No. 638,973. Patented Dec. 12, 1899.

C. F. C. MEHLIG.

DENTAL MATRIX RETAINER.

(Application filed Apr. 28, 1899.)

(No Model.)

Fig. 1.

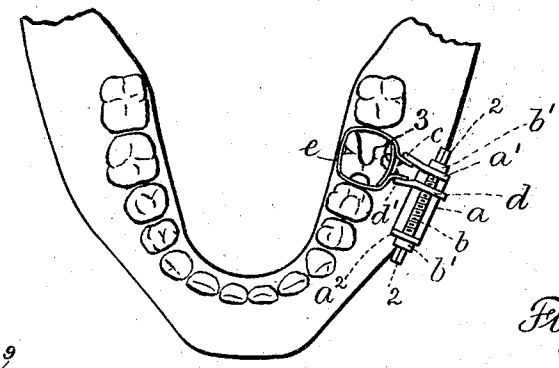


Fig. 9.

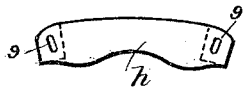


Fig. 6.

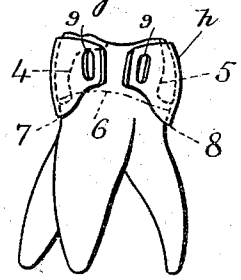


Fig. 7.

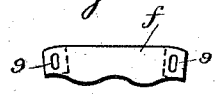


Fig. 10.



Fig. 8.

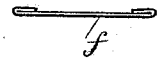


Fig. 4.

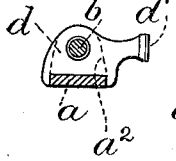


Fig. 3.

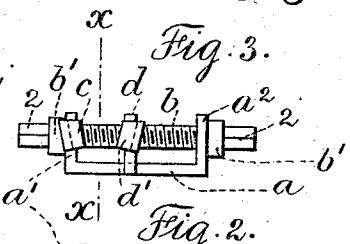


Fig. 2.

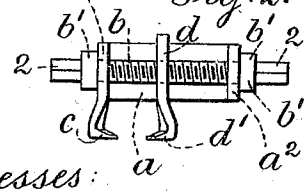
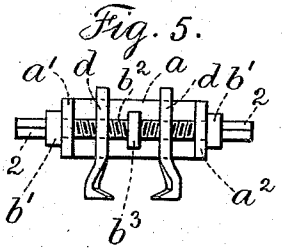


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES F. C. MEHLIG, OF NEW YORK, N. Y.

DENTAL MATRIX-RETAINER.

SPECIFICATION forming part of Letters Patent No. 638,973, dated December 12, 1899.

Application filed April 28, 1899. Serial No. 714,798. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. C. MEHLIG, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Improvement in Matrix-Retainers, of which the following is a specification.

In dental surgery matrix-retainers and matrices or bands are employed in connection with the filling of badly-decayed teeth, especially such teeth as have approximal cavities—that is, cavities in the adjacent surfaces of the teeth and which often extend beyond the margins of the gums. In filling such cavities the matrix or band is placed around the tooth and the ends are engaged by the matrix-retainer and they are drawn together to clamp and to hold the band around the tooth, so that the filling material can be inserted from above. Heretofore the matrix-retainer engaged the ends of the bands only at points or rounded ends. Consequently the bands were not tightened and held to the best advantage, and they could not be held tightly at the places most desired, and my invention is designed to overcome these defects. In my improvement the matrix-retainer is made with jaws that are broad and flat and which are positively operated and held and which engage an appreciable surface of the bands. The engaging ends of these jaws also stand out of parallelism, or, in other words, at an angle to one another, their lower edges being nearer together than their upper edges. In the operation of the device the result of this construction is that the bands are drawn tightly around the tooth, first at the neck of the tooth and thereafter around the crown of the tooth, both beyond the gum-line and near the surface of the tooth, the greater clamping action being around the neck of the tooth and around the approximal cavity that it is desired to fill.

In connection with this retainer I prefer to employ bands that are of peculiar form—that is, the ends of the bands are made with elongated mortises at an inclination to approximately agree with the inclination of the jaws of the retainer with respect to one another, and the lower edge of the band is to be curved in two places, so that when the band is put around the tooth the curved places will come between the teeth, and these curved places are to be pressed down between the gum and the tooth to cover the aforesaid approximal cavities and facilitate the filling of the same in the most successful manner.

In the drawings, Figure 1 is a plan view illustrating the teeth of the lower jaw with a band around one tooth and a matrix-retainer in place clamping the band. Fig. 2 is a plan. Fig. 3 is an elevation, and Fig. 4 a cross-section at *x x* of Fig. 3, illustrating my improved matrix-retainer. Fig. 5 illustrates a modified form of my matrix-retainer. Fig. 6 is an enlarged view of a molar tooth, showing a band placed around the tooth and approximal cavities. Figs. 7, 8, 9, and 10 are views of bands hereinafter more particularly described.

The matrix-retainer is made with a base-plate *a* and upright ends a' a^2. A screw-stem *b* passes longitudinally over the base-plate and freely through said upright ends, and said screw is provided with ends 2, that are squared or made of such shape as to be readily engaged by a turning key, and upon this screw *b* are collars b' outside of the upright ends a' a^2 to prevent longitudinal movement. The upright end a' is preferably made with a jaw *c*. The jaw-plate *d* straddles the base-plate *a*, (see Fig. 4,) and the same is provided with a threaded opening for the screw-stem *b*, and this jaw-plate is provided with a jaw d', corresponding to the jaw *c*. The engaging ends of these jaws *c* and d' are out of parallelism, or, in other words, at an angle to one another, (see Figs. 2 and 3,) and their points are wedge shape.

In the modified form of matrix-retainer shown in Fig. 5 the jaw-plates *d* straddle the base *a* and the jaws move toward and away from each other, the screw-stem b^2 being made with a central stop b^3 and with right and left hand threads. This form is advantageous in any position in which the instrument may be placed.

The screw-stem, as will be seen from the drawings, is double ended—that is to say, each end is provided for engagement with a turning key, and the key can be placed upon either end to rotate the screw to move the jaws toward or from one another, according to the location of the tooth around which a band is

to be placed and drawn tight. The ends of the screw-stem should be left long, so that the instrument can be supported by the turning key while being connected to the band.

Fig. 1 shows the retainer holding a band *e* upon the left side of the lower jaw. If the retainer was placed upon the other side of the jaw, the key would simply have to engage the other end of the screw-stem to operate the retainer with equal facility.

Fig. 7 is an elevation, and Fig. 8 an edge view, of a band *f* of a size to fit around one of the smaller teeth. Fig. 9 is an elevation of a band *h*, adapted to fit around a larger tooth.

Fig. 10 shows a modified form of band *i*, where a separate slotted end *i'* is riveted to the band, so as to leave a projection to come between the engaging ends of the band. This is adapted to serve the same purpose as the filling-plate 3, (shown in Fig. 1,) in which said plate comes outside of an edge cavity of the tooth—that is, between the ends of the band *e* and where the plate forms a boundary similar to the boundary made by the band itself where the cavity is on the edge of the tooth and opposite an adjacent tooth.

It will be noticed that near the respective ends of the bands there are elongated openings or mortises 9, preferably with rounded corners, and that these mortises are at an inclination to one another, which inclination agrees approximately with the inclination of the jaws *c d'*, and I prefer to strengthen the ends of the bands by turning the metal over and soldering the turned-over portion to the body of the band. This overcomes any liability of tearing the ends of the bands in clamping the same around a tooth by the matrix-retainer.

Fig. 6 illustrates by an elevation the band *h* around a molar tooth and covering approximal cavities that are shown at 4 5 by dotted lines, the gum-line being shown by the dotted line 6. This figure serves to illustrate the position of the band with reference to said cavities and to the gum-line, the curved projections upon the lower edge of the band, which here are shown at 7 and 8, passing below the gum to form a tight closure over the approximal cavities.

I claim as my invention—

1. A matrix-retainer having jaws with engaging ends set out of parallelism or at an angle to one another, and means for causing the jaws to approach one another or to recede, substantially as set forth.

2. A matrix-retainer having broad and flat jaws with engaging ends set out of parallelism or at an angle to one another and one of said jaws in a fixed position and means for moving one jaw to cause the same to approach the other or fixed jaw or to recede therefrom, substantially as set forth.

3. A matrix-retainer comprising a base-plate and upright ends, a screw-stem passing through the said ends and provided with collars and with ends to be engaged by a turning key, and jaws with engaging ends set out of parallelism and actuated by the screw-stem, substantially as set forth.

4. A matrix-retainer comprising a base-plate and upright ends, a screw-stem passing through the said ends and provided with collars and with ends to be engaged by a turning key, a jaw on one upright end, a jaw-plate straddling the base-plate with the screw-stem passing through the same, jaws on said plates, the jaws having wide faces and setting at an angle to one another, substantially as set forth.

5. The combination with a matrix-retainer having broad and flat jaws set out of parallelism or at an angle to one another, and means for moving one jaw to cause the same to approach the other or to recede therefrom, of a band of thin sheet metal having elongated mortises adjacent to the respective ends thereof, said mortises being made at an angle to one another to agree with the angle of the respective jaws of the matrix-retainer, substantially as set forth.

Signed by me this 17th day of April, 1899.

CHARLES F. C. MEHLIG.

Witnesses:
GEO. T. PINCKNEY,
HAROLD SERRELL.