Oct. 15, 1946. A. KRATKY 2,409,363

GRINDING AND POLISHING TOOL

Filed Jan. 14, 1944

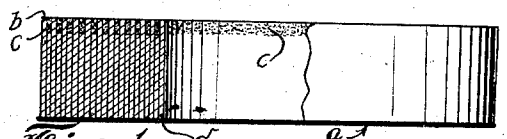


Fig. 1.



Fig. 2.

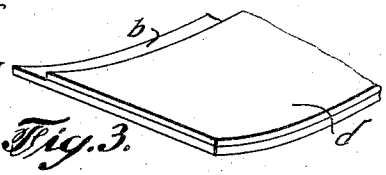


Fig. 3.

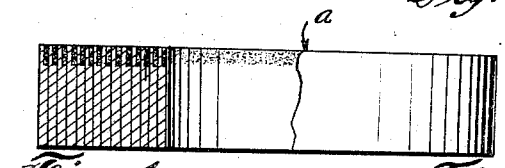


Fig. 4.



Fig. 5.

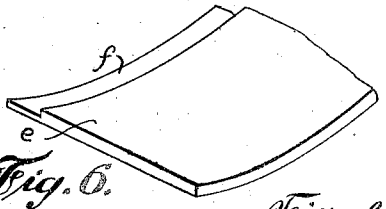


Fig. 6.

Fig. 7.

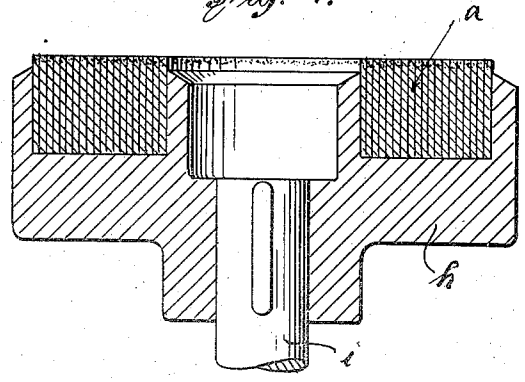


Fig. 8.

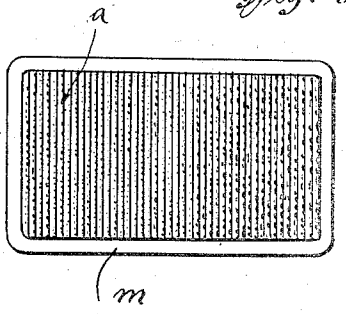


Fig. 9.

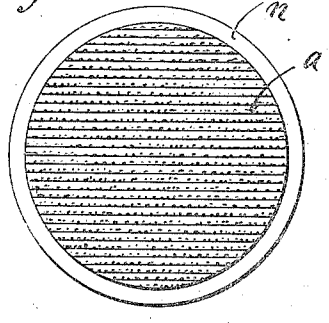


Fig. 10.

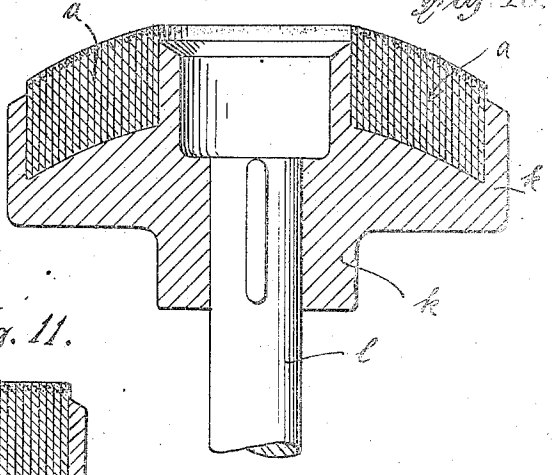
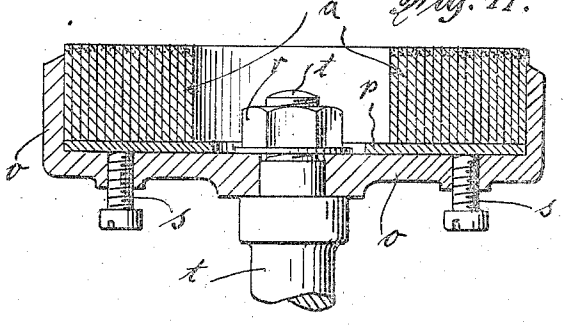


Fig. 11.



INVENTOR.

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GRINDING AND POLISHING TOOL

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Application January 14, 1944, Serial No. 518,482

3 Claims. (Cl. 51—209)

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This invention relates to grinding and polishing disks, also to other grinding and polishing bodies, and, in view of its more specific features, to a grinding disk or grinding plate for the grinding, or to polishing disks for the polishing, of objects such as glasses, glass lenses, glass prisms, hard carbides, steel tools, jewels, etc.

The drawing represents several forms of the invention.

Figs. 1–3 show one embodiment of the invention, in Fig. 1 in cross section, in Fig. 2 in an enlarged scale and in Fig. 3 in a perspective view.

Figs. 4–6 illustrate another embodiment of the invention, in Fig. 4 in cross-section, in Fig. 5 the said cross section in an enlarged scale and in Fig. 6 in a perspective view.

Fig. 7 shows an arrangement of the grinding disk applied to a rotatable mounted plate.

Figs. 8 and 9 show furthermore other embodiments of the invention.

Figs. 10 and 11 show different embodiments of a tool according to the invention.

Figure 1 shows a spiral body, the spiral body consists of two strips, one of which is slightly narrower than the other one as shown in Figures 2 and 3. The grinding powder is pressed, or squeezed, into the thus created slits (Figure 2). The two strips may be made of identical or different materials, e. g., the wide strip may be of steel, the narrower one of paper, or another suitable material, such as copper, leather, brass, Cellophane, Celluloid, etc.

Figure 4 shows a different construction of the spiral body. In this case, a groove of the proper width and depth is cut into the upper side of the strip, in order to make it weaker (Figures 5 and 6). The grinding powder is pressed into the gaps thus created.

In all these embodiments each spiral roll formed by a strip always contains narrow, hardly visible slits, filled with air, between the individual windings. According to the principle of this invention, these slits are utilized in order to press fine grinding or polishing powder into them which can be accomplished, with the aid of oil, water, etc., if necessary. Figure 7 shows a spiral body *a*, according to Figures 1 and 4, inserted into a plate *h* revolving on a vertically arranged axis *i*, used as a grinding or polishing tool.

Fig. 8 shows an embodiment of the invention formed of plates *a* of different height arranged within a rectangular frame *m* and Fig. 9 shows an embodiment in which plates *a* of different length are arranged within a circular frame *n*.

Figure 10 is the illustration of another embodiment of a tool with a curved spiral body, so that the working surface is made convex.

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Fig. 11 shows a variation of the construction of the tool, where the spiral body is first centered by means of the bottom screws *s*, on the other hand, however, by means of these same screws it can be raised to such extent as required by the wear and tear of the working surface. *o* indicates a disk, on which the spiral body is resting. The plate can also be magnetized, or it may form a magnet in itself, holding the spiral body firm by magnetic force.

This invention is not limited to a grinder formed by a spiral coiled strip. The strip can also be cut in many pieces, which then are arranged next to each other and pressed into a frame as shown in Figs. 8 and 9. These bodies can in such case be constructed and finished exactly like the spiral bodies, as described hereinabove and as illustrated by Figures 2 and 5.

Strips, or cuts of strips, of thin sheet steel are best suitable for the manufacture of the grinding bodies constructed in the manner illustrated in Figures 1 to 11. Until now it has not been possible to embed (i. e. to roll or hammer) diamond powder into tempered steel, although numerous futile attempts have been made to accomplish this purpose. This invention now supplies the practical solution of this problem, heretofore considered to be unsolvable.

Metal powders or organic substances, also other hard materials, such as hard carbides, hard nitrides in granular or powder form, too, may be added to the grinding powder used. But also after the grinders are finished, their surfaces can be given a coating of liquid resin, metals or metal alloys, in order to hold the grinding material more firmly in position, if necessary.

Having now described my invention, that which I claim as new, and for which I desire to secure Letters Patent, is:

1. A grinding and polishing body formed of bands of different breadth the bands being alternately wider and narrower, in such a manner that next to a wide band there is always a narrower band the abrasive grains being pressed into the gaps formed between the bands of the greater breadth.

2. A grinding and polishing body, formed by two bands wound into a spiral body, one of these bands being narrower than the other.

3. A grinding and polishing body formed by two bands wound into a spiral coil, one of the said bands being a steel band and the other one a paper band.

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