

J. KLAR.
HEAD FOR POLISHING STONE.

No. 451,327.

Patented Apr. 28, 1891.

FIG. 1.

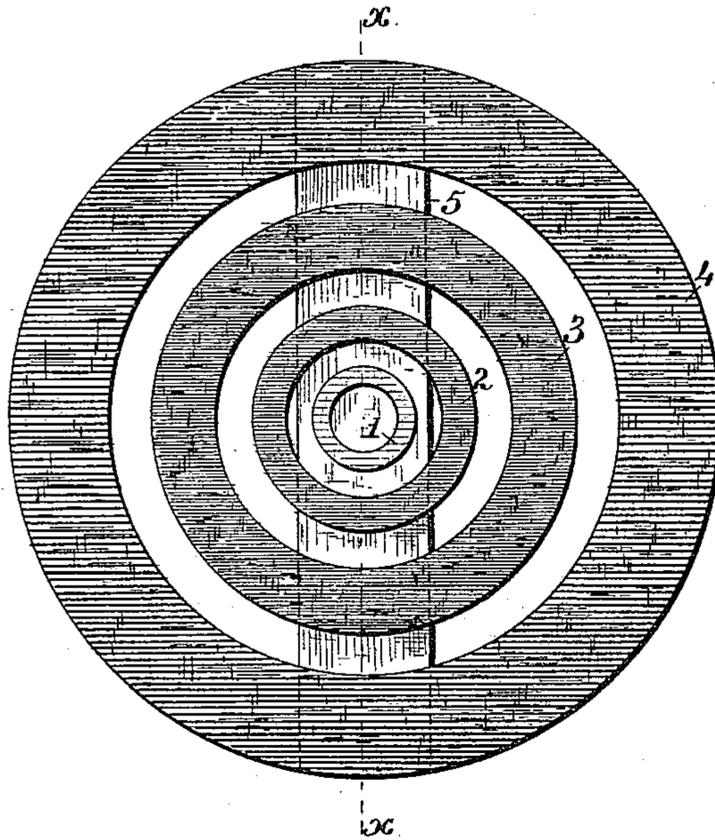
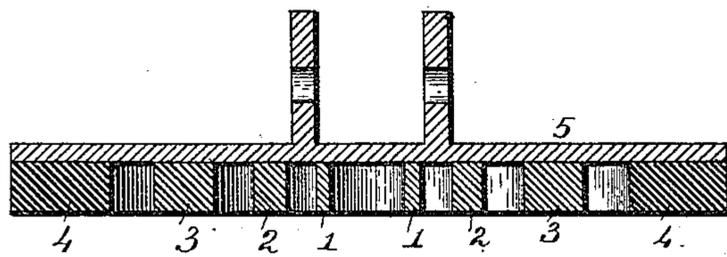


FIG. 2.



ATTEST.

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FIG. 3.

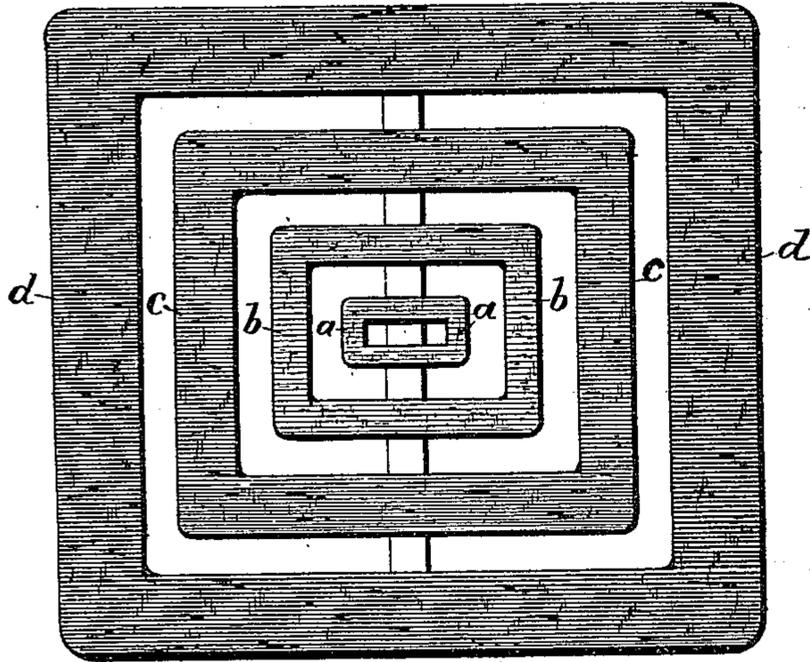
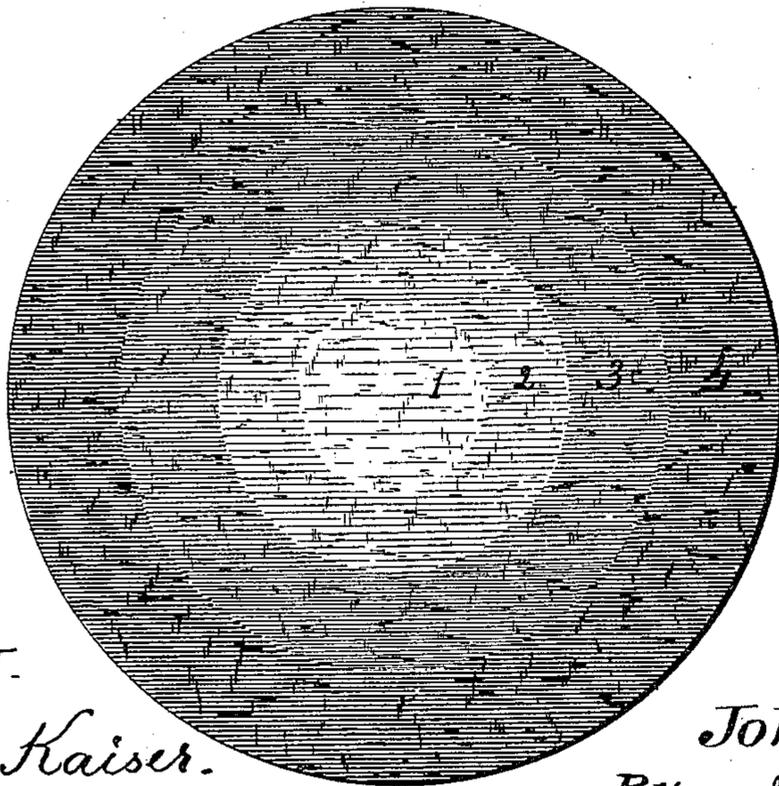


FIG. 4.



ATTEST.

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UNITED STATES PATENT OFFICE.

JOHN KLAR, OF WESTFIELD, MASSACHUSETTS.

HEAD FOR POLISHING STONE.

SPECIFICATION forming part of Letters Patent No. 451,327, dated April 28, 1891.

Application filed July 5, 1890. Serial No. 357,890. (No model.)

To all whom it may concern:

Be it known that I, JOHN KLAR, a citizen of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Heads for Polishing Stone, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a head for polishing stone or other material, especially granite, and has for its object a polishing or grinding head simple and durable of construction, capable of attachment to any polishing-machine, and which will wear equally and evenly on its entire contact-surface.

In the drawings, Figure 1 is a plan view of the head. Fig. 2 is a section through the line $x x$ of Fig. 1. Fig. 3 is a plan view showing rubbing-surfaces essentially rectangular in form. Fig. 4 is a plan view of a solid polishing-head.

Similar figures of reference indicate corresponding parts.

The polishing-head is a series of rubbing-surfaces which consist of spaced concentric rings or bands of any desired number, but for illustration numbered in the drawings herein 1 2 3 4, preferably of metal and cast integral with or rigidly secured to the upper metallic cross-bar 5, (shown in section in Fig. 2,) which serves to properly space and also brace and strengthen the rings or bands, and which is susceptible of being attached to any polishing-machine. The cross-bar is indicated in dotted lines in the drawings and marked 5. The rings or bands may be of any desired contour. They are shown in circular form in Fig. 1 of the drawings, and essentially rectangular in Fig. 3, marked in the latter $a, b, c,$ and d . The attachment of the rubbing-surfaces to the cross-bar are essentially the same in my present device as in Patent No. 416,462.

Experience has shown that the outer rings or bands in a polishing-head as at present constructed wear much more rapidly than the inner, and in time only the inner surface of the head contacts with the substance to be polished. This increased wear is mainly, if not wholly, due to the greater space traversed

by the periphery of the outer rings or bands or outer edge thereof and consequent increased speed and friction at that point over a point at or near the center, such friction decreasing as the center is approached, resulting in a decrease of wear of heads toward the center as at present constructed and consequent inequality of the polishing-surface. I overcome the above-described difficulty by arranging or constructing the rings or bands in either of the three following ways: first, by making the outer rings or bands of greater width than the inner, graduating the width from the inner ring 1 to the outer ring or band 4, so that the increased width of the outermost ring or band over the innermost and each interior ring or band will bear a just proportion to the friction to which each ring or band by its position outwardly from the center is subjected; second, by decreasing the space between the rings or bands from the innermost ring or band 1 to the outermost ring or band 4, the spaces being decreased by regular gradations, thus presenting a greater contact of polishing-surface on the outer portion of the head than on the inner, such surface decreasing in regular gradations from the outer edge inwardly; third, by making the outer rings or bands of harder metal or substance than the inner, graduating the degree of hardness increasing from the inner ring or band outwardly by regular gradations throughout the rings from 1 to 4, so that each part will equally resist the friction to which it is subjected by its position.

It is not practicable to indicate in either arrangement or construction of the rings or bands herein described the exact width of the outer ring or band or its exact degree of hardness with reference to those inward, nor the exact gradation of decreasing space from the innermost ring or band to the outermost. That depends upon the material of which the rings or bands are constructed and the number thereof. It is plain the same result may measurably be attained by constructing the polishing-head solid and graduating the hardness of the metal, increasing from center to outer edge; but it is preferable to form it of rings or bands graduated in width, space, or hardness, as herein fully described.

Having described my invention, what I claim and desire to secure by Letters Patent, is—

- 5 1. A polishing-head consisting of rubbing-surfaces rigidly attached to a cross-bar, the said rubbing-surfaces being of graduated width, increasing by regular gradations from the innermost to the outermost rubbing-surface, as and for the purposes described.
- 10 2. A polishing-head consisting of rubbing-surfaces rigidly attached to a cross-bar, said rubbing-surfaces being graduated in their separating distances, decreasing by regular gradations from the innermost rubbing-sur-

face outwardly, as and for the purpose described. 15

3. A polishing-head consisting of rubbing-surfaces rigidly attached to a cross-bar, said rubbing-surfaces being of gradually-increasing hardness from the innermost to the outermost thereof, as and for the purposes described. 20

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

JOHN KLAR. [L. S.]

Witnesses:

H. H. TORREY,
C. E. BAXTER.