(Model.)

J. W. COLE.

Grinding and Polishing Wheel.

No. 226,978. Patented April 27, 1880.

Fig. 1.

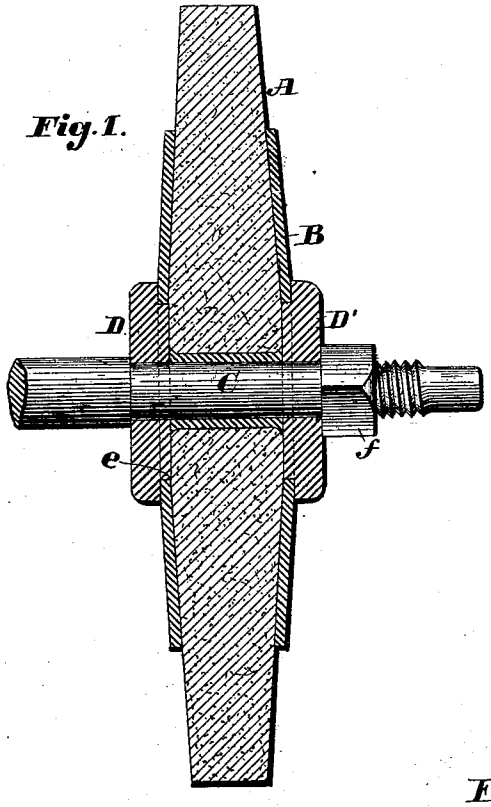


Fig. 2.

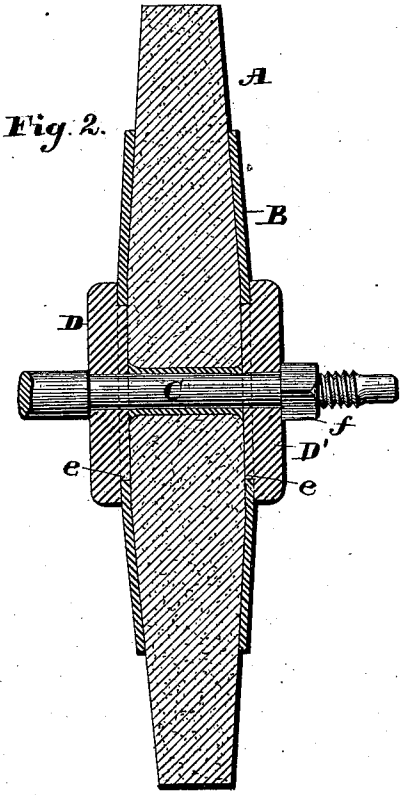
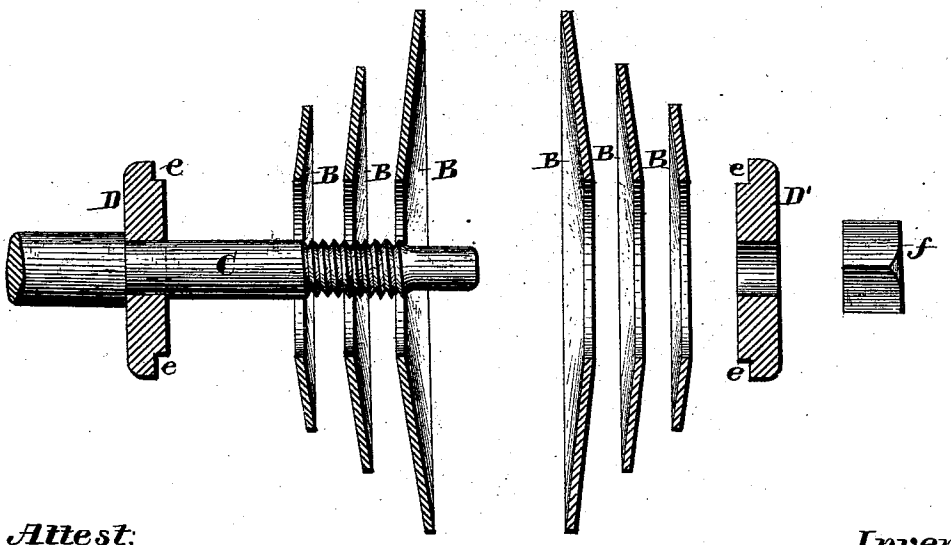


Fig 3.



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UNITED STATES PATENT OFFICE.

J. WENDELL COLE, OF COLUMBUS, OHIO.

GRINDING AND POLISHING WHEEL.

SPECIFICATION forming part of Letters Patent No. 226,978, dated April 27, 1880.

Application filed March 24, 1880. (Model.)

To all whom it may concern:

Be it known that I, J. WENDELL COLE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Grinding and Polishing Wheels, of which the following is a specification.

This invention relates to an improvement in the means of bracing wheels against the centrifugal strain and at the same time preventing them from slipping on their arbors.

Composition and natural stone grinding and polishing wheels have been braced against centrifugal strain by means of clamping-disks on each side provided with ribs or rims fitting into corresponding grooves in the sides of the wheels; but this arrangement weakens the wheels in proportion to quantity of material removed or omitted to form the grooves or recesses. Such wheels have also been made thicker near and around their centers than at their peripheries and outer portions, and clamped between rigid concave disks having central apertures to fit upon the arbors, said disks being thicker around their central apertures and gradually thinner toward their edges, the thicker central portions resisting the breaking strain of the nuts, which force the disks against the wheels. These disks must be formed with their central apertures of various sizes to fit the different-sized arbors of wheels, said arbors varying, of course, in accordance with the size and weight of the wheels. Thus the disks are not interchangeable for wheels of different sizes and manufactured by various persons, and are not available as articles of commerce.

In order to overcome this disadvantage, I form the concave disks to fit correspondingly convex sides of the wheels, as has been done before, but I form all the disks of given range of size with central openings of larger diameter than the arbors of the largest wheels of a given range of diameter, or having arbors comprising a given range of diameters. For instance, the disks to be used with wheels having arbors from a half-inch to an inch and a half in diameter have their central openings all of the same size. The fixed collars on all the arbors and the movable or clamping collars are tenoned to fit exactly into these central openings of the disks, and the tenons have a length just equal to the thickness of the disks, so that these tenons bear against and clamp the centers of the wheels and prevent them from slipping on the arbors, while the office of the disks is only to brace the wheels against centrifugal strain, and thus any pair of disks having apertures of a diameter within a given range may be applied to any wheel having an arbor of a diameter within a corresponding range. These disks, it will be readily perceived, can be applied to already-constructed wheels at a very slight expense for simply turning tenons upon their fixed and movable collars.

In the accompanying drawings, Figure 1 represents a diametric section of a wheel, clamp-plates, and collars mounted upon an arbor, and Fig. 2 is a similar view with the arbor of smaller size. Fig. 3 is a view of an arbor, a set of disks, and the clamping-collar.

The letter A indicates the wheel, which, it will be observed, is gradually thicker toward its central opening, giving its sides a convex form, and B are the clamping-disks, having concave surfaces to fit snugly upon the convex faces of the wheel. The disks have central openings considerably larger in diameter than the arbor C, upon which the wheel is mounted; but the fixed collar D of the arbor and the moving clamping-collar D′ have tenons *e*, which fit into the said central openings, and the length of each of these tenons is equal to the thickness of the disks, so that when said tenons are inserted in said openings and the movable collar is forced up to the wheel by nut *f* their ends will bear against the stone, preventing it from slipping on its arbor, while the only office the disks will be called upon to perform is to brace the wheels against centrifugal strain or tendency to break and fly off radially.

The central openings of the disks being made larger, as heretofore explained, than the arbors of a given range of wheels, it is obvious that the clamping-disks may be applied to already-constructed and various-sized wheels which are thicker at their centers by simply turning off the fixed and movable collars of the arbors of such wheels to form the tenons *e*. The disks may therefore be sold generally as

an article of commerce, and applied at a very trifling expense for alteration of the collars. The convex-faced disks may also be substituted for those with flat faces upon already-manufactured arbors, and the concave disks applied thereto by altering the collars.

Having now explained my invention, what I claim is—

The combination, with a convex-faced grinding or polishing wheel and its arbor, of the concave clamping-disks having central apertures of greater diameter than said arbor, and the fixed and movable clamping-collars provided with tenons fitting said central openings, and having a length equal to the thickness of the disks, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. WENDELL COLE.

Witnesses:
ALVA LOUCKS,
M. L. MENLEY.