(No Model.)

E. P. MacLEAN.

APPARATUS FOR CUTTING, SHARPENING, AND POLISHING TOOLS.

No. 451,509. Patented May 5, 1891.

Fig: 1.

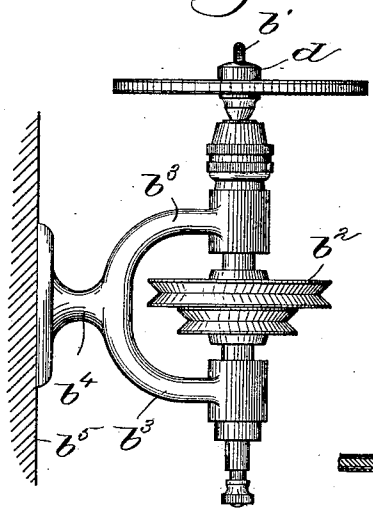


Fig: 3

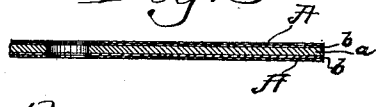
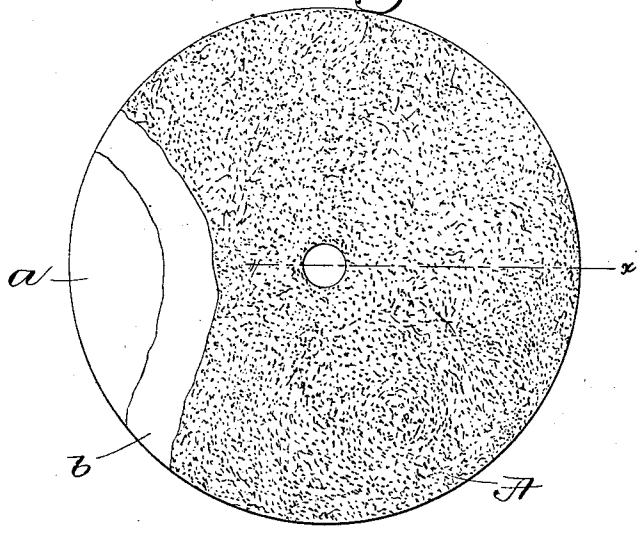


Fig: 2.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD P. MACLEAN, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR CUTTING, SHARPENING, AND POLISHING TOOLS.

SPECIFICATION forming part of Letters Patent No. 451,509, dated May 5, 1891.

Application filed August 20, 1889. Serial No. 321,385. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. MACLEAN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Apparatus for Sharpening Instruments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a novel apparatus for cutting and sharpening and polishing tools, my improved apparatus being especially adapted for cutting and sharpening and polishing instruments requiring a fine edge, such as surgical instruments.

By a series of long-continued experiments I have ascertained that a finer cutting-edge may be obtained by means of emery or corundum paper or cloth applied to a rigid support having a flat surface and capable of being revolved when in use. The emery-paper, preferably in the form of a disk and of any degree of fineness, according to the fineness of the edge desired, is applied to a rigid support, preferably a disk of metal—such as iron, tin, &c.—the said emery-paper being secured to the metal disk by a suitable cap. The disks of metal and emery-paper are placed upon a mandrel capable of being revolved in any usual manner, and they are secured thereon by the cap referred to.

My invention therefore consists, essentially, in the combination, with a vertically-revolving mandrel, of a cutting and sharpening instrument secured thereto, it consisting of a rigid support having a flat surface and emery or corundum cloth or paper applied to said flat surface and secured thereto at its center, its periphery being free, substantially as will be described.

Figure 1 is a side elevation of an apparatus or machine for cutting and sharpening tools embodying my invention; Fig. 2, a top or plan view broken out of the disks removed from Fig. 1; and Fig. 3, a section of the disks on line x x, Fig. 2.

A represents the disk of emery or corundum paper or cloth of any degree of fineness, which, as shown in Figs. 1 and 2, is applied to a support, preferably a disk a, of hard or solid material, such as iron, which is stamped or cut out in any usual manner. A disk b, of blotting-paper, rubber, or other soft or yielding material, may be applied to the supporting-disk a, so as to interpose between the disk a and the disk A of emery-paper a pad or flexible backing. The disk of metal and emery-paper, together with the interposed pad when a pad is used, are placed upon a mandrel or spindle b', provided with a driving-pulley b^2, adapted to be driven by a suitable belt, (not shown,) the said mandrel being supported, as herein shown, in arms b^3 of a bracket b^4, secured to any suitable base or support b^5. The disks are firmly secured on the mandrel at their centers by a suitable cap d or in any other desired manner at their centers, the peripheries of the disks of emery cloth or paper having no connection with the supporting-disk.

In practice the knife or other instrument to be sharpened is laid with its edge upon and in contact with the emery-paper, and is held so that the paper revolves or moves away from the edge of the instrument, only the pressure exerted on the instrument keeping successive portions of the emery-paper disk in contact with the rigid support as it revolves.

The instrument is held in contact with the emery-paper until a feather-edge appears, and if a very sharp or fine edge is desired the knife is brought in contact with another emery-disk of a finer quality until the feather-edge disappears, at which time the instrument has imparted to it a perfect edge.

By means of the emery-paper all water, oil, or lather, such as is commonly used in sharpening instruments, is entirely obviated, and as a result the edge of the instrument is always in view, so that danger of going by the point where the right degree of sharpness is obtained—namely, at the disappearance of the "feather-edge"—is obviated.

I prefer to employ metal disks; but other material may be used—as, for instance, wood, hard rubber, &c.

I am aware that emery cloth or paper has been regarded as a substitute for sand-paper for buffing, &c.; but I am not aware that emery cloth or paper secured to a rigid and verti-

cally-revolving support having a flat face has been used for sharpening fine instruments prior to my invention.

I claim—

The combination, with a vertically-revolving mandrel, of a cutting and sharpening instrument secured thereto, it consisting of a rigid support having a flat surface and emery or corundum cloth or paper applied to said flat surface and secured thereto at its center, its periphery being free, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD P. MACLEAN.

Witnesses:
JAS. H. CHURCHILL,
FREDERICK L. EMERY.