March 16, 1926.

F. KOENIGKRAMER

1,576,915

HEADREST APPARATUS

Filed March 5, 1923

2 Sheets-Sheet 1

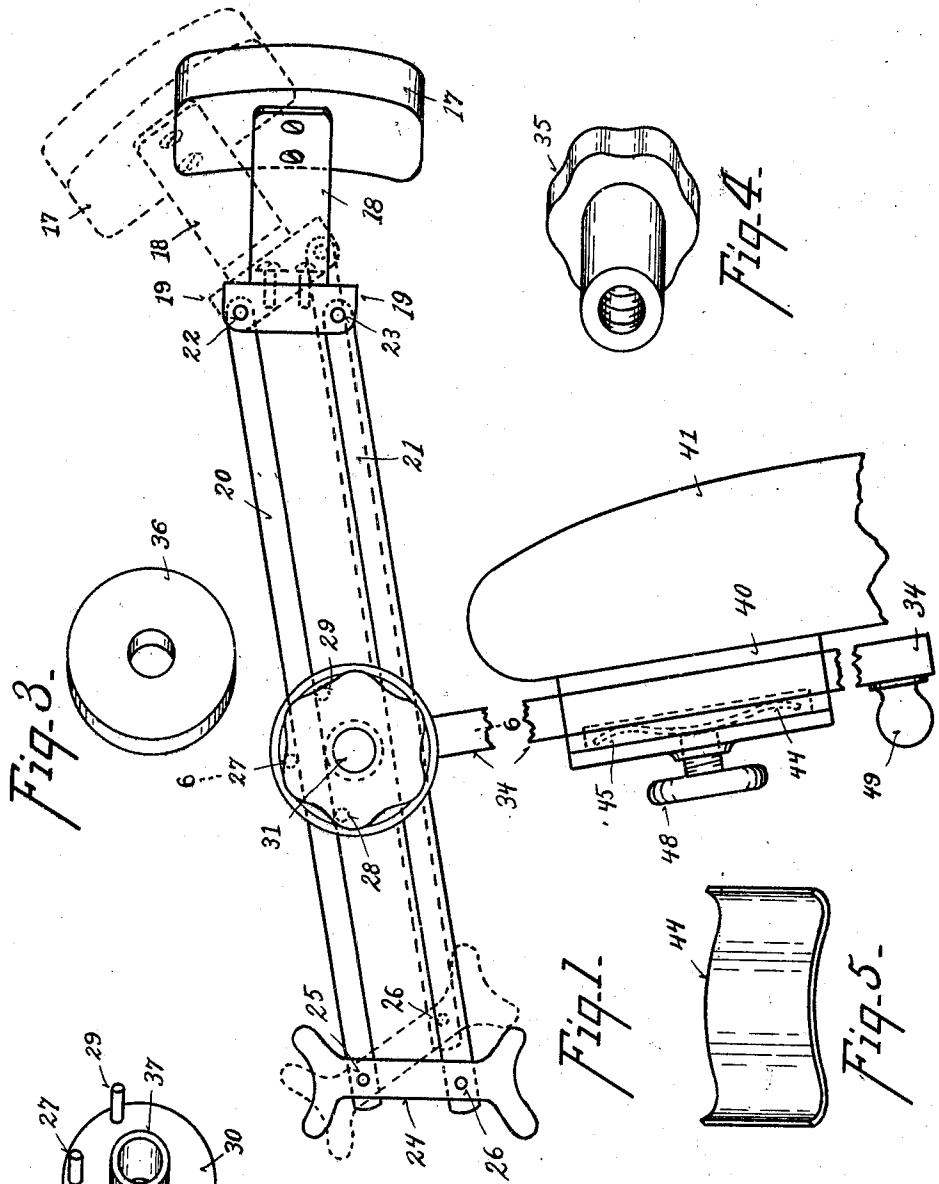


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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March 16, 1926.

1,576,915

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HEADREST APPARATUS

Filed March 3, 1923

2 Sheets-Sheet 2

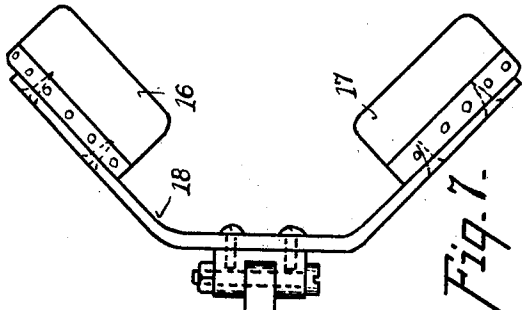


Fig. 7.

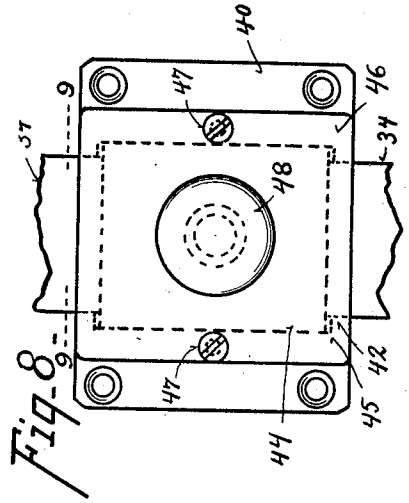


Fig. 8.

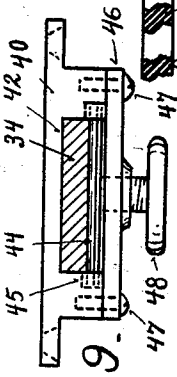


Fig. 9.

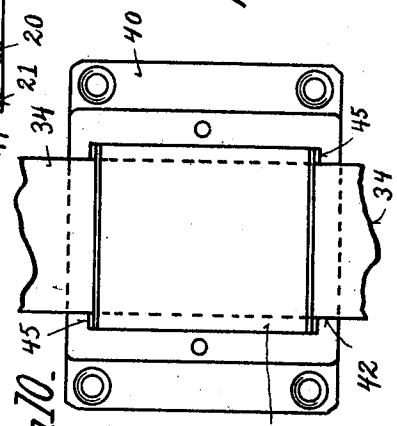


Fig. 10.

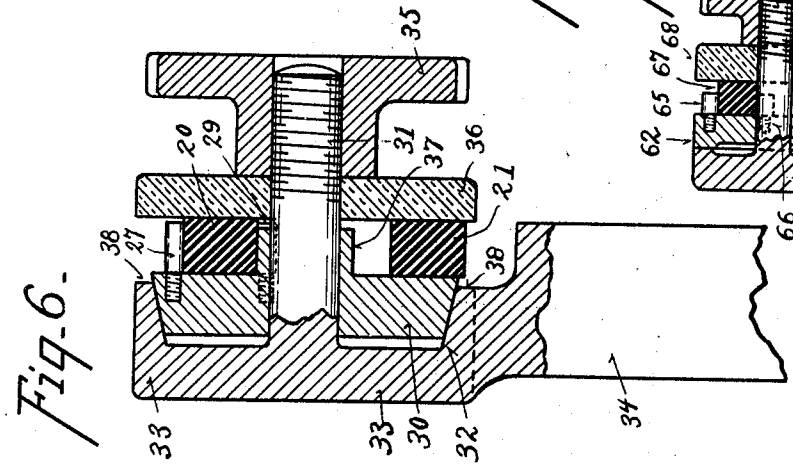


Fig. 6.

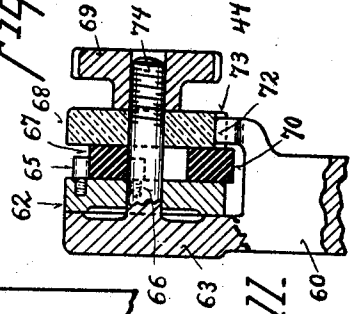


Fig. 11.

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UNITED STATES PATENT OFFICE.

FRANK KOENIGKRAMER, OF CINCINNATI, OHIO.

HEADREST APPARATUS.

Application filed March 3, 1923. Serial No. 622,654.

To all whom it may concern:

Be it known that I, FRANK KOENIGKRAMER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Headrest Apparatus, of which the following is a specification.

My invention relates to improvements in head-rest adapted to be applied to surgical chairs, optometrists' chairs, barber chairs, etc. One of its objects is to provide an improved means of adjustment. Another object is to provide an improved means of universal adjustment. Another object is to provide an improved means of adjustment operable from its rear end with one hand while its clamping and releasing means is operable by the other hand of the operator.

My invention also comprises certain details of form, and combination of components, all of which will be fully set forth in the description of the accompanying drawings in which:

Fig. 1, is a side elevation of a head rest and a portion of the back of a chair to which it is shown attached embodying my invention.

Fig. 2, is a perspective view of one of the head-rest adjusting and clamping members detached.

Fig. 3, is a similar view of another adjusting and clamping member.

Fig. 4, is a perspective view of the clamping hand-wheel detached.

Fig. 5, is a perspective view of a tensioning spring detached.

Fig. 6, is an enlarged sectional detail taken on line 6—6 of Fig. 1.

Fig. 7, is a plan of the head-rest pads and their immediate supporting members.

Fig. 8, is a plan of the means for adjustably attaching the head rest to a chair back.

Fig. 9, is a sectional detail taken on line 9—9 of Fig. 8.

Fig. 10 is a view similar to Fig. 8 with the cap plate detached.

Fig. 11, is similar to Fig. 6, illustrating a modification.

The accompanying drawings illustrate the preferred embodiment of my invention in which 16 and 17 represent two oppositely mounted head-rest pads supported upon a forked member 18 to the center of which is rigidly attached a rearwardly projecting bolster 19. The bolster 19 is vertically slotted to receive one end of each of two substantially parallel bars 20 and 21 which are pivotally attached to the bolster 19 respectively, by means of pivot bolts 22 and 23. At their opposite ends the bars 20 and 21 are respectively pivotally connected to an adjusting lever 24 by means of pivot bolts 25 and 26.

The bar 20 is mounted to slide endwise in a guideway formed by the pin 27 on one side of bar 20 and the pins 28 and 29 on its opposite side. The pins or stud shafts 27, 28, and 29 are all mounted upon and project from one face of a clutch or clamping member 30. The member 30 is loosely and rotatably mounted upon a bolt or stud 31 projecting from the center of a conical recess 32 in the head 22 of the shank 34. In order to provide a longer guide or bearing for the member 30 upon the bolt 31, I preferably provide a tubular projection or sleeve 37, slightly shorter than the pins 27, 28 and 29, projecting from the same face of member 30. The periphery of member 30 is slightly tapered to engage the tapered annular wall of the recess 32 and form therewith a tapered friction clutch, which serves to releasably clutch the member 30 to the head 33 whenever the hand wheel 35, which is threaded upon the outer end of the bolt 31, is tightened up upon the collar or washer 36 to thereby clamp the two bars 20 and 21 between the collar 36 and the member 30. The length of the pins 27, 28 and 29 and the tubular projection 37 are less than the thickness of the bars 20 and 21 to avoid contact between the collar 36 and the end of said pins 27, 28 and 29 and the projection 37. The face of member 30 is slightly advanced beyond the annular rim or face 38 of the head 33.

The shank 34 is preferably polygonal in cross section to prevent it from rotating relative to the chair back upon which it is mounted. A clamping frame or plate 40 is rigidly attached to the rear face of the chair back 41, and is provided with an open vertical groove or guideway 42 to receive the shank 34, and in which the shank 34 is adjustable endwise. The recess or guideway 42 is of greater width than the shank 34 thereby providing room at one side of the shank 34 to receive a substantially flat or leaf-spring 44 to bear with a yielding frictional tension upon one face of the shank 34. The spring 44 is preferably somewhat wider than the

shank 34 and a corresponding recess or pocket 45, is formed in the frame 40 to retain the spring against displacement endwise of the frame 40. A detachable cap or plate 46 is secured rigidly and detachably to the frame 40 by means of cap screws 47. A thumb screw 48 is threaded centrally through the plate 46 so that its inner end may bear against the central portion of the spring 44 to thereby variably adjust the tension of the spring 44 upon the face of the shank 34. Ordinarily the thumb screw 48 is in an idle position and the spring 44 by reason of its engagement near its ends upon the shank 34, and near its center upon the inner face of the plate 46 exerts sufficient resilient tension upon the shank 34 to permit the shank 34 to be readily adjusted by hand up and down to any desired position with reference to the chair-back, for instance high enough for the pads 16 and 17 to support the head of a tall person, and low enough for the pads to support the head of a child or short person, and to retain any position to which said shank may be adjusted relative to the chair back.

When it is desired to secure a more firm or rigid locking of the shank 34 to the chair-back, the thumb screw 48 may be partially or firmly screwed home upon the spring 44 to thereby secure any desired degree of tension by the spring 44 upon the shank 34, up to the point where the shank 34 is immovably locked to the chair-back, as is at times required where minor operations are to be performed with a patient seated in the chair. I preferably provide a small handle 49 at the lower end of the shank to assist in adjusting the shank endwise through the frame 40. In operation the adjusting lever 24 may be conveniently grasped between the thumb and finger of one hand say the left hand, while the other hand say the right hand holds the hand wheel 35. The hand wheel 35 may serve as a handle or means to adjust the shank 34 vertically in either direction and also at the same time or alternately to loosen or tighten the hand wheel 35 upon the bolt 31. When the hand wheel 35 is loosened upon the bolt 31 the other hand may be employed to advance or retract the head rest by sliding the bar 20 along its guideway over the face of member 30, and between members 30 and 36. The same act of loosening the hand wheel 35 also releases the member 30 where it is clutched by the tapered clutch faces to the head 33 of the shank 34, thereby enabling the operator through the actuating lever 24 to rotate the member 30 in its recess 32 relative to head member 33 to thereby change the angle of the bars 20 and 21 relative to the shank 34 or to change the direction of the thrust or retraction of the bars 20 and 21 relative to member 30. Also the actuating lever may be given a rocking motion as indicated in dotted line in Fig. 1, to thereby change the relation of the bars 20 and 21, and to either upwardly or downwardly incline the head-rest pads 16 and 17 as indicated in dotted line in Fig. 1.

The operator is thus enabled to carry out three distinct types of adjustment of the headrest pads through force applied by one hand only to the actuating lever 24. Also tht operator is enabled to simultaneously carry out all three of these separate adjustments or any two thereof, and in varying degrees by force applied by one hand through the actuating lever 24. At the same time the actuating lever 24 and the hand of the operator is at some distance in rear of the head of the patient and not liable to become entangled in the patient's hair, while the sense of touch may be employed to secure a firm but mild application of the head-rest pads to the patient's head. At the same time that the actuating lever 24 is being actuated by one hand of the operator, the hand wheel may be employed to adjust the head rest shank vertically relative to the chair back and also at the same time or almost at the same instant to either release or tighten the hand wheel 35 to thereby rigidly clamp the bars 20 and 21 to the member 30 and the member 30 to the shank 34.

In Fig. 11 I have illustrated a modification in which 60 represents the shank, 63 the head thereof, 62 a disk shaped clamping member corresponding to the member 30 of Fig. 6, which is clamped against the plane annular face of the head 60. Member 62 is provided with three pins or studs of which two 65 and 66 are shown in Fig. 11, and which pins form a guideway for the endwise adjustment of the rod 67, corresponding to the rod 20 of Fig. 6. A disk shaped clamping member 68 corresponding to member 36 of Fig. 6, is clamped by the hand wheel 69 upon the substantially parallel rods 67 and 70 to lock said rods rigidly in place between the collars 62 and 68. The hand wheel at the same time locks the collars 62 and 68 rigidly to the shank head 63. A projection 72 from the shank 60 enters a key slot 73 in the periphery of the collar 68 to prevent rotation of said collar which rotation might result in accidentally, under strain, loosening the hand wheel 69 upon the threaded shank 74 upon which it is threaded.

The range of adjustment is unusually wide for the size of the apparatus employed, and the adjustments are capable of being made at a distance from the head of the patient, which is desirable and of importance and adjustments may be made and remade with accuracy and dispatch, and with a more delicate sense of touch then heretofore attainable.

The apparatus herein shown and de-

scribed is capable of considerable modification without departing from the spirit of my invention.

What I claim is:

1. A head-rest apparatus comprising a shank provided with a clamping bolt at its upper end, a clamping member pivotally mounted upon said clamping bolt and adapted to be releasably clamped thereon to said shank, a pair of substantially parallel bars spaced apart and located respectively upon opposite sides of said clamping bolt and in sliding engagement with the face of said clamping member, one of said bars being adjustable endwise in guides carried by said clamping member, an actuating lever pivotally attached to both of said bars at one end thereof, a head-rest pivotally attached to both of said bars at their opposite end, and means serving to clamp both of said bars to said clamping member and at the same operation to clamp said clamping member to said shank.

2. A head-rest apparatus comprising a shank provided with a clamping bolt at its upper end, a pair of substantially parallel bars spaced apart and relatively movable to and from each other with said clamping bolt interposed between said parallel bars, said parallel bars being adjustable rotatably and endwise relative to said clamping bolt, a head-rest pivotally attached to both of said bars at one end thereof, means to pivotally connect said bars together at their opposite end, and means carried by said clamping bolt to releasably rigidly clamp said bars to said shank in relatively different positions of adjustment.

3. A head-rest apparatus comprising a shank provided with a clamping bolt, a first clamping member mounted rotatably upon said clamping bolt and adapted to be releasably clamped thereon rigidly to said shank, a pair of substantially parallel bars spaced apart and located respectively upon opposite sides of said clamping bolt and in sliding relation with the face of said clamping member, one of said bars being adjustable endwise in guides carried by said clamping member, a head-rest pivotally attached to both of said bars at one end thereof, an actuating lever pivotally attached to both of said bars at the opposite end thereof, a second clamping member mounted upon said clamping bolt in contact with the opposite face of said bars, and a clamping nut threaded to the free end of said clamping bolt and adapted to rigidly clamp said first clamping member said parallel bars and said second clamping member together upon said clamping bolt and between said clamping nut and said shank.

4. A head-rest apparatus comprising a shank provided with a clamping bolt, a first clamping member mounted rotatably upon said clamping bolt and adapted to be releasably clamped thereon rigidly to said shank, a pair of substantially parallel bars spaced apart and located respectively upon opposite sides of said clamping bolt and in sliding relation with the face of said clamping member, one of said bars being adjustable endwise in guides carried by said clamping member, a head-rest pivotally attached to both of said bars at one end thereof, an actuating lever pivotally attached to both of said bars at the opposite end thereof, a second clamping member mounted non-rotatably relative to said shank upon said clamping bolt in engagement with the opposite face of said bars, and a clamping nut threaded to the free end of said clamping bolt and adapted to rigidly clamp said first clamping member, said parallel bars and said second clamping member together upon said clamping bolt and between said clamping nut and said shank.

5. A head-rest apparatus comprising a shank, a first clamping member rotatably mounted upon said shank and adapted to be clamped rigidly to said shank, said clamping member being provided with guideways, a pair of substantially parallel bars spaced apart and movable to and from each other, and adjustable endwise and rotatably with said first clamping member upon and relative to said shank, a second clamping member non-rotatably mounted relative to said shank and upon the opposite face of said bars from said first clamping member, and a member adjustable to clamp said first and second clamping members upon said shank.

In testimony whereof I have affixed my signature.

FRANK KOENIGKRAMER.