

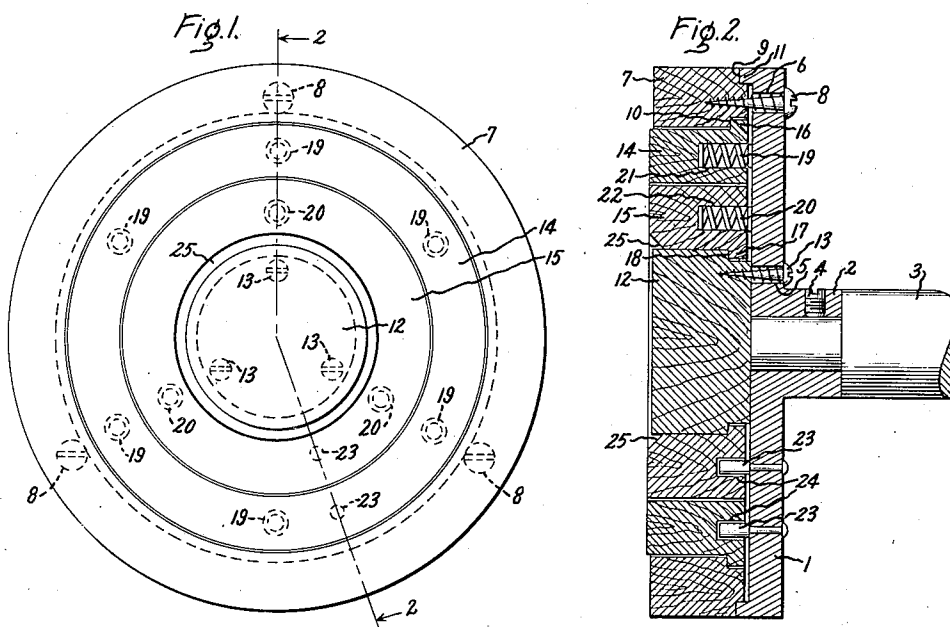
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POLISHING WHEEL CONSTRUCTION

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POLISHING WHEEL CONSTRUCTION

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My invention relates to cleaning and polishing devices and more particularly to the construction of a polishing wheel for a cleaning device which is adapted to clean space bands, such as are used with Linotype printing equipment.

In casting type on Linotype machines, the space bands, such as are used to separate words in each line, require frequent polishing and cleaning as well as regular graphite lubrication of the dovetail interconnection between the long wedge and the sleeve or short wedge of the space band. In use, the sleeve tends to collect a small oxide stain at the casting point, and if this is allowed to accumulate and is not removed, the band will fail to provide a tight lockup with the matrices, so that a small fin of metal will be formed on the casting which will result in objectionable hair-lines adjacent the letters. In my Patent No. 2,288,944, July 7, 1942, I have disclosed an improved space band cleaning device or machine for removing objectionable deposits or accumulations on space bands which may result as described above. I have found that it is desirable that the polishing face of the polishing wheel should provide a yielding force exerted against the surface of the space band which is to be cleaned and that this can best be obtained by an improved polishing wheel construction formed of several polishing ring members adapted to be biased resiliently towards the space band which is to be cleaned.

An object of my invention is to provide an improved polishing wheel construction.

Another object of my invention is to provide an improved polishing wheel construction for a space band cleaning machine having a plurality of circular polishing ring members, some of which are resiliently biased outwardly from a supporting plate for engagement with a space band.

Further objects and advantages of my invention will become apparent and my invention will be better understood from the following description referring to the accompanying drawing, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

In the drawing, Fig. 1 is an end elevational view of a polishing wheel construction showing an embodiment of my invention; and Fig. 2 is a sectional view, taken along line 2—2 of Fig. 1, of my improved polishing wheel.

Referring to the drawing, I have shown an embodiment of my improved polishing wheel in which a circular mounting plate member 1 is provided with a hub 2 adapted to be mounted on

a drive shaft 3. This mounting plate is secured in position on the drive shaft in any suitable manner, as by a setscrew 4, and is formed with a plurality of circumferentially spaced apart screw openings 5 and 6 arranged in two rows through the plate 1 for securing polishing rings thereto by suitable screws. The polishing face of the wheel is formed by a plurality of circular polishing members of fibrous material such as the end grain of wooden rings to which a polishing material, such as graphite, may be applied in any suitable manner. In the illustrated arrangement, this polishing wheel includes four such polishing rings, and the outermost and innermost of these rings are adapted to be secured to the mounting plate 1 to provide relatively fixed circular ring members thereon. The outermost ring member 7 is secured to the mounting plate 1 by a plurality of wood screws or similar retaining elements 8 and is formed on its inner surface with two undercut grooves 9 and 10. The outer undercut groove 9 extends over a flange 11 formed on the mounting plate 1 which is adapted to support the outermost polishing ring 7 with a slight clearance between the inner face of the polishing ring 7 and the outer face of the mounting plate 1. This assures a very tight and secure fit between the ring 7 and the mounting plate 1. The innermost circular polishing member 12 is secured to the mounting plate 1 by a plurality of wood screws 13 or similar retaining elements which threadably engage the circular polishing member 12 and extend freely through the openings 5 in the mounting plate 1, thereby fixedly securing the circular member 12 to the mounting plate. Other circular polishing rings are arranged as floating elements which are adapted to be biased outwardly for engagement with the article which is to be polished, which in this instance is a space band. In this construction, the floating circular ring members comprise two rings 14 and 15 which have an axial depth less than the distance from the outer face of the fixed circular members 7 and 12 to the adjacent face of the mounting plate 1, and both of these rings are formed with radially outwardly extending flange elements 16 and 17 which are arranged loosely in the undercut grooves 10 and 18 in the fixed circular polishing members 7 and 12, respectively, for loosely retaining the floating polishing ring members 14 and 15 in position between the relatively fixed ring members and to provide a limited amount of clearance between the inner faces of these floating rings and the outer adjacent face of the mounting plate 1. Both of these floating rings

are biased resiliently outwardly by a plurality of coil springs 19 and 20 arranged under compression between the mounting plate 1 and the floating ring members in pockets 21 and 22 in the floating ring members 14 and 15, respectively, for biasing the floating ring members in a direction away from the mounting plate member and toward the outer face of the polishing wheel to extend a predetermined distance beyond the polishing face of the fixed ring members and thereby provide a resiliently deformable polishing surface for following as nearly as possible irregularities in the surface of a space band or other object which is being polished. In order to assure that each of the floating circular ring members 14 and 15 will rotate with the polishing wheel circular members 7 and 12, a drive pin 23 is secured to the mounting plate 1 and arranged in engagement in a complementary pocket 24 extending into the inner portion of each floating ring member. These drive pins 23 extend loosely in the pockets 24 in order to prevent binding of the floating rings on the drive pin and to permit a free floating movement of the rings against the biasing springs 19 and 20. As shown in Fig. 1, it has been found desirable to provide twice the number of biasing springs 19 for the outer larger diameter floating ring 14 as for the inner floating smaller diameter ring 15. In addition, I have found it desirable to provide a slightly beveled inner edge 25 on the polishing outer face of the innermost floating ring member adjacent the inner fixed circular member 12. This beveled edge provides for a smoother operation of the polishing wheel and prevents jamming of the edge of the inner floating ring member 15 against any sharp edges on a space band or similar article which is being polished by the polishing wheel, as it provides a guiding surface for depressing the floating ring member 15 as it contacts the edge or end of the article which is being polished. This wheel construction provides a desirable resilient polishing surface to the polishing wheel which is not obtainable by a conventional fixed flat polishing surface, and, in addition, provides a construction which can readily be repaired and in which the parts can readily be replaced with renewal parts when necessary.

While I have illustrated and described a particular embodiment of my invention, modifications thereof will occur to those skilled in the art. I desire it to be understood, therefore, that my invention is not to be limited to the particular arrangement disclosed, and I intend in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, four concentric circular polishing members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means for loosely retaining the other of said circular members as floating circular members in position between said fixed circular members, resilient means for biasing said floating circular members in a direction away from said mounting plate member, and means for providing a driving connection between said floating circular members and said mounting plate.

2. A polishing wheel construction for a space

band cleaning machine including a mounting plate member adapted to be supported on a drive shaft, a plurality of circular polishing members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means for loosely retaining another of said circular members as a floating circular member in position between said fixed circular members, resilient means for biasing said floating circular member in a direction away from said mounting plate member, and means for providing a driving connection between said floating circular member and said mounting plate.

3. A polishing wheel construction for a space band cleaning machine including a mounting plate member adapted to be supported on a drive shaft, a plurality of circular polishing members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means for loosely retaining the other of said circular members as floating circular members in position between said fixed circular members, resilient means for biasing said floating circular members in a direction away from said mounting plate member, and means secured to said mounting plate and arranged in engagement with said floating circular members for providing a driving connection between said floating circular members and said mounting plate.

4. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing circular members of fibrous material, means for securing certain of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means including a groove in each of said relatively fixed circular members and a complementary outwardly extending element on each of the other of said circular members each arranged loosely in one of said grooves for retaining said other circular members as floating circular members in position adjacent said fixed circular members, resilient means for biasing said floating circular members in a direction away from said mounting plate member, and means for providing a driving connection between said floating circular members and said mounting plate.

5. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing circular members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means for loosely retaining the other of said circular members as floating circular members in position between said fixed circular members, resilient means including coil springs under compression arranged between said mounting plate and said floating circular members for biasing said floating circular members in a direction away from said mounting plate member, and means including a drive pin secured to said mounting plate and arranged in engagement with said floating circular members for providing a driving connection between said floating circular members and said mounting plate.

6. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing circular

members of fibrous material, means for securing certain of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means including a groove in each of said relatively fixed circular members and a complementary outwardly extending element on each of the other of said circular members each arranged loosely in one of said grooves for retaining said other circular members as floating circular members in position adjacent said fixed circular members, resilient means including coil springs under compression arranged between said mounting plate and said floating circular members for biasing said floating circular members in a direction away from said mounting plate member, and means secured to said mounting plate and arranged in engagement with said floating circular members for providing a driving connection between said floating circular members and said mounting plate.

7. A polishing wheel construction for a space band cleaning machine including a mounting plate member adapted to be supported on a drive shaft, four concentric polishing circular members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means including a groove in each of said relatively fixed circular members and a complementary outwardly extending element on each of the other of said circular members each arranged loosely in the groove in the adjacent fixed circular member for retaining said other circular members as floating circular members in position between said fixed circular members, resilient means for biasing said floating circular members in a direction away from said mounting plate member, means for providing a driving connection between said floating circular members and said mounting plate, and a beveled edge on the inner edge of the polishing outer face of said floating circular member nearest the innermost of said fixed circular members.

8. A polishing wheel construction for a space band cleaning machine including a mounting plate member adapted to be supported on a drive shaft, four concentric polishing circular members of fibrous material, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means including a groove in each of said relatively fixed circular members and a complementary outwardly extending element on each of the other of said circular members each arranged loosely in the groove in the adjacent fixed circular member for retaining said other circular members as floating circular members in position between said fixed circular members, resilient means including coil springs under compression arranged between said mounting plate and said floating circular members for biasing said floating circular members in a direction away from said mounting plate member, means secured to said mounting plate and arranged in engagement with said floating circular members for providing a driving connection between said floating circular members and said mounting plate, and a beveled edge on the inner edge of the polishing outer face of said floating circular member nearest the innermost of said fixed circular members.

9. A polishing wheel construction for a space band cleaning machine including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing circular members of fibrous material, means for securing certain of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means including an undercut groove in each of said relatively fixed circular members and a complementary outwardly extending flange element on each of the other of said circular members each arranged loosely in one of said grooves for retaining said flanged circular members as floating circular members in position with a limited amount of axial floating movement adjacent said fixed circular members, resilient means including coil springs under compression arranged between said mounting plate and said floating circular members in pockets in said floating circular members for biasing said floating circular members in a direction away from said mounting plate member, means including a drive pin secured to said mounting plate and arranged in engagement with a complementary pocket in each of said floating circular members for providing a driving connection between said floating circular members and said mounting plate, and a beveled edge on the inner edge of the polishing face of said floating circular member nearest the innermost of said fixed circular members.

10. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing members, and means for securing certain of said polishing members to said mounting plate and for loosely mounting and resiliently biasing outwardly certain other of said polishing members providing a deformable polishing surface for following irregularities in the surface of an object to be polished.

11. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing members, and means for fixedly securing certain of said polishing members to said mounting plate and for loosely mounting and resiliently biasing outwardly certain other of said polishing members providing a resiliently deformable polishing surface for following irregularities in the surface of an object to be polished.

12. A polishing wheel construction including a mounting plate member adapted to be supported on a drive shaft, a plurality of polishing circular members of fibrous material forming a polishing face, means for securing the inner and outer of said circular members to said mounting plate for providing relatively fixed circular members on said mounting plate, means for loosely retaining the other of said circular members as floating ring members extending a predetermined distance beyond the polishing face of said fixed circular members in position between said fixed circular members, resilient means for biasing said floating circular members in a direction away from said mounting plate member, and means secured to said mounting plate and arranged in engagement with said floating circular members for providing a driving connection between said floating circular members and said mounting plate.

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