No. 613,947. Patented Nov. 8, 1898.

J. M. STROUT.

DENTAL MATRIX RETAINER.

(Application filed Sept. 7, 1897.)

(No Model.)

Fig. 1.

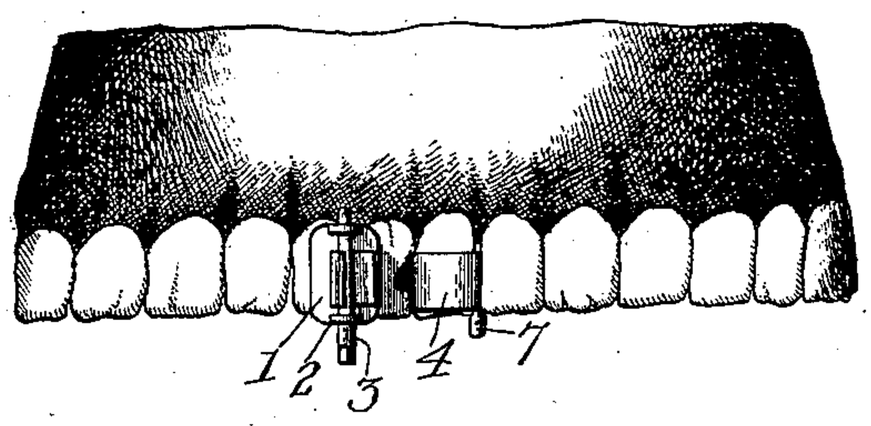


Fig. 4.

Fig. 2.

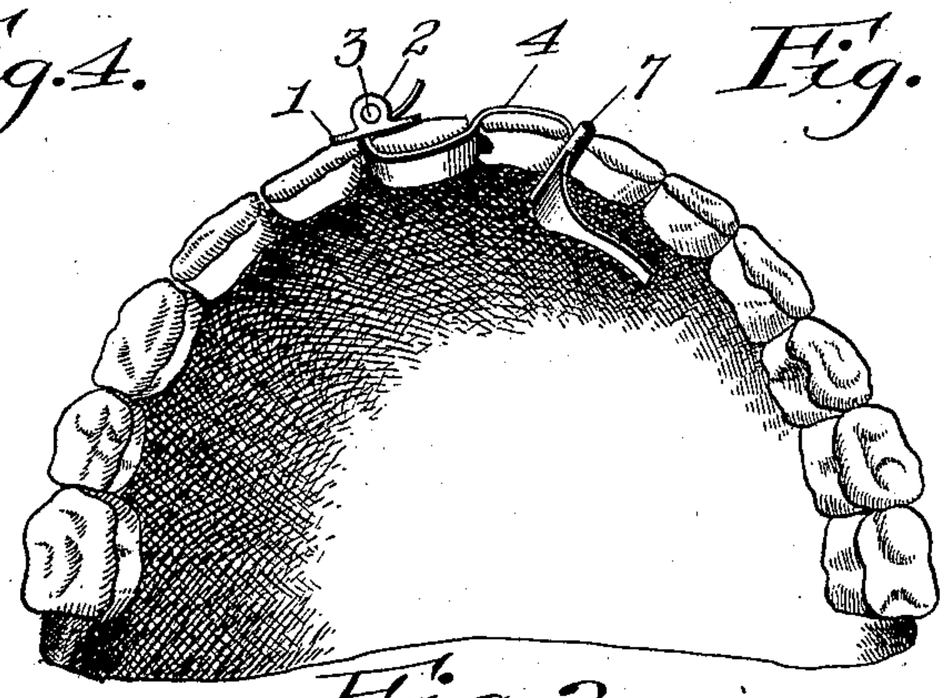


Fig. 7.

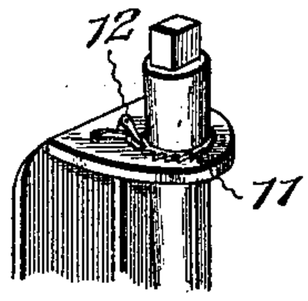


Fig. 3.

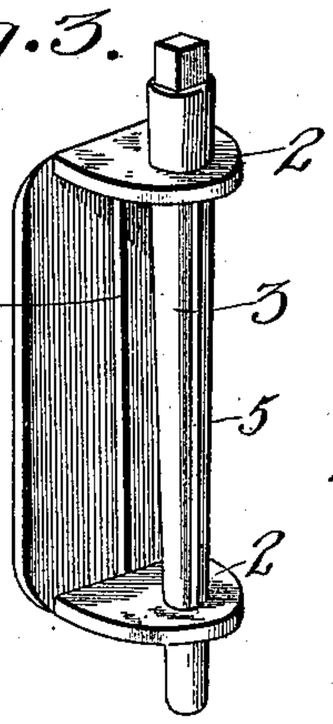


Fig. 6.

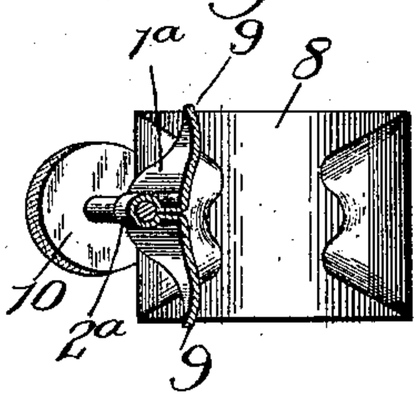
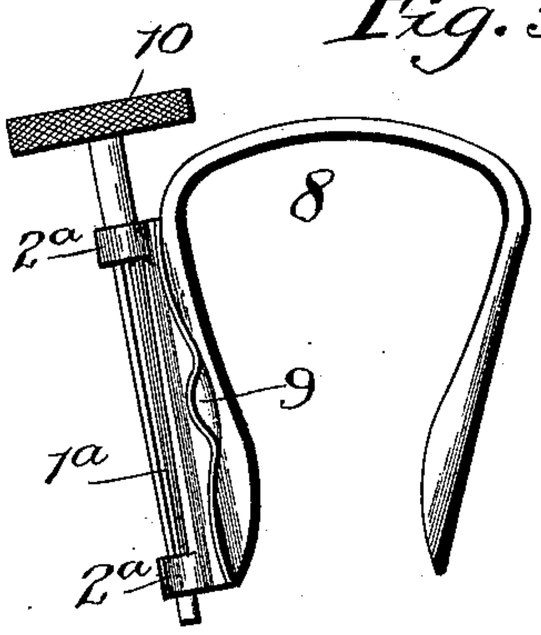


Fig. 5.



Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH M. STROUT, OF PORTLAND, MAINE.

DENTAL MATRIX-RETAINER.

SPECIFICATION forming part of Letters Patent No. 613,947, dated November 8, 1898.

Application filed September 7, 1897. Serial No. 650,831. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. STROUT, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented a new and useful Incisor Matrix-Retainer, of which the following is a specification.

This invention relates to dental appliances for isolating teeth required to be filled, whereby the operation is facilitated and unnecessary pain and annoyance to the patient obviated.

The invention belongs to that class of devices embodying a matrix and means for tightening the matrix when placed in position, and its purpose is to provide an improved tightener easy of operation and which will occupy the smallest space possible, so as not to interfere with the operator or cause inconvenience to the patient.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a front view of the invention, showing it in operative relation. Fig. 2 is a view of the parts illustrated in Fig. 1 as seen from below. Fig. 3 is a perspective view of the tightener. Fig. 4 is a detail view in elevation of the split pin or stop for securing the loose end of the matrix. Fig. 5 is a view in elevation of a modified form of tightener. Fig. 6 is a view of the tightener shown in Fig. 5 inverted and having a portion broken away. Fig. 7 is a detail view showing different means for securing the pin or key when turned to an adjusted position.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference characters.

The tightener comprises a plate 1, having offstanding lugs 2, in which is journaled a pin or key 3, adapted to have one end of the matrix 4 secured thereto, so as to wind thereon upon turning the pin or key to subject the matrix to the desired tension. This pin or key is split, as shown at 5, for the reception of an end portion of the matrix and is of tapering form, whereby it may be tightened or loosened by a longitudinal movement, as will be readily understood. The outer end of the pin or key is constructed to receive an instrument by means of which it is turned, and is preferably of angular form, as shown, although this is not essential. An outward movement of the pin or key loosens it, so that it can be turned easily in either direction, and an inward movement causes it to bind in the openings formed in the lugs, whereby the pin is held from turning backward after the matrix has been subjected to tension. A longitudinal slot 6 is formed in the plate 1 intermediate of its edges for the passage therethrough of the matrix, thereby enabling the said plate to obtain a bearing upon teeth between which the matrix passes, as clearly indicated in Figs. 1 and 2.

A stop 7 is applied to the end portion of the matrix remote from the tightener and, as shown, consists of a split pin embracing the sides of the matrix and gripping the same with sufficient force to prevent slipping, and by bending the matrix to one side of the pin or stop, as shown in Fig. 2, the said matrix is prevented from being easily pulled through the stop. Any suitable means which will secure the matrix in the space between contiguous teeth may be substituted for the stop 7; but the device illustrated is preferred, because of the simplicity of construction and ease with which it can be applied to and adjusted upon the matrix.

The invention is principally designed to be used when filling incisor-teeth, although it may be applied in such positions where it can be advantageously and conveniently used. The end portion of the matrix provided with the stop 7 is passed through the space between contiguous teeth, the stop 7 coming on the inner side, and is passed back of the tooth to be filled through the space formed between it and the adjacent tooth, and again outward between the tooth to be filled through the space formed between it and the tooth at the side thereof remote from the filling, as most clearly indicated in Figs. 1 and 2, the outer

end portion of the matrix being engaged with the pin or key 3 and wound thereon until the matrix is subjected to the required tension necessary to hold the parts in proper position.

In some classes of work it may be desirable to have a clamp 8 secured to the plate 1, said clamp gripping the opposite sides of the tooth to which the tightener is to be applied. A construction of this nature is illustrated in Figs. 5 and 6, and the plate 1^a is doubled upon itself and has the intermediate portion cut away, forming lugs 2^a, in which the pin or key 3 is journaled, the end portions of the plate being extended, forming wings 9 to overlap the teeth adjacent to the tooth to which the clamp may be fitted, thereby bracing the clamp against the tension of the matrix. The pin or key 3 is shown provided with a head 10 to be gripped by the fingers of the operator when it is required to turn the pin for tightening or loosening the matrix. In the form of tightener just described the slit or opening 6 in the plate 1 is dispensed with, as the end portion of the matrix applied to the tightener does not pass through the space formed between adjacent teeth.

Instead of depending upon the friction or binding action between the pin or key 3 and the lugs 2 for holding it an adjusted position it may be secured positively by means of ratchet-teeth 11, provided on the outer end of the pin, and a spring-actuated dog 12, applied to the contiguous lug of the plate 1, as indicated in Fig. 7.

Having thus described the invention, what is claimed as new is—

1. In a dental appliance, the combination of a matrix, a fastener for securing one end of the matrix, a plate having offstanding lugs, and a pin or key mounted in the said lugs and constructed to have the opposite end of the matrix attached thereto and adapted to be turned to wind the matrix thereon and tighten it, substantially as and for the purpose set forth.

2. In a dental appliance, the combination of a matrix, a fastener for one end of the matrix, a plate having offstanding lugs, and a split pin or key journaled in the lugs and having the opposite end portion of the matrix thrust through the split portion of the pin or key and adapted to be wound thereon to tighten the matrix when turning the pin, substantially as set forth.

3. In a dental appliance, the combination of a plate having offstanding lugs and a longitudinal slit intermediate of its edges, a pin or key mounted in the said lugs, a matrix having an end portion passed through the slit of the plate and engaged with the pin or key and adapted to be wound thereon, and a fastener applied to the opposite end of the matrix, substantially as set forth.

4. In combination, a matrix, a tightener at one end of the matrix, comprising a pin for rolling and tightening the matrix and a stop having adjustable connection with the opposite end of the matrix, substantially as set forth.

5. In a dental appliance, the combination of a matrix, a tightener applied to one end of the matrix, and a stop fitted to the opposite end of the matrix and comprising a split pin embracing the sides thereof, substantially as shown for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH M. STROUT.

Witnesses:

ISAAC L. ELDER,

ALBERT S. WOODMAN.