(No Model.)

J. W. BYERS.

FLEXIBLE ABRASIVE OR POLISHING DISK.

No. 336,695. Patented Feb. 23, 1886.

Fig. 1.

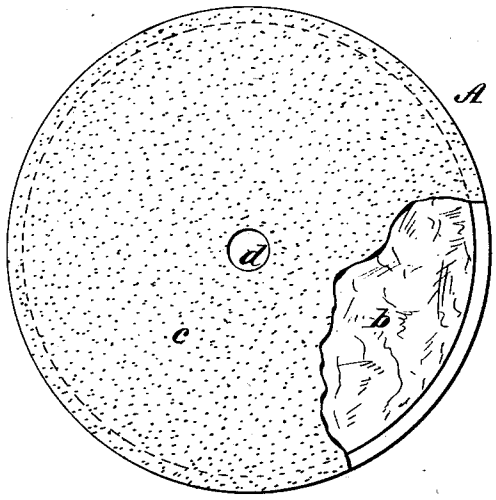


Fig. 3.

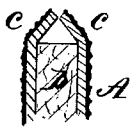


Fig. 2.

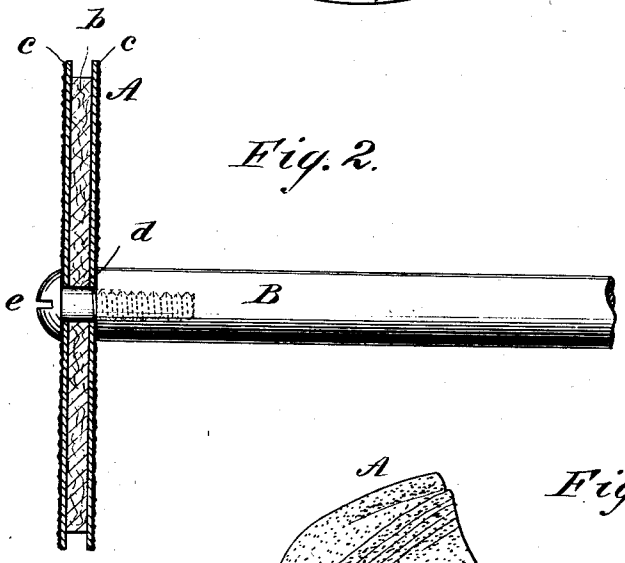
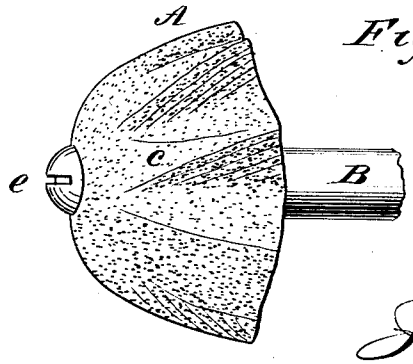


Fig. 4.



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FLEXIBLE ABRASIVE OR POLISHING DISK.

SPECIFICATION forming part of Letters Patent No. 336,695, dated February 23, 1886.

Application filed May 21, 1885. Serial No. 166,305. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. BYERS, of Charleston, in the county of Coles and State of Illinois, have invented a new and Improved Flexible Abrasive or Polishing Disk, of which the following is a full, clear, and exact description.

This invention is more especially designed for use by dentists on artificial plates or plates of false teeth, and as a device essentially differs from other flexible and abrading devices for operation on natural teeth.

The invention consists in a disk having a circular body of flexible material and circular outside layers of flexible material having an abrasive substance on and over their outer faces on opposite sides of the body to which they are cemented, and arranged to project beyond the perimeter of said body. This flexible, pliable, and elastic disk, when used for the purpose for which it is especially designed—namely, for dressing and finishing rubber plates and artificial dentures—is carried on the mandrel of a lathe such as used by dentists in connection with their laboratory-work.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a partly broken side or face view of a flexible abrading and polishing disk embodying my invention. Fig. 2 is a transverse section of the same as applied to the mandrel of the lathe. Fig. 3 is a transverse section, upon a larger scale, of the disk in part, with its abrading-layers having their projecting marginal portions bent over the perimeter of the body of the disk to form a cutting-edge; and Fig. 4, a view in perspective of the disk applied to the lathe-mandrel and forced down over the head of said mandrel, which is the position the disk would assume when it is used to work on the palatine surface.

The following brief statement will serve to better explain the objects and advantages of my invention: Dentists have heretofore, after taking the plate out of the vulcanizer, spent much time and labor in removing adherent particles and surplus material, first using a file and vulcanite burr and then a steel scraper, piece of glass, and other implements of similar character, followed up by sand and emery paper, held either by a carrier or between the fingers, and afterward polishing with pumice-stone and the brush-wheel. This not only necessarily consumes much time and labor, but often subjects the plate to breakage from the pressure brought to bear upon it in thus cutting and finishing it. My improved device is designed to completely supersede the file, vulcanite burr, scraper, glass, and other clumsy expedients and implements heretofore regarded as indispensable to the dentist in connection with the finishing of artificial plates, and it serves to render the work both easier and pleasanter, avoiding injury to the fingers and breakage of the work, and producing better-finished work in less time than was required under the old method.

The flexible disk A represented in the drawings has a flat circular body, *b*, made of cloth, rubber, leather, or other flexible material that will remain pliable during the process of manufacture. This circular body *b* is entirely covered on its opposite faces with circular abrading or cutting layers *c c* of flexible material, such as sand-paper or other abrasive flexible material having the necessary dressing, grinding, and polishing qualities. These outside abrasive layers *c c* are of larger diameter than the body *b* of the disk, so as to extend beyond the perimeter of said body, thus forming peripheral flanges, which are bent down over the outer margin of the body *b*, and form the abrading-edge of the disk. Said outside flexible abrasive layers, *c c*, are secured by glue or other cement to the opposite faces of the flexible body *b* of the disk. This disk A is provided with a hole, *d*, in its center, to admit of its being passed onto the shaft or mandrel B of the lathe, and to which it may be secured by a screw, *e*, or otherwise. The entire surfaces of both of its sides or faces, as well as its outer edge or perimeter, are to be used in the work. When rapidly rotated in the lathe in dressing the rim and sides of the plate under manipulation, said disk becomes worn and softened, and is then readily forced down into the more inaccessible places—such as the palatine surface, commonly known as the "roof," or other concave surfaces—and in this manner, the disk

being bent over, as in Fig. 4, the cutting or abrading-surface of the disk lying near to and at the head of the mandrel is utilized.

The size of the disk may be varied. From one and one-half inch to two and one-half inches in diameter will generally suffice, however, for artificial plate-work.

By the disk having the abrading material applied over both of its sides or faces and overlapping the perimeter of its body on both sides, it may be reversed on the mandrel for operation from either side, and presents double grinding-faces and a grinding-edge, which will add materially to its usefulness and durability.

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

1. The within-described flexible abrading or polishing disk, composed of a circular body of flexible material and circular layers of flexible abrading material secured to and over said body on its opposite sides or faces, and arranged to extend beyond the outer margin or perimeter of the body, substantially as specified.

2. The combination, with the mandrel B, of the flexible abrading-disk A, having a flexible circular body, *b*, and flexible layers *c c* of abrading material on and over its opposite sides or faces and of greater diameter than the body, essentially as and for the purposes herein set forth.

JOSEPH W. BYERS.

Witnesses:
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