

Jan. 9, 1945.

P. BROOKS

2,366,767

DENTAL INSTRUMENT

Filed July 6, 1944

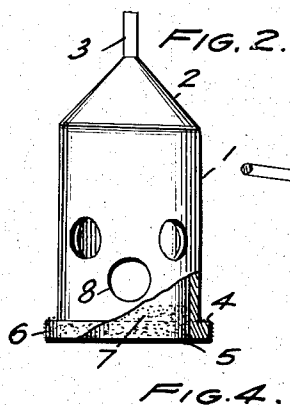
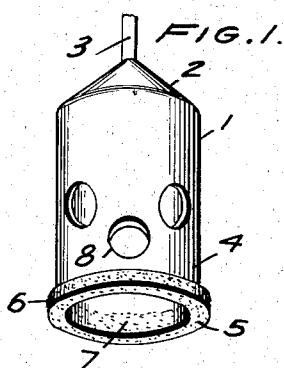


FIG. 3.

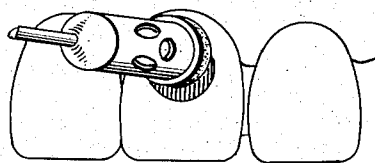
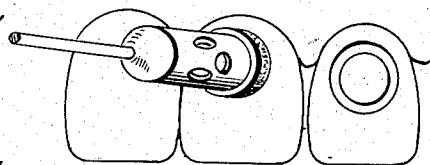


FIG. 5.

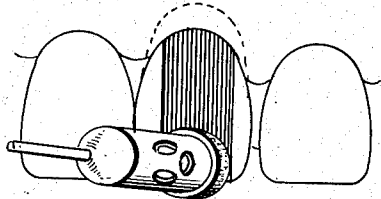


FIG. 6.

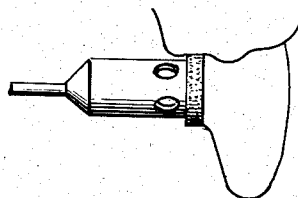


FIG. 7.

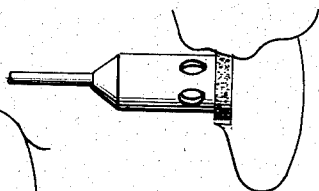


FIG. 8.

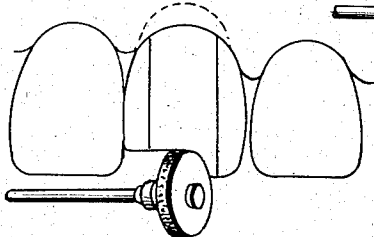


FIG. 9.

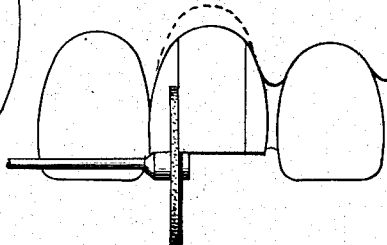


FIG. 12.

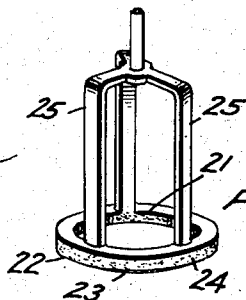


FIG. 10.

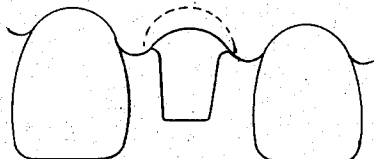


FIG. 11.



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DENTAL INSTRUMENT

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Application July 6, 1944, Serial No. 543,675

2 Claims. (Cl. 32—58)

This invention relates to improvements in dental devices and methods for preparing teeth to receive porcelain jacket crowns, and the like; and is a continuation in part of my applications Serial Number 501,165, filed September 3, 1943, and Serial Number 540,568, filed June 16, 1944.

Recent developments in porcelain jacket crown and bridge work have proved great achievements in the art of dentistry. But the benefits of these achievements have been denied the masses of the people because, heretofore, the preparation of a tooth to receive a porcelain jacket crown required an especial skill and technique on the part of the dentist. The majority of dentists do not have this skill and technique. Those who do have the skill are unable to produce, with the dangerous serrated drills and free-hand cutters in current use, a precise, smooth measured shoulder under the gum line without injury to the delicate gum tissue.

Also, the methods of operation heretofore employed required, in most cases, from two to two and one half hours or more, the time being divided into two or more sittings. These operations were very tiring and painful to the patient and devastating to the nerves of the dentist, with the result that only about ten per cent of the dentists have engaged in this important work; and it is estimated by outstanding laboratory technicians that not more than five per cent of the dentists do satisfactory porcelain jacket crown work.

It is, therefore, an object of this invention to provide a dental instrument which enables a dentist to produce a smooth, symmetrical shoulder of exact dimensions under the gum line without the slightest injury to the gum, and in a fraction of the time heretofore required for preparing a tooth for a jacket crown, an accomplishment not possible with any other instrument or combination of instruments and technique.

A further object is the provision of a dental instrument for producing on a tooth a smooth, precise shoulder and otherwise prepare a tooth to receive a porcelain jacket crown, within a few minutes.

By means of the instrument and the manner of using the same as described herein, a dentist with little previous experience in this type of work can readily and properly prepare a tooth to receive a porcelain jacket crown in a fraction of the time consumed heretofore, no especial skill and technique being required on the part of the dentist.

These and other objects are attained by the novel construction hereinafter described and illustrated in the accompanying drawing, forming a part hereof, and in which:

Fig. 1 is a perspective view of a dental instrument embodying the invention.

Fig. 2 is an elevational view, partly in section, of the instrument.

Figs. 3 to 10 are views showing steps in preparing a tooth to receive a porcelain jacket crown.

Fig. 11 is a view of a tooth prepared as described herein.

Fig. 12 is a perspective view of a modified form of the invention.

In accordance with the invention, the novel dental instrument, shown in Figs. 1 and 2, comprises a small cylinder 1 having a reduced portion 2 adapted to receive an operating shaft 3 by means of which the cylinder can be rotated. The open end of the cylinder 1 is provided with a small flange 4 which is coated with diamond dust or other abrasive on the bottom side 5 and on its outer edge 6. The inside of the cylinder is coated also with diamond dust or other abrasive as shown at 7. The cylinder is provided with a plurality of apertures 8 to receive water or the like for cooling purposes if so desired. The flange 4 extends outwardly from the outer surface of the cylinder a distance not exceeding $1\frac{1}{2}$ millimeters, and has a thickness, that is the height of the outer edge 6, not exceeding 2 millimeters. These specific dimensions of the flange enable a dentist to sink a shoulder an exact depth into a tooth at the gum line as shown in Fig. 3, and an exact height under the gum, see Fig. 4, without the slightest injury to the gum. By virtue of the cylinder being coated with abrasive on the inside, and the flange 4 coated with abrasive on its bottom side 5 and outer edge 6, cuts can be made in all directions necessary in the preparation of a tooth, as illustrated in Figs. 3 to 10.

In preparing a tooth for a jacket crown, the instrument is placed head-on against the front side of the tooth at the gum line (see Fig. 3). By exerting a light pressure the instrument is sunk into the tooth to a depth equal to the thickness of flange 4, which enables the dentist to determine the exact depth to sink the instrument. This operation produces a complete circular cut in the tooth.

With the head of the instrument still in the circular track mentioned above, pressure is exerted upward extending the flange 4 under the free

margin of the gum (see Fig. 4). Because the cutting flange 4 is entirely embedded in the tooth enamel, it is impossible to harm the tissue of the gum in any way. The flange 4 cuts in all directions enabling the cutting arc of the instrument to conform to the exact arc of the gum. The balance of the enamel on the front side of the tooth is removed as shown in Fig. 5, the circular track serving as a grinding gauge.

With a right-angled instrument, the same operations are performed on the lingual or back side of the tooth (see Fig. 6) and the back side of the tooth is further prepared as described in connection with Fig. 5 (see Fig. 7).

Now with ordinary carborundum or diamond grinders, the tooth is trimmed down as shown in Figs. 8 and 9, and the final prepared tooth appears as shown in Figs. 10 and 11, with a precise and smooth shoulder for receiving a jacket crown.

All of the above operations require only a few minutes, and it is obvious that no special skill is required of the dentist as has heretofore been necessary with the old free-hand methods of preparing teeth.

The cylinder may be made of metal, plastics, or other suitable materials, and the support for flange 4 need not be a cylinder, but may have any form such as a wire mesh or a frame formed of several rods attached to the flange 4, which substantially is a ring of definite width having abrasive on its bottom and inner edge and outer edge.

In the modified form shown in Fig. 12, a ring 20 has its inner edge 21 and its outer edge 22 and one side 23 thereof coated with diamond dust or other abrasive 24. The ring is attached to a sup-

port which comprises a plurality of spaced bars or rods 25, the outer edge of the ring extending outwardly from the outer surfaces of the support a distance not exceeding $1\frac{1}{2}$ millimeters, the ring having a thickness not exceeding 2 millimeters.

From the above description it will be seen that there has been provided a simple and effective dental instrument for preparing a tooth to receive a porcelain jacket crown, without requiring special skill on the part of the dentist. The operations described herein are not possible with any other instrument at present known.

I claim:

1. In a dental instrument, a hollow cylinder 15 having a flange at one end thereof, abrasive material coating a part of the inner surface of the cylinder, abrasive material coating the bottom side and the outer edge of the flange, the width of the flange from the outer surface of the cylinder to the outer edge of the flange not exceeding substantially $1\frac{1}{2}$ millimeters, and the thickness of the flange not exceeding substantially 2 millimeters.

2. In a dental instrument for preparing a tooth 25 for a shoulder jacket crown, a grinding ring and supporting means for the said ring, the said ring having at least three grinding surfaces, the latter comprising the bottom, the inner and the outer surfaces, said supporting means being secured to said ring, the outer surface of said support being 30 spaced from the outer edge of the said ring, a distance not exceeding substantially one and one-half millimeters and the thickness of said ring not exceeding substantially two millimeters.

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