Nov. 21, 1939. J. M. REDINGER 2,180,550

MOUNTING FOR A GRINDING WHEEL

Filed Feb. 5, 1938

Fig. 1.

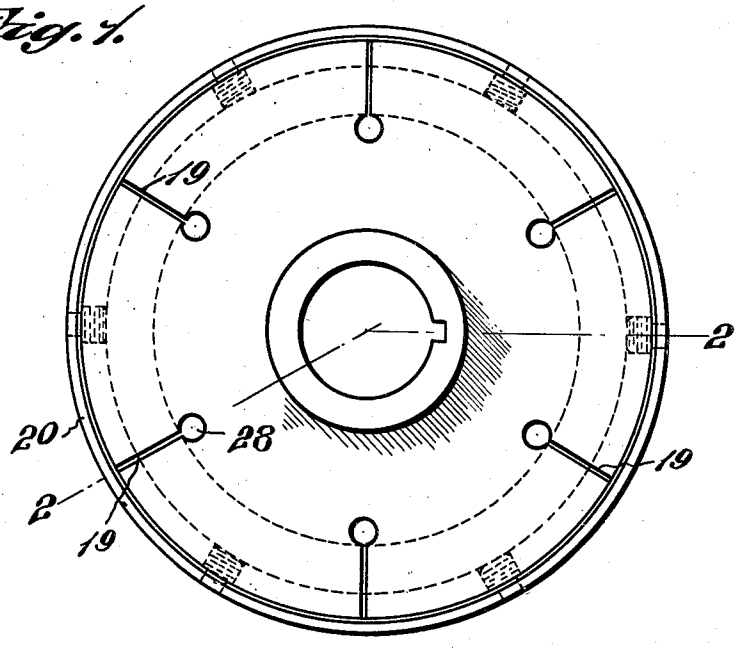


Fig. 2

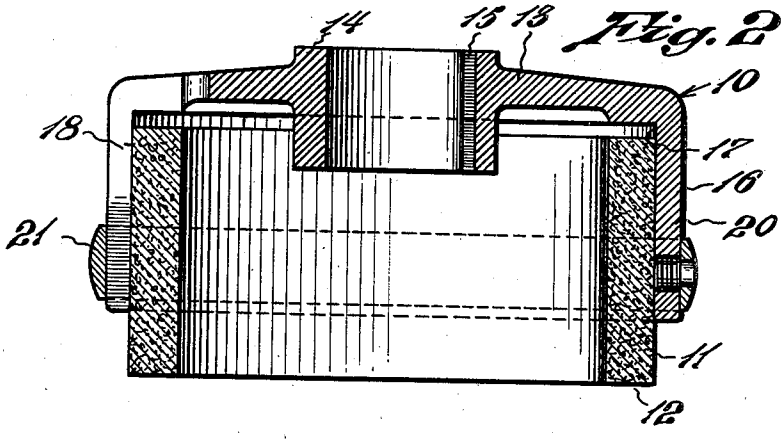
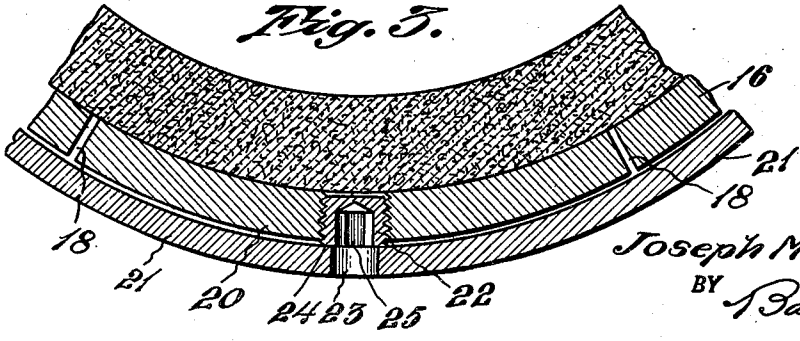


Fig. 3.



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MOUNTING FOR A GRINDING WHEEL

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4 Claims. (Cl. 51—209)

This invention relates to a grinding wheel and more particularly to the mounting of a cylindrical type grinding wheel. An object of the invention is the provision of means for mounting the grinding wheel in such a manner that the wheel may be revolved at greater speed without danger of breaking due to centrifugal force and consequently by reason of the greater speed the provision of greater efficiency than heretofore.

Another object of the invention is to so strengthen the grinding wheel by reason of its mounting that less chance of chattering will occur.

Another object of the invention is the provision of a mounting for a cylindrical grinding wheel which will support the major portion of the wheel at all times and yet will permit adjustment of the wheel in its mounting as wear occurs so that the grinding material of the wheel may be economically used.

Another object of the invention is the provision of a mounting which will eliminate the necessity of banding the grinding wheel with wire to support the wheel and the removing of this banding as the wheel wears down to it that further grinding material may be available.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a top plan view of the mounting device for the cylindrical wheel;

Fig. 2 is a sectional view on line 2—2 of Fig. 1;

Fig. 3 is a sectional view through a fragmental portion of the wheel illustrating the binding means.

Different types of mountings for a cylindrical grinding wheel have been provided such as the forming of plates or bolts in the wheel by a molding process, but in most all instances a grinding wheel is banded with some wire or the like so as to support the wheel and prevent its breaking due to centrifugal forces developed at high operating speeds, and yet even with such support the speeds at which these wheels can be run are limited because of the danger of parts of the wheel flying off and injuring other machinery or the operator, both of which are real hazards. Also, the holding of the fastening parts in place under the tremendous centrifugal forces developed at high rotating speeds is difficult; and in order that these various difficulties may be overcome, I have provided a cup-like structure to receive the cylindrical grinding wheel, the walls of the cup supporting the abrasive material along most of its axial extent by leaving exposed a very small portion for grinding purposes; and I have so arranged the fastening for securing the cup structure to this wheel that there is no liability of the fastening working loose and being thrown by the centrifugal force from the wheel; and by reason of this greater support I may run the grinding wheel at a higher speed and thus obtain greater efficiency in the work which it does; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates generally the cup-shaped structure for supporting the grinding wheel 11. The grinding wheel 11 is of cylindrical shape having a certain thickness 12 which provides the face or grinding surface used. The cup-like structure consists of a body portion 13 with a hub 14 for mounting upon a suitable shaft, there being a key-way 15 to prevent rotation on the shaft. Walls or flanges 16 extend from the body providing an interior diameter 17 of a size sufficient to closely receive the cylindrical grinding wheel 12. These flanges are slotted from their free edge as at 18, which slots extend into the body portion as at 19 terminating in a hole 28 within this body portion 13 dividing the wheel into sections 20 between the slots 18, 19, whereby the flanges or walls 16 are somewhat resilient.

A steel ring 21 is provided encircling the flanges or wall 16 adjacent their lower edge. This ring is of a solid firm structure having a cross-section such as shown in Fig. 2. Plugs or threaded members 22 are mounted in individual threaded openings in each of the sections 20 of the wall 16 at substantially the middle portion thereof between the slits 18 while opposite each of these members 22 there is an opening 23 of a size smaller than the members so as to leave shoulder portions 24 about the opening 23 with which the members engage. These members are each provided with an angular socket 25 for the reception of a tool positioned through the opening 23 so as to screw the members outwardly against the ring 21 and thus force the sections 20 inwardly against the grinding wheel 11. These members or plugs may be moved outwardly in a manner to cause the cylindrical wheel to maintain its central position so that no wobbling of the parts and consequent vibration will be had; and further, when the wheel is thus fastened any centrifugal force tending to move any parts, such for

instance as the plugs, outwardly, will move them into firmer engagement rather than toward a loosening position and thus no loosening occurs. The plugs being shouldered against the solid ring 21 cannot escape even though they did become loose. Thus, a very rigid and firm structure is provided in which such forces that are acting will tighten rather than loosen any of the parts or permit their escape.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A mounting for a cylinder type grinding wheel comprising a cup-like structure having a cylindrical wall adapted to be moved inwardly to receive and extend along the cylindrical surface of the wheel in contact therewith, and releasable means comprising an abutment and a member carried by said wall and adjustable outwardly relative thereto against said abutment for forcibly moving said wall inwardly whereby a grinding wheel when positioned within said wall may be engaged thereby and secured in different adjusted positions with the edge of the wheel projecting therebeyond.

2. A mounting for a cylinder type grinding wheel comprising a cup-like structure having a slitted cylindrical wall to form a plurality of movable grinding wheel supporting members adapted to receive and extend along the cylindrical surface of the wheel in contact therewith, a ring encircling the outside of said cylindrical wall, and means carried by said wheel supporting members adjustable relative thereto for radial movement outwardly against said ring to move the sections of said cylindrical wall between said slits inwardly into firm clamping engagement with said wheel.

3. A mounting for a cylinder type grinding wheel comprising a cup-like structure having a slitted cylindrical wall to form a plurality of radially movable grinding wheel supporting members adapted to receive and extend along the cylindrical surface of the wheel in contact therewith, a ring encircling the outside of said cylindrical wall, and screws threaded in said wall sections adapted to be adjusted radially outwardly thereof into engagement against said ring, said ring being provided with openings for access to said screws to operate them and cause the sections of said cylindrical wall between said slits to move inwardly into firm clamping engagement with said wheel.

4. A mounting for a cylinder type grinding wheel comprising a cup-like structure having a cylindrical wall formed with spaced radial slots providing a plurality of radially movable arcuate grinding wheel supporting members adapted to receive and extend along the exterior cylindrical surface of the grinding wheel in contact therewith, a ring surrounding the outside of said cylindrical wall, and screws threadingly carried by said arcuate wall members, each of said screws arranged to be separately adjusted relative to said wall for radial movement outwardly thereof into engagement with said ring, said ring being provided with holes opposite said screws of a size sufficient to provide a shoulder portion on the inner periphery of said ring about the end opening of each hole thereon to be engaged by a portion of the outer end of the screw in the clamped position of the grinding wheel by the arcuate members, said holes affording access to said screws for adjusting them so as to move the same outwardly into contact with the ring whereby further rotation of the screws outwardly will be effective to forcibly move said arcuate wall members inwardly into firm gripping engagement with said wheel.

JOSEPH M. REDINGER.