

Nov. 15, 1938.

J. LEVOY

2,136,747

BUFFING WHEEL

Filed Oct. 25, 1937

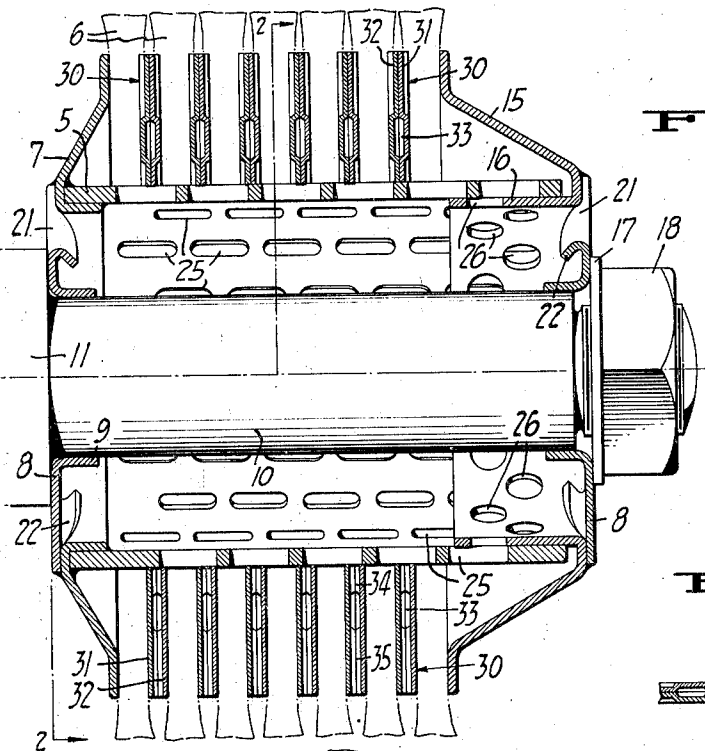


FIG. 1.

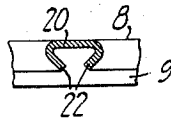


FIG. 3.

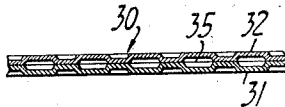


FIG. 4.

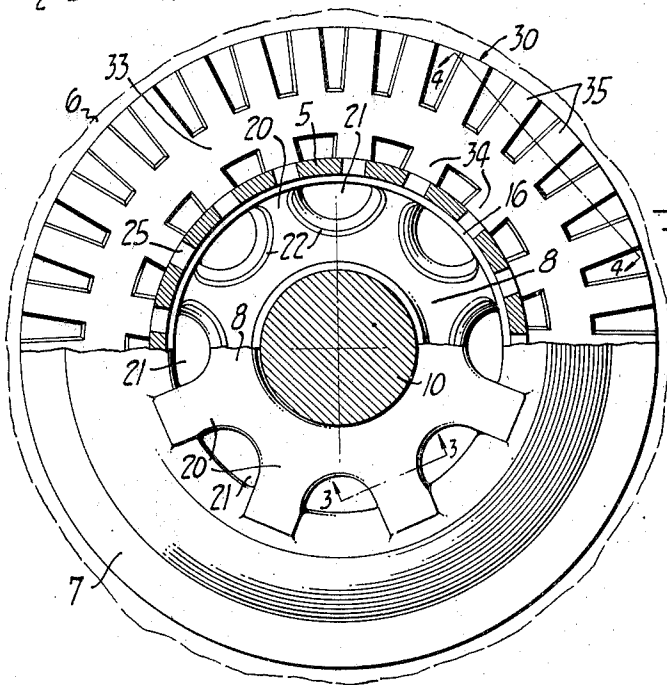


FIG. 2.

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2,136,747

BUFFING WHEEL

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Application October 25, 1937, Serial No. 170,886

2 Claims. (Cl. 51—193)

My invention relates to buffing wheels and more particularly to a mounting device for buff sections which will effect ventilation of the assembled buff sections during operation, so as to prevent burning and rapid deterioration thereof.

Previously proposed buff mountings, designed to effect ventilation of the buff during operation, have required special apertured spindles or specially prepared buff sections with spacing devices permanently attached thereto, and have therefore met with limited commercial success because of the requirement for modification of existing machinery and of the high maintenance costs of such buffing equipment.

In addition, such devices have been satisfactory only under optimum operating conditions, because being originally designed to pass a given quantity of air through the buff at a given operating speed, they have failed to pass the requisite quantity of air to prevent burning of the buff when used at lower operating speeds, and when used at operating speeds in excess of that for which they were originally designed, have projected an air stream carrying lint from the buff and abrasive particles into the face of the operator.

Having in mind the foregoing and other deficiencies of previous devices of the same general class, it is an object of my invention to provide a ventilating mounting for buffs, which may be mounted upon a standard form of spindle and which is adapted to serve as a mounting for standard types of buff sections consisting merely of fabric disks having a central aperture.

It is a further object of my invention to provide a buff mounting of the class described which may be adjusted to receive varying numbers of buff sections to form buffs of different widths.

It is a further object of my invention to provide means whereby the passage of sufficient cooling air to the buff may be insured at all operating speeds, and whereby the passage of air through the buff may be restricted at the higher operating speeds to an amount sufficient only to prevent burning of the buff, whereby the projection of lint and the like into the face of the operator may be prevented.

The foregoing, together with other objects and advantages of my invention, will be apparent from the following description of a preferred embodiment thereof when read in connection with the accompanying drawing in which:

Figure 1 is a vertical sectional view of a buff embodying my invention;

Figure 2 is an end elevation thereof, the upper

half being sectioned vertically on the line 2—2 of Figure 1.

Figure 3 is a detailed view, partially in section, of one of the spokes of the end plate of the buff mounting, the section being taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view of one of the separator disks, the section being taken on the line 4—4 of Figure 2.

In order to provide a buff mounting which may be disposed upon the standard type of solid spindle found in buffing machines, yet which will permit the passage of air from the interior to the exterior surface of the buff, a mounting sleeve for the buff section is disposed upon spacers adapted to engage the buffing machine spindle and retain the sleeve in spaced relation therewith. As shown in Figure 1, a sleeve 5 designed to fit snugly within enlarged central apertures in buff sections 6 is secured at one end to a compression disk 7, which is in turn made integral with or secured to a spacer disk 8 having a central aperture surrounded by a bearing flange 9 designed to fit the standard buffing machine spindle 10 and to abut one end of an enlarged portion 11 thereof. The opposite end of the sleeve 5 is supported by a compression disk 15 having a tubular portion 16 adapted to be slid within the sleeve 5 so that the lateral spacing of the compression disks 7 and 15 may be varied at will and any desired number of buff sections 6 may be placed between the two compression disks. The compression disk 15 is formed integral with or secured to a spacing disk 8 identical with that heretofore described and adapted to be engaged by washer 17 and nut 18 threaded on the end of spindle 10 to compress the disk 15 against the buff sections 6 assembled on the sleeve 5 and secure the same for rotation with spindle 10 by compressing the entire assembly against the end of the enlarged portion 11 of the spindle 10.

Air is admitted into the space between the sleeve 5 and the spindle 10 through apertures in the spacer disks 8, the edges of said apertures being formed to facilitate the indraught of air during rotation of the spindle. For this purpose the spacer disks 8, which are preferably made as single stampings, are formed with a plurality of spokes 20, the ends of which are secured, as by welding, to the compression disks 7 and 15, respectively, so that by means of apertures 21 between the spokes 20 air may enter the space between the sleeve 5 and spindle 10. As shown in detail in Figure 3, the edges 22 of the spokes 20 are flared inwardly in the forming operation so

that the leading edge of each spoke 20, as the spindle 10 rotates, acts to produce an indraught of air toward the interior of the buff support.

Communicating passages are provided from the space between sleeve 5 and spindle 10 to the buff sections mounted on sleeve 5 so that air may be dispersed throughout the buff material under the influence of the centrifugal force produced by rotation of the buff. For this purpose the sleeve 5 is provided with a plurality of elongated apertures 25 and the tubular portion 16 of compression disk 15 is provided with a plurality of circular apertures 26 of somewhat greater diameter than the width of the apertures 25 so that in any position of relative rotational adjustment of sleeve 5 and tubular portion 16 air may pass freely not only through apertures 25 but also through apertures 26 and 25 wherever the tubular portion 16 lies within sleeve 5. This arrangement permits the portion 16 to be made as long as desired without impeding the passage of the air from the space between sleeve 5 and spindle 10 into the buff sections 6.

In order to prevent the air supply to the buff sections 6 from being choked off by the compression plates 7 and 15, rigid means are provided for conducting air radially from the apertures in sleeve 5 to or beyond the point where compression is exerted upon the buff sections 6 by plates 7 and 15. For this purpose spacer units 30 are inserted between the buff sections 6 and comprise complementary plates 31 and 32 formed to provide a circumferentially extending air passage 33 and a plurality of radially extending air passages 34 and 35 between the said plates. All other portions of the contiguous faces of the plates are in contact so that the passages just described are maintained open at all times regardless of the compression exerted by the compression disks 7 and 15. It will be noted that the units 30 extend radially to substantially the same point as compression disks 7 and 15 so that air is conducted through the passages just described to a portion of the buff sections 6 which is not under compression.

The cross sectional area of the passages 35 and 34 may be varied to effect control of the supply of cooling air to the buff. Where the buff is to be run at very high speeds, the centrifugal force tending to move air from the interior of sleeve 5 to the periphery of the buff will be large, and it will be desirable to use spacer units having relatively small passages 34 or 35, or both, in order to prevent lint and other material from being blown into the face of the operator. Where, however, the buff is to be run at a relatively low speed, spacer units having larger passages 34 or 35, or both, will be used, and an ample supply of cooling air to the periphery of the buff will be insured

because the size of the passages cannot be diminished by the pressure exerted by compression disks 7 and 15.

It will be apparent from the foregoing that the embodiment of my invention, which has been disclosed, fulfills the objects hereinbefore recited, but it will be understood that many variations in details of the disclosed embodiment will occur to persons skilled in the art. The invention, therefore, is not to be considered as restricted to the embodiment disclosed except as required by the prior art and by the spirit of the appended claims.

I claim:

1. A ventilated buff for mounting on a rotatable spindle having a stop thereon spaced from a spindle end carrying securing means, said buff comprising an apertured sleeve, a first buff compression disc adapted to fit on said spindle and against said stop and to support one end of said sleeve in a spaced relation to said spindle, a second buff compression disc having a spindle engaging portion for sliding support by said spindle upon operation of said securing means to compress buff sections positioned on said sleeve between said compression discs, said discs including air induction means effective upon rotation of said spindle, said second disc including a tubular portion adapted to fit in said sleeve to support the other end of said sleeve in said spaced relation to said spindle, and a plurality of spacer units positioned on said apertured sleeve in a spaced relation and including air passages for effecting radial air induction into buff sections positioned between said spacers.

2. A ventilated buff construction comprising a rotatable spindle having a stop thereon spaced from the spindle end, securing means on the spindle end, an apertured sleeve surrounding said spindle, a first buff compression disc on said spindle and against said stop supporting one end of said sleeve in a spaced relation to said spindle, a second buff compression disc having a spindle engaging portion slidably supported by said spindle and movable upon operation of said securing means to compress buff sections positioned on said sleeve between said compression discs, said discs including air induction means effective upon rotation of said spindle to induct air into the space between said sleeve and spindle, said second disc including a tubular portion fitting in said sleeve to support the other end of said sleeve in said spaced relation to said spindle, a plurality of buff sections on said sleeve, and a plurality of spacer units positioned on said apertured sleeve in a spaced relation, each unit being between adjacent buff sections and including air passages for effecting radial air induction into said adjacent buff sections.

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