

Sept. 1, 1925.

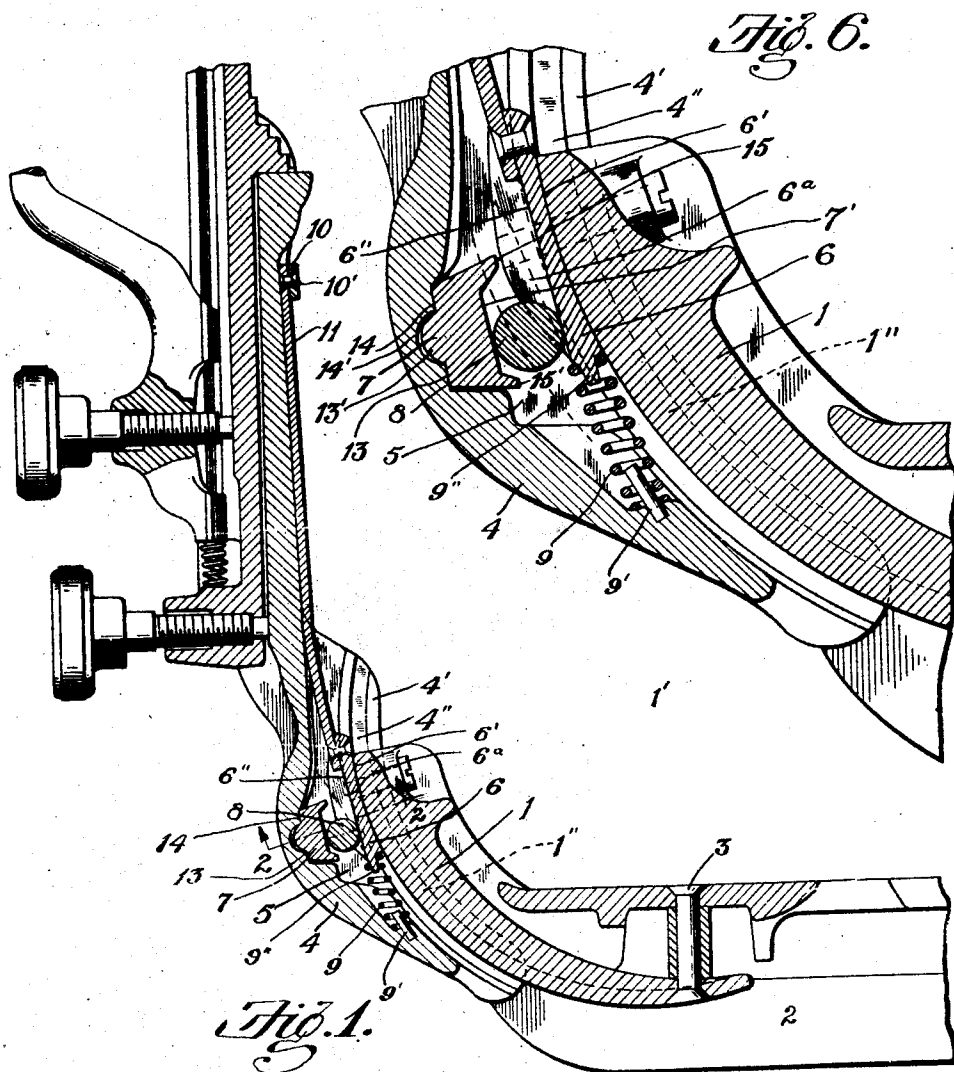
1,551,730

F. E. CASE

DENTAL CHAIR

Original Filed Aug. 30, 1922

2 Sheets-Sheet 1



Inventor

Frank E. Case.

By *F. E. Case and Bond*

Attorneys

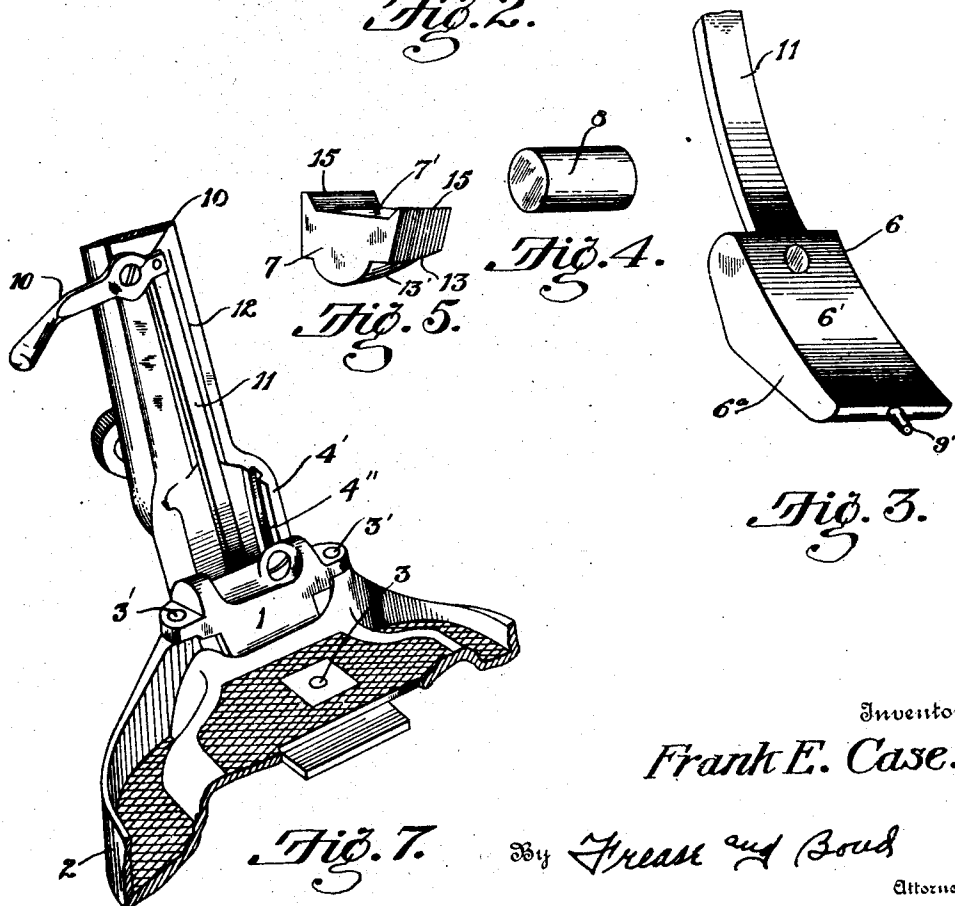
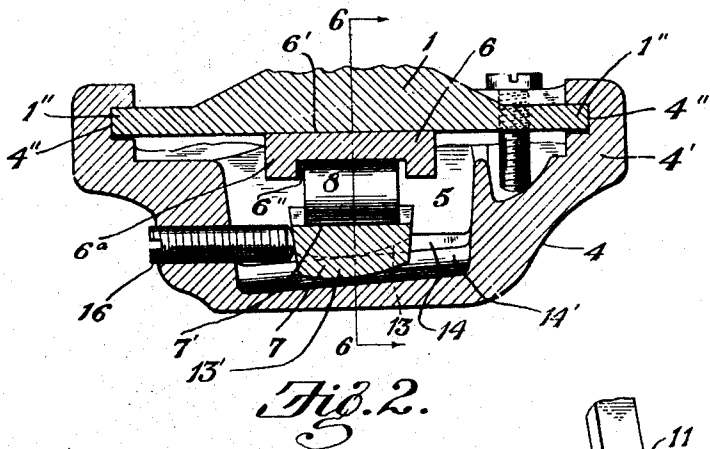
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2 Sheets-Sheet 2



Inventor
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UNITED STATES PATENT OFFICE.

FRANK E. CASE, OF CANTON, OHIO, ASSIGNOR TO THE HARVARD COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

DENTAL CHAIR.

Original application filed August 30, 1922, Serial No. 585,315. Divided and this application filed December 24, 1923. Serial No. 682,554.

To all whom it may concern:

Be it known that I, FRANK E. CASE, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Dental Chairs, of which the following is a specification.

The invention relates to dental chairs and the like, in which the back support is slidably fulcrumed on the seat frame for swinging forward and rearward thereon; and this application is a division of my prior application for patent upon dental chairs, filed August 30, 1922, Serial No. 585,315; and the object of the improvement is to provide clamping means for sustaining and securing the back support in the various positions into which it may be swung.

Dental chairs may have the back support slidably fulcrumed to the seat support by means of an arcuate guide on the one and an arcuate slide on the other; and the weight of the back support and head rest together with the weight of a reclining patient is so considerable, that difficulty is experienced in securing and holding the arcuate slide in a fixed position upon the arcuate guide.

To avoid this difficulty, the present invention involves the use of a clamping plate for sliding circumferentially upon the seat guide, a transverse wedge block adjustable laterally in the back support, and an intervening roller impinging diverging faces of the plate and block with yielding means normally holding the parts in clamped contact and manual means for moving the plate and roller for releasing the clamping contact.

The improvement is illustrated in the accompanying drawings forming part hereof, in which—

Figure 1 is a fragmentary side elevation section in the median line of the arcuate guide and slide connection between the seat frame and the back support, showing the roller wedge clamping means therein;

Fig. 2, a section of the same looking upward on the line 2—2, Fig. 1;

Fig. 3, a detached perspective view of the clamping plate;

Fig. 4, a detached perspective view of the clamping roller;

Fig. 5, a detached perspective view of the wedge block;

Fig. 6, an enlarged longitudinal section 55 of the clamping members on the line 6—6, Fig. 2; and

Fig. 7, a fragmentary perspective view of a portion of a seat frame and back support.

Similar numerals refer to similar parts throughout the drawings.

An arcuate guide plate 1 is secured to the rear end of the seat frame 2 as by means of rivets 3 and 3', the rear face of which plate 65 is curved upon a transverse axis 1' located above the rear end of the seat frame, and the edges 1'' of the plate serve as guides which are engaged in arcuate grooves 4'' in the inner side of forwardly extending side 70 flanges 4', provided on each side of the lower end of the back support 4.

The body of the back support 4 is curved rearwardly between the ends of the side flanges 4', to form a considerable recess 75 in which are located a clamping plate 6, a wedge block 7 and an intervening roller 8, as shown in Figs. 1 and 2.

The forward face 6' of the clamping plate 6 is concavely curved endwise like the longitudinal convex curve of the rear face of the arcuate guide 1, so that the clamping plate will fit and slide longitudinally thereon.

The rear face 6'' of the clamping plate 85 is preferably formed in a flat plane, to give the body a wedging thickness tapering from a thinner upper end to a thicker lower end; and the rear face is also provided with flanges 6'' on the edges, which form a guide 90 for the ends of the clamping roller 8.

The clamping plate 6 is normally urged upward for a clamping connection by a coiled compression spring 9 aligned between a guide pin 9' and a surrounding abutment 95 in the wall of the back support, and a guide pin 9'' and a surrounding abutment on the lower end of the clamping plate; and the clamping plate may be manually moved upward and downward by means of a hand 100 lever 10 secured by a pivotal bolt 10' on the back support, and a connecting bar 11 extending downward from a pivotal connection with the lever along a groove 12 in the

forward face of the back support, to a pivotal connection with the upper end of the clamping plate.

The rear side 13 of the wedge block 7 is transversely inclined and convexly curved to ride in the transversely inclined straight bottom of the channel 14 formed in the wall of the back support; and a transverse rib 13' likewise laterally inclined and convexly curved is preferably provided in the median line of the block to ride in the bottom of a similarly inclined, straight groove 14' provided in the bottom of the channel for holding the block in true lateral alignment, while permitting it to rock sidewise so as to exactly accommodate itself to a longitudinal bearing upon the clamping roller 8.

The forward face 7' of the wedge is formed flat in its middle portion, and the flat face is positioned in a downwardly diverging angle from the rear face 6'' of the clamping plate to an increasing divergence as the same is moved downward, and is provided with flanges 15 and 15' on its upper and lower edges to form stops for the clamping roller 8 which is located and operates between the diverging inclined flat faces of the clamping block and the clamping plate.

A transversely positioned set screw 16 in the side wall of the back support abuts the thicker end of the wedge block 7 and by a turning of the screw, the wedge can be adjusted sidewise so as to give the necessary clamping action for locking the arcuate guide and slide together, as follows:

The parts are so proportioned that when the clamping plate 6 is urged upward by the compression spring 9, or by an operation of the hand lever 10, the roller 8 will be wedged between the inclined faces of the plate and block so as to clamp the arcuate slide upon the arcuate guide, as shown in Fig. 1, but by moving the plate downward by operation of the hand lever 10, the roller will be carried downward between the diverging faces of the plate and block, so as to release the clamping action of the same and permit the arcuate slide to freely move upon the arcuate guide until a desired adjustment is attained; whereupon either or both a reverse movement of the hand lever and operation of the compression spring, moves the clamping plate upward and again locks the parts rigidly in the given position of adjustment.

It is evident that the lateral rocking of the wedge block permitted by the transversely inclined convexity of its back, serves to seat the same at all times against the roller, and that by an adjustment of the set screw 16, all looseness from wear or otherwise, can be readily taken up, so that the roller will always act to rigidly clamp the joint in any given position of adjustment

when the clamping plate is moved upward, either by the compression spring or the hand lever.

I claim:—

1. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide, a block bearing in the slide with its presented face downwardly diverging from the opposing face of the plate, and a roller between the plate and the block for wedge clamping the parts by an upward movement of the plate.

2. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide and an opposite face downwardly diverging therefrom, a laterally tilting block bearing in the slide with its presented face downwardly diverging from the diverging face of the plate, and a roller between the plate and the block for wedge clamping the parts by an upward movement of the plate.

3. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide, a laterally tilting block bearing in the slide with its presented face downwardly diverging from the opposing face of the plate, a roller between the plate and the block, and means for urging the plate upward for clamping the parts together.

4. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide, a laterally tilting block bearing in the slide with its presented face downwardly diverging from the opposing face of the plate, a roller between the plate and the block, and yielding means for urging the plate upward for clamping the parts together.

5. Clamping means between the arcuate guide and the arcuate slide connecting the seat and back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide, a laterally adjustable wedge block bearing in the slide with its presented face downwardly diverging from the opposing face of the plate, and a roller between the plate and the block for wedge clamping the parts by an upward movement of the plate.

6. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate face sliding on the arcuate guide with edge flanges on its opposite sides, a block bearing

in the slide with its presented face downwardly diverging from the opposite face of the plate, and a roller between the plate and the block for wedge clamping the parts
5 by an upward movement of the plate.

7. Clamping means between the arcuate guide and the arcuate slide connecting the seat and the back of a dental chair or the like, including a plate having an arcuate
10 face sliding on the arcuate guide, a block

bearing in the slide with its presented face downwardly diverging from the opposite face of the plate and having stop flanges on its upper and lower edges, and a roller between the plate and the block for wedge
15 clamping the parts by an upward movement of the plate.

In testimony that I claim the above, I have hereunto subscribed my name.

FRANK E. CASE.