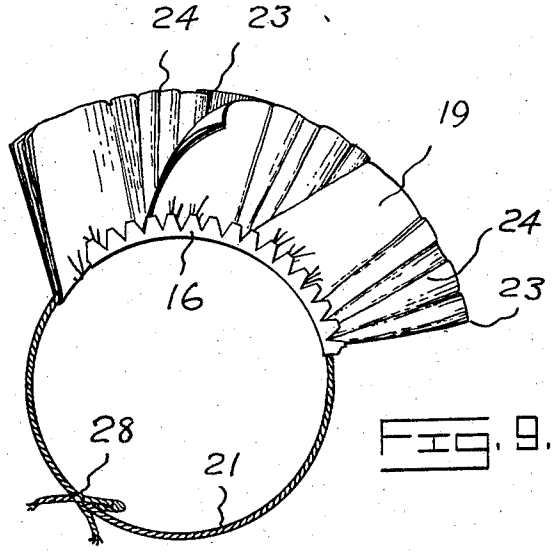


FIG. 9.

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BUFFING OR POLISHING WHEEL

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Application November 28, 1939, Serial No. 306,479

13 Claims. (Cl. 51—193)

This invention relates to buffing or polishing wheels and more particularly to wheels of the type in which annular buffing sections consist of segments of cloth or other buffing material and are assembled together in a circumferential series to form the buffing surface.

One object of our invention is to provide an improved construction of buffing wheel adapted to utilize relatively small discs or pieces of buffing material that may be obtained by cutting the centers from larger discs in the manufacture of buffing wheels having large central openings, or may consist of buffing discs that have been used and have been worn down to such small dimensions that they can no longer be efficiently employed.

Another object of our invention is to provide an improved construction of the buffing segments and of the means for connecting same to an anchoring or retaining ring or member forming the inner periphery of the annular section.

With these and other objects in view, our invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form and constructional details may be made without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings:

Fig. 1 is a side view showing one form of the improved buff segment ready for assembly;

Fig. 2 shows the same segment in combination with portions of adjacent segments;

Fig. 3 is a side view showing a portion of an annular buffing section;

Fig. 4 is a detail cross-section showing the connection between adjacent segments;

Fig. 5 is a detail cross-section through the retaining ring and the buffing material;

Figs. 6 to 9 inclusive show a modified form of the invention, Fig. 6 being a view showing a flat blank of modified form; Fig. 7 showing two adjacent segments of this modified form; Fig. 8 showing a side view of part of a buffing section comprising the segments of Figs. 6 and 7; and Fig. 9 showing a modified form of the arrangement of Fig. 8.

Referring to Figs. 1 to 4, a plurality of plies of fabric or other material 10 of round, oval, or other like shape, are superimposed upon each other and are punched with perforations 11 after which the multi-ply blank 12 is folded along a center line passing through the perforations 11, and a cord, wire, or the like 13 is passed inwardly through one of the perforations 11 and outwardly through the other as shown at Fig. 1. The folded edge 14 extending from periphery of the blank 12 to the adjacent perforation 11 is connected to the corresponding edge of a similar blank 12 by a line of stitching 15 as shown at Fig. 4, and the cord or wire 13 passes—as shown at Fig. 2—through the perforations 11 of the adjacent blanks. The said member 13 has its free ends connected together and the segments 12 are mounted in an endless series upon a ring or supporting member 16 of any suitable or well-known type; and in the arrangement shown we employ a retaining ring of the known type comprising pointed teeth 17 adapted to penetrate the buffing material and the teeth on one side being arranged in staggered relation to the teeth on the other, as shown at Fig. 5, so that the inner periphery of the buffing section is securely anchored in a metallic retaining ring that may be conveniently mounted and centered in the buffing wheel.

As the blanks 12 are assembled to form the annular buffing section, the blank ends are puckered or bunched together as the edges 14 extend outwardly in a direction radially of the buffing section as indicated by the lines 18 in Fig. 3, and it should be noted that this formation results from the action of centrifugal force as the buff is used, and while we prefer to stitch adjacent sections together as shown at Fig. 4, such stitching is not always necessary. In accordance with the modification shown at Figs. 6 to 9, inclusive, a plurality of multi-ply blanks 19 of buffing material, of round, oval, or like shape, or of the angular and arcuate formation shown, are formed with central apertures 20 through which they are folded along the line 26, Fig. 6, and through which a retaining cord or wire 21 is passed. The folded blanks 19 extend into each other and the free ends of the retaining member 21 are connected together (as at 28, Fig. 9) and the buffing annulus thus formed is retained by a suitable member such as the retaining ring 16 Fig. 8, and annular or spiral rows of stitching 22 may be provided so as to connect the free corners 23 of the blanks 19 to the enclosing material of the adjacent blanks.

In the modified form of annular section shown at Fig. 9 the arrangement is similar to that of Fig. 8, except that the rows of stitching 22 are omitted, with the result that the free ends or corners 23 of the blanks 19 move outward under centrifugal force when the buff is in use, and the

material is thus bunched or shirred at 24, thereby forming portions that are of greater bulk or thickness in an axial direction, and in assembling the annular buff sections for use in a sectional buffing wheel the sections may be so disposed that the thickened portions formed by the bunchings at 24 in adjacent sections are in staggered relation, in order to give substantial uniformity in the distribution of the buffing material in the peripheral surface of the sectional wheel.

The ends of the retaining cords or wires 13 and 21 may be connected together by knotting, as at 25, Fig. 3, and 28, Fig. 9, or in other suitable manner so that they serve as annular cores enclosed in the inner periphery of the buffing sections; and the retaining rings 16 and/or said cores may be dispensed with in certain cases and the inner periphery of the annular section may be reinforced by sewing or by cementing, or in other suitable or well-known manner.

Although the drawings and the above specification disclose the best modes in which we have contemplated embodying our invention, we desire to be in no way limited to the details of such disclosure, for in the further practical application of our invention many changes in form and construction and in minor details may be made as circumstances require or experience suggests without departing from the spirit of the invention within the scope of the appended claims.

What we claim is:

1. In a buffing wheel, a plurality of folded segments disposed in an endless series forming an annular buffing element with a substantial portion of the fold in each segment extending along the inner periphery of said annular element and another substantial portion of said fold extending outwardly from said inner periphery.

2. In a buffing wheel, a plurality of buffing segments each comprising a multi-ply blank, perforations in the blanks, folds extending through the perforations, a flexible retaining member extending along a portion of the fold in each blank and extending through a perforation in each blank to form an annular buff with a portion of each fold disposed in its inner periphery and another portion of the same fold extending outwardly from the said inner periphery.

3. In a buffing wheel, a plurality of buffing segments each comprising a multi-ply substantially round blank, perforations in the blanks, folds extending through the perforations, a flexible retaining core member extending along a portion of the fold in each blank and through a perforation in each blank, means for connecting the ends of the flexible member to form the blanks into an annular buff with a portion of each fold disposed in its inner periphery and another portion of the same fold extending outwardly from the said inner periphery, and annular means reinforcing the inner periphery of the annular buff.

4. In a buffing wheel, an annular buffing section comprising a plurality of folded multi-ply blanks of buffing material, perforations in the blanks, a ring-shaped retaining core passed through at least one perforation in each blank and forming an endless chain of blanks, and means for retaining and enclosing portions of the folded edges of the blanks in the inner periphery of the annular section and other portions of said folded edges extending outwardly from said retaining means.

5. In a buffing wheel, an annular buffing section comprising a plurality of multi-ply blanks of buffing material, perforations in the blanks, folds extending through the perforations a flexible retaining core member passed through at least one perforation in each blank to engage a portion of the fold in the blank and form a chain of blanks constituting an endless series, and a metallic clamping ring for retaining the portions of the blanks forming the inner periphery of the annular buffing section, the other portions of the said fold extending radially outwards from said clamping ring.

6. In a buffing wheel, a plurality of buffing segments each comprising a plurality of plies of flexible material superimposed upon each other and having central folds extending from edge to edge thereof, at least one perforation through each fold, a flexible retaining core extending along a substantial part of each fold and through a perforation in each segment, the remaining part of each fold being free to turn outwardly in a radial direction due to centrifugal force.

7. In an annular buffing section, a buffing segment comprising folded multi-ply material with free edges of arcuate form, at least one perforation in the fold, a flexible retaining core extending through the perforations in the segments and having its ends connected to assemble the segments in an endless chain, and means for enclosing the said flexible core and the entire inner periphery of the buffing section.

8. In an annular buffing section, a plurality of buffing segments each comprising a folded blank, two spaced perforations in the fold of each blank, a flexible retaining core threaded through all the perforations in the blanks, and means for connecting the ends of said flexible member to assemble the blanks in the form of an endless chain with the fold portion between each perforation and the blank edge extending outwardly from said core to the outer periphery of the segment.

9. In an annular buffing section, a plurality of buffing segments each comprising a folded blank with edges of arcuate form, two spaced perforations in the fold of each blank, a retaining core passed through the perforations in the blanks, means for connecting the ends of said flexible core to assemble the blanks in the form of an endless chain, and a retaining member clamping the center part of the fold in each blank at the inner periphery of the annular section.

10. In an annular buffing section, a plurality of buffing segments each comprising a folded multi-ply blank, two perforations in the fold of each blank, a flexible member extending through the said perforations to retain in the inner periphery of the annular section the portion of the fold between the perforations in each blank, and means for connecting the remaining portions of each fold with the corresponding fold portions in the next adjacent segments.

11. In an annular buffing section, a plurality of buffing segments each comprising a centrally perforated, angular, and arcuate blank, a fold extending through said central perforation, and a flexible core member extending through all the said perforations to assemble the segments in overlapping relation in an endless chain.

12. In an annular buffing section, a plurality of buffing segments each comprising a centrally perforated blank, a fold extending through said central perforation, a flexible core member extending through all the said perforations and extending along one half of the fold in each blank to assemble the segments in an endless chain, and a clamping ring enclosing said core member and

forming the inner periphery of the annular section.

13. In a buffing section, a plurality of buffing segments, each comprising a centrally perforated, multi-ply blank, a flexible retaining core extending through the central perforations of the blanks and assembling the blanks in the form of an endless chain, one end of each blank being disposed within the fold of the blank next adjacent thereto, and means for anchoring the said blank ends between the material of adjacent blanks.

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