E. R. HYDE.

GRINDING WHEEL.

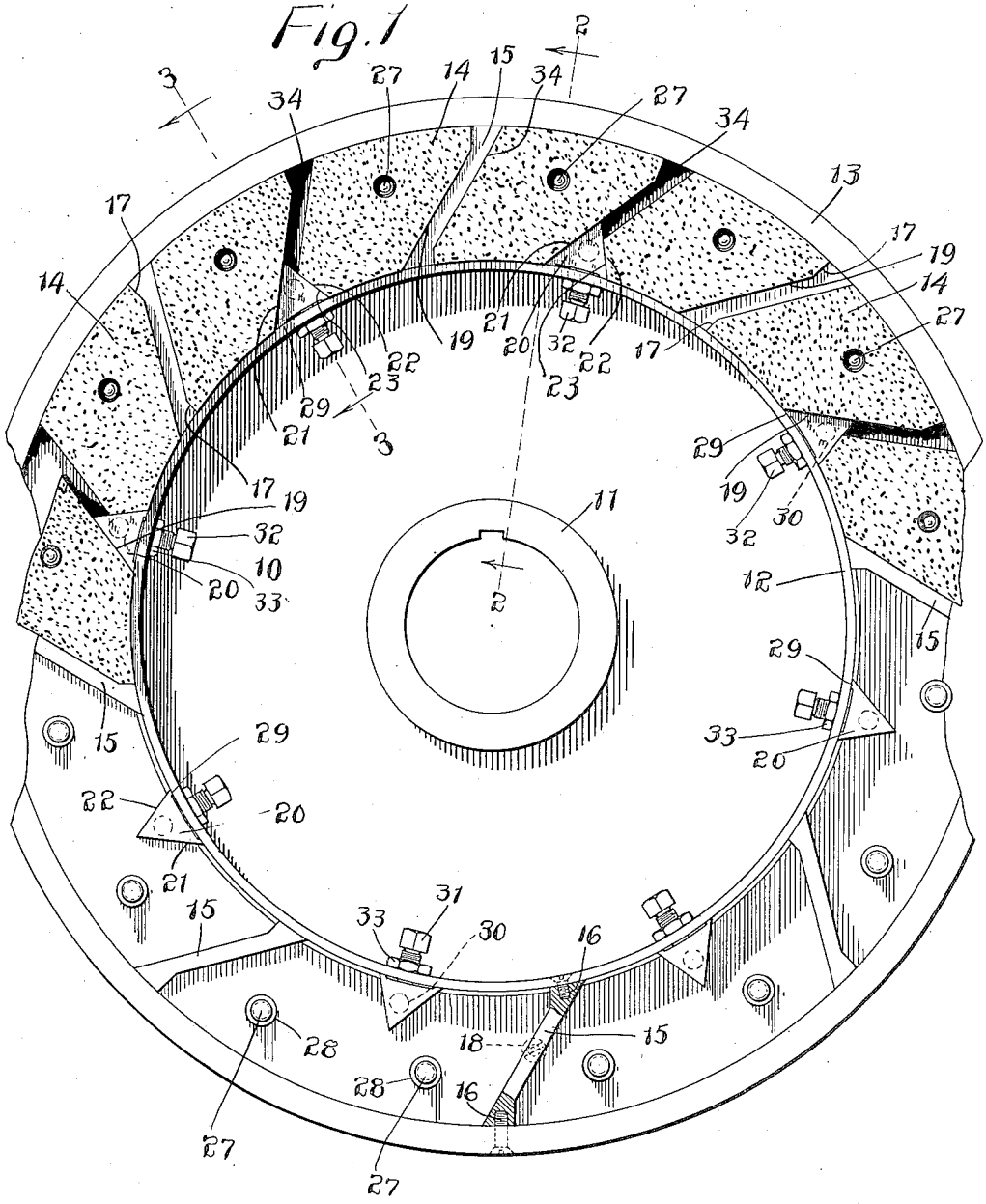
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1,133,475.

Patented Mar. 30, 1915.

2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS—SHEET 2.

Fig. 2

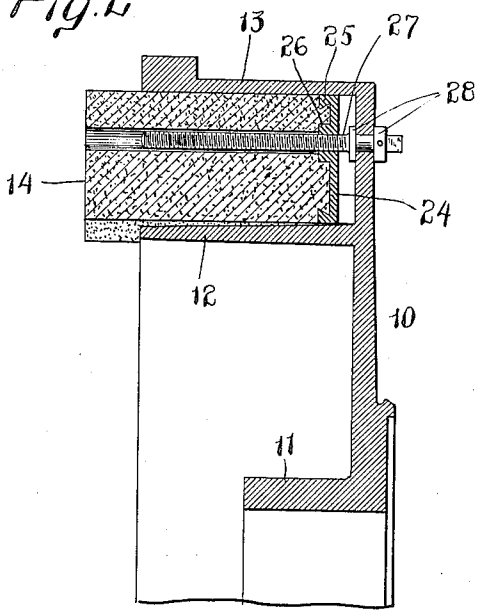


Fig. 3

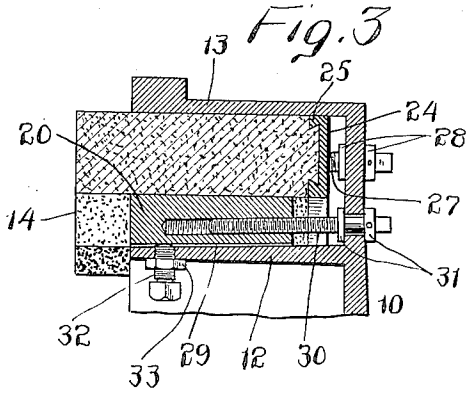


Fig. 4

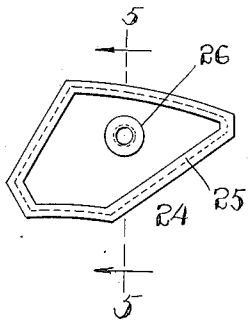
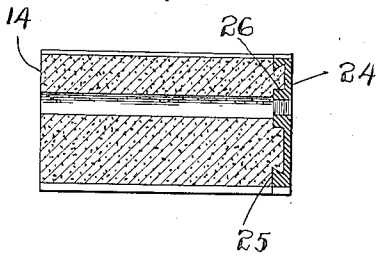


Fig. 5



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UNITED STATES PATENT OFFICE.

ELWIN R. HYDE, OF BRIDGEPORT, CONNECTICUT.

GRINDING-WHEEL.

1,133,475. Specification of Letters Patent. Patented Mar. 30, 1915.

Application filed June 23, 1914. Serial No. 846,752.

To all whom it may concern:

Be it known that I, ELWIN R. HYDE, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Grinding-Wheels, of which the following is a specification.

This invention has for its object to produce a simple and inexpensive grinding wheel especially adapted for face grinding, which shall comprise a flanged carrying disk, a plurality of grinding blocks of novel configuration and means for adjusting the blocks so that the blocks may be practically used up, thereby avoiding waste and greatly reducing the cost of the operation of grinding. With these and other objects in view I have devised the novel grinding wheel and grinding blocks therefor, which I will now describe, referring to the accompanying drawings forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is a face view of my novel grinding wheel, a portion of the blocks being removed; Fig. 2 a section on the line 2—2 in Fig. 1, looking in the direction of the arrows; Fig. 3 a section on the line 3—3 in Fig. 1, looking in the direction of the arrows; Fig. 4 a view of the base plate of one of the grinding blocks detached, and Fig. 5 is a section of a grinding block complete on the line indicated by 5—5 in Fig. 4, looking in the direction of the arrows.

10 denotes the carrying disk which is provided with a central hub 11, an inner flange 12 and an outer flange 13.

14 denotes the grinding blocks which are adjustably secured between the flanges of the carrying disk, their operative faces projecting beyond the flanges. The outer end of each grinding block is a convex curve corresponding with the inner face of the outer flange and the inner end of each grinding block is a concave curve corresponding with the outer face of the inner flange and the sides are straight lines oblique to radial lines.

The wheel in use rotates clockwise and the front edge of each grinding block, indicated by 19, is tangential to an imaginary circle within and concentric with the curve of the inner end of the block, the rear edge of each block being parallel with the front edge of the next block to the rear. It will of course be obvious that the exact shape of the grinding blocks is not of the essence of the invention. It is however essential that their side lines be oblique to radial lines. This is in order to produce a shearing action of the edges of the grinding blocks upon the work that is being operated upon. If the piece of work is narrow it prevents the possibility of the work being crowded into the space between two blocks. For convenience I will describe the grinding blocks as in pairs. Between each pair of grinding blocks and the two contiguous grinding blocks I place a wall 15 parallel with the sides of the blocks. These walls may if preferred be cast integral with the disk and flanges, but are shown as made separate and attached thereto by holding screws 16 passing through the respective flanges and engaging the ends of the walls, which are shown as widened to provide more metal for engagement by the screws, the corresponding corners of the holding blocks being chamfered off as at 17. An additional holding screw for each wall may be provided passing through the disk and engaging the wall centrally as indicated by dotted lines at 18 in Fig. 1.

Between each pair of grinding blocks, that is between the two grinding blocks lying between any two walls, I place an angular locking block 20, each block having a face 29 adapted to engage the outer face of the inner flange, an operative face 21 corresponding with and adapted to engage the front side of the rear grinding block of the pair and an operative face 22 corresponding with and adapted to engage a chamfer 23 which intersects the inner end and the rear side of the front grinding block of the pair. That is to say, each alternate grinding block is provided with a chamfer 23. Each grinding block is provided with a base plate 24 having on its inner face an overhanging flange 25 and a threaded hub 26 which is engaged by a screw 27. The material of the block is molded under the flange thereby rigidly securing the base plate thereto. The unthreaded outer end of each screw passes through the carrying disk between the flanges and is provided with collars 28 lying on opposite sides of the disk which retain the screw against longitudinal movement, so that rotation of the screw will move the grinding block inward or outward as may be required. After adjustment, the grinding blocks are locked in position by the lock-

ing blocks. The outer face of the inner flange is inclined slightly from the carrying disk downward and outward, as shown in Fig. 3, and the corresponding face 29 of each locking block is inclined slightly from its outer end upward and inward to correspond therewith. Each locking block is provided with a threaded hole which is engaged by a screw 30. The unthreaded outer end of each screw passes through the carrying disk contiguous to the inner flange and is provided with collars 31 lying on opposite sides of the disk which retain the screw against longitudinal movement, so that rotation of the screw will move the locking block inward or outward as may be required, to lock or release the corresponding pair of grinding blocks.

As an additional means of setting each locking block tightly against the front side and the chamfer respectively of the corresponding pair of grinding blocks, I provide set screws 32 in the inner flange, the inner ends of which bear against the faces 29 of the locking blocks and crowd them into engagement with the corresponding grinding blocks. A lock nut 33 is preferably provided on each set screw to lock it against backward movement after the set screw has been turned forward against the locking block. It will be noted that the locking of the grinding blocks is effected by forcing each grinding block against the outer flange and one of the walls, each locking block acting on two grinding blocks.

An important feature of the invention is that clearance spaces 34 are left between contiguous grinding blocks which receive the particles removed from the grinding blocks and the surface being operated upon and prevent clogging at the front edges of the grinding blocks.

To adjust the grinding blocks at any time the set screws are first loosened, then the locking blocks are loosened by rotation of screws 30 and then the grinding blocks are set forward as much as may be required by rotation of screws 27, after which the locking blocks are moved to the locking position by screws 30 and are set tightly against the corresponding grinding blocks and locked there by means of the set screws and lock nuts. Each grinding block is thus forced against the outer flange and one of the walls.

Having thus described my invention I claim:

1. A grinding wheel comprising a carrying disk having inner and outer flanges on its face, walls between said flanges oblique to radial lines, grinding blocks in pairs lying between the walls, and means for forcing the blocks of each pair against contiguous walls and the outer flange to lock them in place.

2. A grinding wheel comprising a carrying disk having inner and outer flanges on its face, walls between said flanges oblique to radial lines, grinding blocks in pairs lying between the walls, a locking block between the grinding blocks of each pair and means for moving the locking blocks into locking position.

3. A grinding wheel comprising a carrying disk having inner and outer flanges on its face, walls between said flanges oblique to radial lines, grinding blocks in pairs lying between the walls, means for adjusting the grinding blocks inward and outward and means for locking the grinding blocks in position after adjustment.

4. A grinding wheel comprising a carrying disk having inner and outer flanges on its face, walls between said flanges oblique to radial lines, grinding blocks in pairs lying between the walls, means for adjusting the grinding blocks inward and outward, a locking block between each pair of grinding blocks and means for moving the locking blocks into locking position.

5. A grinding wheel comprising a carrying disk having flanges on its face, grinding blocks provided with base plates, screws engaging the base plates to move said blocks inward or outward and means for locking said blocks after adjustment.

6. A grinding wheel comprising a carrying disk having flanges on its face, grinding blocks provided with base plates, screws engaging the base plates to move said blocks inward or outward, angular locking blocks each acting on two grinding blocks and screws engaging the locking blocks to move and retain them in locking position.

7. A grinding wheel comprising a carrying disk having inner and outer flanges on its face, said inner flange being inclined on its outer face and oblique walls between the flanges, grinding blocks, inclined locking blocks each acting on two grinding blocks, and screws held in the carrying disk and engaging the grinding blocks and the locking blocks, substantially as described, for the purpose specified.

8. A grinding wheel comprising a carrying disk having inner and outer flanges on its face and oblique walls between the flanges, grinding blocks in pairs between the walls and adapted to project beyond the walls, leaving clearance spaces between the grinding blocks, and a locking block between the grinding blocks of each pair acting to force the grinding blocks against the walls and the outer flange.

9. A grinding wheel comprising a carrying disk having inner and outer flanges on its face and oblique walls between the flanges, grinding blocks in pairs between the walls and adapted to project beyond the walls, leaving clearance spaces between the

grinding blocks, screws for moving the grinding blocks inward and outward, locking blocks between the grinding blocks of each pair and means acting on the locking blocks to force the grinding blocks against the walls and the outer flange.

10. A grinding block whose outer end is a convex curve, whose inner end is a concave curve and whose front and rear side lines are oblique to radial lines.

11. A grinding block having a metallic base provided with a threaded hole and whose inner and outer ends are respectively concave and convex curves and whose front and rear side lines are oblique to radial lines.

In testimony whereof I affix my signature in presence of two witnesses.

ELWIN R. HYDE.

Witnesses:
H. W. MEADE,
E. M. CULVER.