

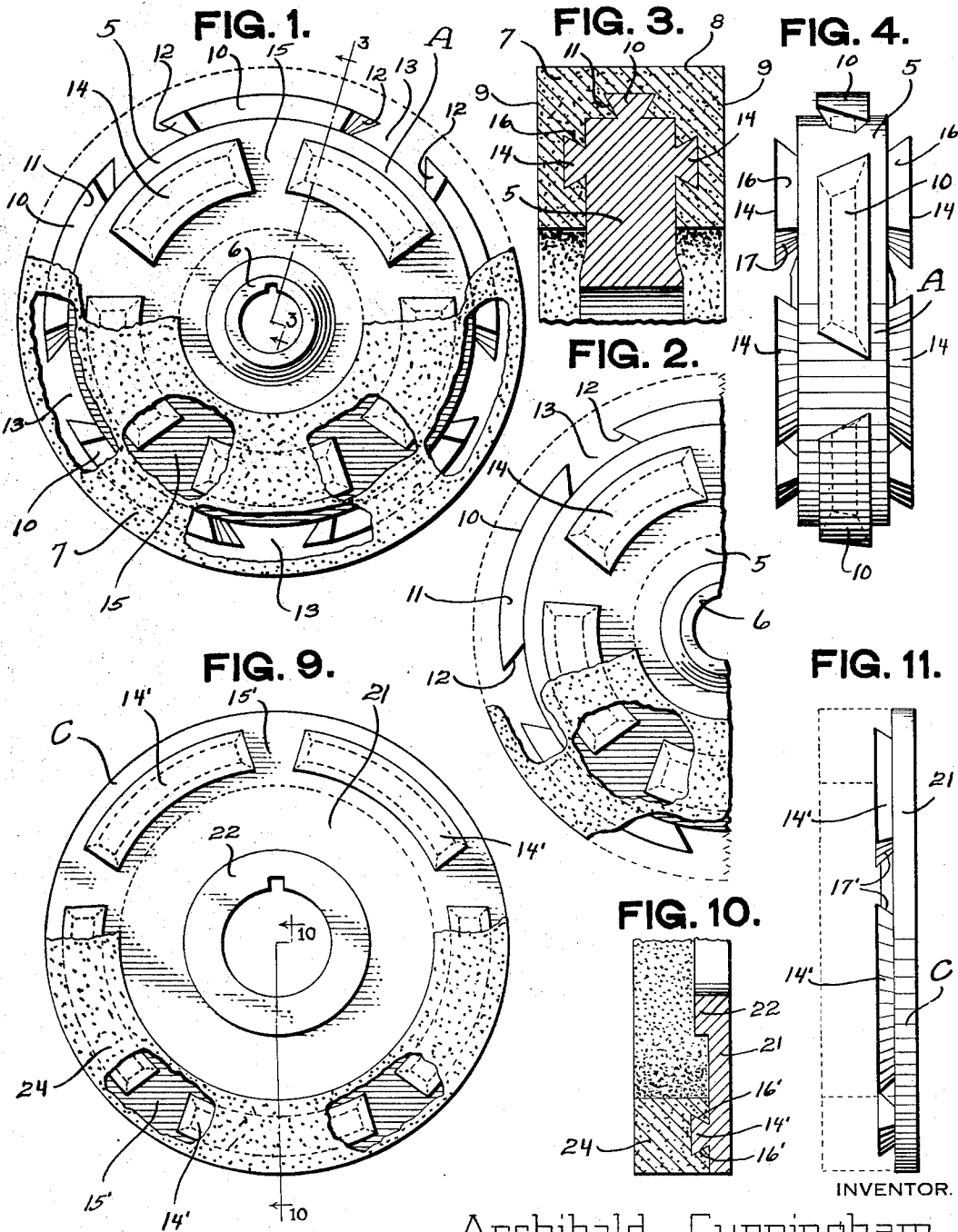
April 10, 1934.

A. CUNNINGHAM  
GRINDING WHEEL MOUNTING

1,954,560

Filed Dec. 29, 1930

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 5.

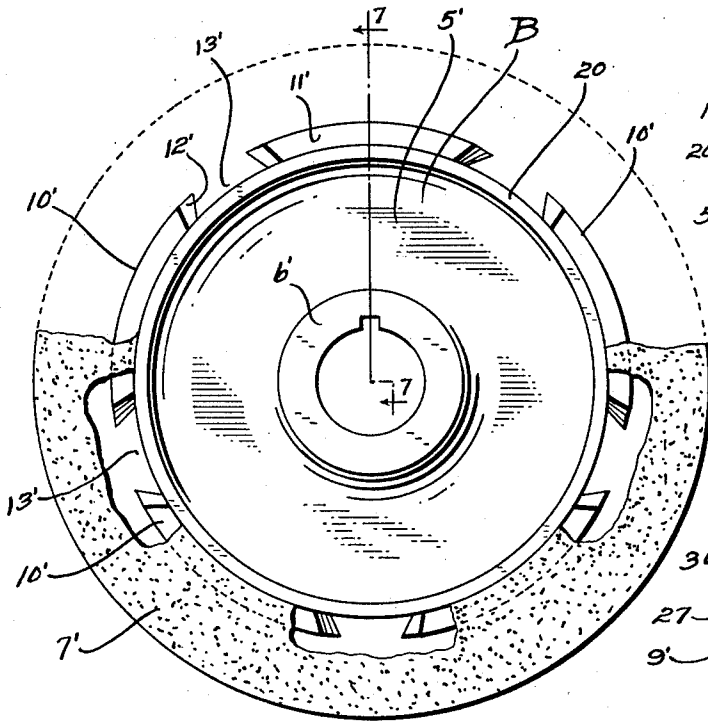


FIG. 7.

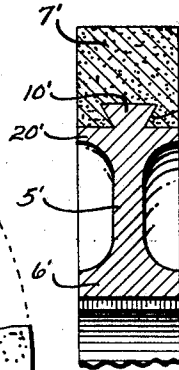


FIG. 8.

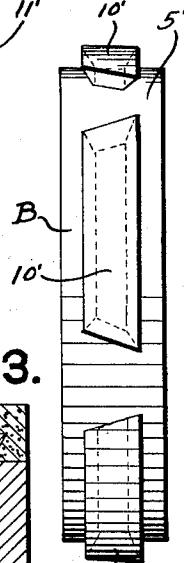


FIG. 13.

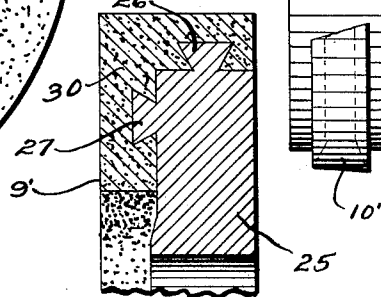


FIG. 12.

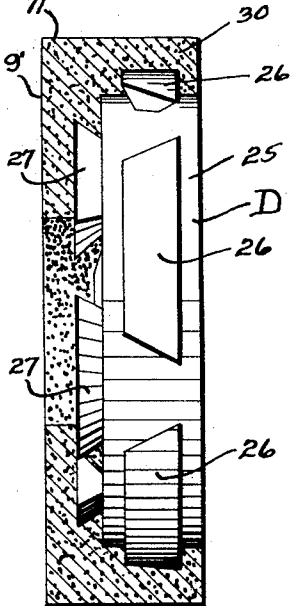
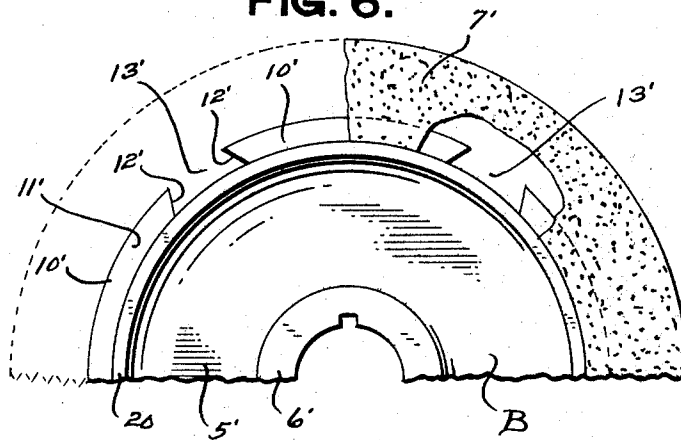


FIG. 6.



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# UNITED STATES PATENT OFFICE

1,954,560

## GRINDING WHEEL MOUNTING

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Application December 29, 1930, Serial No. 505,429

2 Claims. (Cl. 51—206)

The present invention relates to grinding wheels and the primary object of the invention is to provide a grinding wheel embodying a mounting of improved construction permitting renewing of the grinding or abrasive material as by molding the material directly about the mounting.

A further object of the invention is to provide a grinding wheel mounting embodying an improved arrangement of anchoring ribs whereby the abrasive material is prevented from breaking or flying off due to centrifugal force.

A further object resides in the specific formation of the anchoring ribs permitting ready and easy cleaning of the abrasive material from the mounting when the mounting is to be rebuilt with the abrasive material.

A further object of the invention is to provide a grinding wheel which will be economical in construction, one wherein the abrasive material may be rigidly anchored as by molding upon the metallic carrier, and one wherein the grinding material may be moulded upon the mounting by the usual method of moulding grinding wheels.

Other objects and advantages of the invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawings, forming a part of this specification and in which drawings:

Figure 1 is a view in side elevation of one form of grinding wheel constructed in accordance with this invention and showing portions of the grinding annulus broken away.

Figure 2 is a fragmentary side elevation looking at the opposite side of the wheel shown in Figure 1.

Figure 3 is a fragmentary section on the line 3—3 of Figure 1.

Figure 4 is an edge view of the mounting shown in Figure 1.

Figure 5 is a side view of a modified form of wheel wherein the anchoring ribs are provided about the circumferential face of the mounting.

Figure 6 is a fragmentary side plan view looking at the opposite side of the wheel shown in Figure 5.

Figure 7 is a fragmentary section on the line 7—7 of Figure 5.

Figure 8 is an edge view of the mounting shown in Figure 5.

Figure 9 is a plan view of a further modified form of grinding wheel wherein the anchoring ribs are arranged at one side of the mounting for the formation of a cup wheel.

Figure 10 is a fragmentary section on the line 10—10 of Figure 9.

Figure 11 is an edge view of the mounting shown in Figure 9.

Figure 12 is a view part in section and part in elevation showing a further modified form of mounting.

Figure 13 is a fragmentary detail section of the mounting shown in Figure 12.

Referring to the drawings in detail, and wherein similar reference characters designate corresponding parts thruout the several views, and referring particularly to the form of invention disclosed in Figures 1 to 4 inclusive, the mounting A may be formed of cast steel or iron and embodies a carrying disc 5 provided with a hub 6. 7 designates a body or mass of grinding or abrasive material moulded into annular formation about the periphery of the carrying disc 5 with portions thereof overlying the peripheral face and opposite side faces of the carrying disc to provide a peripheral grinding surface 8 and flat grinding surfaces 9.

Extended about the peripheral face of the carrying disc 5 is a series of elongated, spaced circumferentially extending anchoring ribs 10 having under cut side faces as shown at 11 whereby the ribs are of dove-tailed formation in cross section. These anchoring ribs 10 are of a width less than the peripheral face of the carrying disc 5 and have their ends under cut as at 12. The ends of the ribs 10 are also cut diagonally to provide dove-tailed slots or key-ways 13 between the ends of adjacent ribs. The ends of adjacent ribs are oppositely beveled and diagonally cut as shown in Figure 4 whereby the slots 13 all flare toward one face of the carrying disc 5. As will be observed in Figure 4, the longer sides of the ribs 10 are all arranged at a like side of the ribs and in alignment circumferentially of the carrying disc.

Arranged at each flat side face of the carrying disc 5 is an annular series of elongated, spaced apart arcuate anchoring ribs 14. These arcuate anchoring ribs 14 are arranged concentric to the hub 6 and arranged in such radial relation to the anchoring ribs 10 as to align radially with the dove-tailed grooves 13 and with the dove-tailed slots or key-ways 15 formed between the ribs 14 aligning radially with the central portions of the ribs 10. These anchoring ribs 14 are of dove-tail formation in cross section and are provided with under cut inner and outer edges 16 and diagonally under cut ends 17 providing the dove-tailed slots 15. By observing Figures 1 and 2 it

will be seen that the slots or key-ways 15 at each side of the carrying disc all flare in an outward radial direction whereby the slots are of greatest width at the outer edges of the ribs 14.

5 The grinding or abrasive material 7 is intended to be moulded about the circumference of the carrying disc into a formation as shown in Figure 3 whereby the peripheral ribs 10 anchor the material over the peripheral edge of the carrying disc and the annularly arranged ribs 14 anchor the material to the sides of the carrying disc. With the material so moulded, a portion of the material extends into the dove-tailed slots 13 between the ribs 10 and forms keys preventing possible circumferential movement of the material about the carrying disc and also forming spaced ties between the material at opposite sides of the ribs 10. The inner circumference of the grinding annulus formed by the material 7 is arranged inwardly of the annular series of ribs 14 so that a portion of the material is embedded in the dove-tailed slots 15 and forms a tie between the material disposed at the inner and outer sides of the ribs.

20 The circumferential grinding face 8 may be worn down to the outer surface of the anchoring ribs 10 and be held against breaking or flying off due to centrifugal force by the keyed portion of the material embedded in the dove-tail slots 13. Likewise, the flat grinding faces 9 may be worn down to the outer faces of the anchoring ribs 14 without liability of portions of the material breaking or flying off due to the keyed portions of the material embedded in the dove-tailed slots 15.

30 The under cut dove-tailed slots 13 and 15 are further tapered as shown to permit ready and easy cleaning of the grinding material from the mounting after being worn down to the anchoring ribs so that a new grinding annulus may be moulded about the periphery of the mounting. After the grinding material has been worn down to the anchoring ribs, the material may be chipped away from the sides of the circumferential anchoring ribs 10 and by placing a blunt instrument against the material at the narrow side of the slots 13, the key forming portions of the material may be readily removed from between the ends of the anchoring ribs. The key forming portions of the material moulded in the slots 15 may be removed by chipping the material away at the inner edges of the ribs 14 and then forcing the key portions of the material outwardly from the slots 15.

45 Referring now to the form of the invention shown in Figures 5 to 8 inclusive, the mounting B is adapted to receive a moulded grinding annulus 7' extended solely about the periphery of the mounting. The mounting B is preferably of cast metal and embodies a carrying disc 5' provided with a hub 6' and a rim 20. Cast integral with the rim 20 is a series of spaced apart circumferentially extending anchoring ribs 10' of less width than the rim 20 and having under cut side edges 11' and diagonally under cut ends 12'. The ends of adjacent ribs 10' are oppositely beveled and provide dove-tailed slots 13' all of which flare to a like side of the carrying disc.

50 With the form of invention illustrated in Figures 9, 10 and 11, the mounting C is adapted for the formation of a cup grinding wheel for surface grinding and embodies a carrying disc 21 provided with a mounting hub 22. Formed on one face of the carrying disc 21, inwardly of the circumference thereof is an annular series of spaced apart anchoring ribs 14' having under cut

inner and outer edges 16' and diagonally under cut ends 17' providing dove-tailed slots 15' between adjacent ends of the ribs. These anchoring ribs 14' are intended to be embedded in a grinding annulus 24 moulded over the disc at the working face of the carrying disc.

80 In the form of mounting D shown in Figures 12 and 13, the carrying disc 25 is provided at its peripheral face with a series of spaced apart circumferentially extending anchoring ribs 26 and at one side with a series of annularly arranged, spaced apart anchoring ribs 27. With this form of mounting, the grinding annulus 30 is moulded over the peripheral face and one side face of the carrying disc to provide an annular grinding surface 71 and a flat grinding surface 9' providing a cup wheel for surface grinding. The anchoring ribs 26 are similar in formation to the anchoring ribs described in detail in Figure 1 and have under cut side edges and diagonally under cut ends providing dove-tail slots between adjacent ends of the ribs. The anchoring ribs 27 are of like formation as that disclosed in Figure 1 and have under cut inner and outer edges and diagonally under cut ends providing dove-tail slots between adjacent ends of the ribs.

90 Thus it will be seen that in each form of mounting that the grinding material is anchored to a metallic mounting by means of elongated anchoring ribs having under cut side edges and diagonally under cut ends providing dove-tailed slots between the ribs with the slots all flaring to one side of the ribs.

100 From the foregoing description it will be apparent that a novel and improved construction for grinding wheel mountings has been provided wherein the grinding material may be moulded into annular formation about the periphery of the mounting and effectively anchored thereto. It will also be apparent that a novel arrangement has been disclosed whereby the grinding material may be easily removed from the mounting when desiring to mould a new grinding annulus about the mounting.

110 Changes in detail may be made to the forms of invention herein shown and described, without departing from the spirit of the invention or the scope of the following claims.

I claim:

125 1. A grinding wheel mounting of the class described comprising a carrying disc, a series of elongated anchoring ribs arranged in spaced apart relation about the peripheral face of the disc, and a series of elongated, spaced apart anchoring ribs arranged in annular formation upon at least one side of the faces of the carrying disc, each of said series of anchoring ribs having under cut sides and ends and with the opposed ends of the ribs converging laterally providing wedge shaped slots between the adjacent ribs of each series.

130 2. A grinding wheel mounting of the class described comprising a carrying disc, a series of anchoring ribs arranged in spaced apart relation about the periphery face of the disc and having under cut ends providing flaring key-ways between the ribs, and a series of anchoring ribs arranged in annular formation upon at least one of the side faces of the disc and having converging ends providing wedge shaped ways between the ribs, the ends of said ribs of the annular formation being out of radial alignment with the ways between the ribs at the peripheral face of the disc.