



No. 619,272.

Patented Feb. 14, 1899.

A. W. BROWNE.  
HEAD REST.

(Application filed Aug. 11, 1898.)

(No Model.)

3 Sheets—Sheet 2.

FIG. 3.

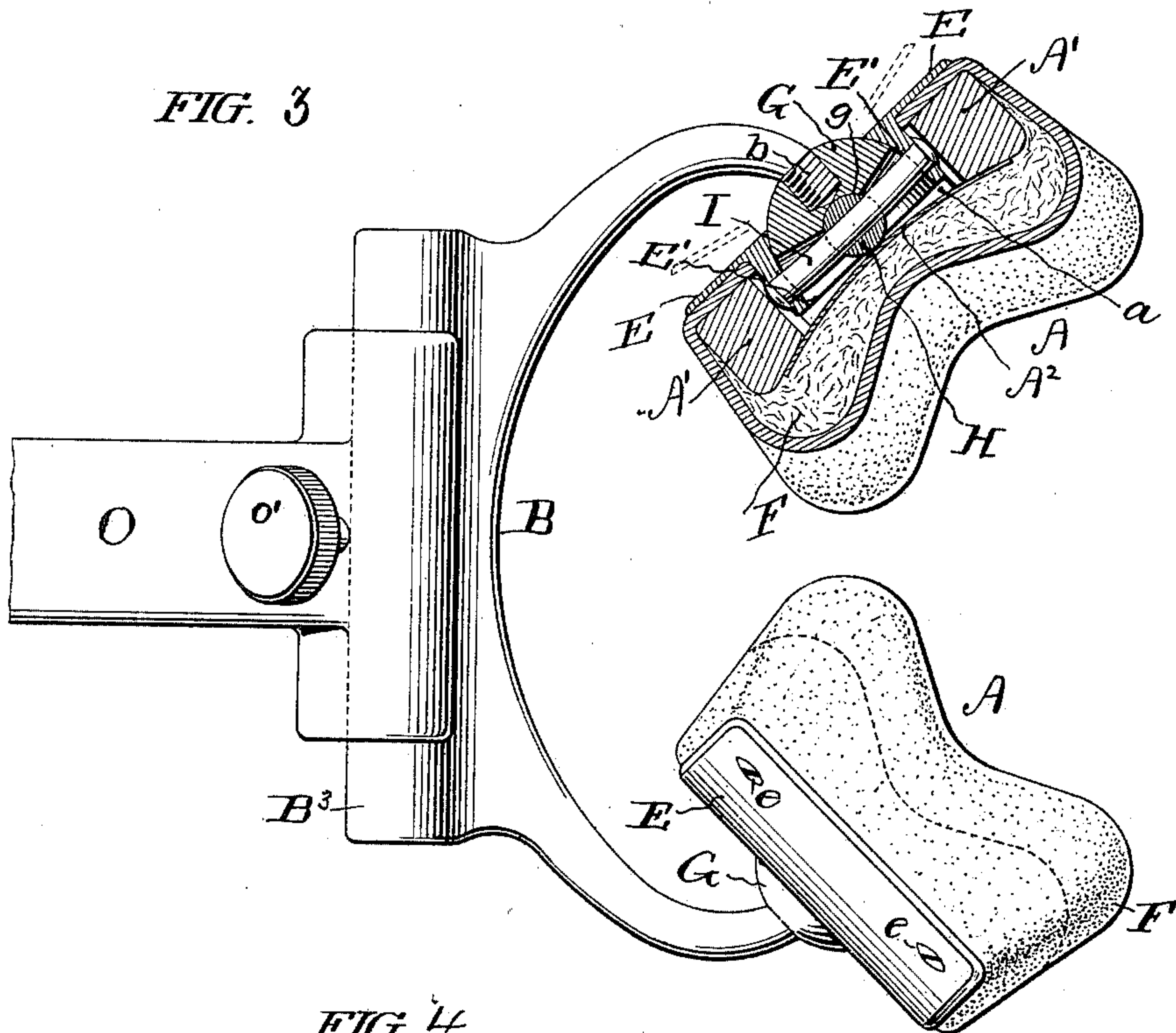


FIG. 4.

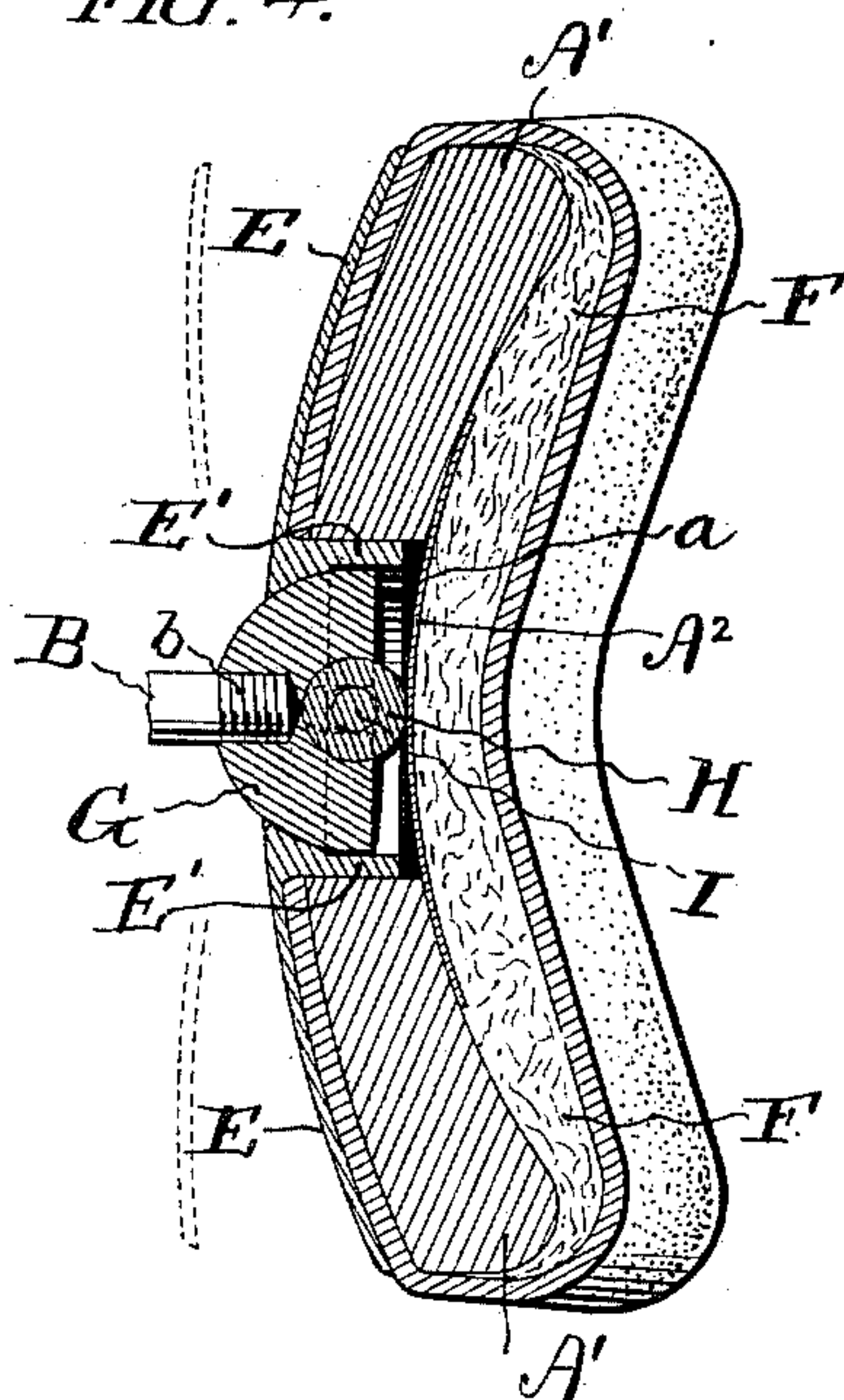


FIG. 5.

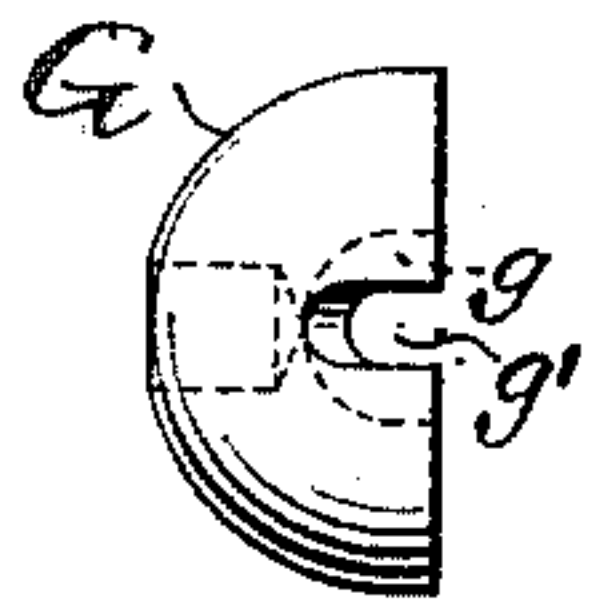


FIG. 6.

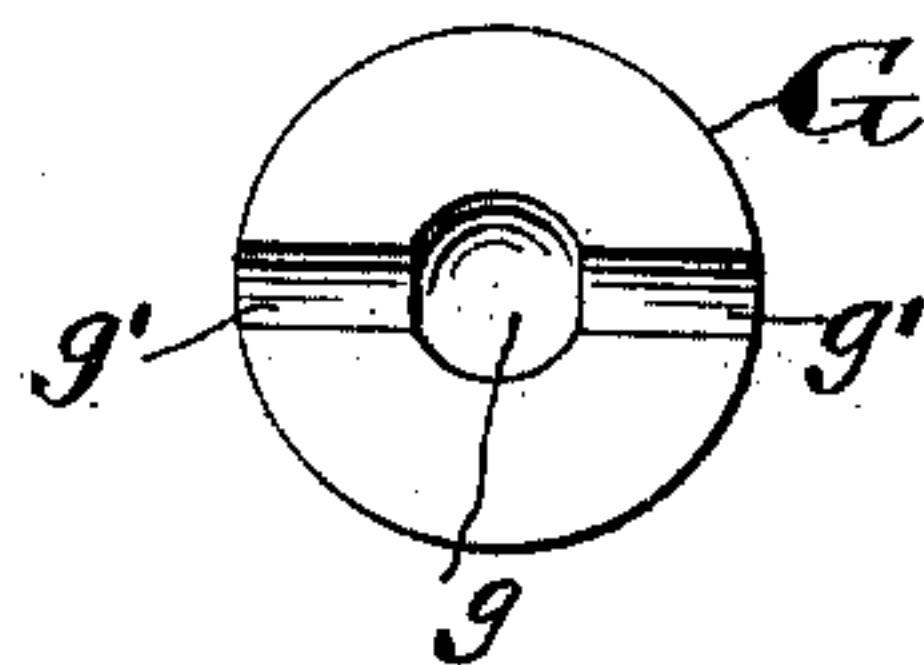
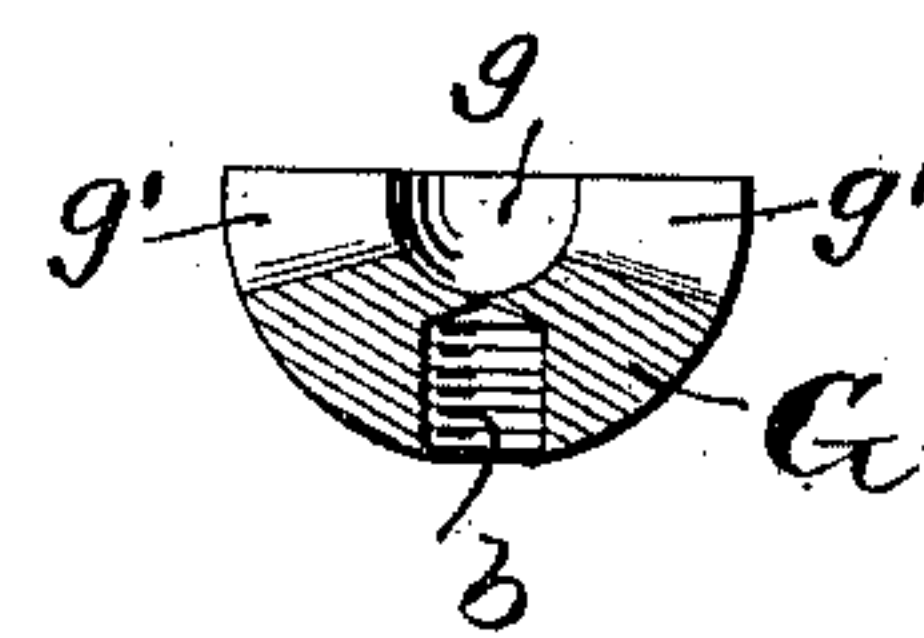


FIG. 7.



WITNESSES:

*Chas. Jones*  
*Theodore Vaile*

INVENTOR:

*Arthur W. Browne*  
*by Edw. F. Simpson, Jr.*  
*his Attorney.*



A. W. BROWNE.

HEAD REST.

(Application filed Aug. 11, 1898.)

(No Model.)

3 Sheets—Sheet 3.

FIG. 8.

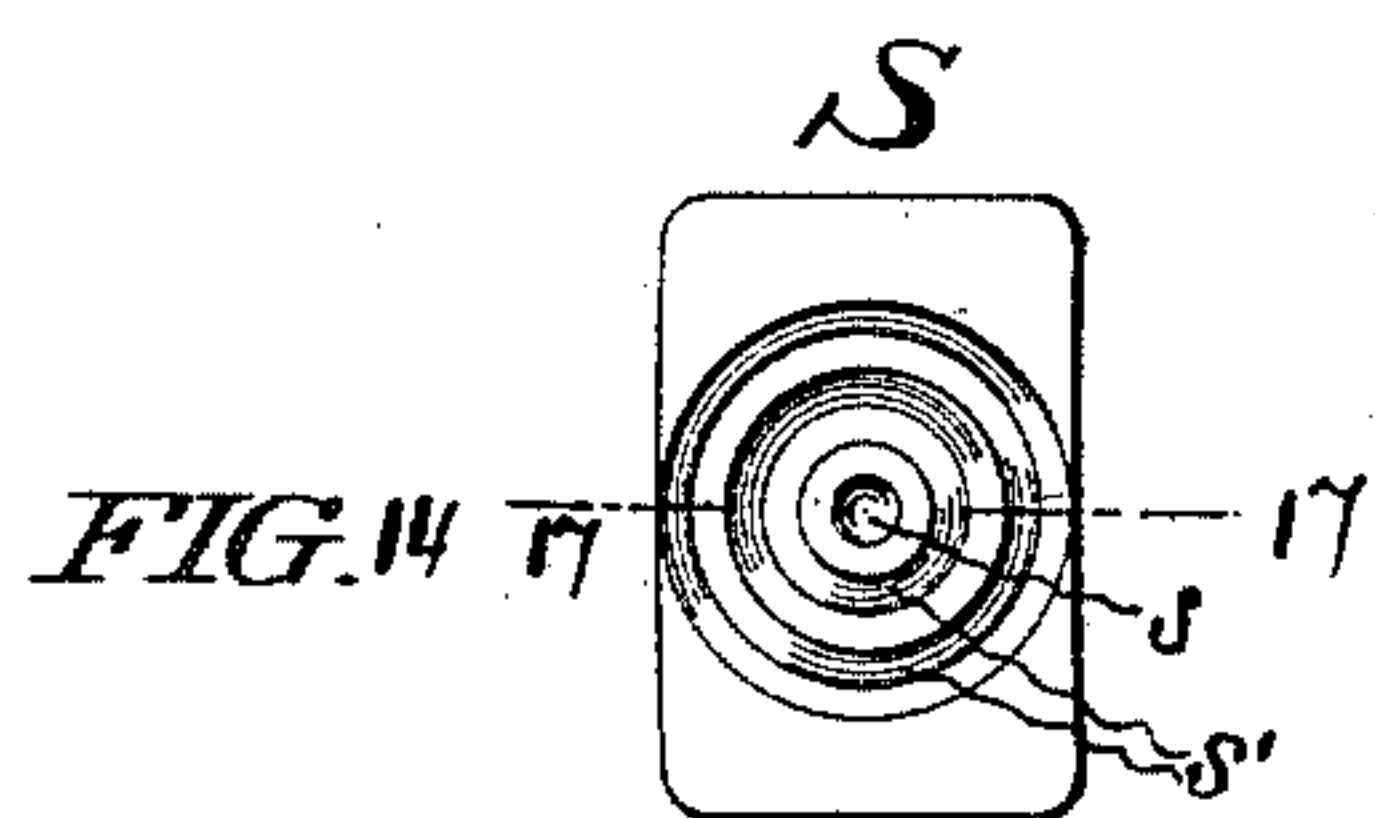
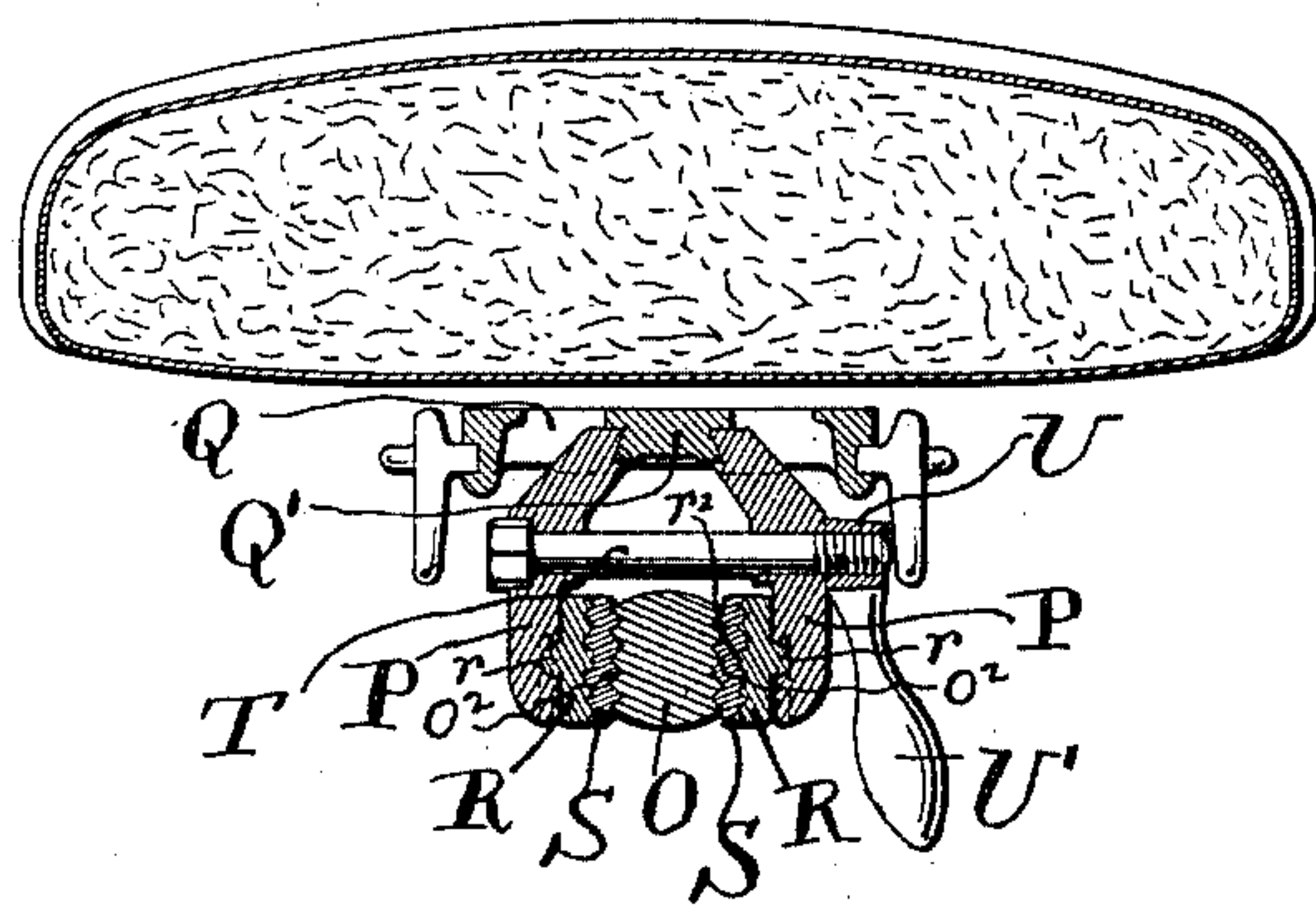


FIG. 16.

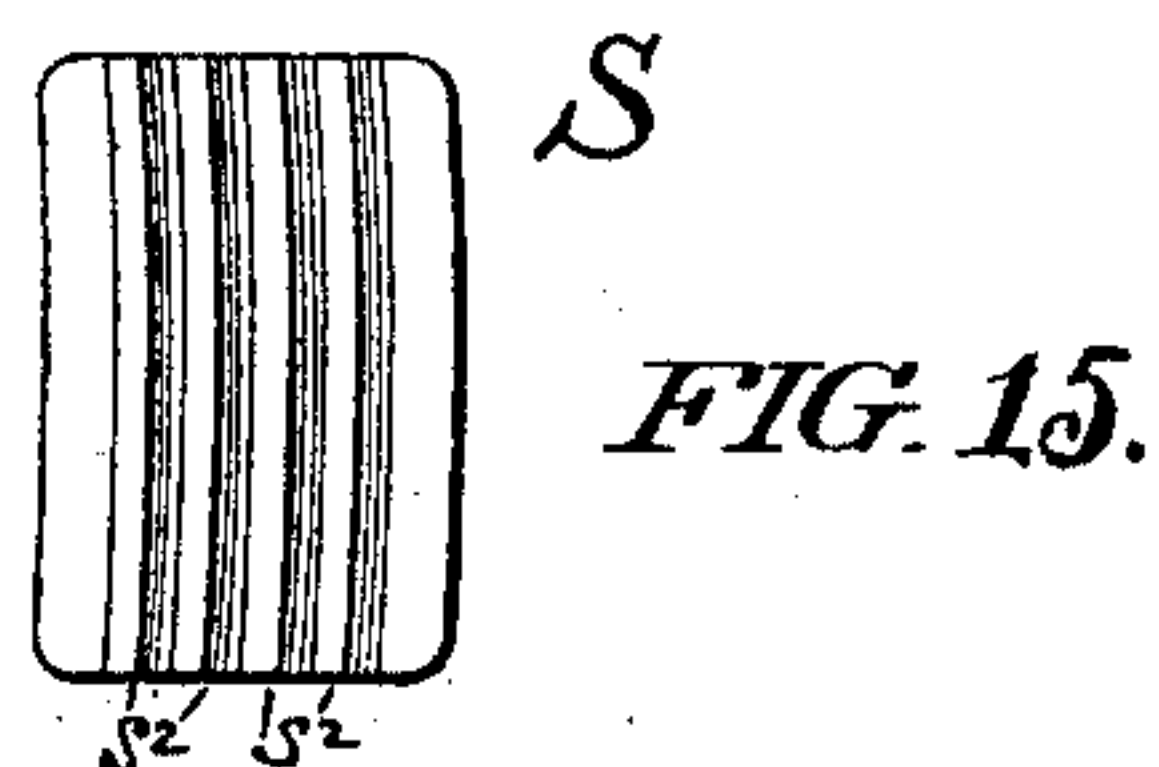
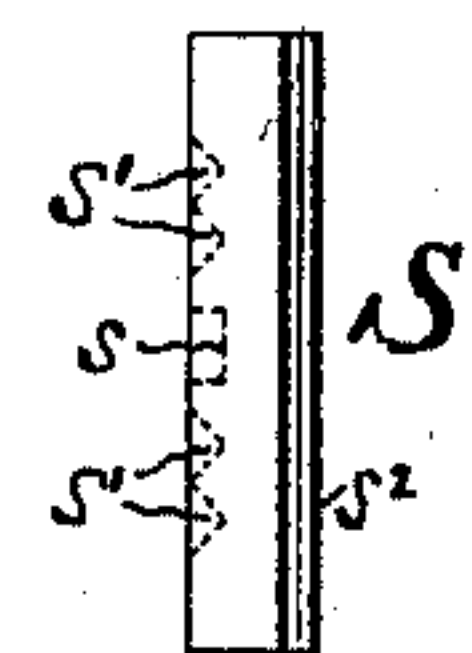


FIG. 17.

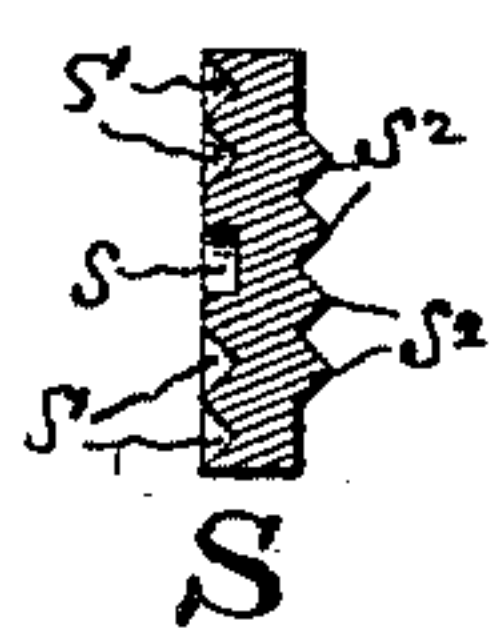


FIG. 10.

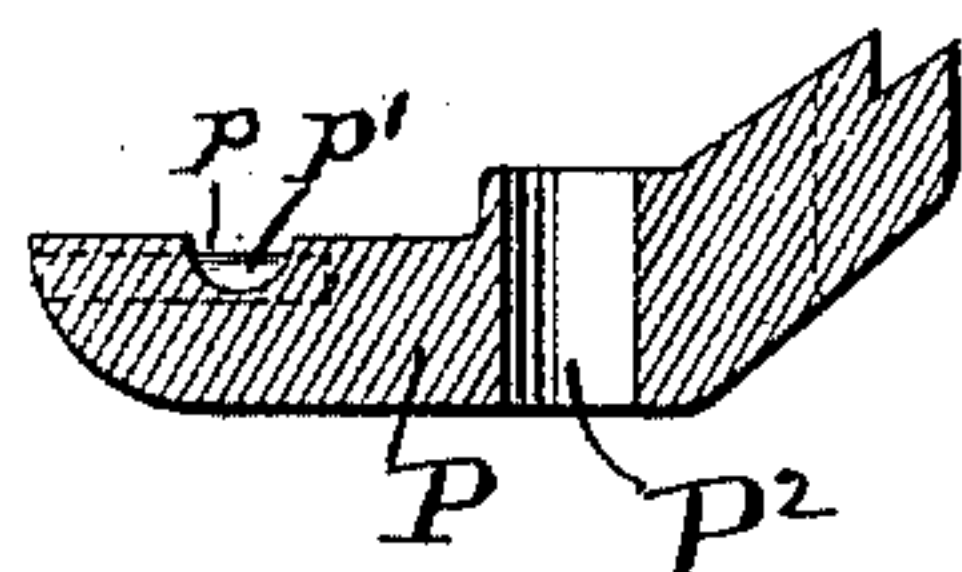


FIG. 13.

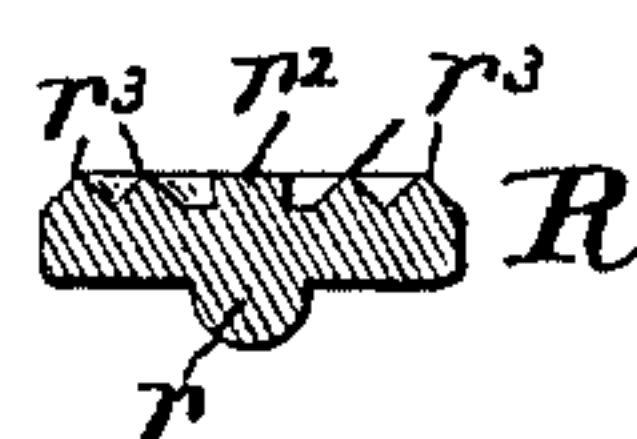
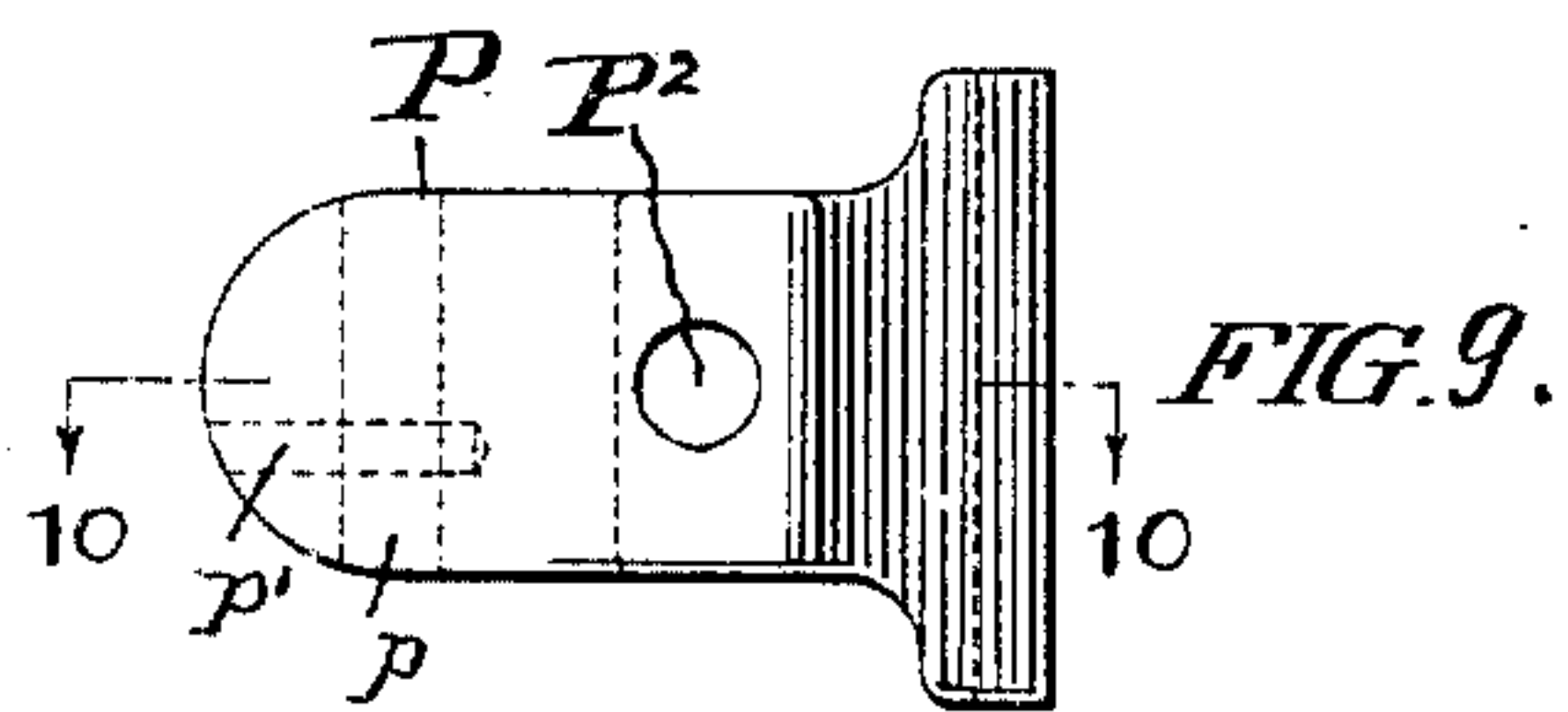
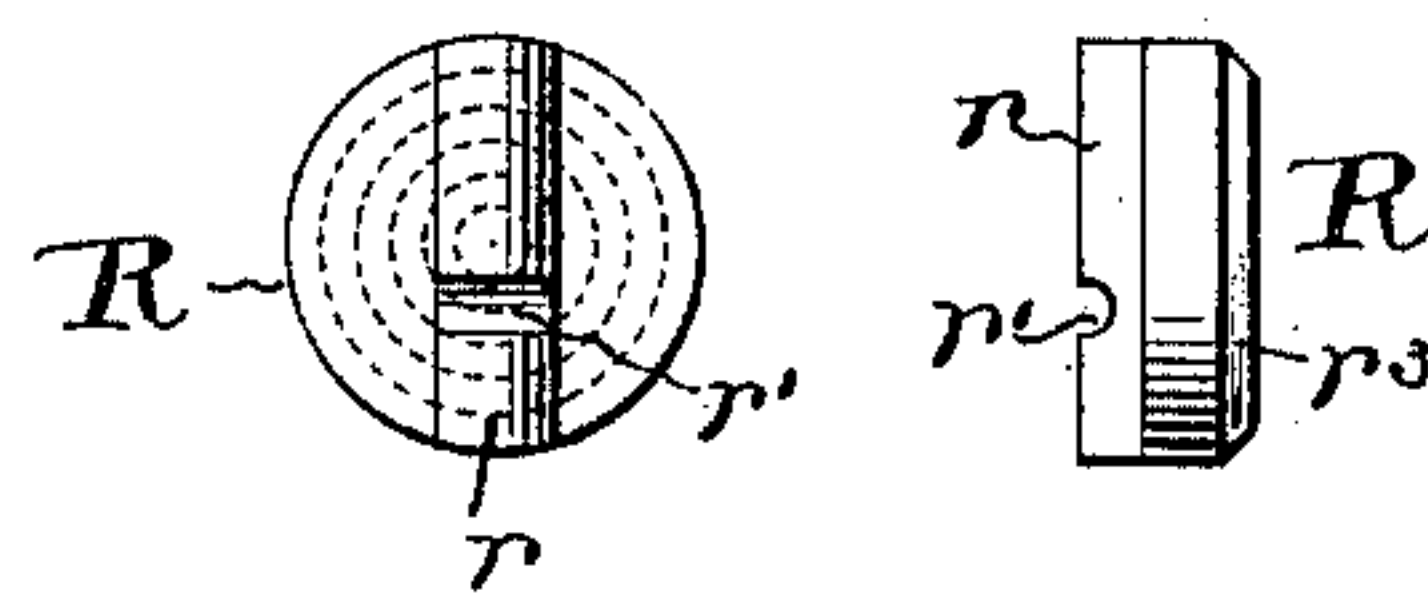


FIG. 11.

FIG. 12.



WITNESSES:

*Chas. Jones*  
*Theodore Vance*

INVENTOR:

*Arthur W. Browne*  
*by Edw. F. Simpson, Jr.*  
*his Attorney.*



# UNITED STATES PATENT OFFICE.

ARTHUR W. BROWNE, OF NEW YORK, N. Y., ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## HEAD-REST.

SPECIFICATION forming part of Letters Patent No. 619,272, dated February 14, 1899.

Application filed August 11, 1898. Serial No. 688,336. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR W. BROWNE, a citizen of the United States, residing at New York, (Prince's Bay,) in the county of Richmond and State of New York, have invented certain new and useful Improvements in Head-Rests; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to head-rests for dental chairs; and it consists in certain improvements, which will be hereinafter fully described and then specifically pointed out in the claims.

The object of the invention is to provide a head-rest that is self-adjusting and comfortable to patients and also to provide a head-rest support that is susceptible of a very wide range of adjustment and that can be quickly and easily adjusted and firmly locked in position.

My present improvements in some respects resemble the head-rest shown and described in Letters Patent of the United States No. 612,660, granted to me October 18, 1898, and I do not wish to be understood as claiming herein anything shown or described in said patent.

In the accompanying drawings, in which the same letters refer to similar parts throughout the different views, Figure 1 is a view in rear elevation of the back of a dental chair with my improved head-rest applied thereto. Fig. 2 is a view in side elevation of the same. Fig. 3 is a view in rear elevation, on an enlarged scale as compared with the preceding views, of the head-rest proper, one of the pads of which is shown in section and the supporting-arm being broken away. Fig. 4 is a sectional view of one of the pads, the section being drawn at a right angle to the section shown in Fig. 3. Figs. 5, 6, and 7 are different views of the ball member of one of the ball-and-socket joints for the head-rest pads. Fig. 8 is a horizontal section through the chair-back and head-rest support on the lines 8 8 of Figs. 1 and 2. Figs. 9 to 17, inclusive, are detail views of the separate parts of the clamp for the head-rest-supporting arm, Fig. 9 being a

view in elevation of the inner side of one member of the clamp, Fig. 10 a sectional view of said clamp member on the line 10 10 of Fig. 9, Fig. 11 an edge view of one section of the clamp-shoe, Fig. 12 a face view thereof, and Fig. 13 a cross-sectional view of the same. Fig. 14 is a face view of one side of the other member of the clamp-shoe; Fig. 15, a face view of the opposite side thereof; Fig. 16, a side view, and Fig. 17 a section of the same on the line 17 17 of Fig. 14.

As in my before-mentioned patent, the present improvements comprise a head-rest proper and a support therefor. The head-rest proper in this instance has two yieldingly-supported or self-adjusting pads instead of four such pads, as before. These pads A A are counterparts of each other and are directly connected to the opposite ends or extremities of a curved or bowed supporting-bar B, carried at the upper end of a supporting-arm O, which forms part of the head-rest support, farther on to be described. The opposite ends or branches of the supporting-bar are preferably curved inwardly or extend toward each other. The connections between the pads and the supporting-bar are ball-and-socket joints, preferably constructed as follows: Each pad is composed of a wood block A', to the back of which is attached a metal base-plate E by means of screws e, the pad being provided with the usual upholstery F. The base-plate E is formed with a central cylindrical portion extending into a corresponding opening a in the wood block and constituting a socket E', in which is seated a ball G, rigidly secured to the extremity of one end or branch of the supporting-arm B, as by screw-threaded connection b. The inner end of the opening a in the wood block A' is closed by a metal plate A<sup>2</sup>. The "ball" G, so called, is, in fact, only a half-ball or a little more than a hemisphere, and on its inner surface is provided with a central seat or socket g, concentric with the outer curved surface of the ball. A smaller ball H is seated in the ball-socket g, and a rod or pin I, passing through the ball H and pivoted at its opposite ends in the base-plate socket E', serves to hold the parts in position. The rod or pin I may be slightly bowed or bent, as shown,



for the purpose of causing it to act as a spring to produce the proper amount of friction in the ball-and-socket joint—that is to say, between the small ball H and the ball G and between said ball G and the socket E'. Slots or grooves  $g'$  are formed in the inner surface of the ball G on opposite sides of the socket  $g$ , and the rod I, which lies in said grooves, is adapted to move therein. It will therefore be seen that each pad is capable of being rocked about the ball G in a line approximately parallel with the supporting-bar B or toward and away from the opposite pad, the rod I rocking with the ball H in the grooves  $g'$  to permit this movement. Each pad may also be rocked at an angle to the supporting-bar, the rod I turning in or with the ball H to permit such movement. Owing, however, to the rod I being placed in the grooves  $g'$  the pad cannot be rotated about the ball G, but can only be moved as described. The movement of the pads when rocked in a line approximately parallel with the supporting-bar is limited in either direction by the rod I coming in contact with the bottoms of the grooves  $g'$ , the limit of this movement being indicated by dotted lines, Fig. 3. The movement of the pads when rocked at an angle to said supporting-bar is limited in opposite directions by the plate A<sup>2</sup> coming in contact with the inner face of the ball G, the limit of this movement being shown in dotted lines, Fig. 4.

It will be observed that, like in my said prior patent, the center of each ball-and-socket connection between each pad and its supporting-arm is inside the pad, substantially in the center thereof and near its upholstered surface.

The supporting-bar B of the head-rest is formed on its lower edge with a preferably round guide rib or projection B<sup>3</sup>, adapted to have horizontal sliding connection with a transverse guideway-groove  $o$  in the upper end of the supporting-arm O of the support for the head-rest. By this construction the head-rest proper may be adjusted to one side or the other of the said supporting-arm by moving the supporting-bar B laterally in the supporting-arm, and it may also be rocked backwardly and forwardly relatively to said arm. A set-screw  $o'$  in the supporting-arm should be employed for locking the supporting-bar in any position to which it may be adjusted.

The support for the head-rest proper is in this instance constructed as follows: The hereinbefore-mentioned supporting-arm O, to the upper end of which the head-rest proper is connected, is curved throughout its length in a line with the front and back of the chair and is adjustably held by a clamp having vertically-adjustable connection with the chair-back. This clamp is shown as consisting of two members or side pieces P P, having vertically-adjustable sliding connection

with the chair-back-carrying frame Q by the way of a dovetail guideway Q'. The opposite sides of the supporting-arm are formed with a series of parallel grooves  $o^2$ , extending longitudinally thereof and curved to correspond therewith. Two-part clamp-shoes are interposed between the respective members of the clamp and the adjacent sides of the supporting-arm. The outer section of each shoe consists of a disk R, having a lug or bead  $r$  across one face and which fits in a corresponding groove  $p$  on the inner surface of the clamp members R, a pin  $p'$  in said groove and fitting in a notch  $r'$  in said lug serving to hold the disk in place. The opposite face of the disk is formed with a central boss  $r^2$  and concentric ridges  $r^3$ , surrounding said boss. The inner section S of each shoe is preferably oblong in shape and is formed on one side with a central socket  $s$  and concentric grooves  $s'$ , arranged around said socket, corresponding with and adapted to engage the boss and ridges on the shoe-section R. The opposite face of the inner section S of the shoe is formed with a series of longitudinal parallel ridges  $s^2$ , corresponding to the grooves on the side of the supporting-arm, with which they are adapted to engage and have sliding connection. It will thus be seen that the clamp carrying the supporting-arm is not only capable of being adjusted up and down upon the chair-back, but that the supporting-arm is capable of being adjusted up and down and rocked back and forth independently of said clamp. When the supporting-arm is adjusted vertically in the clamp, it moves between the sections S of the shoe, which sections are prevented from moving with said arm by means of the engagement of the concentric grooves of the sections of the shoe, and when said arm is rocked back and forth the section S turns on the section R about the engaging ridges and grooves and boss and socket.

Suitable means are provided for clamping and unclamping the clamp P, said means preferably consisting of a headed bolt T, passing through holes P<sup>2</sup> in the members of the clamp, and a nut U, screwing upon the threaded end of the bolt, which projects beyond one of the members of the clamp. The nut U is formed with a handle U', by the turning of which the members of the clamp may be forced toward each other to clamp the supporting-arm in any position to which it may be adjusted or to force said members apart to permit said supporting-arm to be freely adjusted.

The grooves in the supporting-arm and the shoes not only serve to hold the parts in their proper related positions, but also serve to increase friction and firmly hold the supporting-arm in position without liability of its being accidentally moved by pressure applied to it by the head of a person seated in the chair to which my improved head-rest may be applied. The pressure of the clamp mem-



bers P P on the supporting-arm is equally distributed by means of the lugs or beads *r r*, which extend across one face of each section R of the clamp-shoes.

5 From the above description it will be seen that with a head-rest support constructed according to my invention the head-rest is susceptible of a very wide range of adjustment, and when adjusted to any of the various positions it may be caused to assume it may be  
10 very easily, quickly, and firmly locked in such position. It will further be seen that the head-rest proper is practically self-adjusting or automatic in accommodating itself to  
15 any size and shape head, the pads yielding to accommodate themselves to varying conditions and firmly supporting the head the instant the correct position has been attained.

In practice it is only necessary to actuate  
20 the handle U' to unclamp the support, when the supporting-arm may be moved up and down, either by moving it with the clamp or moving it in the clamp, and swung forwardly or rearwardly to bring the head-rest to the  
25 proper position and then firmly locked in position by simply tightening the single operating-handle. The pads will then take care of themselves and assume the necessary positions for affording the proper support to the  
30 patient's head without the manipulation of any clamps, screws, or other locking devices for the head-rest proper. This self-adjustment of the head-rest is due to the fact that the head-rest pads are independently supported upon the head-rest-supporting bar by  
35 ball-and-socket joints, by reason of which construction each pad will yield when the head comes in contact with any point of it until the opposite ends or corners of the pad  
40 come in contact with the head, when all movement of the pads ceases. After the pads have been moved until their entire surfaces, or at least their ends or corners, according to the shape of the pads, are brought in contact  
45 with the head they cannot be moved farther by the head no matter how much pressure is brought to bear upon them. When, however, the head is turned in any direction, the pads immediately yield to accommodate themselves  
50 to the new position of the head.

When the dentist desires to bring the patient's head to one side or other of the chair and nearer to or farther away from himself, he has but to loosen the set-screw *o'* and  
55 move the head-rest proper to the desired position, after which the set-screw may be tightened. In this way, also, the head-rest proper as a whole may be adjusted angularly relatively to the supporting-arm.

60 Obviously my improved head-rest proper and the support therefor may be used interchangeably—that is to say, the head-rest proper may be used in connection with any other suitable form of support, and the improved support may be used in connection  
65 with head-rests of any suitable construction.

Obviously, also, many changes may be made both in the head-rest and in the support therefor without departing from the spirit and scope of my invention, and I therefore do not  
70 wish to be understood as confining myself to the particular details of construction herein shown and described. For instance, while I prefer that the clamp for the supporting-arm should have vertically-adjustable connection  
75 with the chair-back this adjustment of the clamp may be omitted without affecting the efficiency of the head-rest, inasmuch as the supporting-arm has vertically-adjustable connection with said clamp.  
80

I claim as my invention—

1. The combination, in a head-rest, of a curved or bowed supporting-bar the opposite ends or branches of which are curved inwardly or extend toward each other, a head-rest pad connected directly to the extremity  
85 of each branch of said supporting-bar, yielding ball-and-socket connections between said pads and the extremities of said branches of the supporting-bar, the center of each ball-and-socket connection being inside the respective pads, and means for applying frictional tension upon said ball-and-socket connections, whereby the pads are independently  
90 movable and self-adjusting, substantially as described.

2. The combination, in a head-rest, of a supporting-bar having two branches, a head-rest pad connected to the extremity of each branch of said supporting-bar, yielding ball-and-socket connections between said pads  
100 and the extremities of said branches of the supporting-bar, means for permitting the respective pads to be independently rocked about said yielding ball-and-socket connections in a line parallel with said supporting-bar, and also at angles thereto, and means for preventing said pads from rotating about  
105 said branches of the supporting-bar to which they are connected, substantially as and for the purpose described.

3. The combination, in a head-rest, of a supporting-bar, a half-ball secured to the extremity thereof and formed on its inner flat face with a central socket and grooves opening  
115 into said socket, a head-rest pad having a metal base-plate provided with a central socket in which the said half-ball is seated, a rod secured to said base-plate socket and extending across the same and also passing  
120 through the grooves in the half-ball, and a smaller ball fitted upon said rod and seated in the socket of said half-ball, substantially as and for the purpose described.

4. The combination, in a head-rest, of a clamp having vertically-adjustable sliding  
125 connection with a chair-back, a supporting-arm curved in a line with the front and back of said chair-back and having vertically-sliding and backward and forward rocking connection with said clamp below the top of said  
130 chair-back, means for locking the clamp and



the supporting-arm in any position to which they may be adjusted, and a head-rest carried at the upper end of said supporting-arm, substantially as and for the purpose described.

5 5. The combination, in a head-rest, of a clamp adapted to be connected to a chair-back and consisting of two members movable toward and away from each other, a supporting-arm between the members of said clamp  
10 and vertically adjustable therein, clamp-shoes interposed between said supporting-arm and the respective members of said clamp, means for moving said clamp members toward and away from each other, and a head-rest carried  
15 at the upper end of said supporting-arm, substantially as and for the purpose described.

6. The combination, in a head-rest support, of a clamp adapted to be connected to a chair-back and consisting of two members movable toward and away from each other, a  
20 curved supporting-arm having longitudinally-grooved sides, a sectional clamp-shoe between the respective members of the clamp and the adjacent sides of the supporting-arm,  
25 the said supporting-arm having longitudinal sliding connection with the inner sections of

the clamp-shoes and said inner sections of the clamp-shoes having turning connection with the outer sections thereof, and means for moving the members of the clamp toward and  
30 away from each other, substantially as and for the purpose described.

7. The combination, in a head-rest support, of a clamp consisting of two members, the inner ends of which have vertical sliding en-  
35 gagement with a chair-back, a curved supporting-arm having vertically-adjustable connection with said clamp and also having backward and forward rocking connection there-  
40 with relatively to said chair-back, and a single operating device for simultaneously locking said clamp in any position to which it may be adjusted upon the chair-back and  
45 said supporting-arm in any position to which it may be adjusted relatively to said clamp, substantially as and for the purpose described.

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

ARTHUR W. BROWNE.

Witnesses:

GEO. D. HECK,

GEORGE F. SCULL, Jr.