(No Model.)

A. C. HEWETT.

DENTAL MATRIX.

No. 348,628. Patented Sept. 7, 1886.

Fig. 1.

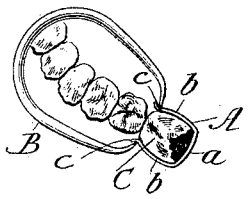


Fig. 2.

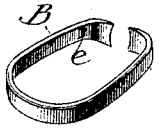


Fig. 3.

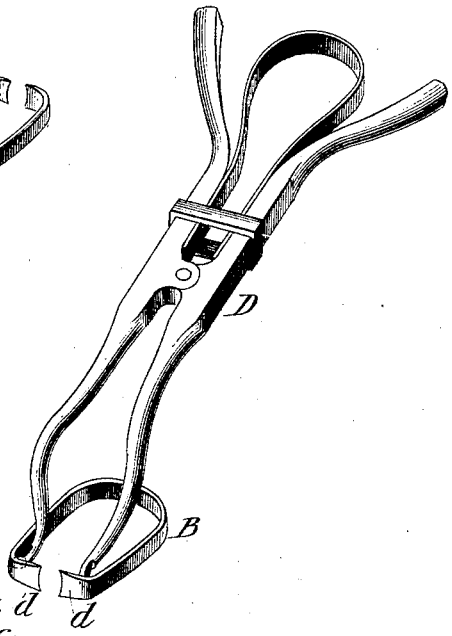


Fig. 7.

Fig. 8.

Fig. 4.

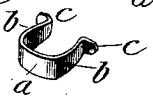


Fig. 5.

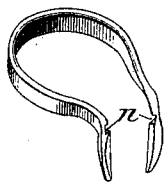
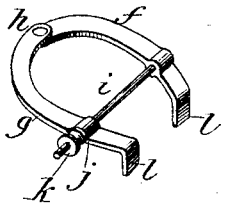


Fig. 6.



Witnesses:

E. A. West

Albert H. Adams.

Inventor

Austin C. Hewett

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

AUSTIN C. HEWETT, OF CHICAGO, ILLINOIS.

DENTAL MATRIX.

SPECIFICATION forming part of Letters Patent No. 348,628, dated September 7, 1886.

Application filed February 20, 1886. Serial No. 192,741. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN C. HEWETT, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Dental Matrices, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan showing a matrix applied to a tooth and held in place by a strong spring. Fig. 2 is a perspective of the holding-spring. Fig. 3 is a perspective showing how to apply the spring to the matrix by means of a rubber-dam-clamp forceps. Fig. 4 is a perspective of the matrix. Fig. 5 shows a modified form of holding-spring. Fig. 6 shows a screw-clamp as a modified form. Figs. 7 and 8 are modified forms of the matrix.

My improvement is primarily designed for use in filling approximal cavities in molar bicuspid and canine teeth with gold. It is well-known that it is difficult to introduce the filling material into such cavities. The matrix provides a wall which prevents the escape of the filling material from the cavity.

My invention consists in a matrix made of soft steel or other suitable metal which is malleable and strong, which encircles the tooth upon three sides, and is firmly held in place thereon by means of a strong holding-clamp, as illustrated in the drawings and hereinafter described.

In the drawings, A represents the matrix. B is a strong spring, which holds the matrix in place upon the tooth.

In Fig. 1 the matrix is shown applied to a tooth, C. This matrix encircles the tooth on three sides. The part *a* covers and incloses the cavity in the tooth. The two arms *b b* fit over and upon two sides of the tooth. The points *c c*, at the ends of the arms *b b*, form shoulders to receive the jaws *d d* of the holding-spring B.

In use a matrix of the proper size is to be placed over the tooth, so that the part *a* will cover the cavity, as represented in Fig. 1. The matrix, being made of rather soft malleable metal, can be readily fitted and shaped to conform to the surfaces of different teeth.

The matrix is held in place by a strong spring, B, which can be applied by means of a rubber-dam-clamp forceps, an instrument in common use with dentists. The manner of applying the spring is indicated in Fig. 3, in which D represents a portion of such forceps, the handles being cut away. The points or ends of the forceps are to be inserted upon the inside of the spring B, as indicated in Fig. 3, and by pressing upon the handles the jaws *d d* of the spring can be opened sufficiently to permit them to pass down over the ends of the matrix, as shown in Fig. 1, and upon removing the forceps the spring action of the spring B upon the matrix will hold it securely in place upon the tooth.

To facilitate the use of the forceps, I provide the inside of the spring with two small depressions, *e*, one on each side, to receive the points of the forceps and prevent them from slipping away from the spring while it is being applied.

All teeth with which the matrix is to be used are circular or oval, and I utilize this form to aid in holding the matrix in place firmly upon the tooth.

In use about one dozen different sizes of matrices will be required for a full set.

When applied as described, the matrix has a very firm hold upon the tooth and will be held securely during the entire operation of filling.

In Fig. 5 I have shown a spring for holding the matrix in place somewhat different in form from that shown in Figs. 1, 2, and 3, the same principle, however, being used. As shown in Fig. 5, the ends of the spring are bent down and each is provided with a small notch, *n*, upon the inside to receive the points of the forceps. The manner of applying this spring shown in Fig. 5 and its operation are substantially the same as before described.

In Fig. 6 I have shown a clamping device which may be used in place of a spring-clamp. This device shown in Fig. 6 consists of two parts, *f g*, hinged together at *h*, and provided with a screw, *i*, one end of which is secured to the part *f*, while the other passes through a boss, *j*, on the part *g*, and is provided with a thumb-nut, *k*. The free ends *l* of the parts *f g* are bent downward, so as to pass over the shoulders at the ends of the matrix. This device can be applied without the use of the forceps by placing the ends *l* of the device so as

to engage with the shoulders upon the matrix, and then by means of the nut *k* the ends *l* can be made to clamp the matrix upon the tooth with any desired force.

The effect of the clamping devices shown in Figs. 2, 5, and 6 is the same. As shown in Figs. 2 and 5, the clamping is produced by the spring action of the devices, and in Fig. 6 by means of the screw and nut.

In Figs. 7 and 8 I have shown two modifications of the matrix. It is desirable that the matrix should be quite thin, so as to pass between teeth which are near together, which is often the case.

For the purpose of giving strength to the ends of the matrix I corrugate them, as indicated in Fig. 7, by means of any suitable machinery.

In Fig. 8 I have provided the ends of the matrix with shoulders by soldering to the ends of the matrix small pieces of metal *m*, which shoulders receive the ends of the clamping device, substantially as before described.

The matrix can most conveniently be made from thin sheet metal.

I am aware that matrices have been used, and do not claim, broadly, a dental matrix; but

What I do claim as new, and desire to secure by Letters Patent, is—

A dental matrix made substantially as described, in combination with a clamping device made separate from the matrix and having its ends adapted to engage with shoulders upon the ends of the matrix, substantially as and for the purpose specified.

AUSTIN C. HEWETT.

Witnesses:
ALBERT H. ADAMS,
E. A. WEST.