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F. E. ROACH.

THUMB SUPPORT AND ROOT BRACE FOR ENAMEL CLEAVERS.

APPLICATION FILED NOV. 24, 1902.

NO MODEL.

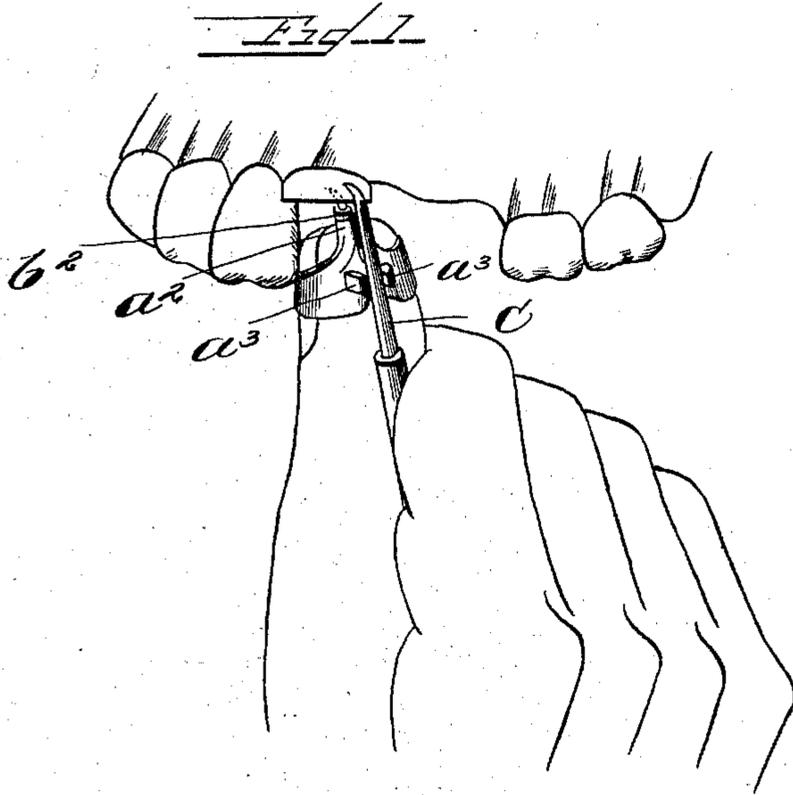


Fig. 2

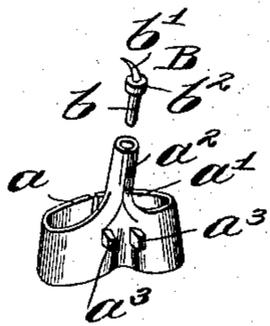


Fig. 5

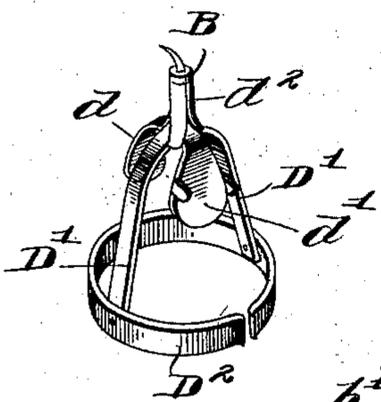


Fig. 3

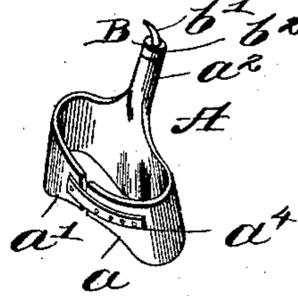


Fig. 4

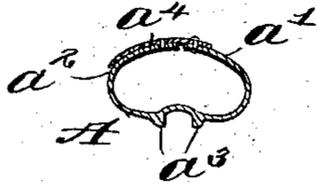


Fig. 6

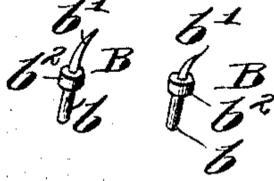
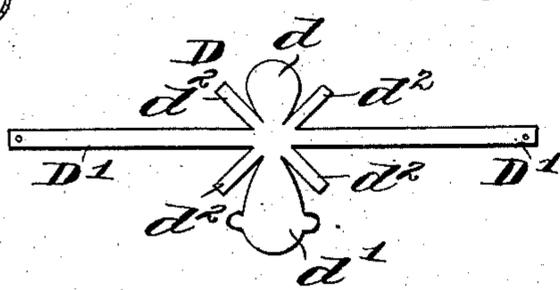


Fig. 7



WITNESSES

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# UNITED STATES PATENT OFFICE.

FINIS E. ROACH, OF CHICAGO, ILLINOIS.

## THUMB-SUPPORT AND ROOT-BRACE FOR ENAMEL-CLEAVERS.

SPECIFICATION forming part of Letters Patent No. 749,881, dated January 19, 1904.

Application filed November 24, 1902. Serial No. 132,646. (No model.)

*To all whom it may concern:*

Be it known that I, FINIS E. ROACH, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Thumb-Supports and Root-Braces for Enamel-Cleavers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly to a combined thumb-support and root-brace for dentists when cleaving the enamel from a root or tooth. In operations upon the teeth it is often necessary to remove therefrom portions of the enamel, as in the case of a root which it is desired to cap. To do this, it has usually been necessary heretofore to support the hand by pressing the thumb against an adjacent tooth and to engage the tooth or root from which it is desired to cleave the enamel with the usual hooked cleaving-tool. When the operation is so performed, no support whatsoever is afforded for the tooth or root operated upon, and the pulling, chipping, or cleaving of the enamel therefrom is in consequence very painful to the patient, as well as much more difficult to the operator than would be the case if the tooth or root itself could be positively engaged and held against the action of the cleaver.

The object of this invention is to provide a brace designed to be worn upon the hand of the operator and adapted to positively engage the tooth or root operated upon, affording an effective brace therefor against the pull of the cleaver. It is also an object of the invention to guard the thumb from injury during the cleaving operation.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a perspective view illustrating the operation and use of a device embodying my invention. Fig. 2 is a perspective view of one form of my invention, showing in elevation the front side of the

same. Fig. 3 is a perspective view of the same, showing the opposite side of the same. Fig. 4 is a transverse section of the same. Fig. 5 is a perspective view of a preferred form of my invention. Fig. 6 is a view of two of the removable points embodied in my invention. Fig. 7 is a plan view of a blank from which the construction shown in Fig. 5 is formed.

As shown in said drawings, the thumb-support is constructed in the form of a thimble open at the outer end and adapted to be worn upon the thumb of the operator. Said thimble in the construction illustrated in Figs. 1, 2, 3, and 4 is constructed of a single piece of plate metal bent or cut to a desired shape and having the ends  $a$   $a'$  bent to engage around the thumb, as shown in Fig. 1. The plate at the outer end portion of the thimble is bent to form the sleeve  $a^2$ , positioned on the inner side of the thumb when in use and which is bent slightly outwardly, as shown in Figs. 1, 2, and 3. The removable points or spurs B, which are of different lengths, each comprise a shank  $b$ , which fits closely in said sleeve, and an enlargement  $b^2$  thereon, which limits the inward adjustment of the shank in said socket or sleeve. A fine outwardly-turned point  $b'$  is provided on said spur, which is adapted to engage in the nerve-canal of the tooth or root when the device is in use and prevents the brace slipping from the tooth or root during the operation.

As shown, projections  $a^3$  are provided above said sleeve adapted to receive the shank of the enamel-cleaver C between the same and which serve as guides therefor, as shown in Fig. 1, and in the construction illustrated in Figs. 1, 2, 3, and 4 an inward bend or depression is provided in the inner wall of the brace to receive the shank of the cleaver and to permit the same to be firmly grasped against the thumb when in use. Means are shown for adjusting the device to fit the thumb comprising a strap of metal  $a^4$ , rigidly secured by riveting or in any desired manner to one of the ends  $a'$  and provided with a plurality of apertures disposed along its length and adapted to engage over a pin secured on the end member  $a$  and adapted to rigidly hold said end

members in position to adjust the device to a desired size.

Conveniently a single blank (indicated as a whole by D in Fig. 7) may be used in construction of the form of the invention shown in Fig. 5. Said blank comprises oppositely-directed straps D', having integrally connected at right angles therewith the rounded plates  $d$   $d'$ , adapted to engage above and below the thumb and of which the plate  $d'$  is the larger. Arranged intermediate with the straps D' and plates  $d$  and  $d'$  are the relatively short straps  $d''$ , as shown four in number, and which when the blank is shaped to provide the brace are turned outwardly, as shown in Fig. 5, and brought together to form the sleeve  $d''$  for the spurs B, while the plates  $d$   $d'$  are turned inwardly, as before described. The straps D' are also turned inwardly and are pivotally engaged at their ends with the comparatively broad cleft ring D<sup>2</sup>, preferably of spring metal. The length of the straps D' is such that when the thumb is inserted into the device the ring encircles the thumb near the first joint thereof and owing to the resiliency of the ring permits the device to be readily adjustable on different sizes of thumbs. The angles between the straps D' and the plate  $d'$  serve as guides for the cleaver, as before described.

The operation is as follows: The device constructed as described is capable of adjustment to any size of thumb. A spur of a desired length and shape is secured to the socket  $a^2$  or  $d''$ , and the point of the same is inserted in the canal of the tooth or root to be operated upon, as shown in Fig. 1. The construction of the spur and its engagement in the sleeve permit of free movement of the hand of the operator without bringing strain on the tooth, inasmuch as the spur is free to turn in said sleeve. When the cleaver is brought into requisition, the shank rests against the guide, holding the tool from slipping. Inasmuch as the root or tooth is firmly held against the pulling action of the cleaver it is obvious that the operation is rendered much easier for the operator and less painful to the patient.

Obviously the device may assume many different forms and may be of any desired shape and construction, and the shape, size, and length of the spurs may be varied to suit the requirements and varying conditions of use. Any desired materials may be employed, and, if preferred, many details of construction may be varied without departing from the principles of my invention.

I claim as my invention—

1. A dentist's thumb-support and root-brace comprising a thimble adapted to be worn upon the thumb and a point on the outer end thereof adapted to engage the root to be operated upon.

2. A device of the class described compris-

ing a thimble, a curved point carried thereon, shaped to engage a tooth or root and a part on said thimble shaped to afford a guide for the tool.

3. A device of the class described comprising a thimble, means thereon for adjusting the same to a desired size and a point at the outer end thereof adapted to engage in the canal of a root or the like.

4. A device of the class described comprising a thimble adjustable as to size, a point at the outer end thereof adapted to engage in the canal of a root or the like, and a guide against which the operating-tool engages when in use.

5. A device of the class described comprising a thimble adjustable as to size, a shoulder thereon against which the tool when in use engages, and a sharp curved point at the outer end of the thimble adapted to engage the part to be operated upon and to hold the same against the action of the enamel-cleaver or the like.

6. A device of the class described comprising an open-work thimble, means admitting adjustment thereof as to size, an integral shoulder against which the tool when in use engages, and a sharp curved point at the outer end of the thimble adapted to engage the part to be operated upon and to hold the same against the action of the enamel-cleaver or the like.

7. A dentist's thumb-support and root-brace comprising a thimble adapted to be worn upon the thumb and a rotative point on the outer end thereof adapted to engage the root to be operated upon.

8. A dentist's thumb-guard and root-brace comprising a thimble adapted to be worn upon the thumb, means admitting of adjustment thereof as to size and a curved rotative point on the outer end thereof adapted to engage the root to be operated upon.

9. A device of the class described constructed from a blank a part of which comprises a thimble and a part of which comprises a socket opening therefrom, and removable spurs of varying sizes adapted to engage in said socket, some of said spurs having curved points.

10. A device of the class described comprising a thimble adjustable as to size and a rotatable curved point at the outer end thereof adapted to engage in the canal of a root or the like.

11. A thimble adapted to be adjusted upon the thumb, means for adjusting the same for different sizes and shapes of thumbs, a cylindrical socket at the outer end of the thimble and rotatable partly-curved spurs of varying lengths adapted to be adjusted in the socket.

12. A thimble for the purpose specified comprising a resilient band adapted to engage around the thumb, integral straps of metal pivotally engaged thereon and extending downwardly on each side of the thumb, plates adapt-

ed to engage above and below the thumb and integral with said straps and a pointed spur secured at the junction of said plate and straps and extending outwardly therefrom.

5 13. A device for the purpose specified comprising a resilient split ring adapted to engage about the thumb near the first joint thereof, straps pivotally connected thereon and adapted to engage along the sides of the thumb when  
10 the device is in use, an elongated flat plate in position to engage below the thumb, a shorter plate to engage above the thumb, a sleeve extending outwardly from the open thimble thus formed and a pointed spur rotatively engaged  
15 therein having an outwardly-curved point.

14. A skeleton-shaped thimble adjustable as to size and shape and adapted to be engaged upon the thumb and to extend to near the first joint thereof, an outwardly-opening socket at

the extremity of the thimble and a spur rotatively engaged in the socket. 20

15. A thimble adapted to engage on the thumb of the operating-hand and a part thereon acting to engage and hold the tooth or root against the action of the tool. 25

16. A thimble for the purpose specified adapted to be worn on the thumb of the operating-hand and rotative means thereon acting to engage the tooth or root against the action of the tool. 30

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

FINIS E. ROACH.

Witnesses:

C. W. HILLS,  
A. C. ODELL.