

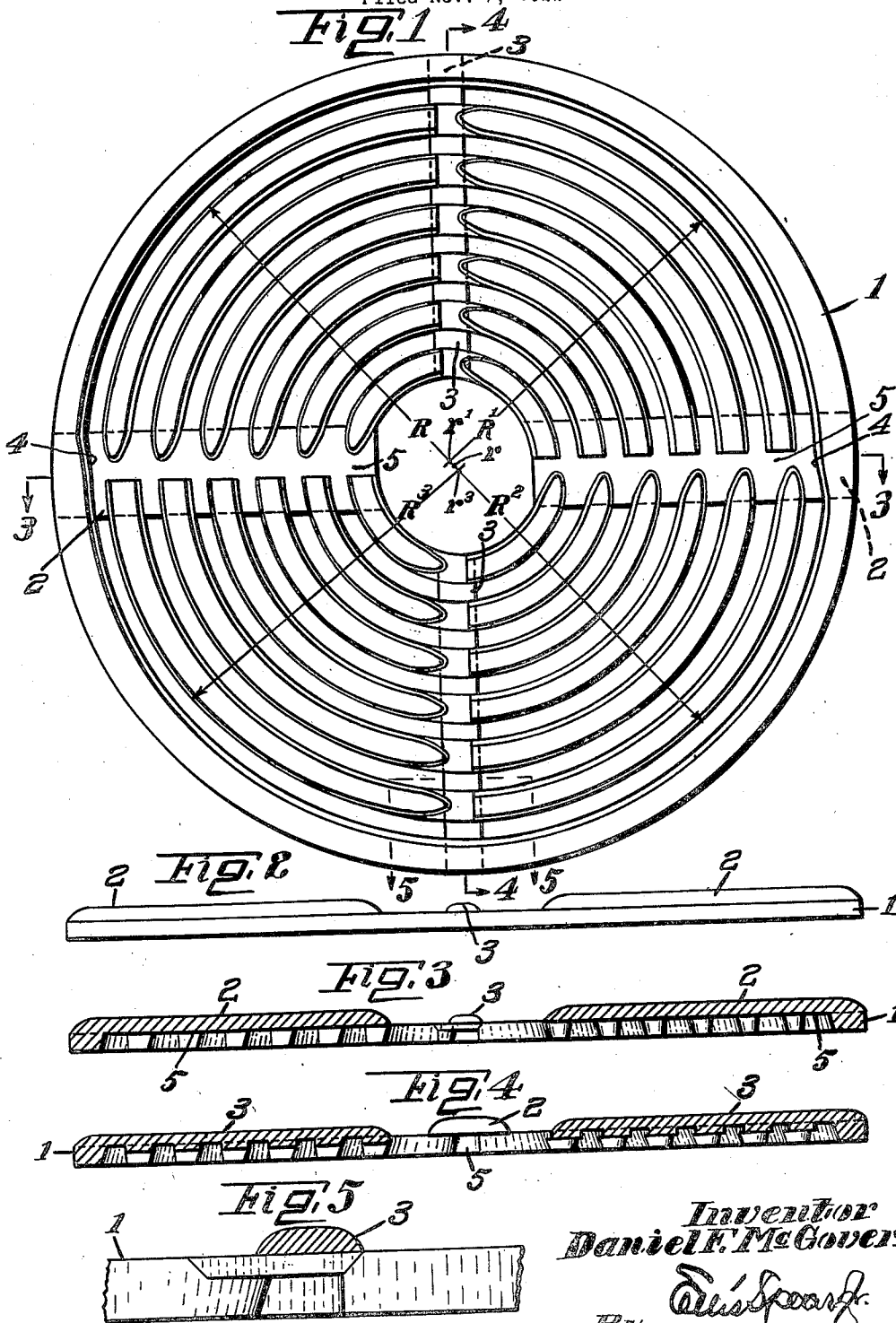
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D. F. MCGOVERN

EMERY WHEEL

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UNITED STATES PATENT OFFICE.

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EMERY WHEEL.

Application filed November 7, 1922. Serial No. 599,588.

To all whom it may concern:

Be it known that I, DANIEL F. MCGOVERN, a citizen of the United States, residing at Montpelier, county of Washington, State of Vermont, have invented certain new and useful Improvements in Emery Wheels, of which the following is a specification.

This invention relates to emery wheels, and consists in the novel combination and relation of parts described and illustrated in the accompanying specification and drawings, and particularly pointed out in the appended claims.

For the purposes of this application, I shall discuss my improved emery wheel in its adaptation to the stone polishing art, although it will be understood that this treatment is purely illustrative and in no way limiting.

The working face of the ordinary emery wheel is provided with a series of spaced concentric solid rings. The abrasive feeds slowly under these rings as the operative moves the emery wheel over the stone, but on account of the solid unbroken arrangement of the concentric rings, the feed of the abrasive is apt to be inadequate, thereby lessening the cutting efficiency of the ring.

To overcome this objection, the rings have been variously arranged about the working face of the wheel. In one characteristic type, the working face of the wheel is covered by two sets of spaced scrolls and the scrolls of one set terminate between the channels of the opposite scroll set. In another type, the flanges of each set are concentric and the centers of the sets are laterally spaced from each other to produce this same result. While both of the types mentioned have advantages over the solid ring wheel, neither possesses that degree of cutting efficiency which present-day methods demand.

To the end therefore of providing an emery wheel having an increased cutting capacity as compared with existing wheels, and which may be more readily moved back and forth over the stone by the operative, I have devised my present invention. In it, the working face of the emery wheel is provided with a plurality of radially spaced sets of segmental flanges. The flanges of each set are concentric, and the spaces between the several sets of flanges constitute radial channels communicating with the circumferential channels separating the con-

centric flanges of each set. These radial channels permit the abrasive to work from the center outwardly towards the periphery of the wheel as the wheel is moved over the stone. Certain of the flange sets, moreover, are eccentric to each other so that the flanges of one set do not accurately track the flanges of the adjacent set. This offset arrangement in combination with the radial feed channels results in a constant "churning" action whereby the abrasive is scattered over the entire working face of the emery wheel. The superior distribution of the abrasive thus obtained materially increases the cutting efficiency of my emery wheel and permits it to be more easily manipulated by the operative. In the drawings:

Fig. 1 is a bottom plan view of an emery wheel in accordance with my invention.

Fig. 2 is a side elevation thereof.

Figs. 3 and 4 are sections on the line 3—3 and 4—4, respectively of Fig. 1, and

Fig. 5 is a section on the line 5—5 of Fig. 1.

I have indicated at 1 a circular plate or disc constituting the body portion of the emery wheel and at 2 and 3, respectively, broad and narrow webs which extend radially across the top face of said disc, and, as here shown, divide it into quadrant-shaped sectors.

The periphery of the disc extends as a continuous unbroken rim. The inner face of said rim is provided with oppositely disposed offsets or swells 4 which partially fill the channel between said rim and the outermost flanges of the four spaced sets of segmental flanges which cover the working face of the wheel shown in the present drawing.

The spaced sets of segmental flanges are indicated by the radii R , R' , R^2 , and R^3 . All flanges of each set are concentric to and spaced from each other to provide intervening circumferentially extending channels between which the abrasive works. The flange sets themselves are spaced from each other to provide radial channels 5 along which the abrasive feeds from the center towards the periphery of the wheel as the wheel is moved over the stone. Preferably, the channels 5 lie directly under the webs 2 and 3.

As here shown, the flange sets R and R^2 have a common center r and hence the flanges of said sets are concentric to each other. The center r' for the flange set R'

is laterally offset (to the left in Fig. 1) relative to the common center r for the sets R and R^2 and the centers r^3 for the group R^3 is laterally offset (to the right in Fig. 1) relative to said center r . The centers r' and r^3 are thus disposed on opposite sides of a plane passing vertically through the center r . This offset arrangement staggers the flanges of the respective sets relative to each other so that the flanges of one set do not accurately track the flanges of the adjacent set.

The edges of all the flanges in each set and the inner face of the continuous peripheral flange of the disc are beveled, as clearly shown in the sectional views, to facilitate the travel of the abrasive along the circumferential channels of the disc and the leading ends of all flanges are preferably sharpened for a similar purpose as regards the radial channels of the disc.

In the use of the wheel, the shallow pocket at the center of the wheel is brought over the abrasive piled on the stone and the abrasive is picked up by the flanges and progressively worked along the circumferential and radial feed channels towards the periphery of the wheel as the wheel is moved over the stone. This insures an adequate supply of abrasive to all of the cutting flanges and by reason of the superior distribution of the abrasive thus obtained, the cutting efficiency of the wheel is materially increased.

Various modifications in the form and construction of my device may obviously be resorted to without departing from the spirit of my invention if within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. An emery wheel comprising a disc having on its working face four sets of spaced concentric flanges R, R' , R^2 and R^3 , the

flange sets R and R' being disposed on one side of a plane passing transversely through the center of the disc and the flange sets R^2 and R^3 being disposed on the opposite side of said plane and all of said flange sets being radially spaced from each other to provide continuous channels for the passage of the abrasive extending from the center to the periphery of the disc, the center r for the flange set R being offset laterally relative to the center r' for the flange set R' so as to offset the flanges of said sets R and R' relative to each other.

2. An emery wheel comprising a disc having on its working face four sets of spaced segmental flanges R, R' , R^2 and R^3 , all of said flange sets being radially spaced from each other to provide continuous channels for the passage of the abrasive extending from the center to the periphery of the disc, the flange sets R and R^2 having a common center r and the center r' and r^3 for the flange sets R' and R^3 being offset laterally on either side of a plane passing vertically through said common center, and the periphery of the disc extending as a continuous unbroken rim and having oppositely disposed offset portions on its inner face extending partly into the channel between said rim and the outermost flanges of the flange set.

3. In an emery wheel, a plurality of sector shaped flange sets, the flanges of each set comprising segments concentric with each other and radially spaced to form abrasive channels, some of the flange sets being concentric with the rotative axis of the wheel and others eccentric thereto.

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

DANIEL FREDRICK McGOVERN.

Witnesses:

R. R. PIERCE,
R. E. LYONS.