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N. G. SEYBERT

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BUFFING WHEEL

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Fig. 1.

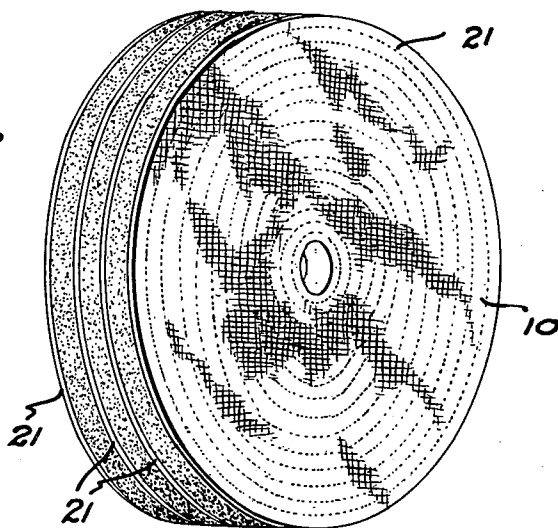


Fig. 2.

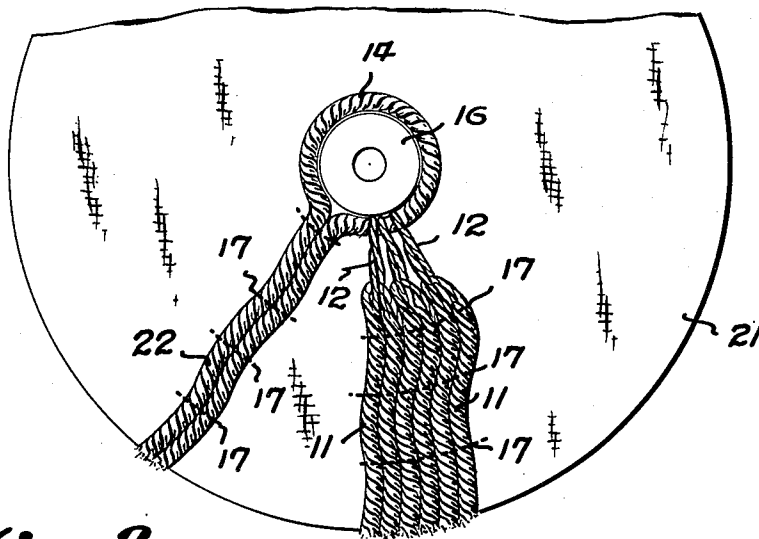
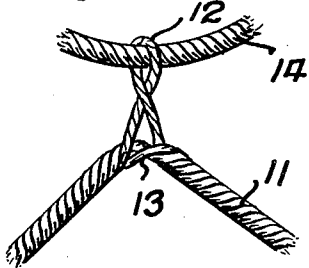


Fig. 3.



INVENTOR
NATHAN G. SEYBERT,
by *Simon Broder*
ATTORNEY

UNITED STATES PATENT OFFICE

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BUFFING WHEEL

Nathan G. Seybert, Philadelphia, Pa., assignor
of one-half to Herman Seybert, Philadelphia,
Pa.

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8 Claims. (Cl. 51—193)

My invention relates to a buffing wheel, and more particularly to a rotary buffing wheel such as is adapted for cleaning metallic and similar surfaces.

5 A buffer now commonly used consists of a laminated wheel, in which the laminae are discs of cotton. The primary object of my invention is to provide an improvement of this type of buffer to make it more durable, more economical, more
10 efficacious, operable at a higher speed, and easier to work.

In the use of the ordinary cotton buffing wheel, the component threads of the fabric disintegrate very easily under use. The lint from the cotton
15 floats in all directions, to be breathed by the workers, and it also forms an explosive mixture with the air. Such conditions are insanitary and dangerous, and the more modern factories have installed exhaust apparatus to obviate these
20 menaces. The buffing wheel of my invention does not utilize cotton for its operative surface, so that such dangers are not present, and the necessity for exhaust apparatus is removed. The material of my wheel is such that when it is
25 worn or broken, it falls to the ground, where it can be easily removed.

In the use of cotton wheels, the usual procedure is to employ first a "hard" wheel and then a "soft" wheel. This hard wheel is so stitched
30 that the cotton fibers are less flexible and therefore present a more abrasive working surface; this wheel is used to rough finish the work. Thereafter, the object is held against the soft wheel, which finishes the abrasive operation and
35 polishes the object. My wheel effects complete buffing and polishing, the difference in abrasive action being obtained by varying the degree of pressure of the work against the wheel. This saves not only one wheel with its concomitant
40 appurtenances, but also the expense of labor.

My wheel, as mentioned, can give any desired degree of abrasion, within wide limits, and this variation may be obtained by only a mild pressure, in contra-distinction to the extreme pressure which must be applied against a cotton
45 wheel. The worker is less fatigued and can work faster and more efficiently; there is less motive power consumed; there is less vibration and wear on the machinery; and the efficiency and economy in general are increased many fold.

50 My wheel not only burnishes and polishes faster than does cotton, but operates more uniformly, because of its greater resistance to wear and greater inertia. Furthermore, my wheel has a
55 much greater heat capacity than cotton has, so

that, whereas the latter material would become very hot and even char and smoke at high speed or under great pressure, my wheel shows none of these symptoms. When small pieces of metal are to be buffed, the heat from a cotton buffing
5 wheel is readily transmitted thereto, and very often the metal must be withdrawn and permitted to cool because of the unworkable temperature conducted from the cotton. My wheel becomes warm, but never so hot as to make a
10 piece of work too hot to handle.

Various other objects and advantages will appear as the specification proceeds.

In the accompanying drawing, which forms
15 part of this specification,

Fig. 1 shows in perspective one type of buffing wheel made in accordance with the principles of my invention.

Fig. 2 represents a partial view of my wheel in the process of manufacture.

Fig. 3 shows an enlarged detail of the manufacture of my wheel.

Essentially, my wheel 10 comprises a plurality of radial strands of abrasive material, with coverings of cotton, all sewn or otherwise stitched
25 to make the article adaptable for buffing. The abrasive material is sisal, which I have discovered to possess properties ideal for such purposes. These properties are: excellent abrasiveness, long life, high tensile strength, high resistance to heat,
30 rapid cooling, and the other attributes which combine to produce the advantages hereinbefore mentioned.

As shown in the drawing, I employ sufficient threads of sisal to present the proper number of
35 "picks" at the periphery of the wheel. These threads are woven into strands which are twisted or combined into ropes.

In the manufacture of my wheel, I fold a rope
40 11 of sisal, and, at its bend, I pull one strand 12 beyond the others 13. I do this with a sufficient number of ropes 11 to form the wheel. Through the looped strands 12, which are preferably
45 twisted, I thread a strand or rope 14 of sisal or any other material of sufficient tensile strength to withstand the necessary pull.

The strand or rope 14 is wound around a core
50 16 of wood or felt or rubber or any other material which may be positioned around the shaft of a motor and which will present sufficient rigidity for my buffing wheel. I then stitch the
55 sisal circularly or spirally as shown at 17, to fix the relative position of the strands. During the stitching, I impart a curvature to the ropes 11, so that the strands or threads will have greater

strength against bending. To finish the wheel, I apply one or more disc layers 21 of cotton fabric on each face of the sisal and stitch all the members circularly or spirally, as shown at 21, to present a unitary structure. I may then trim the periphery of the sisal and the cotton to form a uniform rounded surface.

I may superpose two or more ropes of sisal to form a thicker buffing wheel, with or without the intermediate cotton discs 21, as the nature of the work may require. I may employ sisal of three plies, five plies, or of any other suitable construction. If desired, I may have one or more central anchors 14, and I may form them integrally with one of the strands of the ropes 11, as shown for example at 22.

It will be obvious that, with my arrangement, the abrasive force of the wheel 10 is applied substantially perpendicularly to the picks of the sisal. The sisal will not ravel, because it possesses great tensile strength, and because it is bent and twisted and is anchored securely to the anchor 14.

The wheel will have a practically uniform appearance, because there will be fewer strands of sisal near the center than near the rim, thereby avoiding a bunched-up appearance.

Variations may be made in the dimensions, perforations, and other details of my wheel, only the preferred form being shown. It is understood, however, that such variations are contemplated as being within the intent and scope of my invention.

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

1. A rotary buffing wheel, comprising a core, and a plurality of radial ropes, some but not all of the strands of the ropes being anchored on the core, whereby there are more strands at the rim than at the core.

2. A rotary buffing wheel, comprising a central anchor, a plurality of abrasive strands fastened to

the anchor and radiating therefrom, and additional strands of abrasive material intertwined with the first strands but not fastened to the core.

3. A rotary buffer, comprising a plurality of radial stranded ropes, the number of strands in cross section being greater toward the periphery than toward the center.

4. A rotary buffer, comprising a plurality of radial stranded ropes of abrasive material, some of the strands of each rope being of different lengths, whereby there are more strands at the rim than at the center.

5. The method of making a buffer, which comprises folding about its middle a rope of at least two strands, pulling out the midportion of one of the strands, radially positioning a plurality of such strands and ropes about a hub, and stitching together all the strands.

6. The method of making a buffer, which comprises symmetrically intertwining one strand of abrasive fiber with a shorter strand, both strands being folded about their midportions, so that the midportion of the longer strand projects beyond the midportion of the shorter, positioning a plurality of such intertwined strands with their midportions toward a hub, anchoring the midportions of the longer strands, and stitching together all the strands to form the buffer.

7. A rotary buffer, comprising a central anchor, and a plurality of abrasive ropes folded about their midportions, with the ends projecting toward the periphery of the buffer, fewer than all of the strands of each rope being pulled out toward the center of the buffer and anchored to the anchor.

8. A rotary buffer, comprising a plurality of radial stranded ropes of abrasive material, the ropes being anchored to the hub and positioned in a general radial direction, the strands thereof being bent laterally to reduce the bending stress during buffing, and means for maintaining the strands in such bent position.

NATHAN G. SEYBERT.