No. 781,587. PATENTED JAN. 31, 1905.

J. E. BLAKE.

# RUBBER DISK FOR DENTAL USE.

APPLICATION FILED OCT. 3, 1904.

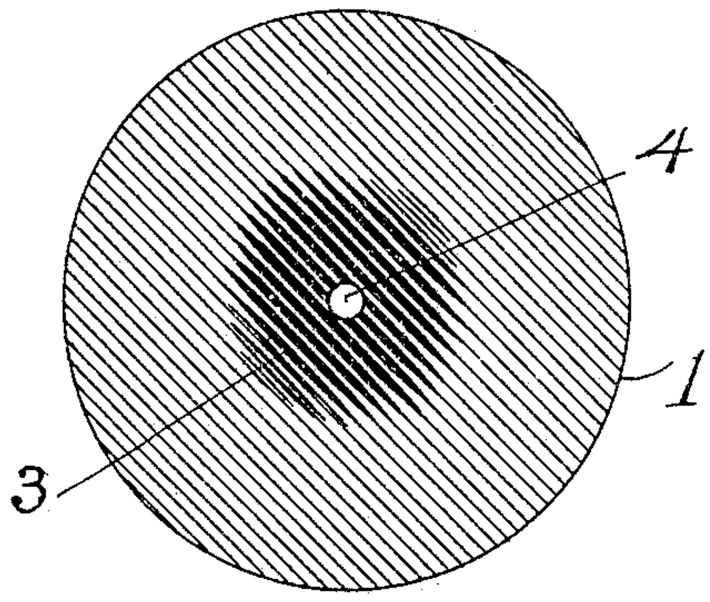


*Fig. 1*

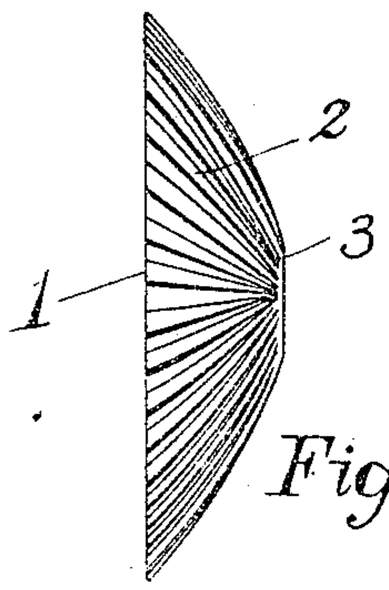


*Fig. 2*

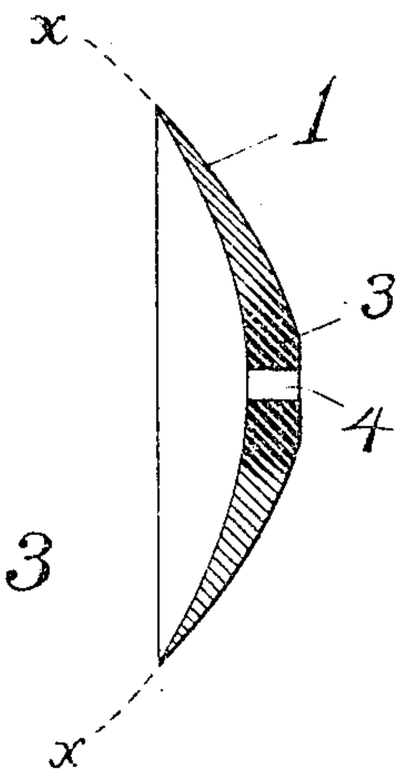


*Fig. 3*

Attest;

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No. 781,587. Patented January 31, 1905.

# UNITED STATES PATENT OFFICE.

JOSEPH EDGAR BLAKE, OF AMESBURY, MASSACHUSETTS.

## RUBBER DISK FOR DENTAL USE.

SPECIFICATION forming part of Letters Patent No. 781,587, dated January 31, 1905.

Application filed October 3, 1904. Serial No. 226,972.

*To all whom it may concern:*

Be it known that I, JOSEPH EDGAR BLAKE, a citizen of the United States, and a resident of Amesbury, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Rubber Disks for Dental Use, of which the following is a full, clear, and exact description.

It is customary in dental work to employ a soft-rubber disk fixed upon a revolving mandrel for the purpose of cleaning and polishing teeth, the rubber disk being a vehicle for carrying the powder or grit by which the work is performed. The great difficulty with this, however, is that the soft and yielding nature of the rubber renders it impossible for the disk to be held with certainty upon the mandrel.

The object of this invention is the construction of means whereby such soft-rubber disk can be provided with a hard center so incorporated with the soft rubber that the same cannot be separated and the disk will remain securely upon the mandrel. To cement a soft-rubber disk upon a hard center will not serve the purpose, for the reason that the soft rubber will tear away from the hard-rubber center and the disk be soon rendered useless.

My invention consists in forming the entire disk in one integral body of unvulcanized rubber and then vulcanizing the central section thereof to a different degree from the outer part, so that while the outer or working part shall be resilient and capable of performing the polishing and cleaning action desired the inner section shall be hard and inflexible, and so adapted to hold its position upon the mandrel with perfect firmness and security. Although the "expert" rubber-worker will deny the possibility of thus vulcanizing the two parts of the rubber in such varying degrees, yet I have done it and am continuing to do the same right along in the manufacture of these disks.

Referring to the drawings forming part of this specification, Figure 1 is a sectional view of the disk embodying my invention, such section being on the parabolic curve X X in Fig. 3. Fig. 2 is an edge view of the disk. Fig. 3 is a central transverse section of the same.

In the drawings, which are considerably magnified for the sake of more clearly exhibiting the invention, the reference-numeral 1 designates the soft-rubber or working part of the disk; 2, the corrugations which are usually formed in its surface to enable it to better perform the work of cleaning and polishing; 3, the hard and inflexible central part, and 4 the hole through which the supporting-mandrel is fastened. The hatching-lines in the two differently-vulcanized parts of the disk are made of different thicknesses in the drawings to indicate the hard and soft nature of the said sections, the heavy black lines indicating the hard and inflexible condition of the more heavily vulcanized center and the finer lines representing the soft outer part. The tapering or shading of these heavy lines into the fine ones represents the way in which the hard and soft rubber merge one into the other wholly without any sharp line of demarcation between them. By thus having the two vulcanizations merge one into the other the possibility of tearing the yielding rubber away from the resistant part of the rubber is reduced to a minimum, the disk maintaining inseparably its unyielding center rigid with the mandrel to which it may be fastened and its pliable polishing and cleaning outer portion.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

A polishing and cleaning disk for dental use composed of a body of rubber integral throughout, the central part of which is vulcanized hard and the peripheral part of which is given a soft vulcanization; there being no clear line of demarcation between such hard and soft parts but the same merging gradually one into the other through varying degrees of hardness and softness.

In testimony that I claim the foregoing invention I have hereunto set my hand this 28th day of September, 1904.

JOSEPH EDGAR BLAKE.

Witnesses:
A. W. REDDY, Jr.,
A. B. UPHAM.