J. W. IVORY.

MATRIX RETAINER.

APPLICATION FILED SEPT. 15, 1908.

911,307

Patented Feb. 2, 1909.

Fig. 1.

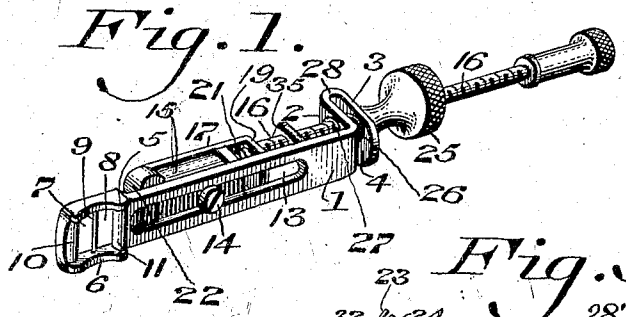


Fig. 5.

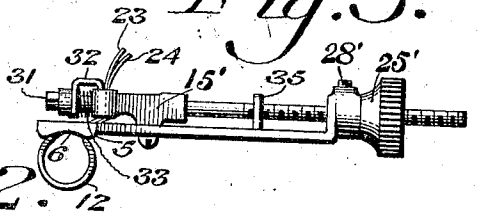


Fig. 2.

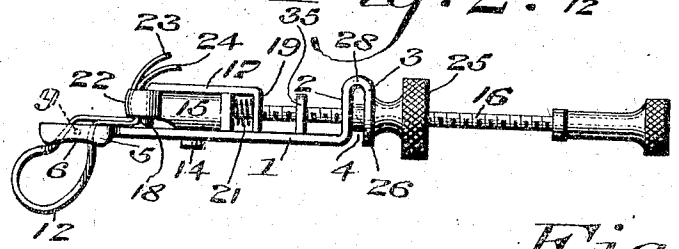


Fig. 3.

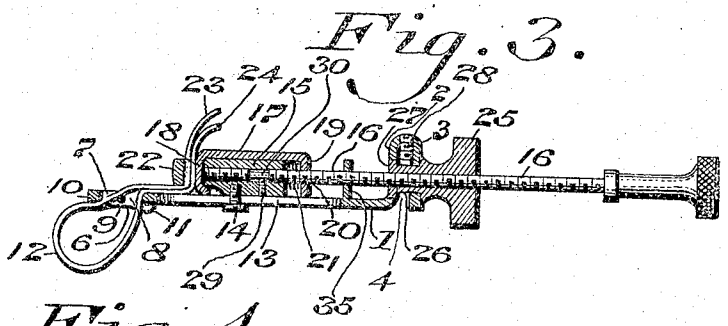
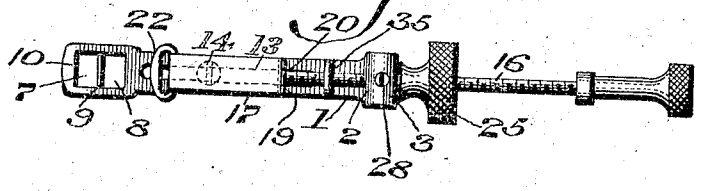


Fig. 4.



Witnesses

P. F. Nagle.

H. G. Dieterich

Inventor

James W. Ivory.

By Dyer, Thurman & Fairbank,

Attorney

UNITED STATES PATENT OFFICE.

JAMES W. IVORY, OF PHILADELPHIA, PENNSYLVANIA.

MATRIX-RETAINER.

No. 911,307. Specification of Letters Patent. Patented Feb. 2, 1909.

Application filed September 15, 1908. Serial No. 453,102.

To all whom it may concern:

Be it known that I, JAMES W. IVORY, a subject of the King of Great Britain, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Matrix-Retainer, of which the following is a specification.

The purpose of my invention is to conform a matrix to the shape of a tooth.

For the purpose of illustrating my invention I have shown in the accompanying drawing, one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents one form of my invention in perspective. Fig. 2 represents a similar clamp to Fig. 1 in side elevation, showing the matrix. Fig. 3 represents the same structure in longitudinal section. Fig. 4 represents a similar structure in top plan view. Fig. 5 represents a modified form of my invention in side elevation.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates a base bar which is bent laterally at one end at 2 and reversely bent at 3 to provide a space 4, while at the other end it is provided with a lateral face 5 preferably curved at 6 to conform to the usual shape of a tooth and apertured at 7 and 8, these spaces being separated by a bar 9. The faces 10 and 11 as well as the bar 9 are rounded to reduce the friction of the band or loop 12 thereon. The base bar is longitudinally slotted at 13 to provide a guide in which the screw 14 may travel, said screw passing through the slot into the nut 15 within which the screw 16 is adapted to operate. About the nut 15 I preferably form a casing 17 having a jaw 18 at the front end thereof and a back 19 apertured at 20 for passage of the screw 16. This casing 17 is most desirably rearwardly spring-pressed at 21 so as to bring its jaw 18 in contact with the end of the screw 16 and make it follow said screw. The jaw 18 cooperates with a jaw 22, which may be either integral with or separate from the nut 15 but which is preferably carried rigidly thereby, to produce a vise or clamp for the ends 23 and 24 of the strap or loop 12.

It will be evident that in the structure shown it is necessary for the clamp to be opposite the apertures 7 and 8 and that the jaw 17 be withdrawn from the jaw 22, differing in these particulars from the position shown in Fig. 3, in order that the ends 23 and 24 of the loop may be threaded therethrough.

The screw 16 is intended for a double purpose, both to tighten the clamping jaw of the vise upon the ends 23 and 24 of the loop or band and also to afford a means of longitudinal feed of this vise along the base bar 1. This latter function is accomplished by means of a nut 25 which is grooved at 26 and which is set within an aperture 27 in the transverse bends 2 and 3 of the base bar in such manner that the groove 26 shall in part coincide with the space between these transverse bends or plates. The screw 27 passing through the bend 28 of the base plate fills up this aperture 26 at one point and prevents withdrawal of the nut longitudinally, the same being free to rotate and by its rotation to cause the longitudinal movement of the screw 16 with the vise and strap in their set positions. Complete withdrawal of screw 16 from nut 15 is prevented by screw 29 fitted into groove 30, which forms a neck in said screw 16 or other suitable means, said groove freely receiving said screw 29.

While I have chosen to illustrate the form of the vise and the arrangement of the nut shown it will be evident that a great variety of these might be made use of for obtaining part of the benefit of my invention and that other forms or combinations than the bolt and operating nut might be made use of to secure common adjusting and tightening means.

In the form shown in Fig. 5, I make use of an independent clamping screw 31 to press the casing 32 against the ends 23 and 24, the casing being spring-retracted at 33. The support or guide 35 may be made use of in either of the forms shown, in serving to hold the screw 30 and its attachments parallel and steady.

It will be evident that the screw 31 impinges against the casing 32 to move it within the loop to clamp or release the ends 23 and 24 and that the spring 33 causes it to

follow up the screw upon the release thereof. It is evident also that there is no necessity for use of a screw 16 in this form for the purpose of tightening up the clamp, as its place is supplied by the screw 31. The same function of the screw here provided of longitudinally moving the head 15′ is present and the movement is provided by means of nut 25′ and limiting screw 28′, as in the other forms.

Having thus described my invention, what I claim as my invention and desire to secure by Letters Patent, is:

1. In a matrix clamp, a base bar, a slide movable longitudinally of said bar, a pair of coöperating jaws, one movable longitudinally of said slide, a spring normally separating said jaws, and means to move the slide and jaws longitudinally of said bar.

2. In a matrix clamp, a face adapted to engage with a tooth, a slide movable with respect thereto, a jaw fixed upon said slide, a jaw longitudinally movable with respect to said fixed jaw, means for normally supporting said jaws, and means for forcing the jaws together.

3. In a matrix clamp, a base, a vise movable longitudinally thereon, a bolt operating said vise, a nut through which said bolt turns, and a support for said nut permitting rotation but preventing longitudinal movement thereof along the base bar.

4. In a matrix clamp, a vise, a base bar, a nut, and a screw passing through the nut to tighten the vise and permit advance thereof along the base bar by movement of the nut.

5. In a matrix clamp, a base bar, a vise movable thereon, and common means for tightening the vise and longitudinally advancing it along the bar.

6. In a matrix clamp, a vise, a base bar, a screw engaging the vise to set the same, means for advancing the screw and vise longitudinally, and means for limiting retraction of said screw.

7. In a matrix clamp, a vise, a base bar, a screw engaging the vise to set the same, means for advancing the screw and vise longitudinally, and means comprising a recess in the screw and pin projecting therein for preventing complete retraction of said screw from said vise.

JAMES W. IVORY.

Witnesses:
W. S. Jackson,
John A. Wiedersheim.