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KNITTED BUFFING WHEEL

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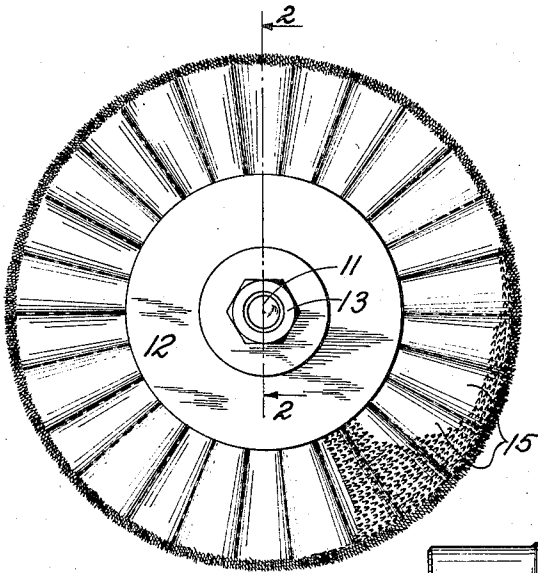


Fig. 1

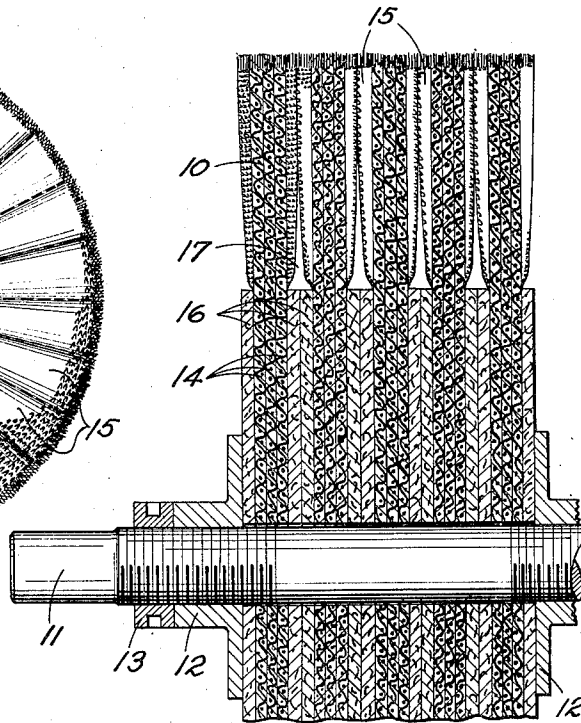


Fig. 2

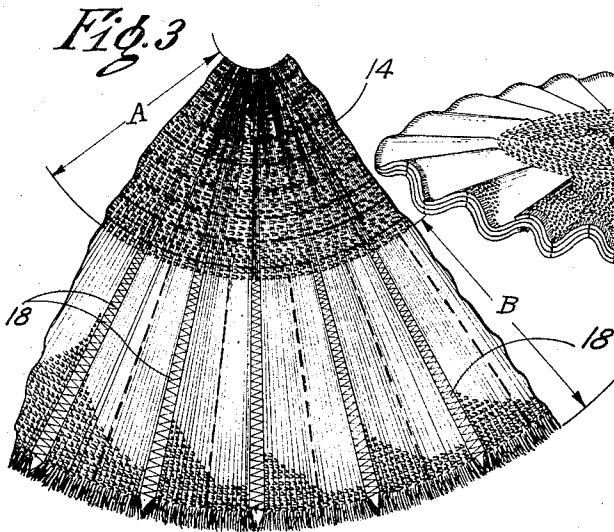


Fig. 3

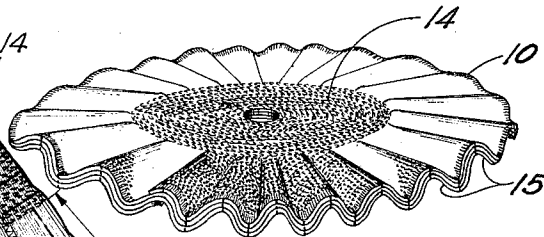


Fig. 4

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KNITTED BUFFING WHEEL

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10 Claims. (Cl. 51—193)

This invention relates broadly to buffing wheels and more specifically to improvements therein which embody, in addition to certain basic features of construction disclosed in my co-pending application, Serial No. 62,142, filed February 3, 1936, entitled "Buffing wheels" a structure which is adapted to effect circulation of air between the disc sections of the buffing wheel and through the fabric thereof.

One of the objects of the invention is to form a knitted fabric in configuration of a circular disc, or a band which may be arranged to form a disc comprising a plurality of superposed layers of fabric, the knitted fabric in either case being formed with a progressively increasing number of stitches from the central portion of the disc to the circumference thereof in order to fashion the disc with ruffled or fluted side walls and tortuous edges.

Another object of the invention is to construct a knitted buffing wheel disc having fluted or ruffled side walls and to provide separators intermediate said sections to maintain the crests of the fluted portions of contiguous discs in spaced relation.

Another object of the invention is to construct a knitted buffing wheel disc comprising a plurality of layers of fabric, with radial perforate portions, the perforations therein being evenly disposed in each layer of the disc sections and arranged in aligned relation to permit circulation of air through the disc sections.

Another object of the invention is to provide a knitted fabric buffing wheel which comprises a plurality of layers of fabric each of which is knitted with a progressively increasing number of stitches from the center to the circumference thereof, thus providing ruffled or fluted discs and stitching the ruffled fabric layers together through and through in a manner which will maintain the configuration thereof and form a laminated disc with ruffled walls and a tortuous edge.

Another object of the invention is to knit a buffing wheel disc section with a flat hub portion and a ruffled or corrugated side wall extending therebeyond, the ruffled or corrugated portion being formed by adding during the knitting operation sufficient textile stitches to prevent the fabric beyond the hub portion from assuming a flat single plane during the rotation of the wheel.

Another object of the invention is to construct a knitted buffing wheel having a tortuous edge section and a flat hub section, the fabric disc comprising a plurality of layers of fabric, the hub section being sewed together circumferen-

tially or helically through and through and the layers of fabric extending beyond the hub portion being sewed radially.

Other objects and advantages more or less ancillary of the foregoing and the manner in which all the various objects are realized will appear in the following description which, considered in connection with the accompanying drawing, sets forth the preferred embodiment of the invention.

Fig. 1 is an elevational view of one of the knitted buffing wheel sections embodying the present invention;

Fig. 2 is a vertical section through a fragmentary portion of the improved buffing wheel and illustrated upon an enlarged scale, the figure illustrating the manner of mounting a plurality of the fabric discs and the arrangement of the spacers or separators therein;

Fig. 3 is a fragmentary elevational view of the knitted fabric buffing wheel illustrating the radial perforations therein and illustrating the manner in which the hub and outer portions of the wheel are sewed; and

Fig. 4 is a view in perspective of one of the buffing wheel sections illustrating the flat hub portion thereof, the fluted side walls, and the tortuous configuration of the working edge of the disc.

As illustrated in Fig. 2, the knitted fabric buffing wheel discs 10 are mounted upon an arbor 11 being retained thereon by clamping flanges 12 and jam-nuts 13 in a manner customarily employed in such assemblies. The fabric discs are knitted with a flat hub portion 14, as indicated in Fig. 3 by the radial dimension line A and also with outwardly divergent flutes or corrugations 15 extending from the hub portion to the periphery of the disc, as is clearly shown in Fig. 4. In mounting the disc sections 10 upon the arbor, separators or spacers 16 are placed between contiguous disc sections of the buffing wheel, the thickness or number of the separators preferably maintaining the crests of the flutes in abutting relation or in slightly spaced position so that air pockets or voids 17 are formed between the side walls of the disc sections. The knitted fabric disc sections are preferably formed by knitting the textiles therein in a continuous band which, when piled upon itself, will form a helix, and also knitting the fabric of such band so as to form a flat hub portion 14 so that superposed layers or convolutions of the material at the hub portion will lie in parallel planes. The fabric is also knitted with a progressively increased number of stitches from the hub portion

thereof to the circumference of the disc to cause a fullness or ruffled body of the fabric in the outer portion of the wheel. In the embodiment illustrated the fabric is knitted with radial strands such as straight spoke-like cords extending divergently from the hub portion of the disc to the periphery of the wheel. Such strands or cords are bound within the body of the fabric by the other textiles which are looped about the radial strands and also entwined together back and forth along the radii of the disc to form the body of the fabric. Such construction prevents the circumferential edge of the fabric discs from becoming unravelled or the textiles therein from shedding and being caught by the work as the edge of the wheel is engaged with the work.

As shown in Fig. 3, the fabric is knitted with radially extended perforations 13 disposed in equal spaced relation about the disc, the knitting omitting certain of the radial strands and, if desired, also omitting some of the loops of the body textile of the fabric in order to provide open work or perforate areas for the purpose of effectuating circulation of the air through the fabric. As the successive layers of fabric discs are superposed one upon the other, the radial perforations 13 are matched so as to fall in aligned relation and thus afford circulation of air through the entire disc section. The open work 13 is illustrated as disposed in the inclined side walls of the fluted or corrugated portions of the wheel; it is to be understood, however, that any arrangement or number of perforate portions are contemplated herein as falling within the scope and spirit of the invention. Also that the invention comprehends any suitable knitted construction, such for instance as the omission of the radial strands, or the omission of certain loops therein to produce the perforate knitted fabric construction or other forms of knitting to effect the circulation of air through the fabric disc sections.

As illustrated in Fig. 3, the flat hub portion 14 of the fabric 10 is sewed in with a plurality of concentric stitching or may be stitched in helical form, while the portion indicated by the dimension B is preferably sewed by radial stitching extending from the hub portion to the perimeter of the disc. The separators or spacers 16 may be formed of any suitable material and may be arranged to maintain the disc sections in spaced relation at their hub portions so that the fabric may be closed in and partially fill voids 17 upon application of the work against the edge of the disc. Thus when the disc rotates away from the work, centrifugal force will cause the fabric to assume its unstressed form and cause air to be drawn into the voids 17 and to be partially expelled therefrom upon deformation of the fabric.

In a buffing wheel of this character the knitted textiles form a fabric body which possesses sufficient rigidity to maintain its fluted or ruffled configuration despite the high rate of rotation to which the fabric discs are subjected during operation. Moreover, as the layers of such fabric are united by sewing the material through and through, a homogeneous mass having fluted side walls is formed and such mass or disc per se is capable of supporting the shape into which it is fashioned, irrespective the high rotative rate at which the discs are driven.

Although the foregoing description is necessarily of a detailed character, in order that the invention may be completely set forth, it is to

be understood that the specific terminology is not intended to be restrictive or confining, and that various rearrangements of parts and modifications of detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. A buffing wheel comprising a circular disc of knitted fabric, said fabric comprising inter-looped stitches formed progressively along the radii of said disc and constituting courses, the number of looped stitches in said courses increasing progressively from the central zone of the disc to the circumference thereof.

2. A buffing wheel disc comprising a plurality of layers of knitted fabric, said fabric being formed by textiles entwined radially in said disc to form the body thereof, and areas in said fabric where said textiles are entwined to form a perforate network for the circulation of air through said disc.

3. A buffing wheel comprising a plurality of knitted fabric disc sections, the walls of each disc section being fluted and spaced apart to define voids intermediate said disc sections, said knitting being flexible whereby the walls of said disc sections will be deformed upon application of pressure upon the periphery of said disc and air will be drawn into and expelled from said voids.

4. A buffing wheel of the edge cutting type comprising a plurality of disc sections, said sections comprising a plurality of layers of knitted fabric, said fabric being knitted with a rigid flat hub portion and a yieldable tortuous rim portion, said tortuous rim portion in each disc section being spaced apart, whereby air will be displaced upon application of the work to the yieldable tortuous rim portion.

5. A buffing wheel comprising a plurality of spaced disc sections, each section being formed of a knitted fabric, the textiles forming said fabric being entwined to form a flat hub portion circumambient the center of the disc and being knitted with a radially corrugated portion extending from the circumference of the hub portion to the circumference of the disc, spacers intermediate said disc sections maintaining said corrugated portions in spaced relation, said disc sections being assembled with said corrugations spaced to define an opening with said corrugations protruding therein.

6. A fabric buffing wheel disc section comprising a plurality of convolutions of knitted fabric, said fabric being knitted to form a flat hub portion and being knitted with a ruffled portion extending from the hub to the circumference of the disc, said convolutions being sewed through and through to form a disc section with concavo-convex chordal sections.

7. A fabric buffing wheel disc section comprising a plurality of convolutions of knitted fabric, said fabric being knitted to form a flat hub portion and being knitted with a radially divergent fluted portion extending from said hub portion to the circumference of the disc, said convolutions being radially sewed through and through within said divergent fluted portion.

8. A buffing wheel comprising a plurality of spaced disc sections, each section being formed of a knitted fabric, the textiles forming said fabric being entwined to form a flat circular hub portion and to form a fluted section extending radially outward therefrom, separators intermediate said disc sections and impinged in as-

sembly upon said hub portions, said separators being of a thickness to maintain the flutes of contiguous sections in spaced relation.

5 9. A buffing wheel comprising a plurality of spaced disc sections, each section being formed of a knitted fabric, the textiles forming said fabric being entwined to form a flat hub portion circumambient the center of the disc and being
10 knitted with a radially corrugated portion extending from the circumference of the hub portion to the circumference of the disc, spacers intermediate said disc sections maintaining said corrugated portions in spaced relation, the cor-

rugations in the respective disc sections defining veins for the induction of air into the openings between said sections.

10. A fabric buffing wheel disc section comprising a plurality of convolutions of knitted fabric, 5 said fabric being knitted to form a flat hub portion and being knitted with radially divergent flutes extending from said hub portion to the circumference of the disc, said convolutions being sewed to form a disc of uniform corrugated 10 chordal section.

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