

G. P. STEVENS.
POLISHING OR BUFFING WHEEL.
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968,431.

Patented Aug. 23, 1910.

Fig. 1.

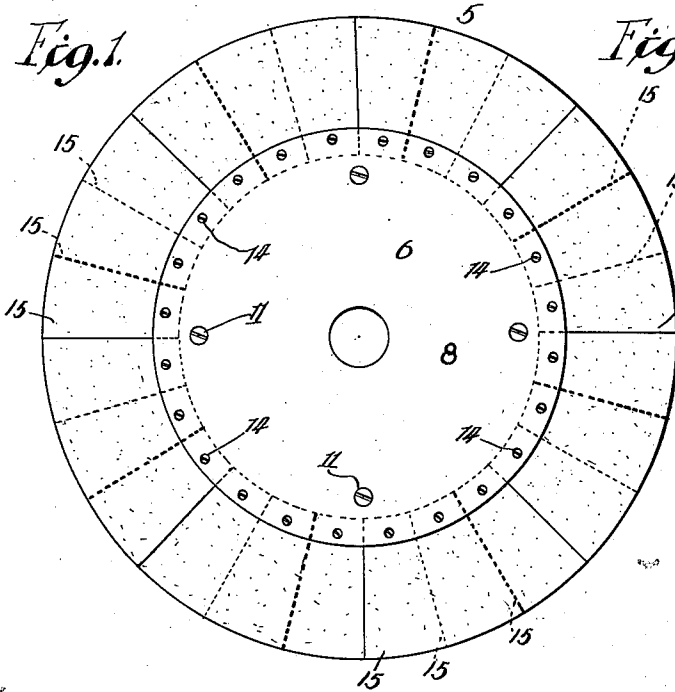


Fig. 2.

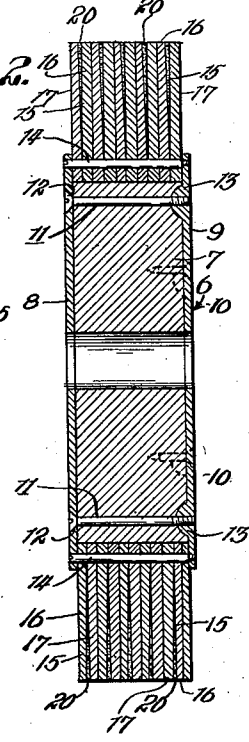


Fig. 3.

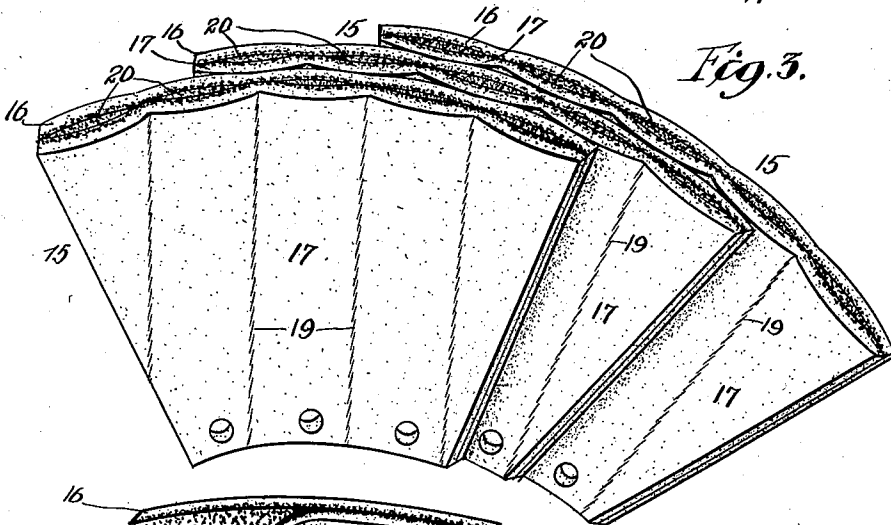
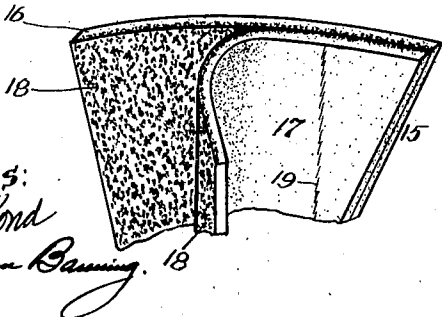


Fig. 4.



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UNITED STATES PATENT OFFICE.

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POLISHING OR BUFFING WHEEL.

968,431.

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To all whom it may concern:

Be it known that I, GEORGE P. STEVENS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Polishing or Buffing Wheels, of which the following is a specification.

Certain polishing wheels as now used comprise a circular ring of felt, leather, or other polishing material, properly mounted on a circular core or base in such a way that practically all of the polishing or wearing material may be worn away in use before it becomes necessary to renew the wheel. Renewal is then effected by removing the remaining portions of the wearing material from the base and substituting therefor, a new ring of wearing material. The proper composition, design and arrangement of these wearing rings comprise the most important feature of such a polishing wheel.

As at present used, the wearing portion is generally in the form of rings or segments of felt, or other material, supported in an annular groove or channel of the base or core. These rings or segments are generally of homogeneous composition and are supported upon the core entirely independently of each other. The polishing effect of the wheel is often improved by the application of powders or liquids to its peripheral surface, but it is found that with the above described arrangement of the segments, such powders or liquids when applied to the periphery of the wheel, will not last long, by reason of the centrifugal action of the wheel, which tends to throw them off, and that they will not give a uniform abrasive action.

The type of base or core at present used, comprises a circular block of wood or metal provided with side plates of a diameter greater than the block, so that they will project beyond the block, thus forming the annular groove or channel above mentioned. As now made, it is impossible to remove the wearing parts from the core without disassembling the wheel as a whole, thus, at times, causing considerable inconvenience in the renewal process.

The objects of my invention are to provide a polishing body which can be made of any desirable degree of abrasiveness; one which will better retain powders or liquids introduced thereon, thus expediting the polishing operation; one which will permit

the use of felt or other materials which have been discarded after serving a useful life in some other process; and one which will possess a degree of coherence not heretofore attained in polishing rims built up of a number of distinct units; and also to provide a polishing wheel which will not need to be entirely disassembled for the renewal of the wearing ring. And the invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of an assembled polishing wheel; Fig. 2 is a cross sectional elevation of an assembled polishing wheel; Fig. 3 is a detail view in perspective showing the manner in which the polishing units or segments which I propose to use lie together; and Fig. 4 is a detail view in perspective of a portion of one of my improved polishing units.

Referring to Figs. 1 and 2, the polishing wheel is made up of a laminated polishing rim or ring 5, supported on a base 6. The base 6 is composed of a circular core 7, provided with circular face plates 8 and 9 of such size as to project beyond the core an amount sufficient to form an annular groove or channel, within which the polishing rim is supported. The core 7 and face plates 8 and 9 are properly drilled to receive the shaft or axle upon which they are supported. The face plate 9 is permanently attached to the core 7 by means of screws 10, and the face plates are held together by tap bolts or screws 11, which are countersunk in recesses 12 on the outer face of the plate 8. After passing through the core 7, they are threaded into inwardly projecting bosses 13 of the companion face plate 9. The segments composing the polishing rim are secured to the base by a plurality of pins 14, registering loosely at one end with holes in the face plate 8, and threaded at their opposite ends into the face plate 9. It will be seen that with this design of base, it is possible to remove the polishing rim by slightly loosening the screws 11, and then unscrewing and removing the pins 14; or the segments can be removed by entirely removing the screws 11 and the face plate 8, leaving the pins 14 attached to the face plate 9; and then retracting the face plate 8 longitudinally along its axis; or the segments can be removed by loosening the screws 11 sufficiently to allow the face plate

8 to be retracted longitudinally along its axis until it is free from the pins 14 sufficiently to allow the segments to be removed from these pins. In either of the last two processes, the segments of the rim can be removed without the necessity of loosening the pins 14 and with the added advantage that these pins are maintained in a fixed relation to the core 7. I consider these features to be an improvement over all other designs with which I am familiar, in that the renewal of the wearing rim is by them greatly facilitated.

The type of segment or unit of wearing material 15, which I propose to use, is shown in detail in Figs. 3 and 4. As shown by Fig. 4, it is composed of two layers, 16 and 17, of felt or other desirable material. One side of this material should preferably have a more abrasive quality than the other side. To form one of my improved segments or units, two layers of this material are placed together, preferably with their more abrasive sides 18 in contact. They are then secured by transverse lines of stitching 19 and are cut into such shape as to form the segmental units, so that when assembled in a continuous ring, they will present peripherally exposed pockets 20. These units are then punched near their inner peripheries in such a way that when mounted on the pins 14 of the base, the exposed ends of the pockets 20 will interweave as shown in Fig. 3, and a matched and interlocked wearing surface will be formed, having scattered over it a plurality of narrow pockets, which will retain against centrifugal action any powder, liquid, or other abrasive substance, which may be applied at the surface. In practice, the individual units may be cemented together, when they are mounted on the pins 14, so that when the ring has been completely assembled, the units will be securely attached to each other. This type of wearing segment contains several improvements over the present state of the art. It is seen that powders or liquids which are thoroughly applied at the periphery at the rim of a wheel made of such units will enter into these pockets and be held securely in them until the rim has been worn down, so that they become exposed on its surface. For the friction of such powders or liquids against the sides of the pockets will tend to retain them against centrifugal action. And further, the use of felt or other material, one side of which is of harsher quality than the other, will provide a polishing rim of any degree of abrasiveness desired, depending upon the thickness with which the roughening material is applied to, or impregnated into, the abrasive side. In the manufacture of these units, use may be made of sheets of felt or other material which has been used in print-

ing press or other operations, in which one side of the material has become impregnated with printer's ink, or any substance which will penetrate into it, thus rendering that side more abrasive than the other. This enables the use of waste materials which have been rejected after serving a useful life in some other process, and materially lowers the cost of polishing wheel renewals.

I claim:

1. A polishing wheel comprising a base portion, and a buffing portion in the form of a wearing rim, and comprising a plurality of segmental sections adapted to be removably attached to the base portion and to present a substantially uniform wearing periphery, the base portion comprising a hub and two side plates adapted to embrace said hub, said side plates being of a diameter greater than that of the hub, there being a plurality of transversely extending holes in the hub near its periphery, and there being a plurality of transversely extending countersunk holes in one side plate adapted to register with the holes in the hub, and there being a plurality of threaded bosses on the other side plate in register with the holes in the hubs, the holes in the hub at that side being countersunk to receive said bosses, and screws passed through the holes in the first-mentioned side plate and hub, and threaded into the bosses of the second-mentioned side plate, said screws being countersunk into the first mentioned side plate whereby a smooth surface will be presented on the exterior of both of said plates, there being a plurality of transversely extending holes circumferentially placed in one side plate near the periphery thereof and spaced beyond the edge of the hub, and a plurality of pins fixed to the inner surface of the other side plate beyond the edge of the hub and adapted to register with said last-named holes, whereby said pins span the space between the projecting edges of the side plates in a manner to leave a space between the pins and the peripheral surface of the hub, and whereby the side plate provided with the peripherally placed holes may be directly withdrawn from the hub and pins when the aforementioned screws have been unthreaded, the aforementioned segmental sections of the wearing rims being provided with a plurality of transversely extending holes adapted to register with two or more of the adjacent transverse pins in the periphery of the side plate in a manner whereby said sections may be supported by said pins between the projecting edges of the side plates to prevent them from being disengaged radially from the side plates and to afford a substantially uniform wearing periphery, said side plates, hub, segmental sections, and pins, being so related that when the screws have been unthreaded from the

bosses the countersunk side plate may be withdrawn and the segmental sections adjusted on the pins, substantially as described.

5 2. A polishing wheel comprising a base portion and a buffing portion in the form of a wearing rim, and comprising a plurality of segmental units adapted to be removably attached to the base portion and to
10 present a substantially uniform wearing periphery, the base portion comprising a hub and two side plates adapted to embrace said hub, the side plates being of a diameter greater than that of the hub, and attaching
15 means whereby said side plates are attached to the hub in a manner such that one of said side plates may be removed, all of said attaching means being of a form to present a smooth exterior surface on each side plate,
20 there being a plurality of transversely extending holes circumferentially placed in the removable side plate near the periphery thereof and spaced beyond the edge of the hub, and a plurality of pins affixed to the
25 inner surface of the other side plate beyond the edge of the hub and adapted to register with said last named holes, whereby said pins will span the space between the projecting edges of the side plates in a manner
30 to leave a space between the pins and the peripheral surface of the hub, and whereby the side plate provided with the peripheral

holes may be directly withdrawn from the hub and pins when the aforementioned attaching means have been disconnected to
35 permit the removal of said side plate, each of the aforementioned segmental units comprising two similar sections of suitable wearing material joined together by means
40 of lines of stitching extending in a substantially radial manner from the inner edge of the unit to the outer edge thereof in a manner to provide a plurality of substantially
45 radial pockets, each unit being provided near its inner edge with a plurality of transverse holes in position to register with and engage the aforementioned pins, the said
50 holes being spaced in a manner whereby the aforementioned pockets will break joints when the units are assembled on the pins, whereby when all of the units have been assembled
55 on the pins to form the wearing rim they will form a substantial uniform peripheral wearing surface having therein a plurality of substantially radial pockets breaking joints and adapted to receive and retain a buffing material applied at the peripheral surface of the rim, substantially as described.

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Witnesses:

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