

Aug. 19, 1941.

T. S. MALSON  
DENTAL INSTRUMENT  
Filed May 31, 1940

2,253,132

Fig. 1

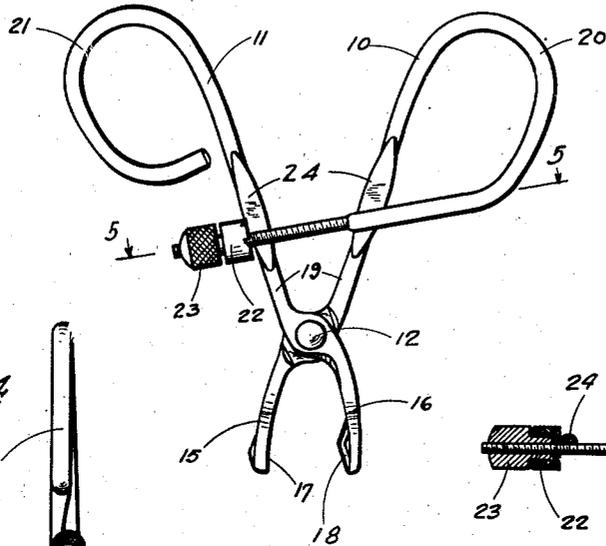


Fig. 4

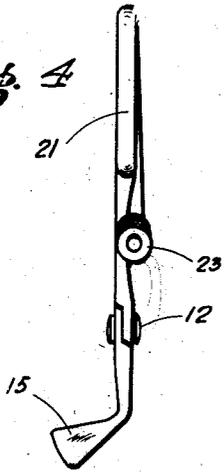


Fig. 5

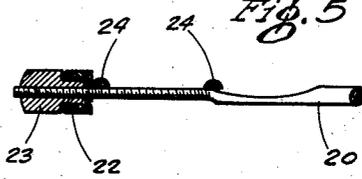


Fig. 2

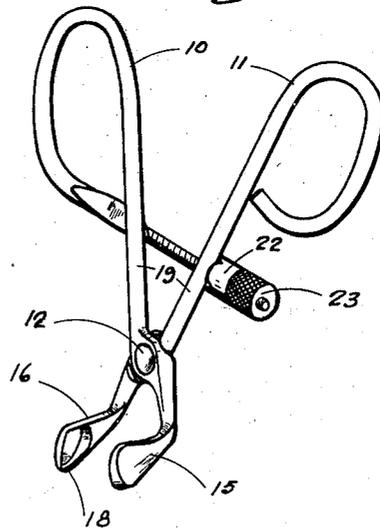
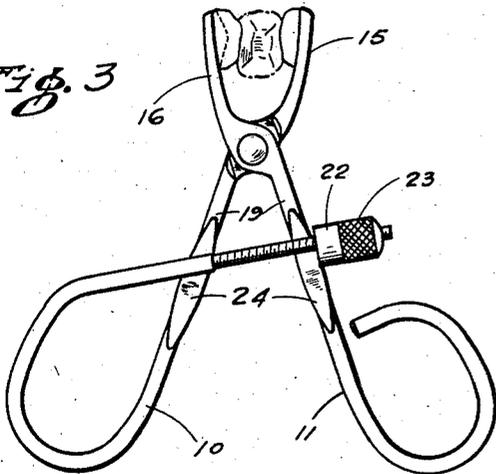


Fig. 3



BY

INVENTOR.  
TOTTEN S. MALSON  
*Richy & Watts*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE

2,253,132

## DENTAL INSTRUMENT

Totten S. Malson, Cleveland Heights, Ohio

Application May 31, 1940, Serial No. 337,991

4 Claims. (Cl. 32-63)

This invention relates broadly to dental instruments and more specifically to improvements in forceps for taking plastic impressions of teeth or a portion of a tooth.

One of the objects of the invention is to provide a dental instrument having a pair of arms pivotally connected together with a locking attachment formed on one end thereof for imparting a spring pressure upon the material retained between the opposed ends of the arms.

Another object of the invention is to provide a dental instrument consisting of a pair of arms pivotally connected together and having an end portion thereof curved to form finger tip control handles with the curved portion of one of the arms extending across the other arm for the reception of a locking nut and washer.

Another object of the invention is to provide a pair of dental forceps having an end portion thereof curved downwardly to facilitate their entrance in a patient's mouth and engagement with a tooth along the medial axis thereof; the end portions of the forceps being formed with recesses in their opposed faces for the retention of a plastic matrix material.

Another object of the invention is to provide an instrument which is designed to facilitate the manipulation and adjustment by one hand and the fingers thereof, the weight of the instrument being proportioned so that the dentist may recognize the tensive effort of application during the use thereof.

Another object of the invention is to construct an instrument which is economic of manufacture, durable, and which may be sterilized without separation of the component parts thereof.

Other objects and advantages more or less ancillary to the foregoing and the manner in which all the various objects are realized will appear in the following description, which considered in connection with the accompanying drawing, sets forth the preferred embodiment of the invention.

Referring to the drawing wherein the preferred embodiment of the invention is illustrated:

Fig. 1 is a perspective view of a pair of dental forceps as viewed from the top thereof;

Fig. 2 is a perspective view of the opposite side of the dental forceps illustrated in Fig. 1 and showing the downwardly curved end portion and the cups for the retention of a plastic material;

Fig. 3 is a plan view of the instrument including in dotted lines the outline of a tooth retained between the plastic matrix material seated in the cups in the end portions of the forceps;

Fig. 4 is a side elevational view of the forceps shown in Fig. 1; and

Fig. 5 is a sectional view through a portion of the instrument, the section being taken on a plane indicated by line 5-5 in Fig. 1.

Referring to Figs. 1 and 2, the improved dental forceps embody a pair of arms 10 and 11 which are pivotally connected together, intermediate their ends by a rivet 12. The end portions 15 and 16 of the arms contiguous the pivotal connection are curved downwardly to accommodate their entry into the mouth of a patient and their engagement with a tooth without obscuring the view of the dentist. Formed in the opposing faces of the end portions 15 and 16 there are recesses or cups 17 and 18 adapted to retain a plastic material therein while an impression of a tooth or a missing portion thereof is made.

The opposed end portions of the arms 10 and 11 are curved outwardly and inwardly to provide handles 20 and 21 which permit the operator to employ a finger tip grip or control. The free end of the arm 10 is curved inwardly and extended across the central portion 19 of both of the arms and is threaded for the reception of a locking washer 22 and nut 23. Provided in the central portion of the arms 10 and 11 there is a flat surface 24 which forms with the side of the arms a ledge for the engagement of the locking washer 22.

As shown in Fig. 5, the washer 22 is swiveled upon the nut 23 and is provided with a plurality of grooves or indentures in one end thereof. The grooved end of the washer is adapted to engage the ledge defined by the flat surface on the arm 11 when it is restrained from rotative movement as the nut is adjusted to effect the compressive engagement of the end portions of the arms or jaws 15 and 16 upon the tooth.

The improved dental forceps disclosed herein may be employed as a matrix for either a synthetic filling or a direct inlay. In the use of the forceps as a matrix for a synthetic filling a plastic compound is heated and then molded into a wedge or cone form in the cups 17 and 18, after which the material is allowed to cool. The surface of the patient's tooth or teeth in the area of the cavity are lubricated after which the tips of the plastic material within the cups are surface heated prior to the forceps being clamped over the tooth containing the cavity. The nut 23 is tightened on the threaded end of the arm 10 so that the plastic material will conform to the outline of the tooth.

After the plastic material has been chilled the

forceps are released and lifted from the patient's mouth and any irregularities appearing on the material, which may be caused by the cavity in the tooth, are then removed therefrom so that the matrix will conform to the contour of the tooth. The cavity in the tooth is then prepared and filled with a synthetic filling in the usual manner. When the filling is in place a Celluloid strip is placed thereover and the forceps with the matrix in the end portions 15 and 16 are clamped upon the tooth by means of the nut 23. When the synthetic filling has set the forceps and Celluloid strip are removed. The use of the Celluloid strip between the matrix and the filling provides for a polished finish on the outer surface of the tooth and filling.

In obtaining a wax model for a direct inlay the same procedure is followed as disclosed in connection with the synthetic filling, up to and including the preparation of the cavity. After the cavity is prepared the inlay wax is inserted therein and a thin strip of Celluloid is placed thereover. The forceps are then tightened on the tooth by the nut 23 where they are retained until the wax has set.

In the use of the improved dental forceps in securing an impression of the form of a tooth or teeth for an indirect inlay a sphere of plastic matrix material is placed in each of the cups 17 and 18, after which the forceps are inserted within the mouth of the patient and adjusted so that the plastic will encompass the tooth where, upon manipulation of the nut 23, it will be extruded to the contours and lineation of the objective mold.

When the nut 23 is tightened against the arm 11 sufficient spring pressure is initiated through the arms 10 and 11 and through the end portions 15 and 16 to facilitate the support of the instrument in self sustained position upon the tooth. It will be recognized that the impression obtained in the plastic material by means of the improved instrument will be free from air pockets, folds or deformation which would impair the accuracy thereof, since the matrix is formed under a sustained pressure and while the instrument is supported in a fixed position.

Furthermore the matrix formed in the plastic material contained in the cups 17 and 18 will provide an accurate reproduction of the contours of the teeth and/or portions thereof surrounding the cavity. Thus by first making an impression of the tooth then clamping the matrix over the filling the original contour of the tooth will be accurately reproduced in the filling.

It will be further apparent that since the nut and washer are disposed upon the threaded end of the arm 10 the dentist may effectuate adjustments with a finger of the hand employed in holding the forceps and that the bent jaws of the instrument afford a wide latitude of adjustment and broader scope of vision.

Although the foregoing description is necessarily of a detailed character, in order that the invention may be completely set forth, it is to be understood that the specific terminology is not intended to be restrictive or confining, and that various rearrangements of parts and modifications of detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. A dental instrument embodying a pair of crossed arms pivotally connected to each other, an end portion of said arms having recesses in their opposing faces forming jaws, curved portions on the other end of said arms constituting finger engaging handles, the curved portion of one of said finger handles extending across said arms and constituting a spring, threads on the end of said portion and means mounted on the threaded end for adjusting said jaws and the pressure of said spring.

2. A dental tool embodying a pair of crossed arms pivotally connected to each other, opposed cups in an end of said arms for holding a plastic material, finger engaging handles on the other end of the arms, a portion of one of the handles extending across both of the arms and constituting a spring, threads on the end thereof, a locking washer and nut mounted on the threaded end and adapted to engage one of said arms to restrict the pressure of the cups upon the plastic material.

3. A dental instrument embodying a pair of crossed arms pivotally connected to each other, an end portion of said arms being curved downwardly and having recesses in their opposing faces, loops on the other end of said arms constituting finger grips, a flat surface on one of said arms defining a ledge, the end of one of the loops extending across both of the arms, threads formed thereon, a nut, a washer swiveled thereon, said nut threaded on said end, said washer having grooves in an end thereof for engaging said ledge to sustain a spring pressure through said arms which is initiated upon the tightening of the nut.

4. A dental tool embodying a pair of crossed arms pivotally connected to each other adjacent one of their ends, downwardly curved portions in said arms contiguous their pivotal connection, cups in the opposed faces thereof for the support of a plastic material, a lineal extension on one of said arms, a flat surface on each of said arms, rings in the opposed end of said arms, said lineal extension projecting across said flat surface of both arms, threads thereon and locking means mounted on said extension to impart a spring pressure upon the plastic material between said cups.

TOTTEN S. MALSON.