

[54] **TREATMENT CHAIR HAVING IMPROVED
MOVABLE ARM SUPPORT DEVICES**

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[56] **References Cited**

UNITED STATES PATENTS

527,056	10/1894	Gilson	297/111 X
1,004,575	10/1911	Jones	59/78
1,527,754	2/1925	Simon	297/411
1,731,209	10/1929	Cropsey	297/411 X
2,098,500	11/1937	Koenigkramer et al.	297/417
2,269,918	1/1942	Sill	297/417
2,384,404	9/1945	Soule et al.	24/33 B X
2,947,009	8/1960	Oades	5/327 X
3,060,492	10/1962	Dellith	16/191
3,198,544	8/1965	Presunka	297/390 X
3,612,606	10/1971	Swenson	297/417

FOREIGN PATENTS OR APPLICATIONS

1,307,758	9/1962	France	297/390
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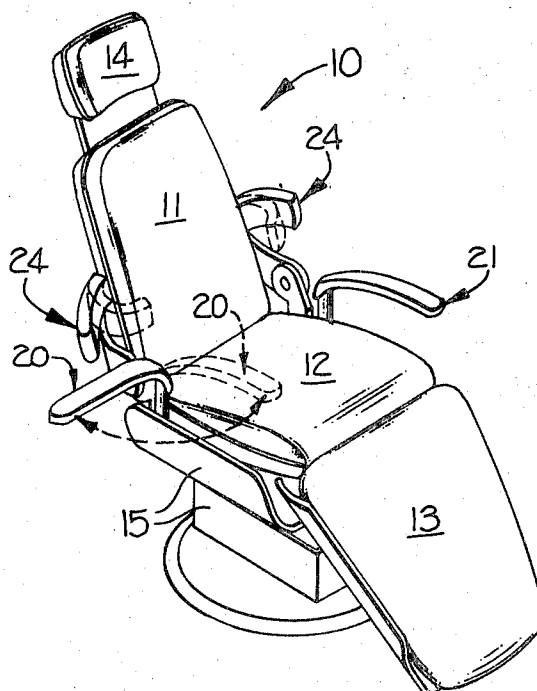
Primary Examiner—Paul R. Gilliam

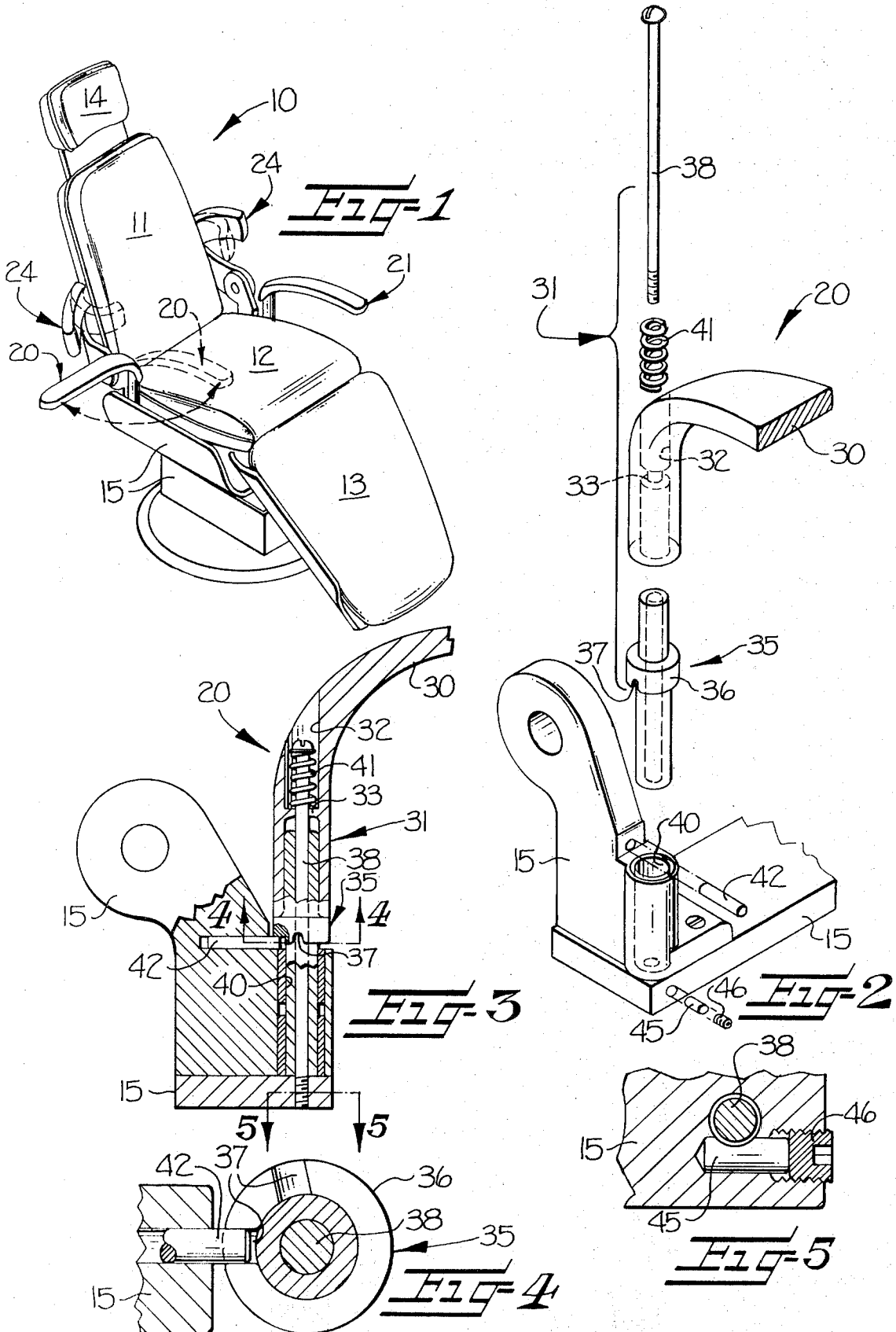
Attorney, Agent, or Firm—Parrott, Bell, Seltzer, Park
& Gibson

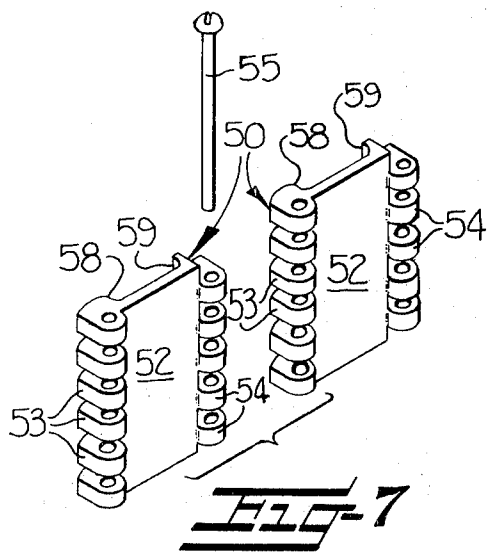
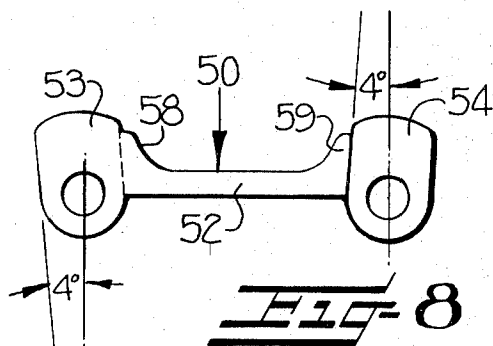
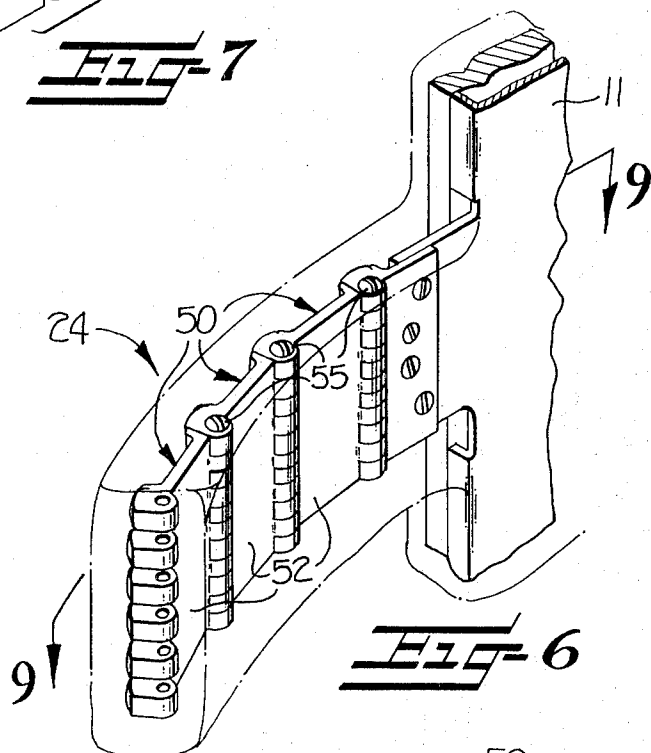
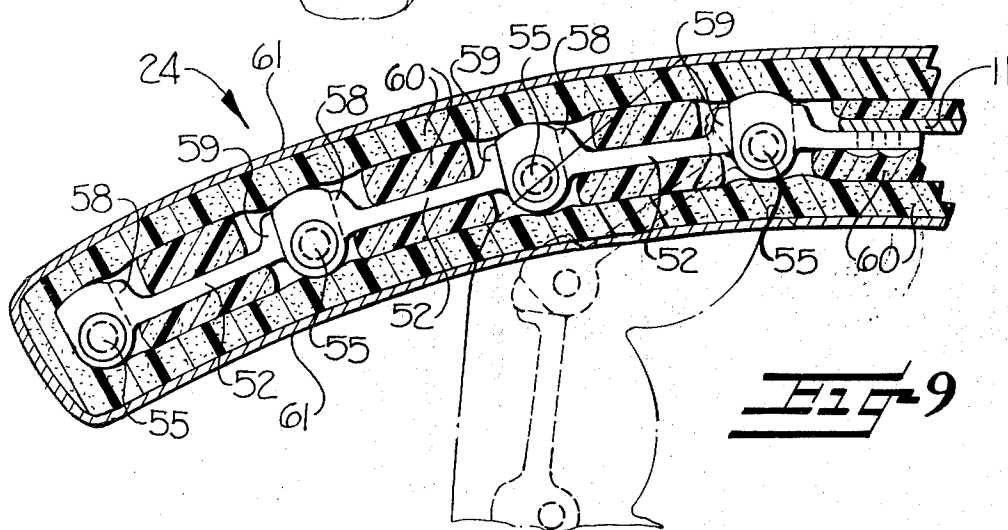
[57] **ABSTRACT**

In a treatment chair having a seat rest and a back rest for receiving a patient for treatment by an operator, the improvement of movable arm supports characterized by their ability to move for easy access to and from the side of the chair by the patient and easy access to the seated patient by the operator. These arm supports include a lower arm rest movable from a first position in which the arm rest is generally parallel with the side edge of the chair for supporting the lower arm of the seated patient to a second position in which the arm rest extends generally outwardly from the side edge of the chair for easy access to and from the chair from the side thereof by the patient. The movable arm supports further include upper arm rests mounted on the side edge of the back rest of the chair and extending forwardly of the chair in a generally arcuate position for supporting the upper arm of the patient from rearward and outward movement. The upper arm rests are constructed to move to other positions toward the seated patient only for allowing closer access to the seated patient by the operator.

4 Claims, 9 Drawing Figures







TREATMENT CHAIR HAVING IMPROVED MOVABLE ARM SUPPORT DEVICES

This invention relates to a treatment chair having improved movable arm support devices characterized by their ability to move for easy access to and from the side of the chair by the patient and easy access to the seated patient by the operator.

Treatment chairs of the type with which this invention is concerned are customarily used by dentists, doctors, beauticians, barbers and others wherein a seated patient is treated by an operator from the side of the chair. These types of treatment chairs usually include a back rest, a seat rest and possibly a leg rest and are normally constructed for reclining movement. Such chairs have presented problems in providing devices for properly supporting both the lower arm and upper arm of the patients from downward, rearward and outward movement.

When arm support devices have been provided for supporting the arms of the patient from such movements, these devices have restricted access to and from the chair by the patient from the side of the chair and close access to the patient by the operator. In treatment chairs of this type, particularly those having leg rests, the patient normally enters and exits from the side of the chair and this is made difficult by stationary lower arm supports extending along the sides of the chair. Also, upper arm supports designed for preventing rearward movement and outward movement of the arms of the patients have presented obstacles to the operators for obtaining close access to the patient and moving in over the patient, such as is required particularly in the case of dentists.

Accordingly, it is the object of this invention to provide a treatment chair having improved arm support devices characterized by their ability to move for easy access to and from the side of the chair by the patient entering and exiting from the chair and easy and close access to the seated patient by the operator or operators treating these seated patients.

It has been found by this invention that the above object may be accomplished by providing improved movable arm support devices in a treatment chair having a seat rest and a back rest for receiving a patient for treatment by an operator. These improved movable arm support devices comprise generally horizontally-extending, lower arm rest means pivotally mounted on the chair for movement from a first position in which the arm rest is generally parallel with the side edge of the seat rest of the chair for supporting the lower arm of the seated patient from downward movement to a second position in which the arm rest extends generally outwardly from the side edge of the seat rest of the chair for easy access to and from the chair from the side thereof by the patient.

The improved movable arm support devices further comprise generally horizontally-extending, upper arm rest means mounted on the side edge of the back rest of the chair and extending forwardly of the chair therefrom in a generally arcuate position for supporting the upper arm of the patient from rearward and outward movement. The upper arm rest means include means for permitting the upper arm rest means to move to other positions toward the seated patient and toward the medial portion of the chair only for allowing closer access to the seated patient by the operator.

Preferably, the treatment chair includes a single pivotally mounted, movable, lower arm rest means on one side of the chair for providing easy access by the patient to the chair from the one side of the chair and a stationary lower arm rest mounted on the other side of the chair for supporting the lower portion of the other arm of the seated patient. Also, it is preferable to provide a movable upper arm rest on each side of the back rest of the chair for allowing closer access to the seated patient by an operator or operators from both sides of the chair.

Some of the objects and advantages of this invention having been stated, other objects and advantages of the invention will be seen from the accompanying drawings, in which:

FIG. 1 is a perspective view of a treatment chair having the improved movable arm support devices of this invention incorporated therein;

FIG. 2 is an enlarged, perspective, exploded view of a portion of the movable lower arm rest device utilized in the treatment chair of FIG. 1;

FIG. 3 is a vertical sectional view taken through the portions of the lower arm rest support device of FIG. 2 in assembled condition;

FIG. 4 is an enlarged cross sectional view taken generally along the line 4—4 of FIG. 3;

FIG. 5 is an enlarged cross sectional view taken generally along the line 5—5 of FIG. 3;

FIG. 6 is a perspective view of the interior of one of the upper arm rest support devices utilized in the treatment chair of FIG. 1 with the covering thereof shown in phantom lines;

FIG. 7 is an exploded perspective view of two of the plate and hinge devices utilized in the various segments of the upper arm support device of FIG. 6;

FIG. 8 is a top plan view of one of the plate and hinge devices illustrated in FIG. 7; and

FIG. 9 is a sectional view taken generally along the line 9—9 of FIG. 6 and illustrating the upper arm support device in one of its other positions in phantom lines.

Referring now to the drawings, a treatment chair, generally indicated at 10, for use by dentists, doctors, beauticians, barbers, etc. is illustrated in its entirety in FIG. 1. This treatment chair 10 includes a back rest 11, a seat rest 12, a foot rest 13, and a head rest 14, all of which are suitably supported by frame members and a pedestal, collectively referred to by the reference numeral 15, from the floor for reclining, forward and rearward, rotary and other movements. The remaining details of the treatment chair do not pertain to this invention and further explanation of the chair itself is not deemed necessary.

In accordance with this invention, a generally horizontally-extending, lower arm rest 20 is pivotally mounted on the frame 15 of the chair 10 for movement from a first position, indicated in phantom lines in FIG. 1, in which the arm rest 20 is generally parallel with the side edge of the seat rest 12 on the one side thereof for supporting the lower arm (that portion between the wrist and elbow) of the seated patient from downward movement, to a second position, indicated by solid lines in FIG. 1, in which the arm rest 20 extends generally outwardly from the side edge of the seat rest 12 of the chair 10 for providing easy access to and from the chair 10 from that side thereof by the patient.

The treatment chair, illustrated in the drawings, 10 further includes a stationary lower arm rest 21 mounted on the frame 15 of the chair 10 on the other side thereof from the movable lower arm rest 20 for supporting the lower arm portion (that portion between the elbow and the wrist) of the seated patient.

Although the specific embodiments illustrated in the drawings include a stationary arm rest 21, it is to be understood that the treatment chair 10 may also include a movable arm rest 20 on each side of the chair 10. In this instance, one of the movable arm rests could be made stationary, as described below.

The treatment chair 10 further comprises upper arm rests 24 mounted on each side edge of the back rest 11 of the chair 10. These upper arm rests 24 extend forwardly of the chair in a generally arcuate position for supporting the upper arm (that portion between the elbow and the shoulder) of the seated patient from rearward and outward movement. The upper arm rests 20 include means, to be described hereinafter, for permitting the upper arm rests 24 to move to other positions (indicated in phantom lines in FIG. 1) toward the seated patient and toward the medial portion of the chair only for allowing closer access to the seated patient by an operator on either side of the chair 10.

Referring now specifically to the movable lower arm rest 20 (FIGS. 1-5), this movable lower arm rest comprises a generally horizontally-extending support portion 30 which defines an upper flat surface and may be covered with any suitable leather or other material which is commonly used for lower arm rests for receiving the lower portion of the arm of a seated patient. The arm rests 20 further comprises a hollow downwardly-extending mounting portion 31 integrally formed with the support portion 30 and defining an internal hollow cavity 32 which extends vertically downwardly throughout the length of the mounting portion 31 and has open ends. The hollow cavity 32 includes a lip portion 33 in the upper part thereof extending inwardly from the walls of the cavity. The lower part of the mounting portion is formed from a hollow, generally cylindrical member 35 having an outwardly-extending flange 36 medially thereof with upwardly-extending notches 37 in the bottom of the flange 36, for purposes to be described hereinafter. The member 35 is force fitted into the cavity 32 such that the flange 36 contacts the bottom portion of the cavity and the lower portion of the member 35 extends below to form an extension of the portion 31. The extending part of the member 35 is received by a cylindrical receptacle 40 formed in a convenient portion of the frame 15 of the chair 10 in such a manner as to provide pivotal rotary movements of the arm rest 20 with respect to the frame 15 and the chair 10.

For holding the lower portion of the member 35 in the receptacle 40, a screw member 38 extends through the cavity 32 and the interior of the hollow member 35. The screw member 38 includes a threaded portion on the lower end thereof which is received by a threaded aperture in the frame portion 15 below the receptacle 40, as shown in FIG. 3. The screw member 38 includes a head on the upper end thereof and a biasing member in the form of a spring 41 is disposed between the head of the screw member 38 and the inwardly-extending lip 33 so as to bias the arm rest 20 toward the frame portion 15 and the receptacle 40.

The lower arm rest 20 also includes a stop means for positioning the lower arm rest in the above-described first and second positions in the form of a pin member 42 force fitted into a horizontally-extending slot in the frame portion 15, as shown in FIGS. 2, 3 and 4, and extending outwardly therefrom for engagement in the notches 37 of the flange portion 36 of the arm rest 20. Due to the bias of the spring 41, the flange portion 36 and the notches 37 are forced into engagement with the pin 42. When movement of the movable arm rest 20 is desired from one of the above-described first and second positions, the arm rest 20 is raised against the bias of spring 41 by rotating the arm rest 20 such that the engaged notch 37 will be cammed against and lifted above the pin 42 and the arm rest 20 may be rotated until the next notch 37 comes into register with the pin 42 and the next notch 37 will engage the pin 42 for holding the arm rest 20 in the moved position.

For preventing the screw member 38 from loosening during pivotal movement of the arm rest 20, a locking member in the form of a nylon polyurethane or other suitable plastic insert or plug 45 is positioned in a suitable aperture across the threaded aperture in the frame portion 15 receiving the threaded lower end of the screw member 36 so that the threaded lower end of the screw member 36 is threaded through the plastic insert or plug 45 for locking the screw member 36 in place. The insert 45 is held in the aperture of the frame 15 by a threaded head 46, as may be seen in FIG. 5. By tightening threaded head 46, plastic plug 45 is swelled against screw member 38 increasing the force required to turn screw member 38.

The mounting portion 31 of the arm rest 20 may be constructed of any suitable material and may include a common covering with the arm support portion 30. However, it has been found preferable to form the flange 36 of the member 35 and the surface of the notches 37 therein from hardened steel or other suitable material which will resist frictional wear. Also, it has been found that spacing of two notches 37 approximately 75° apart will provide suitable first and second positions for the arm rest 20.

If movable arm rests 20 are disposed on each side of the chair 10, as suggested above, one of the movable arm rests 20 may be rendered stationary by screwing the screw member 38 down tight and thereby preventing disengagement of one of the notches 37 from the pin 42.

Referring now specifically to the movable upper arm rests 24 (FIGS. 1 and 6-9), these movable upper arm rests each comprise a plurality of segments 50 including means pivotally connecting the segments 50 to each other for pivotal movement in one direction only toward the seated patient and toward the medial portion of the chair 10, as shown in FIGS. 1 and 9.

The means for pivotally interconnecting each of the segments 50 of the upper arm rests 24 for the above-described movement comprises a plate means 52 having hinge means 53 and 54 on each side thereof. The hinge means 53 may be considered female hinge members and the hinge members 54 may be considered male hinge members and the male hinge members 54 are constructed for cooperating engagement within the female hinge members 53, as shown in FIG. 6. A pin 55 is utilized for holding the hinge members 53 and 54 in cooperating engagement with each other in a conventional manner.

Each of the hinge members 53 and 54 include stop means for abutting engagement with cooperating hinge members to permit pivotal movement of the segments 50 in one direction only. These stop members are in the form of rearwardly-extending flanges 58 and 59 on hinge members 53 and 54, respectively, which are positioned for abutting the side of the cooperating engaging hinge. For example, the rearward-extending flange 58 on hinge member 53 abutts the side of the cooperating hinge 54 and the flange 59 on hinge member 54 abutts the side of the cooperating hinge 53, as shown in FIGS. 6 and 9. This prevents rearward movement of the segments 50 or outward movement of the segments 50 of the arm rests 24 with respect to the chair 10. However, the segments 50 may pivot with respect to each other about the interconnected hinge members 53 and 54 forwardly or toward the seated patient and toward the medial portion of the chair 10, as shown in phantom lines in FIG. 9.

The hinge members 53 and 54 are generally disposed at approximately a 4° angle with respect to transverse axes through the plate members 52 so as to form a generally arcuate configuration for the upper arm rests 24.

The above-described structure of the upper arm rests 24 and the segments 50 comprising same may be covered with suitable padding material, indicated at 60 and the padding material may be covered with suitable leather or other surface covering material 61 so as to provide a generally vertically-extending flat upper arm engaging surface.

Thus it may be seen, that this invention has provided improved movable arm support devices for a treatment chair which are characterized by their ability to move for easy access to and from the side of the chair by the patient and easy access to the seated patient by the operator.

In the drawings and specification there has been set forth preferred embodiments of this invention and, although specific terms have been employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

What is claimed is:

1. In a treatment chair having a seat rest and a back rest for receiving a patient for treatment by an operator; the improvement of movable arm support and retaining devices characterized by their ability to move for easy access to and from the side of the chair by the patient and easy access to the seated patient by the operator, said movable arm support devices comprising:

generally horizontally-extending, lower arm rest means including means mounting said lower arm rest on said chair for movement from a first position in which said arm rest is generally parallel with the side edge of said seat rest for supporting the lower arm of the seated patient from downward movement to a second position in which said arm rest extends generally outwardly from the side edge of said seat rest of said chair for easy access to and from said chair from the side thereof by the patient; and

generally horizontally-extending, upper arm rest means mounted on the side edge of said back rest of said chair and extending forwardly of said chair therefrom in a generally arcuate first position for retaining the upper arm of the seated patient from

rearward and outward movement, said upper arm rest means comprising a plurality of interconnected segments including one-way means pivotally connecting said segments to each other for pivotal movement of said upper arm rest to other positions toward the seated patient and toward the medial portion of said chair only and not away from the seated patient beyond said first position for allowing the operator to move said upper arm rest closer to the patient for closer access to the seated patient while providing a retainer against outward movement of said upper arm rest.

2. In a treatment chair having a seat rest and a back rest and upper retaining arm rest means for receiving a patient for treatment by an operator; the improvement of generally horizontally-extending, lower arm rest means including means pivotally mounting said lower arm rest on said chair for movement from a first position in which said arm rest is generally parallel with the side edge of said seat rest of said chair for supporting the lower arm of the seated patient for downward movement to a second position in which said arm rest extends generally outwardly from the side edge of said seat rest of said chair for permitting easy access to and from said chair from the side thereof by the patient, said arm rest including a generally horizontally-extending support portion forming a part of said arm rest and having an upper generally flat surface for receiving the lower portion of the arm of a seated patient, and said means mounting said arm rest on said chair comprises:

a side frame portion carried by said chair and defining a hollow, downwardly extending, generally cylindrical receptacle for receiving said arm rest;

a hollow downwardly extending mounting portion forming a part of said arm rest and including a lower generally cylindrical portion of less cross-sectional dimensions than said receptacle in said frame portion for being received by said receptacle and allowing pivotal movement therebetween;

means for holding said lower portion of said mounting portion in said receptacle; and

stop means for positioning said lower arm rest means in said first and second positions comprising an outwardly extending flange portion having notches therein and being carried by said mounting portion of said lower arm rest means, a pin member mounted in said side frame portion of said chair and extending toward said flange portion for reception by a respective one of said notches when said lower arm rest means is moved to said first and second positions and means biasing said flange portion and said notches into engagement with said pin member.

3. In a treatment chair, having a seat rest and a back rest and lower arm rest means for receiving a patient for treatment by an operator; the improvement of generally horizontally-extending, upper retaining arm rest means mounted on the side edge of said back rest of said chair and extending forwardly of said chair therefrom in a generally arcuate first position for retaining the upper rest of the seated patient from rearward and outward movement, said upper arm rest means comprising:

a plurality of interconnected segments including one-way means pivotally connecting said segments to each other for pivotal movement of said arm rest

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to other positions toward the seated patient and toward the medial portion of said chair only and not away from the seated patient beyond said first position for the operator to move said arm rest closer to the patient allowing closer access to the seated patient by the operator while providing a re-
tainer against outward movement of said arm rest.

4. In a treatment chair, as set forth in claim 3, in which each of said segments includes a plate means

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having hinge means on each side thereof for cooperating connection with hinge means on other plate means, each of said hinge means including stop means for abutting engagement with cooperating hinge means to permit pivotal movement of said segments in one direction only, and in which said plurality of connected segments include a common, flexible covering means surrounding said segments and providing a retaining surface for the upper arm of the seated patient.

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