

(No Model.)

J. E. KEEFE.
DENTAL CLAMP.

No. 575,894.

Patented Jan. 26, 1897.

Fig. 1.

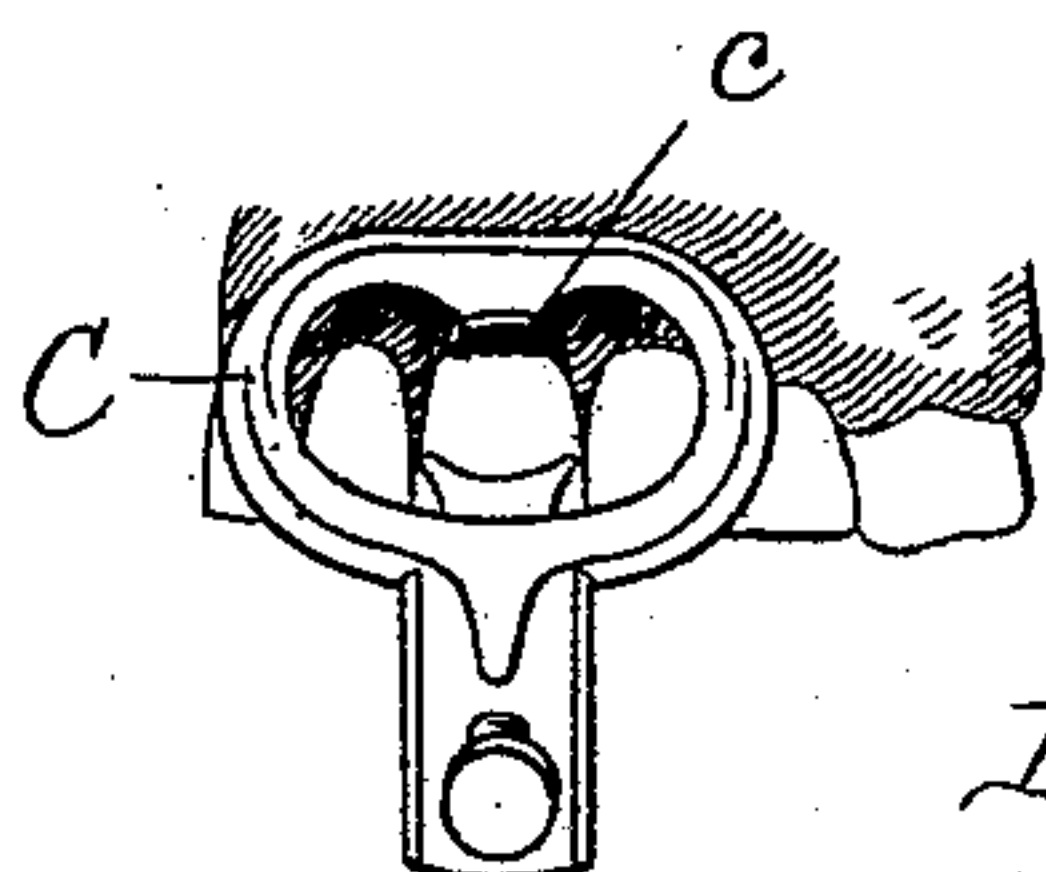


Fig. 2.

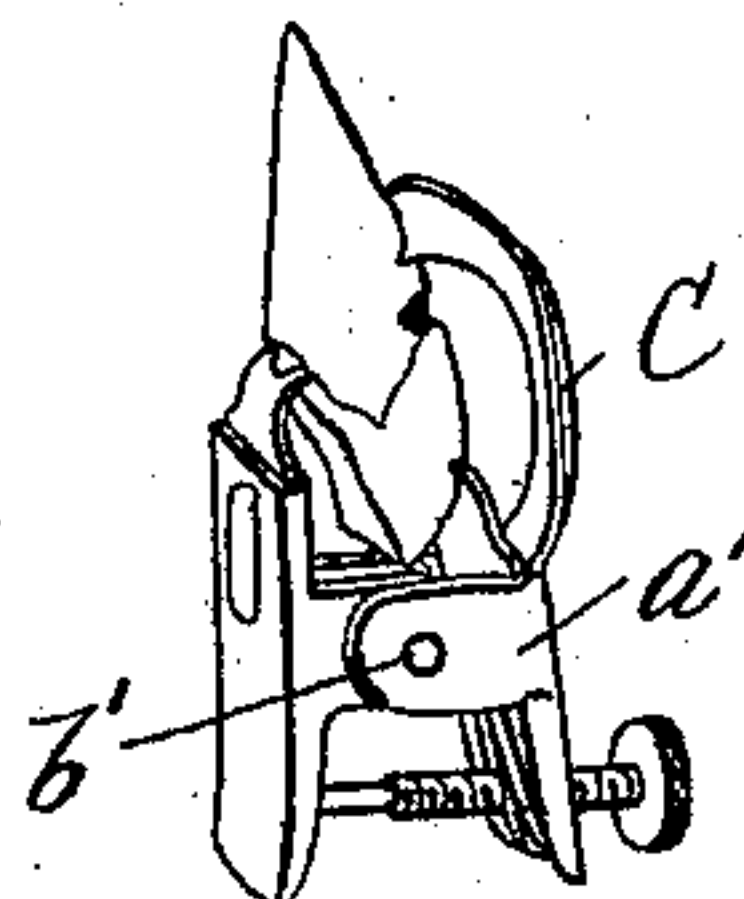


Fig. 3.

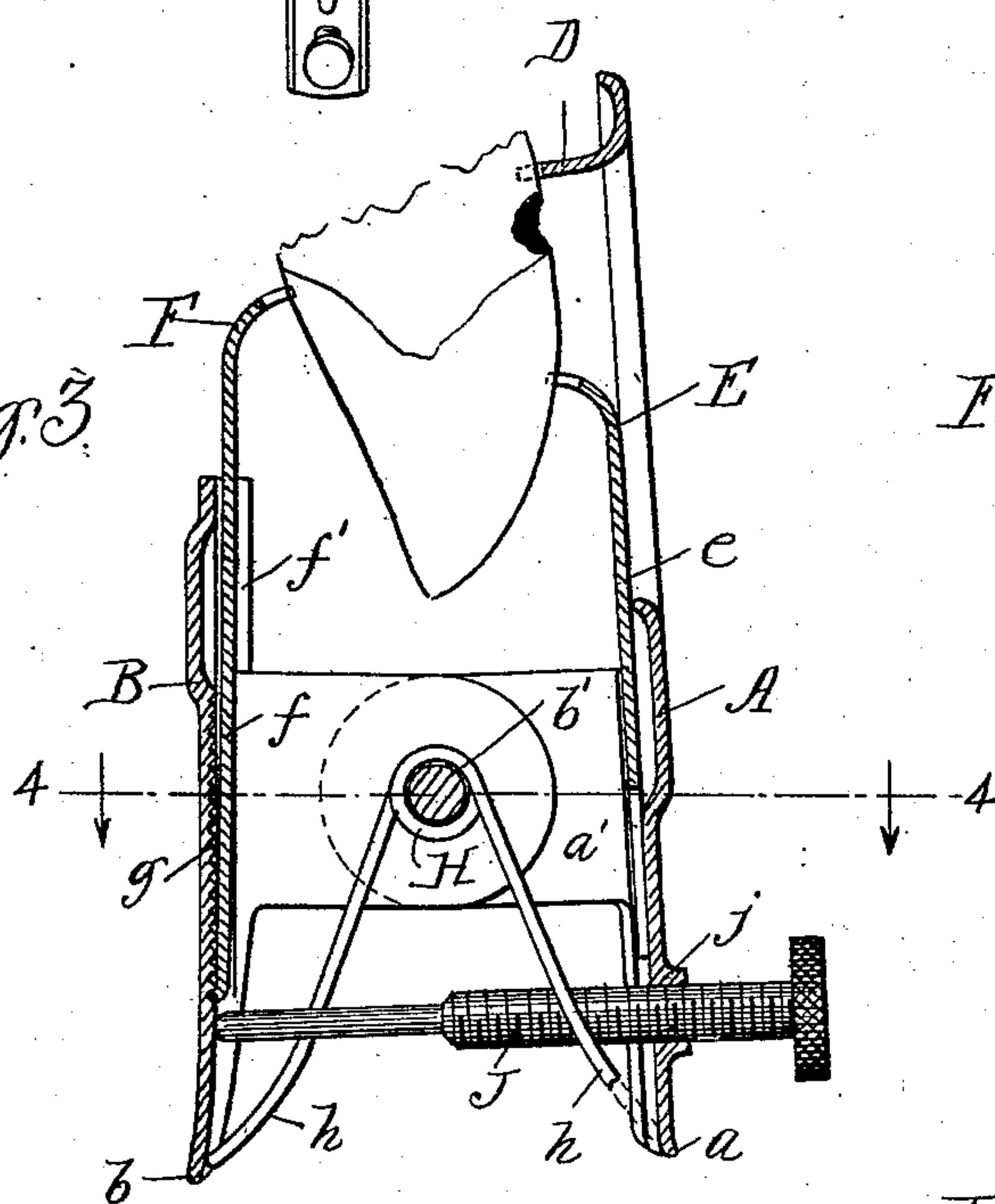


Fig. 5.

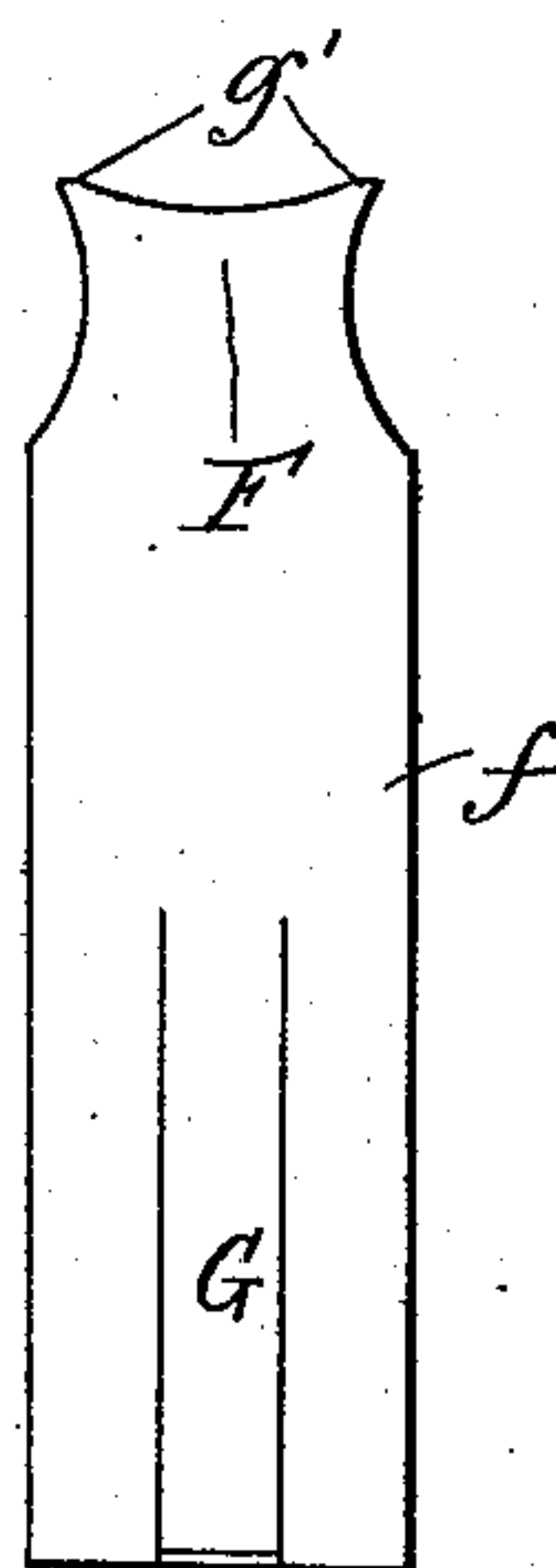


Fig. 6.

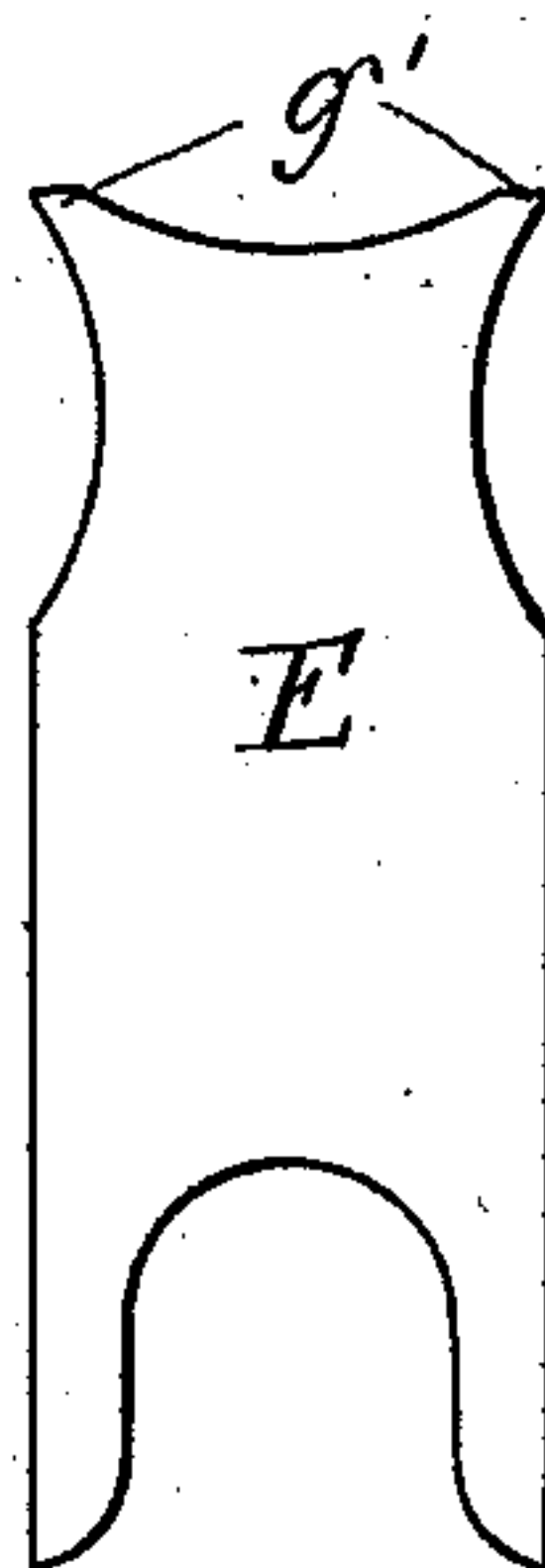
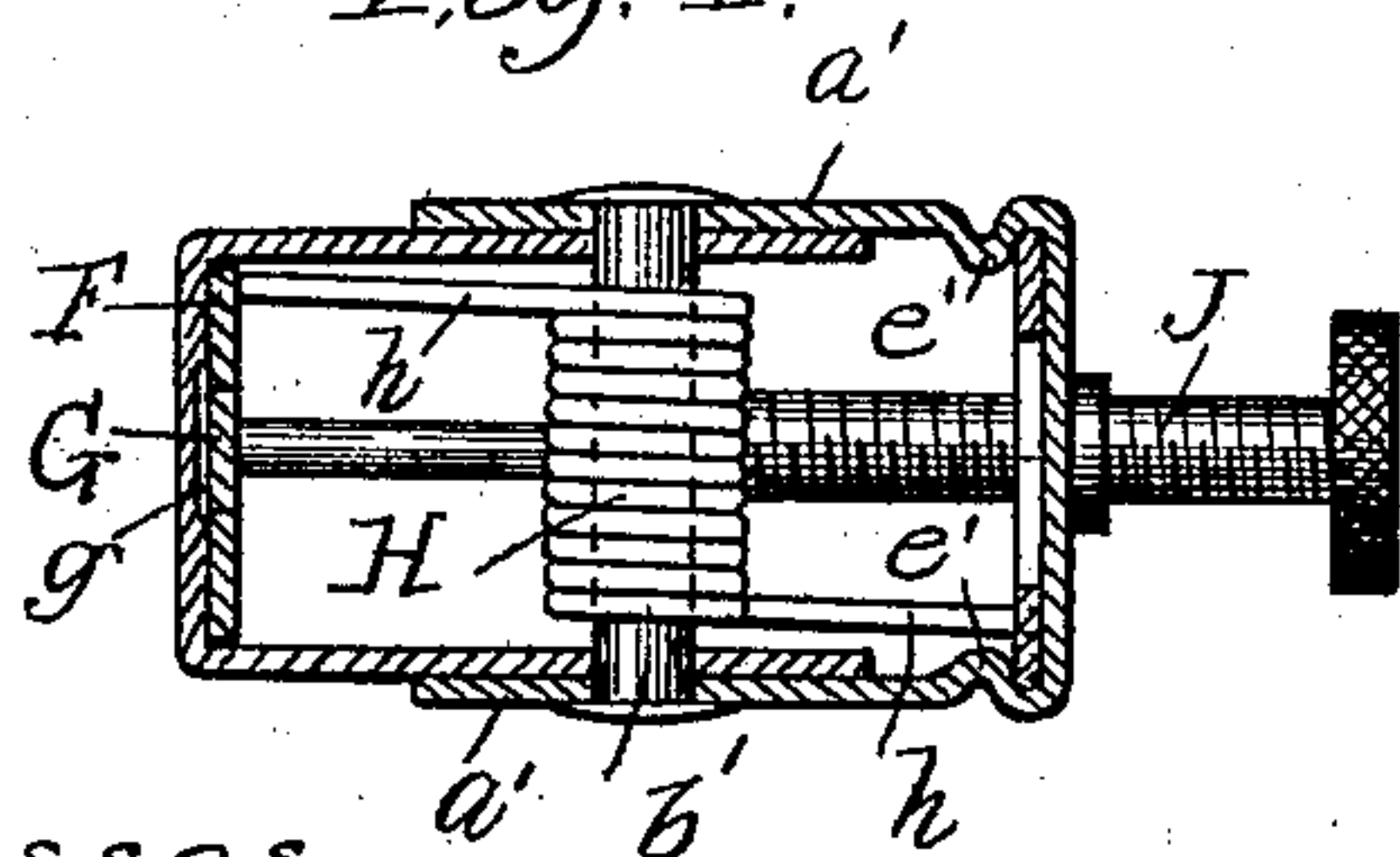


Fig. 4.



Witnesses.

Wm. M. Rhems

Wm. O. Bell.

Inventor.

James E. Keefe

By Raymond and Birchard
Attys.

Atty's

UNITED STATES PATENT OFFICE.

JAMES E. KEEFE, OF CHICAGO, ILLINOIS.

DENTAL CLAMP.

SPECIFICATION forming part of Letters Patent No. 575,894, dated January 26, 1897.

Application filed May 4, 1896. Serial No. 590,088. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. KEEFE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dental Clamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to dental clamps, and particularly to that class which are employed in connection with the filling of those cavities in teeth known in the profession as "labial" or "cervix" cavities.

It will be understood by those skilled in the art that the primary purpose of the clamp is to hold down the rubber which is usually put on the tooth to prevent saliva from running into the cavity, and to press the gum back and out of the way to enable the dentist to work in the cavity, through an opening provided in the clamp for that purpose, to better advantage.

The object of the present invention is to provide a clamp which can be readily adjusted upon a tooth and afterward tightened thereon to maintain it absolutely in place.

Another object of the invention is to provide clamping-jaws which may be readily adjusted for different applications, and finally, the object of my invention is to overcome many of the disadvantages incident to clamps of this character now in use and provide a labial clamp which shall be simple in construction, inexpensive, and easily manipulated.

With these and other ends in view the invention consists of the construction, combination, and arrangement of parts hereinafter pointed out, and illustrated in the accompanying drawings, referring to which—

Figure 1 is a front view of my device, showing it applied to a tooth. Fig. 2 is a side and perspective view of the device as it appears when in use. Fig. 3 is an enlarged sectional view showing the general construction. Fig. 4 is a transverse sectional view on the line 4 4 of Fig. 3, and Figs. 5 and 6 are detail views of the two adjustable jaws.

Referring to the drawings, in which like letters of reference denote corresponding parts in all of the figures, A and B designate two

members which are provided at their rear ends with thumb-pieces *a b*, and are pivotally secured together by means of a pivot-pin *b'*, which passes through the sides *a'* of the members. The member A is provided with an enlarged portion C, having an opening therein, as plainly shown in Fig. 1, the said opening being of sufficient size to expose a portion of the tooth, or at least that portion containing the cavity *c*, whereby the dentist is enabled to operate on the tooth through the opening in the enlarged portion C. This enlarged portion has on its under side an inwardly and downwardly curved stationary jaw D, which is adapted to push the gum upward beyond the cavity and hold the gum in this position when the device is arranged in place on a tooth.

A jaw E is arranged upon a plate *e*, and this plate is adjustably secured on the under side of the member A by means of the shoulders *e'*, which hold said plate against the member. This jaw can be readily adjusted by moving the plate back and forth in the member A. Another jaw F is arranged on a plate *f*, which is adjustably secured beneath the member B, and is adapted to slide back and forth on said member and within the inwardly-turned lugs *f'* thereon. This plate *f* is provided with a spring-section G, turned upwardly at its outer end and adapted to engage the rack *g* on the under side of the member B. The purpose of this rack and spring-section G is to maintain the jaw in its adjusted position in a rigid manner, so that the same will not become disarranged when the device is applied to a tooth.

The three jaws D E F are each provided at their extremities with claws *g'*, adapted to conform to a more or less extent to the contour of a tooth and facilitate the adjustment of the device upon a tooth.

Coiled around the pin *b'* is a spiral spring H, whose extremities *h* impinge against the inner sides of the thumb-pieces *a b* and thus force the jaws arranged on the members together. In many cases the pressure produced by the spring is sufficient of itself to hold the clamp in place on a tooth; but to avoid all possible danger of the device becoming disarranged I have provided a tightening-screw J, which is threaded in a boss *j*, formed on one member and whose inner end is adapted

to impinge against the inner side of the opposite member, the said tightening-screw being located at or about the thumb-pieces on said members. It will be understood that in
 5 manipulating my device the tightening-screw J is screwed outward, so as to allow the jaws to be opened sufficiently to admit the tooth to be operated upon, after which, the thumb-pieces being compressed until the jaws are
 10 sufficiently spread apart, the device is slipped along the tooth until the jaw D has forced the edge of the gum on the front of the tooth backward a sufficient distance to disclose the cavity in the tooth through the opening in the
 15 enlarged portion C of the member A. The pressure on the thumb-pieces is then released and the force of the spring H, acting on the thumb-pieces, will clamp the jaws securely on the tooth and cause the device to be held
 20 rigidly in position, at which time, if found necessary or desirable, the tightening-screw can be adjusted to exert upon the jaws a greater pressure, whereby the device is more firmly secured upon a tooth.

25 By having the jaws E F adjustable on their respective members it is possible to employ the device in almost every case where an operation of the character herein described is necessary, as the device may be readily ad-
 30 justed to teeth of different kinds and to teeth in which cavities are differently located.

I am aware that changes in the form and proportion of parts and details of construction of my invention may be made without
 35 departing from the spirit and without sacrificing the advantages thereof, and I would therefore have it understood that I reserve the right to make all such changes as fairly fall within the scope and spirit of my inven-
 40 tion. For example, the jaw D may be dispensed with as a means for clamping the device upon a tooth, as the jaws E and F will be sufficient for this purpose, and instead of making said jaw D in the manner and form
 45 hereinbefore described it may consist of a wire or some other material which can be bent to conform substantially to the shape of the gum in order to hold the gum away from the cavity, the sole purpose and function of said
 50 jaw D in this embodiment being to hold the gum clear of the cavity.

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

55 1. In a dental clamp, the combination of

two members suitably connected together, a jaw carried by one member, a rack on the other member, and an adjustable plate carried by said member and provided with a jaw and means for engaging said rack whereby
 60 the jaw can be adjusted on the member, substantially as described.

2. In a dental clamp, the combination of two members suitably connected together, the shoulders *e'* on one member, a plate ad-
 65 justably secured on the under side of said member by said shoulders and carrying a jaw at its outer end, a rack on the other member, the inwardly-turned lugs *f'* and a plate operating in said lugs and carrying a jaw and
 70 provided with a spring-section to engage said rack, substantially as and for the purpose described.

3. In a dental clamp, the combination of two members pivotally secured together, an
 75 adjustable jaw carried by each of said members, a spiral spring adapted to operate upon the rear ends of the members to force the jaws on the clamp in contact with the tooth and a tightening-screw operating through a
 80 threaded boss upon one member and engaging the under side of the other member to tighten the clamp upon the tooth after it has been adjusted and held in its adjusted posi-
 85 tion by the spring, substantially as described.

4. In a dental clamp, the combination of two members suitably pivoted together, a rigid jaw and an adjustable jaw carried by one member, a rack on the other member, and
 90 an adjustable jaw carried by said member and provided with a spring-section adapted to engage said rack, and means for securing the clamp upon a tooth, substantially as described.

5. In a dental clamp, the combination of
 95 two members suitably pivoted together, a rigid jaw on one member, a shoulder on said member, a plate operating within said shoulder and carrying a jaw, a rack on the other member, a plate secured to said member and
 100 provided with a spring-section adapted to engage said jaw, a jaw on said plate, a spring adapted to clamp the said jaws on a tooth and a tightening-screw, substantially as described.

JAMES E. KEEFE.

Witnesses:

WM. O. BELT,
 M. E. SHIELDS.