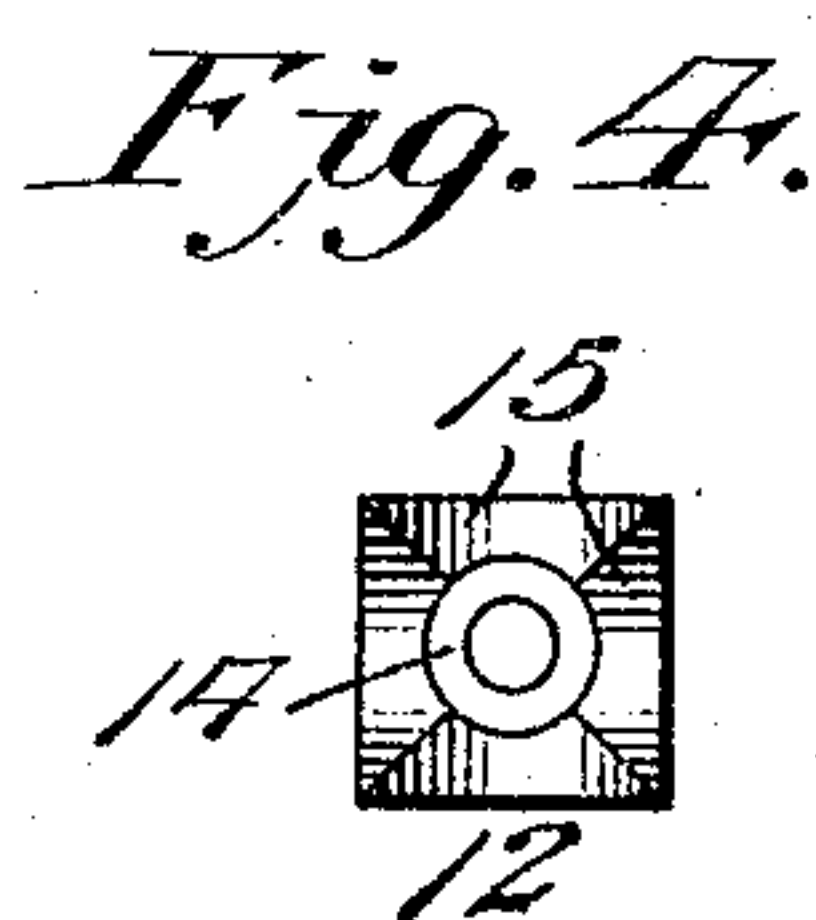
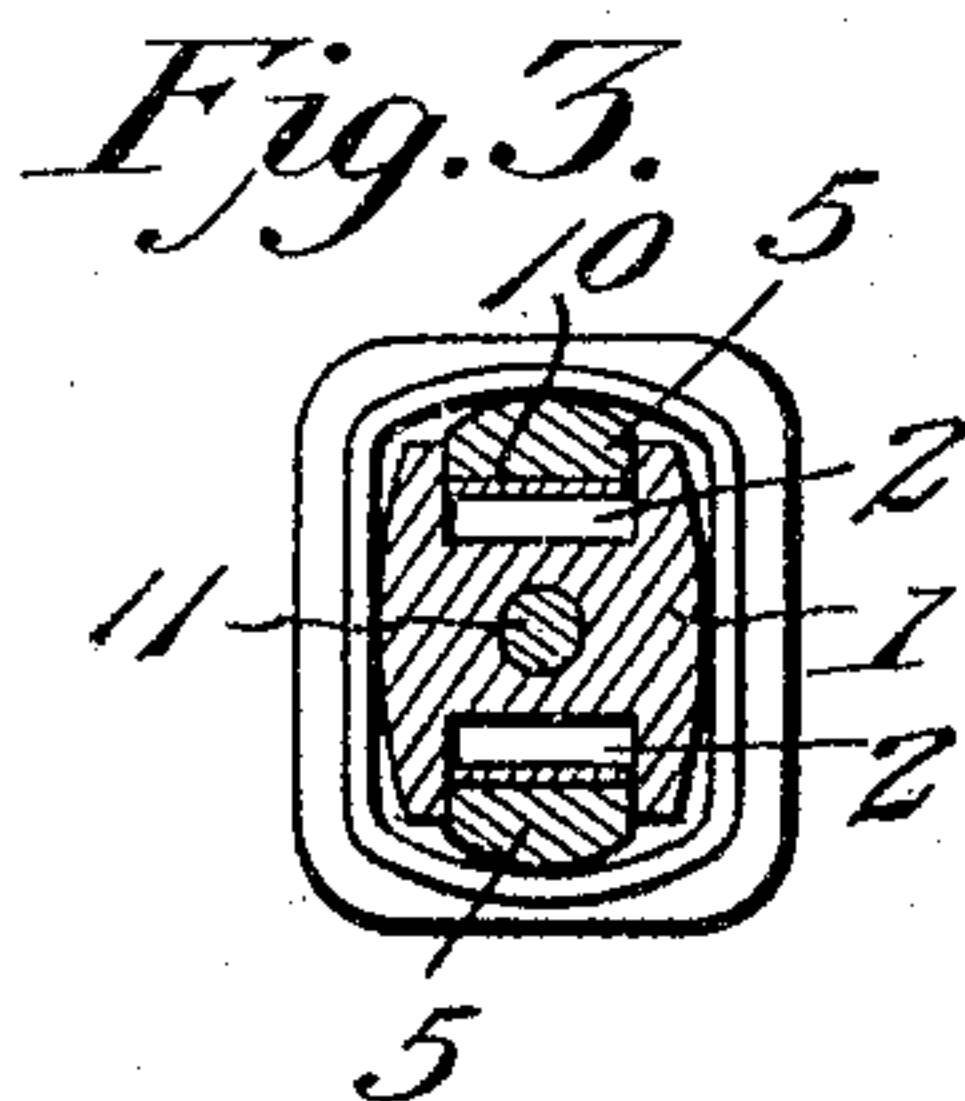
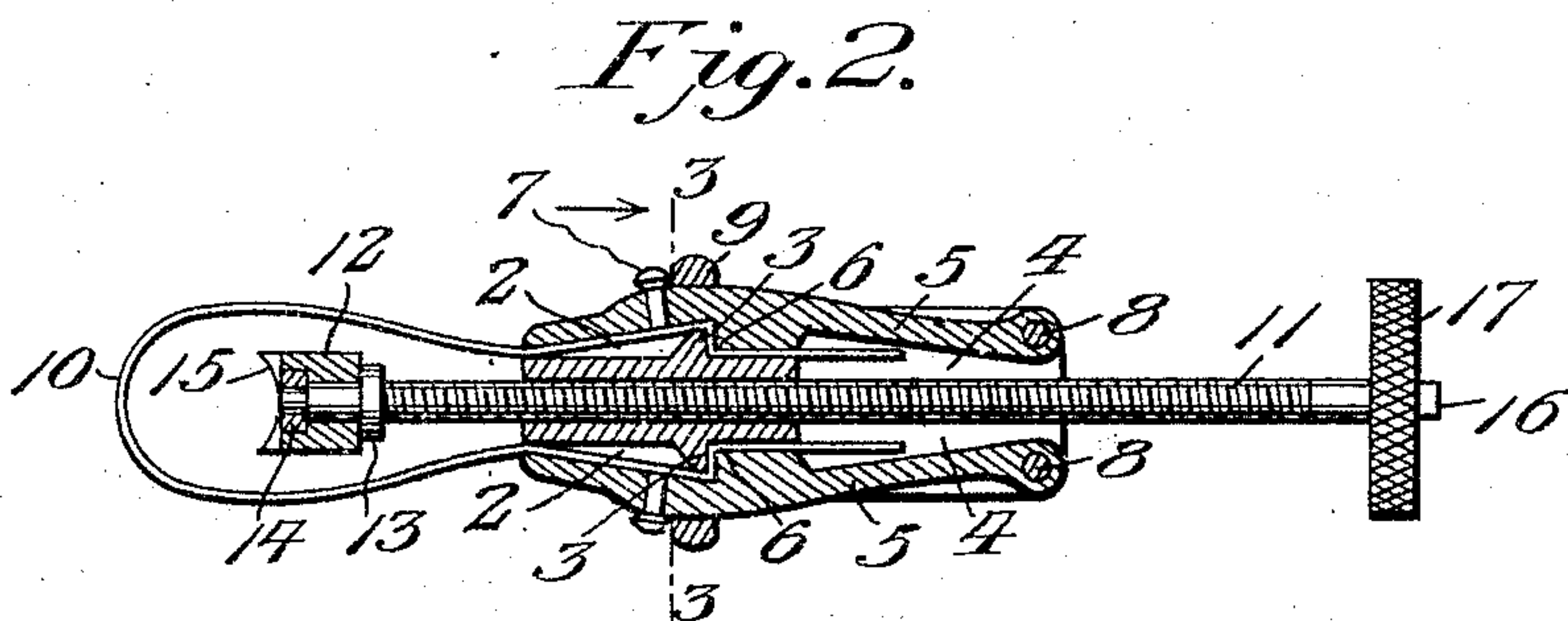
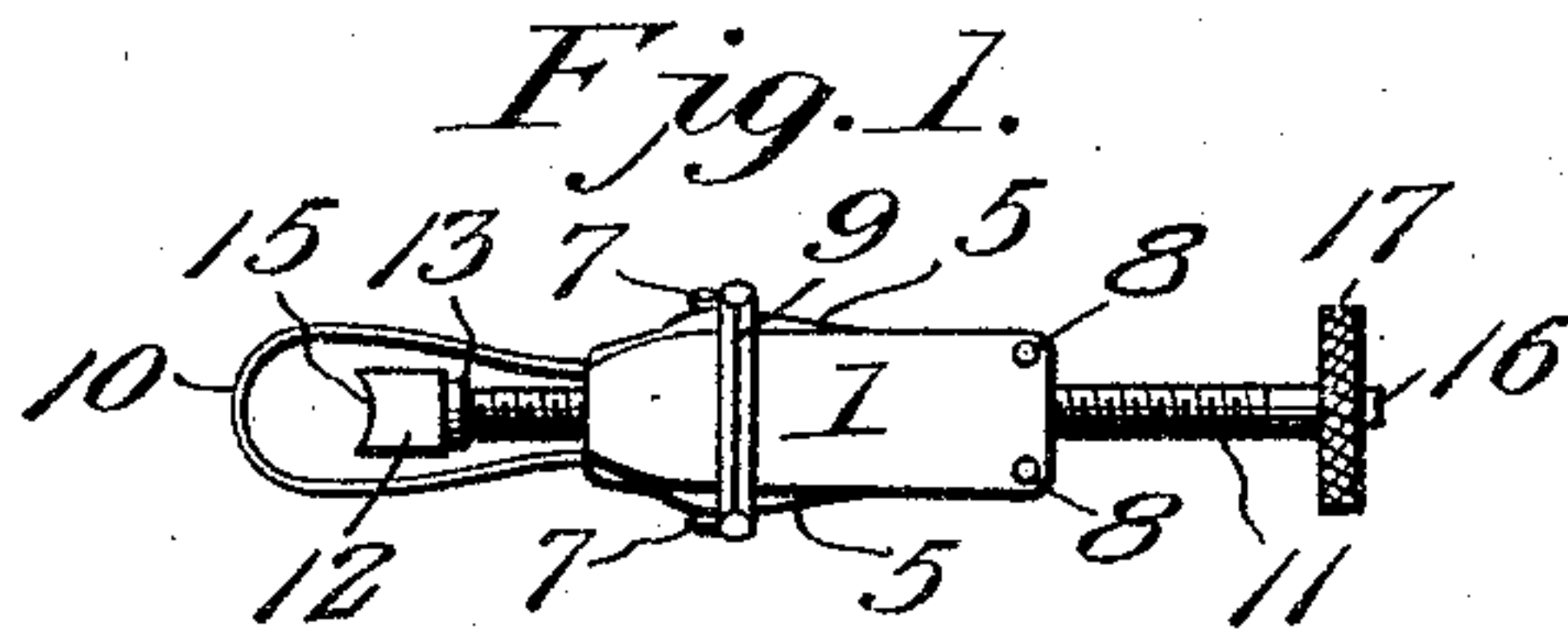


No. 785,619.

PATENTED MAR. 21, 1905.

C. M. LEFFINGWELL.  
DENTAL MATRIX RETAINER.  
APPLICATION FILED JUNE 22, 1904.



Witnesses

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# UNITED STATES PATENT OFFICE.

CLOSSON M. LEFFINGWELL, OF LITTLEFALLS, MINNESOTA.

## DENTAL MATRIX-RETAINER.

SPECIFICATION forming part of Letters Patent No. 785,619, dated March 21, 1905.

Application filed June 22, 1904. Serial No. 213,746.

*To all whom it may concern:*

Be it known that I, CLOSSON M. LEFFINGWELL, a citizen of the United States, residing at Littlefalls, in the county of Morrison and State of Minnesota, have invented new and useful Improvements in Dental Matrix-Retainers, of which the following is a specification.

This invention relates to dental matrix-retainers.

The objects of the invention are to improve and simplify the construction of such devices and to increase their efficiency in operation.

With these objects in view the invention resides in a dental matrix-retainer comprising a matrix-retaining band, means adapted to abut against a tooth, and means to adjust the abutting means against one side of the tooth and to adjust the band-retaining means against the opposite side thereof.

The invention also resides in the particular combination and arrangement of parts and in the precise details of construction hereinafter described and claimed as an embodiment of the invention.

In the drawings forming part of this specification, Figure 1 is a plan view of a device constructed in accordance with the invention. Fig. 2 is a horizontal section thereof, partly in elevation. Fig. 3 is a transverse section on the line 3 3 of Fig. 2. Fig. 4 is an end elevation of the swiveled head designed to abut against one side of the tooth which is encircled by the matrix-retaining band.

Like reference characters indicate corresponding parts in the several views.

The numeral 1 indicates a block which is formed on opposite sides with recesses 2 2. In each of the recesses 2 2 is formed a shoulder 3. Toward the rear end of the block the recesses 2 2 open into a large recess or cut-away portion 4. Pivoted to the block 1 by means of pins 8 8 are clamping members 5 5, which are adapted when closed to fit into the recesses 2 2. Each of the clamping members 5 is formed with a shoulder 6 and is provided with a pin 7. A band 9 surrounds the block 1 and clamping members 5. When the band 9 is pushed forward against the pins 7, the clamping members 5 are held closed, and when said band is moved in the opposite direction

the clamping members may be opened. The pivot-pins 8 8 of the clamping members project slightly at their ends beyond the surface of the block 1, whereby they serve to prevent the band 9 from slipping entirely off the block when the clamping member is opened, the pins 7 serving the same function at the opposite end of the block when the clamping members are closed.

The matrix-retaining band 10 is fitted at its ends into the recesses 2 2. When the clamping members are closed, the shoulders 6 thereon, in conjunction with the shoulders 3 of the recesses, exert a firm gripping or biting action thereupon by causing it to bend, as clearly shown in Fig. 2. It will be observed that the ends of the matrix-retaining band are disposed in the cut-away portion 4 of the block 1, whereby the band may be adjusted readily in a longitudinal direction upon the block to form a large or a small loop, according to the size of the tooth to be encircled.

Extending through the block 1 is a screw-shaft 11, which is provided at its forward end with a swiveled head 12, which rests against a collar 13 on the screw-shaft and is held in place by a nut 14. The swiveled head 12 is formed with concave portions or semicylindrical channels 15 15, which cross each other at a right angle, as clearly shown in Fig. 4.

The end 16 of the screw-shaft 11 is squared to receive a finger-nut 17, which is capable of being removed so that it will not be in the way during the operation of forming a matrix.

In using the device the tooth which is to be operated upon is encircled by the band 10 and the screw-shaft 11 is rotated to adjust the swiveled head 12 against the convex surface of one side of the tooth and to draw the matrix-retaining band against the opposite side thereof.

An important advantage of the device described is that it is adapted to clamp firmly a celluloid matrix-retaining band, as well as a steel matrix-retaining band. Furthermore, any simple form of band or celluloid ribbon may be employed with it.

In former devices of a similar character it is necessary generally to employ a steel band of peculiar construction, usually with perfor-



rations in its end. A celluloid band could not be used with such prior devices, as the perforated ends would not stand the strain. It is preferable to use celluloid bands as contemplated by this invention, as such bands are cheaper than steel bands. Furthermore, they do not retard the hardening of the material from which the matrix is made, as is the case frequently with steel bands.

10 Changes in the precise embodiment of the invention illustrated and described may be made within the scope of the following claims without departing from the spirit of the invention or sacrificing any of its advantages.

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

1. A dental matrix-retainer comprising a block having pivoted clamping-arms, a matrix-retaining band held by the clamping-arms, a screw-shaft extending through the block, and a head swiveled upon the end of the screw-shaft and adapted to abut against the tooth encircled by the band.

2. A dental matrix-retainer comprising a block having shouldered recesses in its sides,

a clamping member pivoted in each of the recesses and having a shoulder thereon, a band surrounding the block and the clamping members and movable longitudinally thereon to hold the clamping members in closed position, a matrix-retaining band held by the clamping members, a screw-shaft extending through the block, and a channeled head swiveled upon the end of the shaft and adapted to abut against the convex surface of the tooth encircled by the matrix-retaining band.

3. A dental matrix-retainer comprising a matrix-retaining band, a head adapted to abut against a tooth, and having channels therein crossing each other at an angle, and means for adjusting the head against one side of the tooth and for drawing the retaining-band against the opposite side thereof.

In testimony whereof I affix my signature in presence of two witnesses.

CLOSSON M. LEFFINGWELL.

Witnesses:

N. N. BERGHEIM,  
DON M. CAMERON.