(Model.)

J. A. KIMBALL.

Lathe Arbor and Polishing Coil.

No. 240,829. **Patented May 3, 1881.**

Fig. 1.

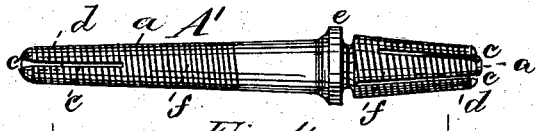


Fig. 5.

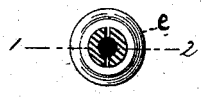


Fig. 4.

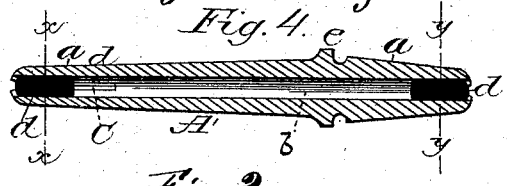


Fig. 6.

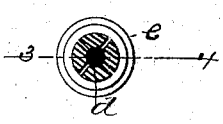


Fig. 2.

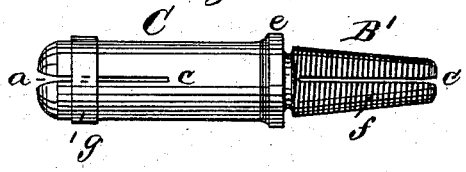


Fig. 3.

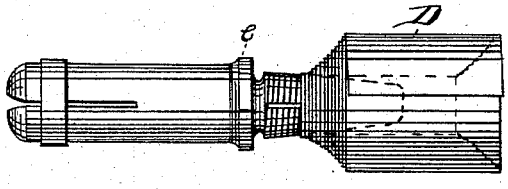


Fig. 7.

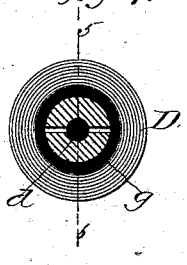
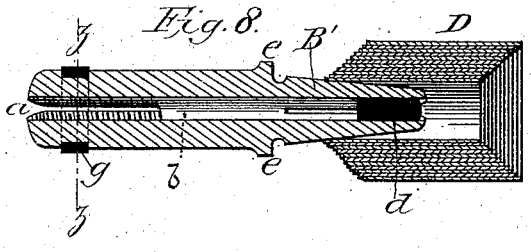


Fig. 8.



Witnesses.
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UNITED STATES PATENT OFFICE.

J. ALBERT KIMBALL, OF NEW YORK, N. Y.

LATHE-ARBOR AND POLISHING-COIL.

SPECIFICATION forming part of Letters Patent No. 240,829, dated May 3, 1881.

Application filed November 4, 1880. (Model.)

To all whom it may concern:

Be it known that I, J. ALBERT KIMBALL, of the city, county, and State of New York, have invented a new and useful improvement in arbors suitable to be used in connection with polishing-lathes, and also in friction wheels or cylinders to be rotated with said arbors, of which the following is a specification.

My invention relates particularly to a class of lathes employed by dentists and jewelers in fitting and polishing their work. Heretofore this has been done, for the most part, by means of emery-wheels or cylinders of sand-paper, consisting of a single coil fixed upon wooden or metallic arbors and revolved therewith; but the difficulties encountered in the use of wooden arbors as now constructed have been their tendency to be thrown off or out of the revolving spindle or chuck of the lathe proper by the centrifugal force engendered by rapid revolution. Much delay and inconvenience, too, have hitherto been occasioned by the frequent renewals of the sand-paper cylinders required in their use.

My invention is designed to remedy these defects.

It consists in giving a certain elasticity to the wooden arbors at the point of contact, either within the hollow or tubular lathe-chuck or upon the lathe-spindle with which it revolves. This I accomplish in the following manner: I bore the center out and slit the ends, by one or more saw-cuts, to a distance of about one and a half inch. I then fill the center vacuum of the tapered end with a core of india-rubber or other elastic substance. I also corrugate the cone-shaped portion or cut thereon a screw-thread, which, together with the saw-cuts and rubber core, greatly increases its hold within the chuck and effectually prevents the arbor from being ejected therefrom. I pass a ring of india-rubber around the blunt end near the center opening, which is left free to receive the spindle. I also cut an interior screw-thread in the arbor to increase its hold upon the spindle. These arbors may be of any suitable material.

I form my friction-coils, to be affixed to the arbors and revolved therewith, in the following manner, to wit: I first cut sand-paper into strips of the required width—say from one-half to one and a half inch—and roll the strips into a compact coil, leaving a hollow center of the required dimensions, within which I form spiral recesses to receive the screw-threads of the arbor. This coil may be straight-sided or concave on one side and convex on the reverse side, or otherwise, accordingly as desired. When made, I glue or cement the edges together, so that it can be unrolled and divided layer after layer as its exposed surface is worn out. It is obvious that in use the revolution should be in the direction of the coil.

Referring to the drawings, in which similar letters of reference indicate like parts, Figure 1 is a representation of my invention of a wooden arbor or spindle, designed to be inserted in the hollow end of the lathe-chuck, the opposite tapering portion being that upon which the polishing-coil is affixed and with which it revolves. Fig. 2 is a drawing of an arbor suited to be fixed upon the lathe-spindle at its banded end, the opposite end serving as in Fig. 1. Figs. 4 and 8 are longitudinal sections of the arbor. Figs. 5 and 6 are transverse sections on the lines *x x* and *y y*, Fig. 4. Fig. 7 is a transverse section on the lines *z z*, Fig. 8.

a a are the cone-shaped portions of said arbor. *b b* are the bored-out center. *c c* are saw-cuts. *d d* are india-rubber cores forced into the center bores, *b b*. *e* is a bead or shoulder projection between the two cone-shaped portions of the arbor, or between the banded end and the cone. *f f f* are the screw-threads or corrugations cut on the tapering or cone-shaped parts, and *g* is the india-rubber band near the blunt end, intended to encircle and overlap the spindle of the lathe.

In some instances, especially in respect to a larger class of arbors, the rubber core may be omitted.

Fig. 3 is a drawing of my friction-coil as it appears when affixed to the wooden arbor.

I make no claim to the invention of wooden arbors or spindles to be used in connection with polishing-lathes, nor to the invention of single coils or cylinders of sand-paper to be so used, as the same have been used heretofore; but

What I claim as my invention is—

1. A lathe arbor or spindle constructed of

wood or other suitable material, having one cone-shaped or tapering portion, *a*, and one cylindrical portion, inwardly-slitted ends *c c*, bored-out center *b b*, the central cavity of the tapered portion being filled at the end with an india-rubber core, *d*, and the cylindrical portion being encircled with an elastic band, *g*, at the slitted end, near the center cavity, and screw-threads or corrugations *f f f*, cut upon the outer surface of the tapered portions, and also within the open central cavity of the cylinder-shaped portion, in the manner and for the purpose herein described.

2. In combination with the threaded cone-shaped portion of a lathe arbor or spindle, *a*, the friction-coil D, substantially as and for the purposes set forth and described.

J. ALBERT KIMBALL.

Witnesses:
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