

Aug. 23, 1949.

C. J. KUMMER

2,479,941

AIR COOLED BUFFING WHEEL

Filed July 29, 1948

2 Sheets-Sheet 1

Fig. 1.

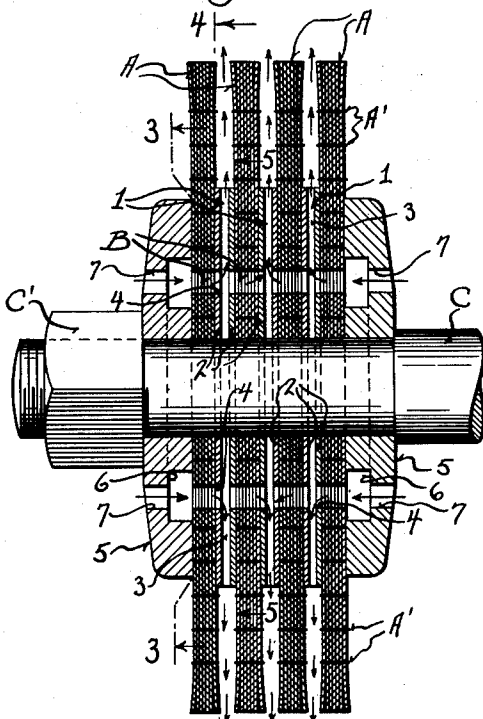


Fig. 2.

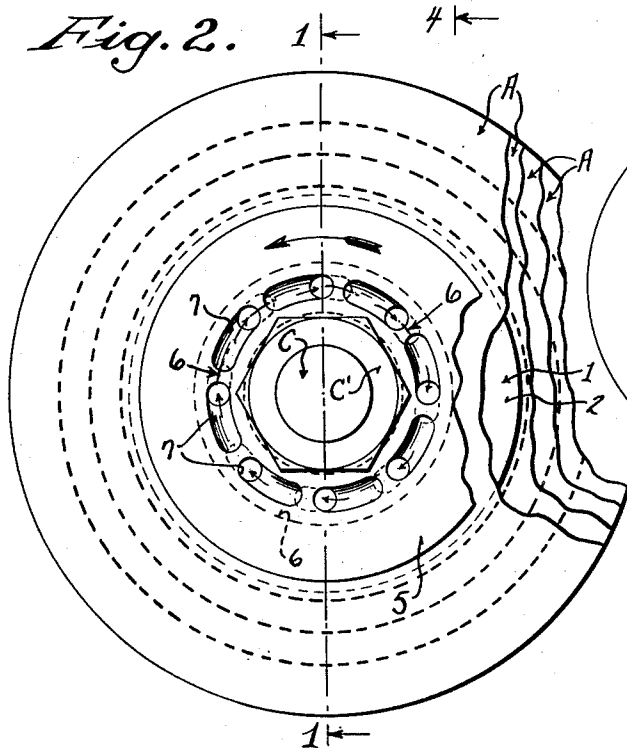
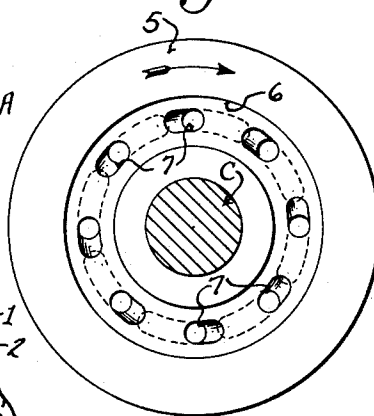


Fig. 3.



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Fig. 4.

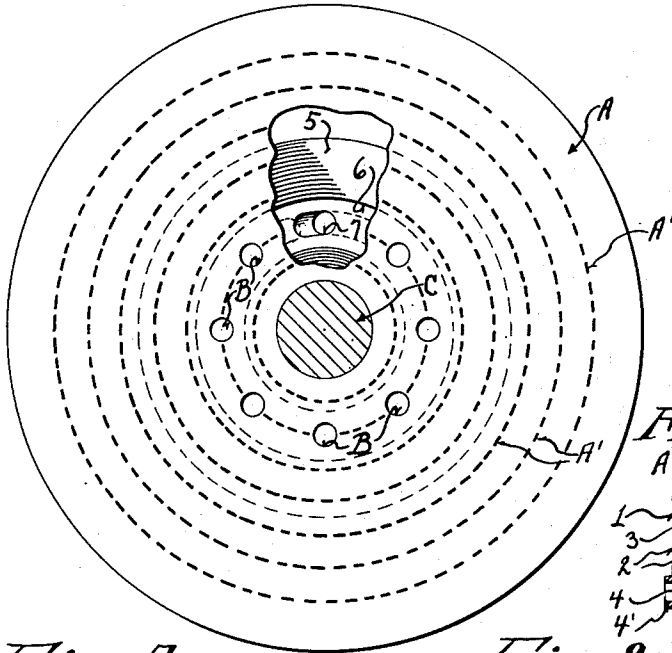


Fig. 9.

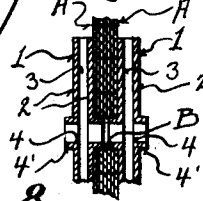


Fig. 5.

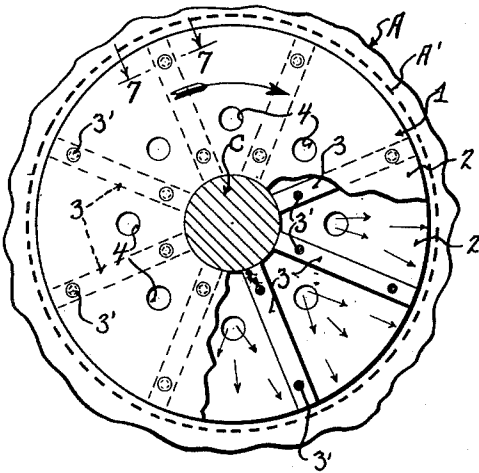


Fig. 8.

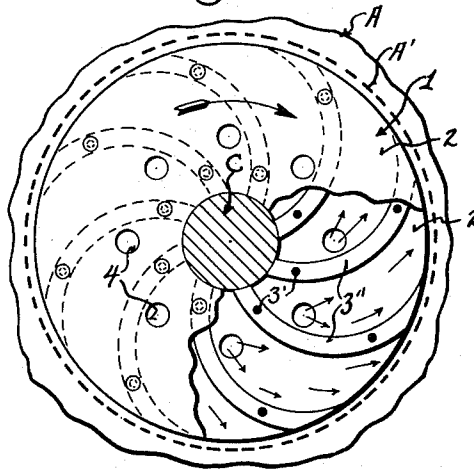
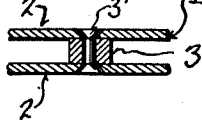


Fig. 6.



Fig. 7.



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AIR-COOLED BUFFING WHEEL

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Application July 29, 1948, Serial No. 41,307

1 Claim. (Cl. 51—193)

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My invention refers to buffing wheels and it has for its primary object to provide a force-feed draft air cooling means for the wheel, whereby the series of standard fabricated textile discs are effectually cooled, at their peripheries, by a radial blast of air.

In practice, the standard textile discs, under buffing pressure upon the work, develop very high temperature resulting in damaging or burning out of the working edges of said disc after a short period of use.

Hence, my invention embodies means, wherein air is discharged upon the periphery of the discs to effectually cool the same and overcome the above mentioned disc damage and thereby extend the life of said disc indefinitely.

A further object of my invention is to provide hubs for the discs having obliquely disposed elongated ports therein, which ports trail the direction of the rotation of the wheel, whereby said wheel, in effect, is of the fan blower type.

A further object of my invention is to provide apertured spacing rings for the discs, which rings include pairs of rib connected plates, encasing the apertures, whereby pockets are formed for the radial discharge of air currents.

A further object of my invention is to provide the hub members with internal channels communicating with the obliquely disposed ports, whereby air is delivered to the ring pockets.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the novel construction, combination and arrangement of parts, substantially as hereinafter described, and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claim.

In the accompanying drawings is illustrated one complete example of the physical embodiment of the present invention constructed according to the best mode so far devised for the practical application of the principles thereof.

In the drawings:

Fig. 1 represents a sectional elevation of a buffing wheel embodying the features of my invention, the section being indicated by line 1—1 of Fig. 2.

Fig. 2 is a front elevation of the wheel.

Fig. 3 is a sectional face view through the wheel, illustrating one of the hub members, the section being indicated by line 3—3 of Fig. 1.

Fig. 4 is another sectional face view of said

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wheel, with parts broken away to more clearly show structural features, the section being indicated by line 4—4 of Fig. 1.

Fig. 5 is another sectional face view through the wheel, particularly illustrating a disc spacing ring, the section being indicated by line 5—5 of Fig. 1.

Fig. 6 is a diagrammatic fragmentary sectional view through the hub ports, the ports being flattened out, the section being indicated by line 6—6 of Fig. 2.

Fig. 7 is a detail cross sectional view through one of the disc spacing rings and rib connection, the section being indicated by line 7—7 of Fig. 5.

Fig. 8 is a sectional face view of the wheel illustrating a modified form of spacing ring, wherein the ribs radiate spirally from the axis of the wheel; and

Fig. 9 is a detail sectional view of my preferred form of ring.

Referring by characters to the drawings, A indicates a standard buffing disc built up from layers of textile or cloth, the layers of the same being secured by rows of circular stitching A'. The discs are provided with a circular row of apertures B extending therethrough and a central shaft aperture, as best shown in Figs. 1 and 4 of the drawings.

The buffing wheel is built up from a series of the above referred to standard discs and they are mounted upon a shouldered shaft C, threaded at its outer end.

Interposed between each pair of buffing discs is a metallic spacing ring 1, as best shown in Figures 1 and 5 of the drawings. The ring is built up from a pair of plates 2—2, which plates are spaced apart by a series of radially disposed ribs 3, secured to the plates by counter-sunk rivets 3', it being understood that the ring is also provided with a centrally disposed shaft aperture, and a series of circular air apertures 4, which air apertures, in the assemblage of the wheel, are aligned with the disc apertures B.

The group of discs, which are mounted upon the shaft, are frictionally clamped together by hub members 5—5, mounted upon the shaft C and said hub members and associated parts are secured by a nut C', in threaded union with the end of the shaft, it being understood that the inner hub member is fitted to the shaft shoulder, as shown in Fig. 1 of the drawings.

The inner face of each hub is formed with a circular channel 6—6, and a series of obliquely disposed ports 7, extend inwardly from the outer faces of the hubs and communicate with the

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channel 6, as best illustrated in Figs. 2, 3, and 6 of the drawings.

The walls of the ports, as illustrated in Fig. 6 of the drawings, are obliquely disposed and tapered towards the hub channel, whereby, upon rotation of the hub, in the direction indicated by the arrows, air will be picked up from the outer mouths of said ports and be deflected into the channel 6.

To effectually accumulate air into the ports, it will be noted that the oblique walls of the same, communicating with the channel, are inclined rearwardly or trail, with reference to the direction of rotation of said disc.

As shown in Fig. 8 of the drawings, the ribs 3' may be in spiral formation, while the preferred form of ribs, as previously described, are radial, it being understood that the said ribs incline backwardly from their axis to their periphery, with reference to the direction of travel of said ring.

While I have shown and described the ribs as being secured to the plate members 2 by rivets, it is apparent that other means may be employed, such for example, the same may be secured by spot welding, solder, or the like.

While I have described and illustrated the rings as being held frictionally, with reference to the discs, it is understood that I may, in some instances, employ upstanding burrs from the rings, which will be imbedded in the yieldable faces of the discs, or the rivets 3', which confine the ring plates, may be provided with projecting points for accomplishing the desired results.

From the foregoing description, it is apparent that air currents will be picked up through the hub ports and thereafter discharged through the ring apertures 4 and disc apertures B into the pockets formed by the ring ribs 3, whereby high pressure pockets of air will be discharged upon the peripheral faces of the disc to effectually cool the same as they are heated up from frictional engagement with work elements being buffed.

It is understood, in practice, that the speed of

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the buffing wheels approximate 500 revolutions per minute, whereby, under ordinary conditions, high burning temperature will be developed by the disc, which will readily burn out the same and such tendency to damage or burn a disc is avoided by my above referred to mechanism, whereby the working faces of the discs are at all times effectually cooled to prevent damage.

Referring to Fig. 9 of the drawings, the rings 1 are provided with apertures 4 having flange extensions 4', whereby the same will nest within the apertures B of the discs.

I claim:

In a buffing wheel having series of vented textile discs mounted upon a shaft; a pair of clamping hubs for the discs, each having an inner circular channel engaging said disc forming air pockets, a series of suction air ports communicating with the channel pockets, each port having circular openings interrupting the channel, the opening being flared outwardly and obliquely to the face of the hub to form elongated mouths trailing in the direction of rotation of the wheel, whereby the short and long walls of the said ports serve to pick up currents of air and discharge the same into the channel pockets incidental to rotation of the wheel to maintain a constant air pressure in said pockets that will discharge through the vented discs.

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