No. 764,871. PATENTED JULY 12, 1904.

M. A. SPARKS.

DENTAL PROCESS.

APPLICATION FILED NOV. 27, 1903.

NO MODEL.

Fig. 1.

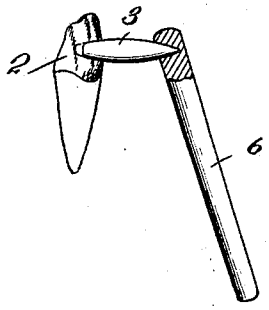


Fig. 2.

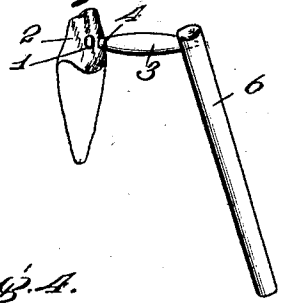


Fig. 3.

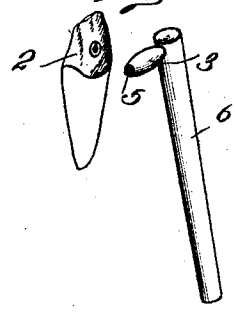


Fig. 4.



Fig. 5.

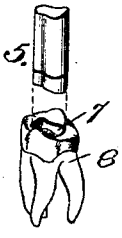


Fig. 6.

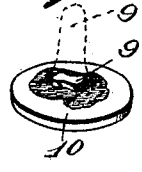


Fig. 7.

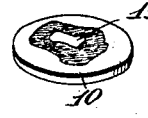


Fig. 8.

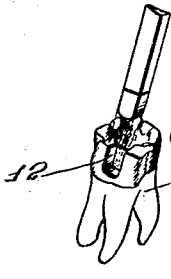


Fig. 10.

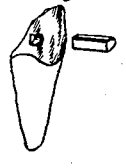
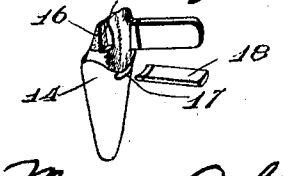


Fig. 9.



Witnesses

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No. 764,871. Patented July 12, 1904.

UNITED STATES PATENT OFFICE.

MANLEY A. SPARKS, OF HUNTSVILLE, ALABAMA.

DENTAL PROCESS.

SPECIFICATION forming part of Letters Patent No. 764,871, dated July 12, 1904.

Application filed November 27, 1903. Serial No. 182,781. (No model.)

To all whom it may concern:

Be it known that I, MANLEY A. SPARKS, a citizen of the United States, residing at Huntsville, in the county of Madison and State of Alabama, have invented new and useful Improvements in Dental Processes, of which the following is a specification.

This invention relates to improvements in dental processes, and particularly to certain novel steps employed for the application of porcelain for the filling of cavities in teeth.

The object in view is the employment of certain steps in the filling of teeth which makes possible the utilization of porcelain in stick or pencil form as a filling.

With this and further objects in view the invention consists in certain novel steps of a process, as will be hereinafter fully specified and afterward particularly pointed out in the claim.

In the accompanying drawings, Figures 1, 2, and 3 represent perspective views of a tooth and a porcelain pencil or stick in the various steps of the present process. Fig. 4 represents a perspective view of the same tooth with the filling therein finished off. Fig. 5 represents a perspective view of a molar having a central crown-cavity and illustrating a porcelain pencil or stick formed to fit the same. Figs. 6 and 7 represent the type and form of plate employed for securing a pattern of the cavity such as is illustrated in connection with the showing in Fig. 5. Fig. 8 represents a perspective view of a molar having a side cavity opening through the upper surface of the tooth. Fig. 9 represents an incisor, illustrated in perspective, having a corner-cavity and a segmental base-cavity, sticks or pencils of porcelain being illustrated shaped to conform to said cavities. Fig. 10 represents a perspective view of an incisor having a semi-annular corner-cavity and a porcelain pencil shaped to fit the same.

In the present art it has heretofore been proposed to fill the various cavities of teeth with porcelain by the introduction into the cavity of a matrix, which is caused to conform to the contour of the cavity and is then removed and filled with powdered porcelain, which is fused by the action of heat, whereby a porcelain filling is formed conforming to the general contour of the cavity, but approximately one-thousandth of an inch smaller. This filling is introduced into the cavity and secured therein by a suitable adhesive, which adhesive is caused to fill the space between the filling and the walls of the cavity. The adhesive material is far more liable to decay than the porcelain, and loosening and loss of the porcelain filling necessarily follows.

I propose to obviate the necessity for the expensive process of forming a filling in the manner above set forth and at the same time cure the objection to the presence of an exposed adhesive by the use of porcelain pencils or sticks, which are employed in carrying out the present improved process, such process consisting in applying a porcelain pencil to a cavity, securing that portion of such pencil within the cavity therein, and severing the pencil.

Referring to the accompanying drawings, I carry out my process—for instance, in connection with an incisor—by preparing the cavity 1 of a tooth 2 by forming the same annular and then introducing into the same the end of a porcelain pencil 3. While said pencil is in this position, as indicated in Fig. 1, I mark the same about the outer edge of the wall of the cavity, remove the pencil, partially sever the same by the use of a carborundum disk, as indicated at 4 in Fig. 2, leaving only a comparatively small central portion 5, as seen in Fig. 3. Next the end of the pencil is serrated or roughened and introduced into an adhesive, preferably molten gutta-percha, and then placed within the cavity. The pencil 3 is held with its end in the cavity until the adhesive has set, whereupon by lateral strain upon the end of the pencil the portion 5 is broken and the filling of the tooth is completed. It is now only necessary to polish off the roughened portion of the filling for completing the work. In this process I may employ a porcelain-pencil holder 6 for retaining the porcelain pencil after the same has been used until compara-

tively short; but, on the other hand, the pencil 3 may be grasped by the operator and used without the interposition of the handle 6.

In Figs. 5, 6, and 7 I have illustrated the means by which I preferably carry out the present improved process in connection with a cavity of somewhat distorted contour and so positioned as to be to some degree inaccessible. This feature of the process consists in the preparation of a cavity 7—for instance, in the crown of a molar 8—and the insertion therein of a piece of plastic material, as a stick of wax 9, (seen in dotted lines in Fig. 6,) which is caused by such insertion to assume the contour of said cavity.

Said wax is next withdrawn, and the form 9′, produced on the end thereof by such insertion, is cut from the stick of wax and placed upon a suitable piece of porcelain 10 in an inverted position and gold-paint is applied to said porcelain about the form, whereby a pattern 11 is left upon the porcelain. I prefer gold-paint for the production of this pattern, for the reason that a sharp clear line is left thereby. Any suitable porcelain stick or pencil is next taken and is ground to a shape fitting the pattern 11, whereby said porcelain is adapted to fit the cavity 7. This porcelain stick is next introduced, marked, removed, partially severed, subjected to an adhesive, reintroduced, and finished in the manner described with reference to the pencil 3.

In Figs. 8, 9, and 10 I have illustrated teeth having cavities of various contours opening at the side. The process of filling such cavities is the same in principle as that described with respect to the showing in Figs. 1 to 4, with the addition that a matrix is usually introduced for forming the fourth vertical wall for retaining the piece of porcelain in position while the adhesive is setting. In Fig. 8 the cavity 12 in the molar 13 may be slightly inclined and undercut for preventing lateral displacement of the filling, if desired. In Fig. 9 the tooth 14, formed with a corner-cavity 15, may, if desired, be formed with a gold backing 16, to which the porcelain filling is secured.

At times a cavity is formed at the base of a tooth, just at the upper edge of the gum, which conforms to the contour of the tooth-base and is thereby segmental in form. Such a cavity is illustrated at 17 in Fig. 9 and is adapted to be filled in the manner described with respect to Figs. 1 to 4 by the use of a porcelain pencil 18, formed of transversely-segmental contour.

By the present improved process I am enabled to utilize porcelain as a finished product and propose to have the sticks or pencils manufactured in such forms and shapes as to most nearly approach the various shapes of common forms of cavities, whereby a minimum amount of grinding will be necessitated for fitting the end of a pencil to a given cavity.

I make no claim under this application for the porcelain stick and filling carried thereby, as the same forms the subject-matter of an application for a patent filed by me on the 29th day of June, 1904.

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

A dental process comprising forming a portion of a porcelain pencil into the shape for fitting the cavity of a tooth, introducing the thus-shaped pencil into such cavity, and severing the projecting portion of the pencil from the inserted portion thereof.

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

MANLEY A. SPARKS.

Witnesses:

FRED BEALL,

EDGAR M. KITCHIN.