May 6, 1952 N. E. LAUTERBACH 2,595,394

MEDICAL PRACTICE CHAIR WITH BACK REST LOCKING MEANS

Original Filed July 2, 1946 2 SHEETS--SHEET 1

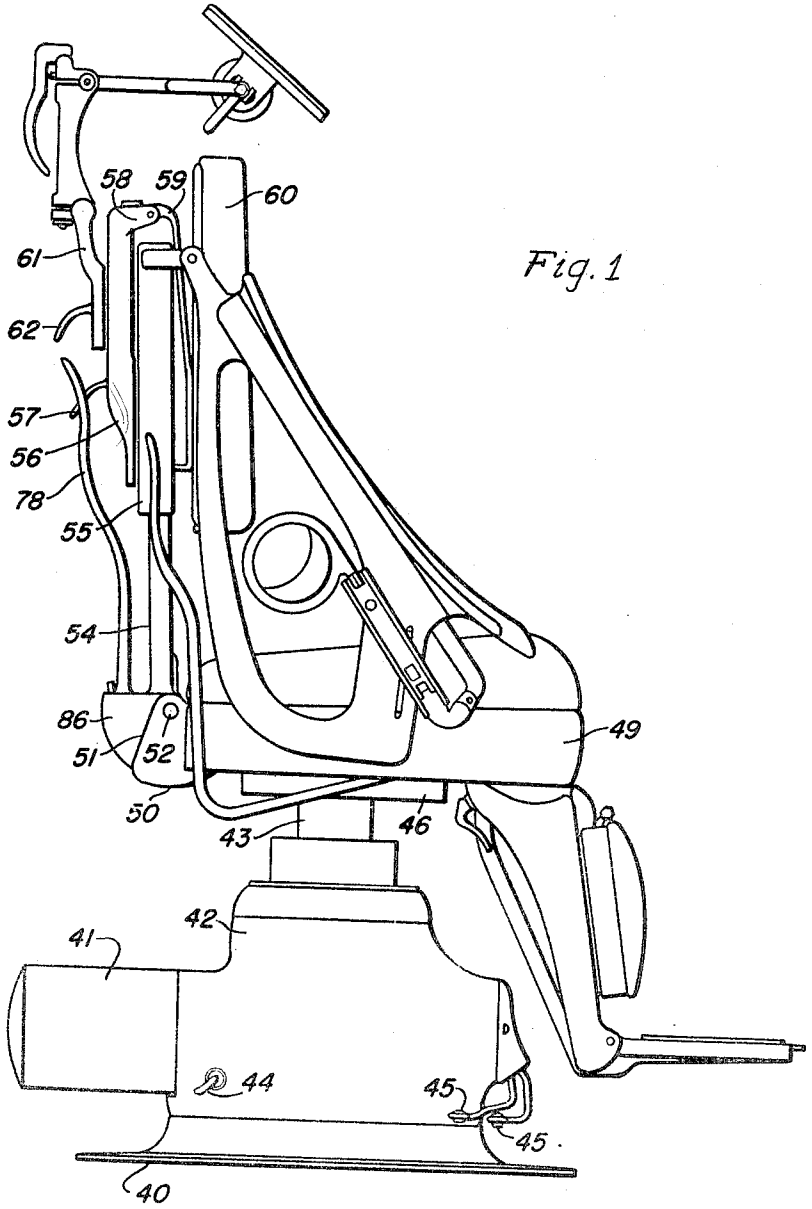


Fig. 1

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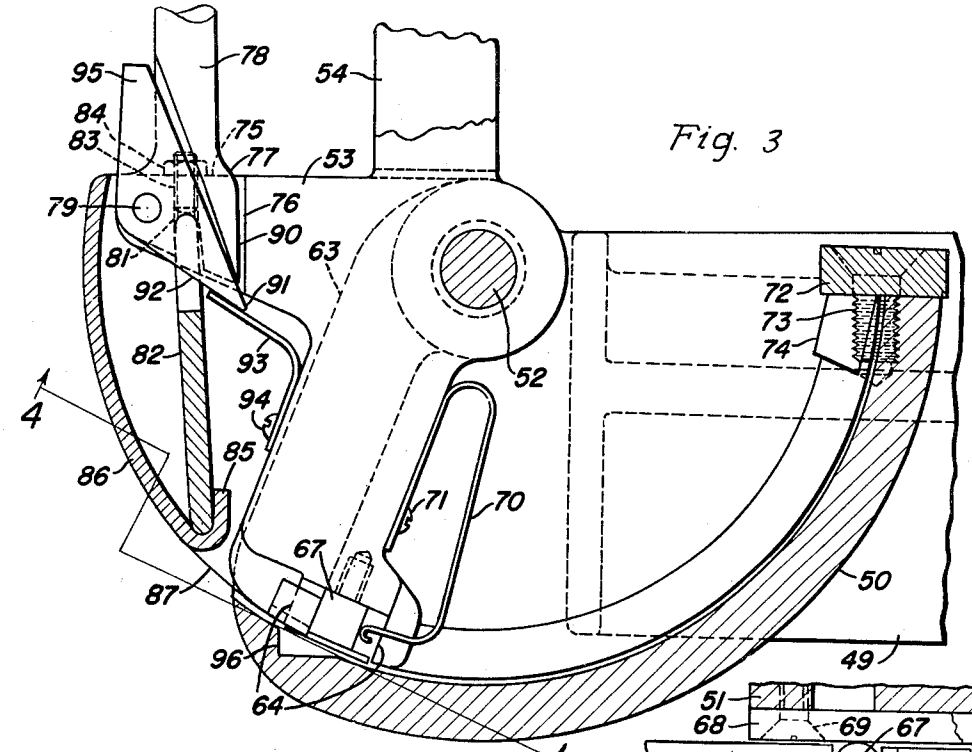


Fig. 3

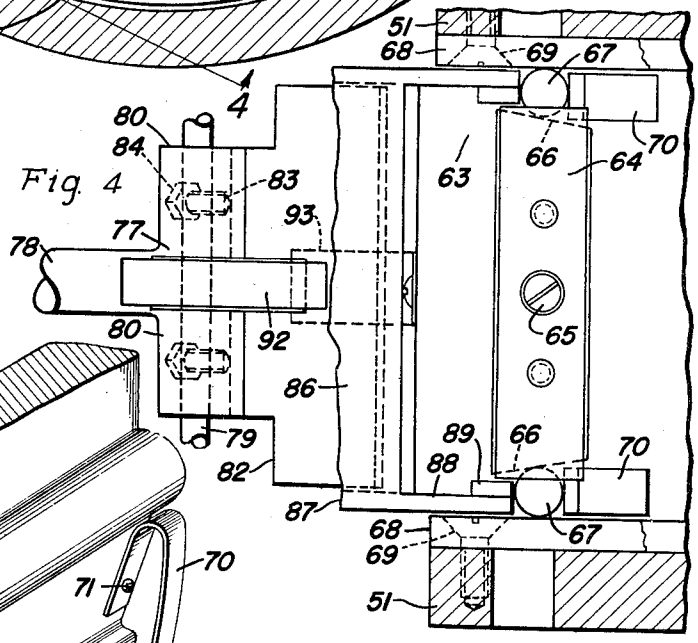


Fig. 4

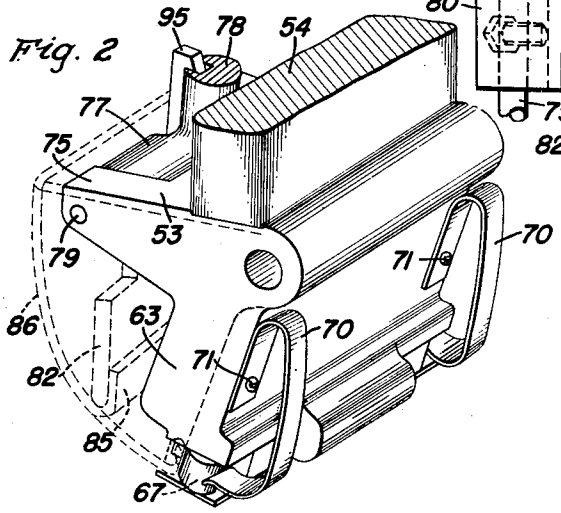


Fig. 2

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Patented May 6, 1952

2,595,394

UNITED STATES PATENT OFFICE

2,595,394

MEDICAL PRACTICE CHAIR WITH BACK REST LOCKING MEANS

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Original application July 2, 1946, Serial No. 680,983. Divided and this application October 1, 1949, Serial No. 119,093

5 Claims. (Cl. 155—160)

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This invention relates to chairs of the variety adapted for use in the medical profession during examinations, treatments, and minor operations, one object of the invention being to provide an improved chair of such character having a more adjustable, convenient, and efficient construction.

Another object is to provide a chair of the above character having head, back, arm, and foot rests adjustable to and from positions lying substantially in the plane of the chair seat, for converting the chair into a substantially flat, table-like support.

Another object is to provide such a chair in which the movements of the back rest and other associated parts are conveniently controlled by a locking lever uniformly positioned in rear of the back rest and by means of which such parts are securely locked in any position to which they may be adjusted.

This application is a division of my copending application, Serial No. 680,983, filed July 2, 1946, now Patent No. 2,558,143, granted June 26, 1951, Medical Practice Chair.

To these and other ends the invention resides 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:

Fig. 1 is a side elevation of a chair embodying the present invention and arranged to support a patient in upright sitting position;

Fig. 2 is a perspective view of the base portion of the back rest and of the means for locking it in position;

Fig. 3 is an enlarged sectional elevation of portions of the seat frame and back rest showing the back rest locking means, and

Fig. 4 is a fragmentary view partly broken away and partly in section substantially as seen from line 4—4 in Fig. 3.

The preferred embodiment of the invention herein disclosed, by way of illustration, comprises a chair having a circular base 40, Fig. 1, supporting an electric motor 41 and a housing 42 for hydraulic mechanism for raising and lowering a chair supporting column 43 which is mounted for rotation also in the housing, as well understood in the art. At 44 is a foot lever controlling the rotation of the chair and at 45 are foot levers for raising and lowering the chair. These parts for moving the chair column may have any known or suitable construction and form no part of the present invention.

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The chair column carries at its top a generally circular supporting head 46 by which a seat frame 49 is supported for tilting movement on the chair base. Means are provided, as hereafter described, for releasably locking the seat frame in adjustably tilted position. The seat frame 49 is a generally rectangular, hollow frame, as shown, on which the back rest, arm rests, and leg and foot rests are supported in connected relation for movement together simultaneously to different adjusted positions.

The rear of the seat frame is formed with an integral, hollow, box-like portion indicated generally at 50, Figs. 1 and 3, with which the back rest is pivotally connected. This portion 50 comprises spaced, rearwardly extending walls 51 the front and lower sides of which are curved substantially in a semi-circle, as shown. Walls 51 are formed with bearings for a spindle 52, Figs. 1 and 3, pivotally supporting an irregularly shaped member 53, Figs. 2 and 3, forming the base portion of the back rest, and carrying means for locking the back rest in different pivotally adjusted positions, as hereafter described. Fixed on and extending upwardly from member 53 is a post 54, Fig. 1, slidably received in a bearing in a member 55 having in its rear face an undercut or dove-tail vertical groove (not shown) slidably receiving a similarly shaped tongue on a member 56. Member 56 is provided with a clamp (not shown) operated by a handle 57 for locking its tongue in vertically adjusted position in the groove of member 55. Member 56 is provided at its upper end with lugs 58 between which is pivotally supported a depending arm 59 secured to the rear side of a substantially rectangular, padded back rest 60 shaped to conform comfortably to the patient's back. Member 56 is also formed on its rear wall with an undercut or dove-tail vertical groove slidably receiving a tongue on a member 61 provided with clamping means (not shown) operated by a handle 62 for locking it in vertically adjusted position on member 56. Member 61 is the lower supporting part of a head rest device preferably such as disclosed in my said application and claimed in an application copending herewith, Serial No. 119,096, filed October 1, 1949. But such back and head rest parts 56 to 62, inclusive, may have any known or suitable construction and form no part of the present invention.

The means for locking the back rest in adjustably tilted relation to the chair seat frame 49 comprises a part 63 (Fig. 3) projecting downwardly from the base portion 53 of the back

rest and having a wedging block 64 set into its lower edge and secured by a screw, as indicated at 65. Block 64 has its opposite ends tapered forwardly and inwardly as at 66 for cooperation with cylindrical rollers 67 rolling between the tapered ends of the block and hardened metal wear strips 68 of arcuate shape secured to the spaced flanges 51 as by means of screws 69. Leaf springs 70 fixed to portion 63 of the back rest, as by means of screws 71, have their free ends bearing against the rollers 67, respectively, so as to normally press the same into wedging engagement between the ends of the block 64 and the wear strips 68, thus normally locking the back rest against rearward tilting movement. A bar 72 (Fig. 3) is secured at its ends, as by means of screws 73, to the flanges 51, respectively, and carries, intermediate its ends, a pair of lugs 74 positioned to be struck by the part 64 of the base of the back rest, so as to form stops limiting the downward tilting movement of the back rest assembly.

This means for releasing the back rest 'ocking means comprises an arm 75 extending rearwardly from base portion 53 of the back rest and recessed at 76 for the reception of the lower end 77 of a lever 78 extending upwardly in rear of the back rest so as to be in convenient reach of the operator. Lever 78 is pivotally supported on a spindle 79 journaled at its ends in the opposite walls formed by recess 76 in arm 75. The lower end 77 of the lever is extended laterally as at 80, Fig. 4, and formed with a slot 81 extending upwardly therein through its lower edge, for the reception of a plate-like member 82. Studs 83 are threadedly engaged in holes in the lateral extensions of the lever, so as to bear at their lower ends against the upper edge of plate 82, these studs being locked in adjusted position by means of nuts 84.

Plate 82 is received at its lower edge within an upwardly turned flange 85 in a housing or shell 86 having forwardly extending opposite side walls 87 pivotally mounted on the back rest spindle 52. Each wall 87 has a forwardly extending arm 88, the end of which is reversely bent upon itself, as at 89, to provide a thickened terminal portion. These arms are positioned to extend between the wedge-shaped ends 66 of bar 64 and the arcuate plates 68 on the seat frame, for engagement with the wedging rollers 67, and it is evident from this construction that forward movement of lever 78 presses downwardly on plate 82, so as to swing shell 86 counterclockwise, Fig. 3, and thus engage and free the rollers 67 to release the back for lowering adjustment.

To normally maintain the back rest locked in position for sustaining the weight of the patient, the lower end 77 of lever 78 has a finger 90, Fig. 3, arranged to bear downwardly on a downwardly extending pointed end 91 of a short lever 92 located in a slot in the end of lever 78 and pivoted on its spindle 79. This end of lever 92 is arranged to bear against a leaf spring 93 fixed by a screw 94 to the portion 63 of the back rest, these parts being so arranged that the spring normally presses short lever 92 in a counterclockwise direction (Fig. 3), so as to maintain lever 78 in a rearward position from which it may be moved forwardly, as described above, to release the back rest locking or wedging means. The upper end 95 of the short lever 92 is so arranged that at the lower limit of its movement, with lever 78 released, it snaps behind a shoulder 96 formed on the bottom wall of the portion 50 of the seat

frame, thus locking the back rest against raising movement also until the upper end of the lever 92 is lifted by pressing lever 78 toward the back rest. The back rest will thus be locked against movement in either direction when lowered to the position in which it lies substantially in the plane of the chair seat. It will be noted that the controlling lever 78 moves with and maintains a uniform relation to the rear side of the back rest, so as to be readily located and grasped by the operator and that only a slight pressure of the lever toward the back rest is required to release it for movement to the desired position.

The invention supplies an advantageous construction and arrangement of parts for supporting the back and head rests of such a chair for tilting movement from a substantially upright to a substantially horizontal position in the plane of the seat of the chair, controlled by a lever conveniently positioned in rear of the back rest and including means for positively locking the parts in any adjusted position.

It will thus be seen that the invention accomplishes its objects and while it has been herein disclosed by reference to the details of a preferred embodiment, it is to be understood that such disclosure is intended in an illustrative, rather than a limiting sense, as it is contemplated that various modifications in the construction and arrangement of the parts will readily occur to those skilled in the art, within the spirit of the invention and the scope of the appended claims.

I claim:

1. A chair comprising a seat frame, back rest means pivotally connected with said frame, an arcuate clutch face on said frame concentric with the pivot of said means, a roller for cooperation with said face, wedge means on said back rest for wedging said roller against said face during lowering movement of said back rest for clutching the same in adjusted position, and means for moving said roller free of said wedge means to release said back rest for lowering movement.

2. A chair comprising a seat frame, back rest means pivotally connected with said frame, an arcuate clutch face on said frame concentric with the pivot of said means, a roller for cooperation with said face, wedge means on said back rest for wedging said roller against said face during lowering movement of said back rest for clutching the same in adjusted position, and means comprising a lever for moving said roller means free of said wedge means to release said back rest for lowering movement, said lever being mounted on said back rest means for pivotal movement therewith.

3. A chair comprising a seat frame, back rest means pivotally connected with said frame, opposing arcuate clutch faces on said frame extending concentrically with the pivot of said means, rollers for cooperation with said faces, a wedge member on said means between said rollers and having tapered ends for wedging said rollers against said faces during lowering movement of said back rest for clutching the same in adjusted position, springs on said means for yieldably moving said rollers to clutching position, and means comprising a lever movably mounted on said back rest means for moving said rollers to release said wedge means and said back rest for lowering movement.

4. A chair comprising a seat frame, back rest means pivotally connected with said frame for

movement between raised and lowered positions, roller clutch locking means for securing said back rest means against lowering movement in different adjusted positions thereof, intermediate said raised and lowered positions, locking means operative in the lowermost position of said back rest means for securing the same against raising movement, and a lever for releasing each of said locking means located on said back rest for pivotal movement therewith.

5. A chair comprising a seat frame, back rest means pivotally connected with said frame, opposing arcuate clutch faces on said frame extending concentrically with the pivot of said means, rollers for cooperation with said faces, wedge means on said back rest for wedging said rollers against said faces during lowering movement of said back rest for clutching the same in adjusted position, springs on said means for yieldably moving said rollers to clutching position, spring actuated locking means on said back rest

means operative in the lowermost position of said back rest means for securing the same against raising movement, and means comprising a lever movably mounted on said back rest means for moving said rollers to release said wedge means and for disengaging said locking means.

NORMAN E. LAUTERBACH.

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