S. H. MILLS.

POLISHING WHEEL.

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1,302,404.

Patented Apr. 29, 1919.

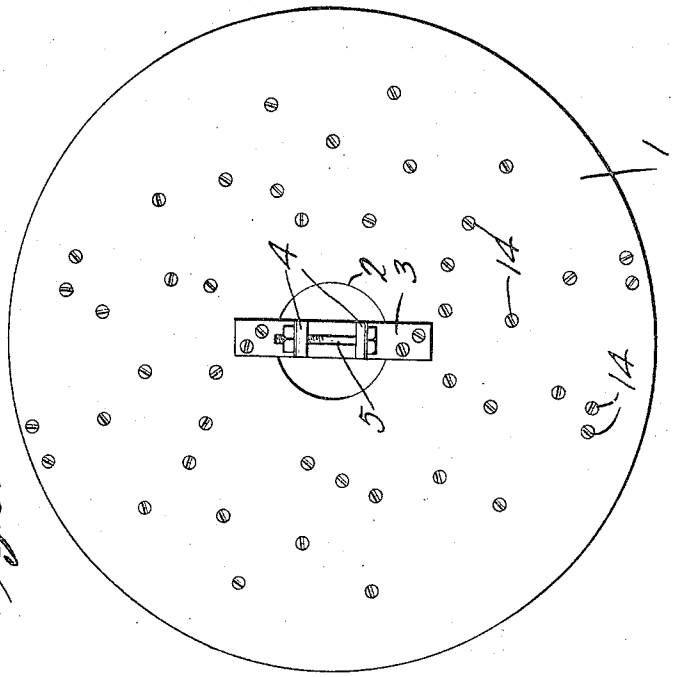


Fig. 3.

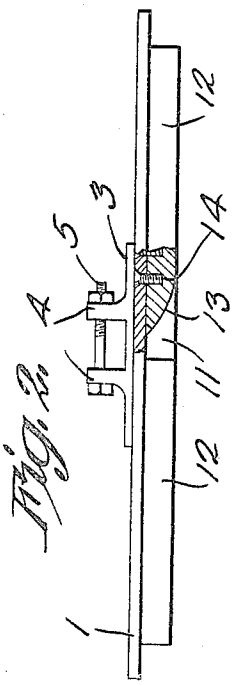


Fig. 2.

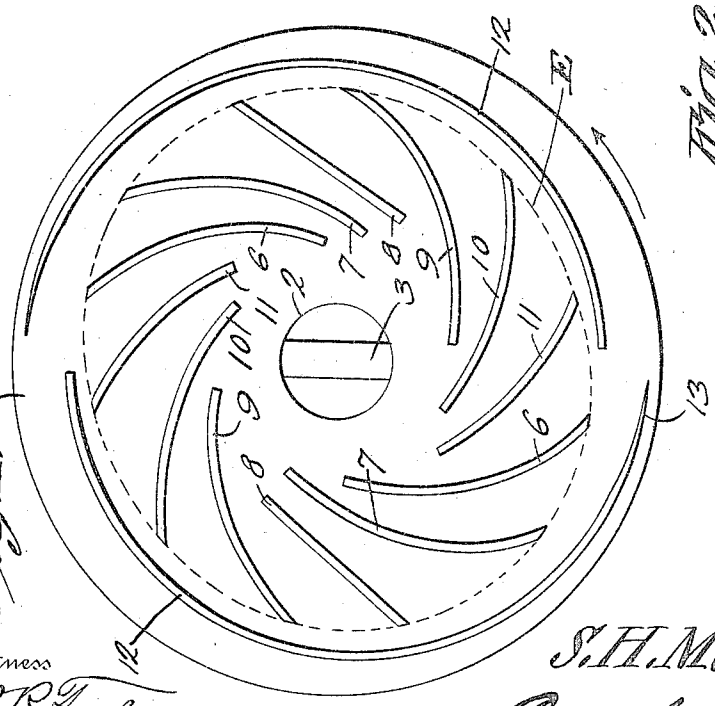


Fig. 1.

Witness

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POLISHING-WHEEL.

1,302,404. Specification of Letters Patent. Patented Apr. 29, 1919.

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To all whom it may concern:

Be it known that I, SAMUEL HOBERT MILLS, a citizen of the United States, residing at Montpelier, in the county of Washington and State of Vermont, have invented a new and useful Polishing-Wheel, of which the following is a specification.

The present invention appertains to polishing and grinding devices, and aims to provide a novel and improved appliance of that character for polishing and dressing stone, granite, and similar material to carry out the first process of leveling the material preparatory to the second or finishing process, known as "emerying."

It is the object of the invention to provide a device of the nature indicated which will provide a hard, smooth, uniform surface, the grinding or cutting abrasive being distributed to all parts of the wheel, and the finer and harder the surface, the quicker and better is the desired result accomplished.

It is also within the scope of the invention to provide a polishing wheel which is improved generally in construction and details, to enhance the utility, efficiency and durability of the device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a face view of the improved polisher.

Fig. 2 is an edge elevation thereof, portions being broken away and shown in section.

Fig. 3 is a reverse or back view of the wheel.

The polishing wheel embodies a disk or plate 1 of any suitable material, and provided with a central opening 2, which is bridged by an attaching member 3 bolted or otherwise fastened at its ends to the rear surface of the disk. The member 3 has a pair of outstanding lugs 4 to receive the end of a rotary shaft therebetween, to which the disk is fastened by means of a securing element 5 engageable through the lugs and shaft (not shown).

Disposed upon the face of the disk 1 is an annular series of spirally arranged grinding or cutting blades, of which there are two arcuate sets, each including the blades 6, 7, 8, 9, 10 and 11. As illustrated, most of the blades are curved spirally, although the blades 8 are straight, and the blades are disposed obliquely in the same direction relative to the circumference of the disk. The blades are arranged at substantially angles of 135 degrees to the radii intersecting the blades. Also carried by the face of the disk are two diametrically opposite feeding blades or flanges 12, each extending through an arc of about 180 degrees, said flanges being disposed next outside the respective sets of grinding blades, and also being disposed spirally. The outer ends of the flanges 12, which are nearest the edge of the disk are preferably curved, as at 13, these being the forward ends of the flanges, and said flanges extend gradually away from the edge of the disk from their forward to their rear ends. The ends of the two flanges are located near one another and are spaced apart, the rear ends of the flanges being spaced inwardly from the forward ends of the other flanges. The grinding blades and flanges are secured detachably to the face of the disk by means of bolts 14 or other securing elements engaged through the disk and taking into the blades and flanges. Thus, the blades and flanges can be readily removed individually, and replaced when worn out or broken. It is to be noted that the first blade 6 of each set extends inwardly from a point near the forward end of the flange 12, while the last blade 11 of each set extends inwardly from a point near the rear end of the respective flange. The outer ends of the blades 6, 7, 8, 9, 10 and 11 of each set terminate at the margin of an imaginary ellipse indicated by dotted lines at E and are located closer to the respective flange 12 in succession, that is, the space between the outer end of the blade 6 and respective flange 12 is slightly wider than the space between the outer end of the blade 7 and flange 12, and the space between the outer end of the blade 8 and flange 12 is narrower than that between the outer end of the blade 7 and flange 12, and so on. Thus, the outer ends of the annular series of flanges are disposed substantially

in an elliptical line 15 whose minor axis is near the ends of the flanges 12.

In using the wheel, it is rotated in the direction of the arrow in Fig. 1, the outer ends of the flanges and blades being foremost, and the edges of said blades and flanges being in a plane parallel with the plane of the disks. When the grinding blades are brought against the surface of the material, they will grind or cut it away, and as the disk is moved about the surface, the forward ends of the feeding flanges 12 catch the loosened abrasive material, which will be directed inwardly along the inner surfaces of said flanges. The first blades 6 of the two sets will catch a portion of the abrasive material directed inwardly by the flanges, the second blades 7 will catch a portion of the material, and so on, whereby the material directed inwardly by feeding flanges will be distributed to the various blades, and the material will be directed inwardly by said blades throughout the surface of the wheel. The abrasive material is thus distributed along the edges of the grinding blades, and the grinding action is thereby rendered more effective, to produce a polished surface free from scratches, and hard, smooth and uniform in character. The wheel will not become clogged in use, and the blades can either be curved or straight, whichever is best under the circumstances.

Having thus described the invention, what is claimed as new is:—

A polishing wheel embodying a disk, opposed eccentrically arranged flanges upon one face of the disk with their advancing ends pointed and nearer the periphery of the disk than their other ends, said flanges being free of angles and being curved gradually from end to end, a series of grinding blades extending toward the center of the disk from points adjacent each of the flanges, each blade of each series being arranged with its inner ends along lines tangent to the middle portion of the disk, certain of the blades of each series being curved from end to end and one of the blades of each series being straight, all of the blades converging toward their inner ends, and the curved blades of each series being differently curved, the outer ends terminating at the margin of an imaginary ellipse between the flanges.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SAMUEL HOBERT MILLS.

Witnesses:

BRUCE MCDONALD,

FRANK J. MARSHALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."