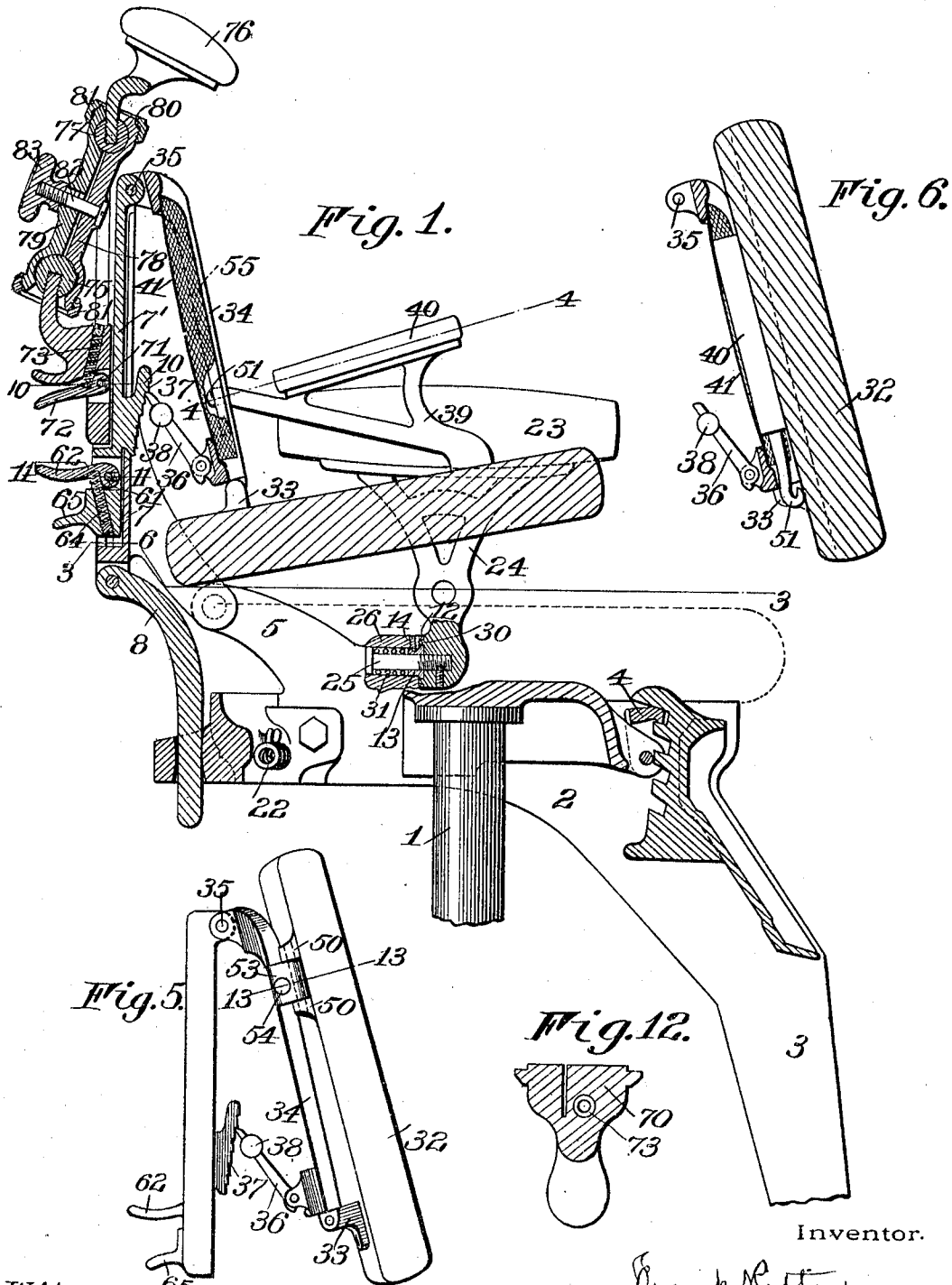


F. RITTER.
DENTAL CHAIR.
APPLICATION FILED JUNE 4, 1903.

945,194.

Patented Jan. 4, 1910.
3 SHEETS—SHEET 1.



Witnesses:
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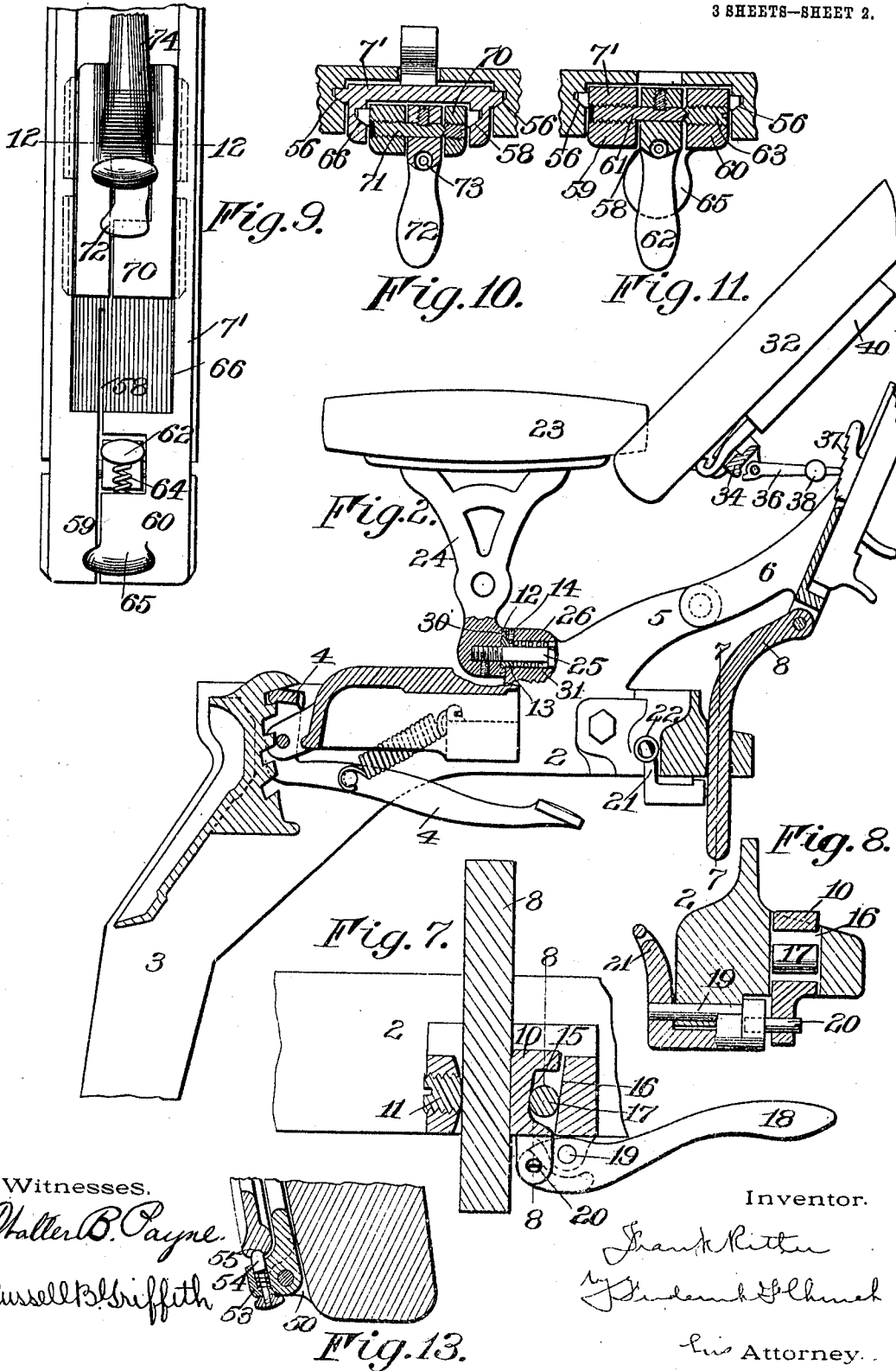
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Witnesses.

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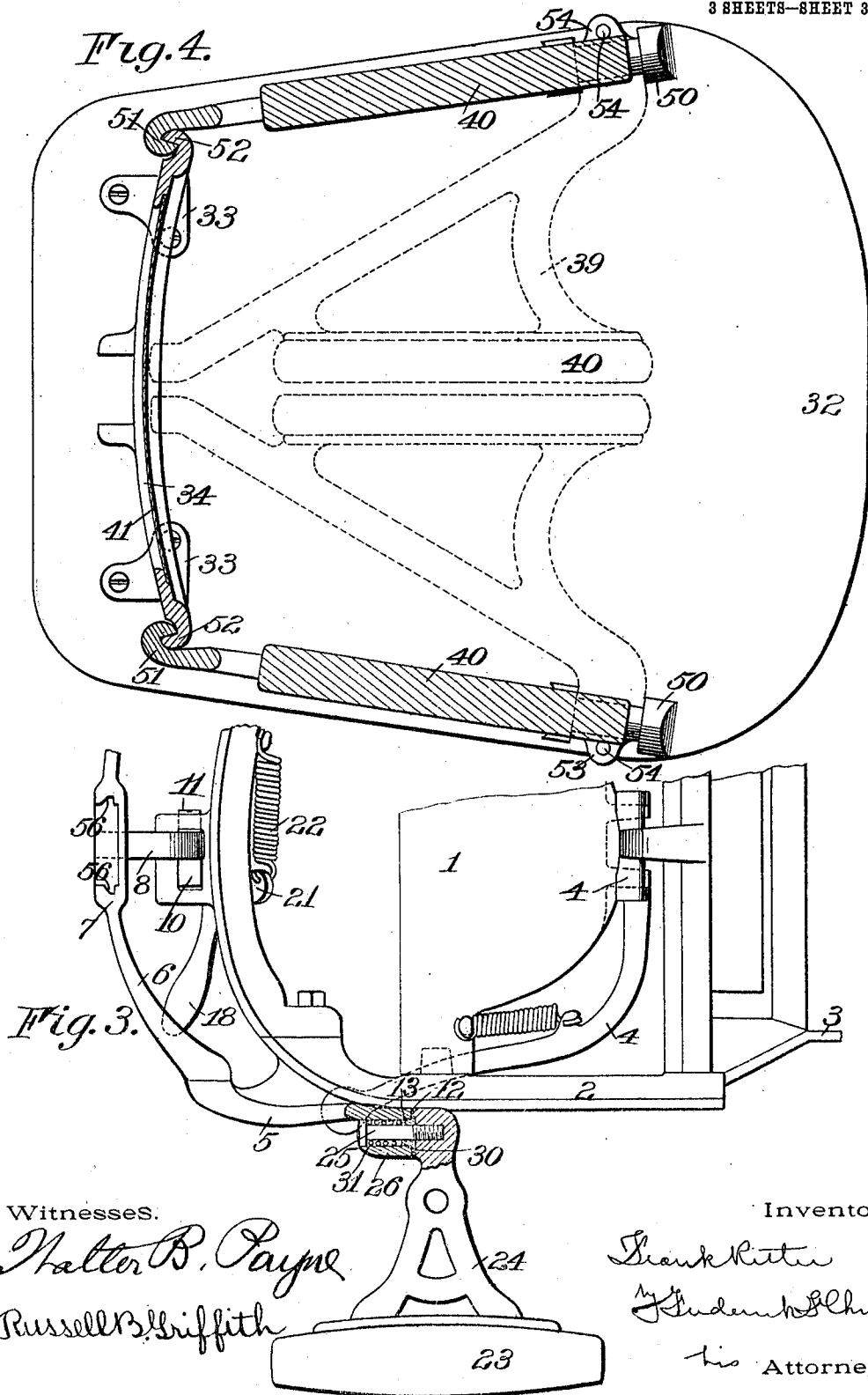
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

FRANK RITTER, OF ROCHESTER, NEW YORK.

DENTAL CHAIR.

945,194.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed June 4, 1903. Serial No. 160,100.

To all whom it may concern:

Be it known that I, FRANK RITTER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dental Chairs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to chairs and particularly to that class known as dental, surgical or barbers' chairs and it has for its object to provide a movable back portion and a suitable locking mechanism therefor adapted to secure the back against outward movement and which is automatically released to permit the back to be returned to its normal or upright position.

My invention also includes a back rest adapted to be converted into a child's seat mounted upon an adjustable portion of the chair frame which is secured by an improved form of clamping device whereby the rest may be adjusted relatively to the main seat of the chair when employed either as a support for the back of a person occupying the seat, or as a supplemental or child's seat.

My invention also has for its object to provide arms upon the chair which are so attached that they may be easily adjusted relatively to afford the greatest convenience to the occupant of the chair.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a vertical sectional view of a dental chair constructed in accordance with my invention. Fig. 2 is a side elevation thereof partly in section. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a top plan view of the child's seat taken on the line 4—4 of Fig. 1. Fig. 5 is a side elevation of the back rest and the supplemental frame upon which it is mounted. Fig. 6 is a vertical cross sectional view thereof. Fig. 7 is a detail sectional view of the locking device taken on the line 7—7 of Fig. 2. Fig. 8 is a similar view taken on the line 8—8 of Fig. 7. Fig. 9 is an enlarged rear elevation

of the guide block for the adjustable portion of the back frame. Figs. 10 and 11 are sectional views on the lines 10—10 and 11—11 respectively of Fig. 1. Fig. 12 is a sectional view on the line 12—12 of Fig. 9. Fig. 13 is a sectional view on the line 13—13 of Fig. 5.

Similar reference numerals in the several figures indicate similar parts.

A chair constructed in accordance with my invention is adapted to be mounted upon any suitable form of base or pedestal but as the latter is not included in this invention I have omitted it from the illustrations, simply showing the vertically extending column or support 1 upon which the frame 2 is mounted embodying the downwardly extending legs 3 adapted to support the usual platform, the tilting adjustment of said platform being controlled by means of a lever 4 which may be operated to release the parts and to secure them in the desired position of adjustment in the usual manner known to those skilled in the art.

Extending rearwardly above the frame and at either side are arms 5 to which are pivotally attached similar arms or projections 6 which extend downwardly and forwardly from the chair back frame 7. At the lower end of the latter and at the center of the frame is pivotally attached a curved arm or member 8 which extends downwardly and is movable through an aperture in the relatively stationary seat frame 2 where it is engaged by a suitable locking device adapted to secure the back frame at any desired position of adjustment and to be automatically released when it is desired to change said adjustment. This locking device in the present embodiment of my invention consists of a wedge or block 10, arranged in said aperture in the frame, and provided in its rear side with a recess, the surface 15 of which is formed at a slight angle to the face of the wedge block, as shown. The proximate face or edge of the recess is formed with the surface 16 which is also inclined at a slight angle to the direction of movement of the wedge block and arranged with its lower end extending toward the opposite side of the aperture, as shown particularly in Fig. 7.

Arranged between the surfaces 15 and 16 is a roller 17, normally operating to hold the wedge block in contact with the arm 8 preventing the latter from being projected

through the aperture but permitting it to be withdrawn therefrom. In order, however, to release the arm, and permit the back to be tilted into a more or less horizontal position, I provide a handle or lever 18 pivoted to the frame 2 at the point 19 and connected with the wedge block by means of a pin 20. Extending laterally from the end of the handle 18 is an arm having the upwardly extending end 21 to which is attached a coil spring 22, operating to normally hold the lever in the position shown in full lines in Fig. 7 and to retain the parts in the locked position. The face of the aperture opposing the inclined face 16, against which the arm 8 is clamped, is formed by a screw 11 adjustable relatively to compensate for any variation in the parts that may occur in assembling different chairs whereby the arm 8 and the aperture in the chair seat may be so positioned as to permit the proper operation of the locking devices. This manner of locking the chair back allows the operator to return it to the normal position without operating the handle 18 which is an obvious advantage as it frequently happens that it is necessary to quickly return a patient from a reclining position into an upright position which may be done by simply elevating the chair back.

The chair arms, indicated by 23, are located at either side of the frame 2 and instead of forming them rigidly thereon I mount each of their supporting brackets 24 upon a stud 25 journaled in a recess in the boss 26, on the seat frame. This stud is longitudinally movable in the recess and the face of the bracket 24 is provided with small pins or projections 30 adapted to engage and interlock with recesses in the boss 26 and to be held in contact therewith by a spring 31 encircling the stud 25, as shown in Figs. 2 and 3. A number of recesses, in which the pins 30 engage, are provided so that the arms may be moved relatively inwardly or outwardly, as may be required, to accommodate the occupant of the chair and these recesses I form in a flange 12 on a collar 13 arranged in the boss 26 and forming a bushing in which the stud 25 is journaled, the collar being held in position by a set screw 14 providing an abutment or shoulder against which the spring 31 engages to limit its movement in a forward direction. Further, if desired, either of the arms may be rotated into a substantially horizontal position, as shown in Fig. 3, which provides a support against which an operator may lean while performing a difficult or tedious operation, and to this end I form the brackets 24, as shown, so that the ends of the arms 23 projecting at each side thereof form hooks which will extend in rear of an operator's leg affording the dual advantage of permitting him to stand close to the chair and to

brace his body as is required in certain classes of operations.

The main upholstered chair seat rests upon the frame 2 and it is only indicated in dotted lines but the upholstered back rest is shown in full lines and indicated by 32. It is pivotally attached by small brackets 33 to the lower end of a supplemental back frame 34 pivoted at its upper end to the vertically adjustable portion or guide block 7' of the chair back frame, as indicated at 35. The pivotal connection between the back frame and the supplemental frame is provided to permit the support 32 to be moved outwardly, as shown in Fig. 2, for the purpose of affording a better support for the hollow portion of the occupant's back. This adjustment is regulated by means of a pawl 36 pivoted on the supplemental back portion 34 and engaging with the ratchet teeth 37 provided on the guide block 7', said pawl being provided with laterally extending operating handles 38. The pivotal connection between the back frame 34 and the back rest 32 permits the upper end of the latter to be revolved forwardly, relatively to the chair, so that it extends over the seat thereon forming an additional support or child's seat which is located in closer proximity to the head-rest, as will be understood. The back portion 34 of the frame is provided with a filling of suitable material such as cane, indicated by 41, forming a back rest for the child's seat and the latter being mounted thereon both the child's back and the seat may be adjusted vertically on the chair frame and also tilted at an angle thereto by the pivotal connection 35 and the pawl 36.

In order to support the child's seat I provide connections between the outer end thereof and the intermediate portions of the supplemental frame 34 and which, in the present instance, I have illustrated as chair arms consisting of a bracket 39 provided with the arm rest portions 40. These are attached to the back rest 32 by pivotal connections with the lugs or ears 50, permitting said arms to be folded, as shown in dotted lines in Fig. 4, when in the normal position, but when it is desired to use the child's seat these arms may be opened and the hooked ends 51 of the brackets 39 engaged in corresponding notches or hooks 52 provided at the sides of the supplemental frame 34. Extending laterally from the brackets 39 and arranged in proximity to their pivotal points, are provided perforated lugs or extensions 53 in which are located spring operated latch members 54 adapted to engage small recesses 55 provided in the supplemental frame 34, as shown in Fig. 13, to retain the back rest 32 in the normal position when said parts are not employed as a child's seat.

Provided at the rear side of the back frame 7 is a vertically extending recess the parallel sides 56 of which are undercut, as shown in Figs. 3 and 10, forming ways, and movably mounted therein is a slide block 7' having the lower bifurcated or split end, as shown at 58 in Fig. 9, forming the ends 59 and 60 which are adapted to be separated to lock the movable back portions in adjusted position on the guides. The locking means for accomplishing this being a cam member in the form of a pin or stud 61 threaded in the part 59 and provided with an operating handle 62, said screw thread operating to move the pin longitudinally to separate the ends 59 and 60 when rotated in one direction, as will be understood, its end abutting against the portion 60 of said block or against a wear piece or a set screw 63 which may be adjusted to take up lost motion between the parts. The handle 62 is normally operated in one direction by a spring 64 and provided beneath the operating handle is arranged a handle 65, and in proximity thereto, whereby the guide block and connected parts may be elevated or lowered when the operator releases the parts by a movement of the handle 62 against the tension of the spring 64. Provided in the rear side of the slide block is a longitudinally extending recess having the sides 66 undercut, forming guides similar to those in the frame 7, and operating therein is a vertically movable block 70 also split or bifurcated, the parts of which are adjustable relatively to engage the guides by a screw 71, operated by a handle 72, actuated in one direction by a spring 73, as will be understood.

Projecting rearwardly from the block 70 is a projection or bracket 74 provided upon its upper end with a clamping head in the form of a ball 75. The head rest indicated by 76, is also provided with a clamping head or ball 77 and the latter and the head 75 are connected by an intermediate section embodying the arms 78 and 79, connected at their ends by nuts or rings 81 and adjustable relatively to each other by means of a bolt 82 and a hand wheel 83. It will, however, be understood that any desired form of adjustable head rest may be employed, and I have, therefore, not claimed the one shown and described, as this feature of the invention forms the subject matter of a subsequent application.

I claim as my invention.

1. In an adjustable chair the combination with a seat frame having an aperture provided at one of its lateral sides with an inclined face, and a back portion pivoted on the frame and provided with an arm extending through the aperture, of a wedge block arranged between said face and the arm and normally operating to prevent the movement

of the latter and means for operating the block out of engagement with the arm.

2. In an adjustable chair, the combination with a seat frame having opposing faces thereon one of which is inclined relatively to the other and a back portion pivoted to the frame having an arm extending between said faces, of a wedge block cooperating with the inclined face operating to lock the arm against the opposing face and a handle for operating the block.

3. In an adjustable chair, the combination with a seat frame and an adjustable back portion, opposing faces on one of said parts one of which is inclined relatively to the other and an arm on the other part extending between said faces, of a clamping member cooperating with the arm, a roller arranged between it and the inclined face, an operating handle attached to the clamping member and a spring for holding the latter in operative position.

4. In a locking device, the combination with a stationary member having opposing faces one of which is inclined relatively to the other and a member movable relatively to the stationary member, of a clamping block adapted to engage said movable member and provided with a recess and a roller arranged therein between the block and the inclined face.

5. In a dental chair, the combination with a seat, a main back frame extending above the seat and adjustable into angular relationship thereto, and a supplemental back frame mounted on the main frame and adjustable at an angle thereto, of a back rest pivoted to the lower end of the supplemental frame and adapted to be rotated forwardly to form a secondary seat and means for supporting the latter.

6. In a chair, the combination with a seat and an adjustable frame extending above the latter, of a back rest, pivotal connections between it and the frame whereby the back rest may be operated to form a secondary seat and means extending between the frame and back rest for supporting the outer end of the latter when it is operated to form a secondary seat.

7. In a chair embodying a seat and back frame, the combination with a supplemental frame capable of angular adjustment relatively to the back frame, of a back rest supported on the supplemental frame and adapted to be moved outwardly to form a supplemental seat located above the chair seat.

8. In a chair, the combination with a chair frame comprising a seat and a main back frame which is adjustable to vary its angular position relatively to the seat, a supplemental frame carried on the main back frame, and means for supporting it in various positions of angular adjustment on

said back frame, of a back rest movably connected to the supplemental frame and adapted to be moved to a position above the chair seat to form a supplemental seat and means
5 extending between the back rest and supplemental frame for supporting said rest when used as a supplemental seat.

9. In a chair embodying a main seat and main back frame, the combination with a
10 supplemental back frame capable of angular adjustment relatively to the main back frame and means arranged between said back frames for supporting the former in adjusted position on the latter, of a back
15 rest supported on the supplemental frame and adapted to be moved outwardly to form a supplemental seat located above the chair seat.

10. In a chair, the combination with a
20 main seat and a main back frame, a supplemental back frame and a supplemental seat adapted to be folded against the supplemental back frame to form a back rest above the main seat, of a member adjustable longitudinally on the main back frame and
25 movably supporting the supplemental back frame and means arranged between the latter and said member for supporting the supplemental back frame and seat in various
30 position of angular adjustment.

11. In a chair having a seat and back frame, the combination with a supplemental back frame adjustably supported on the latter and a back rest attached to the supplemental frame and movable outwardly therefrom to form a supplemental seat, of supports adapted to extend between the supplemental frame and seat and arms arranged on the supports.

12. In a chair having a back frame, the combination with a back rest attached thereto, of brackets hinged to the back rest and normally lying between the latter and the frame, extensions on said brackets adapted
45 to extend over the frame when the parts are in their normal position and locking devices operating between said extensions and the frame for locking the back rest in its normal position.

13. In a chair having a back frame, the combination of a back rest movably mounted thereon and brackets hinged to the back rest and normally lying between the latter and the frame, extensions on said brackets
55 adapted to extend over the sides of the frame, when the parts are in their normal position, and spring operated locking devices arranged on said extensions engaging the frame to hold the back rest in its normal
60 position.

14. In a chair, the combination with a seat

and a back frame, of a portion adjustably mounted on the frame, a back rest attached to said portion of the frame and adapted to form a seat and means for supporting it. 65

15. In a chair, the combination with a back frame, a vertically movable portion thereon and a supplemental back frame attached to said movable portion of the frame and adjustable at an angle thereto, of a back
70 rest on the supplemental frame capable of adjustment into a horizontal position.

16. The combination with a frame having ways thereon and a bifurcated block guided therein, of a member arranged in one of
75 said bifurcations and movable longitudinally therein to operate the other bifurcation relatively to the first and means for operating the member.

17. The combination with a frame having
80 ways and a block guided therein, having two relatively movable parts, of a member mounted on one of the parts and movable into engagement with the other to separate them and an operating handle attached to
85 said member.

18. The combination with a frame having ways and a slotted block guided therein, of a member provided with a screw thread and threaded into one of the portions of the
90 block at one side of the slot and movable into and out of engagement with the other portion of the block, a handle for operating the member and a spring for moving the latter into the operative position. 95

19. The combination with a frame having ways and a block guided therein, having a slot forming two sections, of a revoluble cam member journaled in one of the sections and an adjustable wear piece engaged
100 by the cam and located in the other section.

20. In a chair, the combination with a back frame, of a supplemental frame movably mounted thereon carrying a seat, a locking device between the two frames, an operating
105 handle for said locking device and a stationary handle on the supplemental frame arranged in proximity to the operating handle.

21. In a chair, the combination with a
110 back frame having guides thereon, a block mounted in the guides, of a device for locking the block on the guides, an operating handle for said device and a handle on the block for moving the latter, arranged in
115 proximity to the operating handle, and a supplemental chair seat attached to said block.

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