Nov. 15, 1932. R. E. KOCHS ET AL 1,887,647

CHAIR

Filed Dec. 11, 1929 3 Sheets-Sheet 1

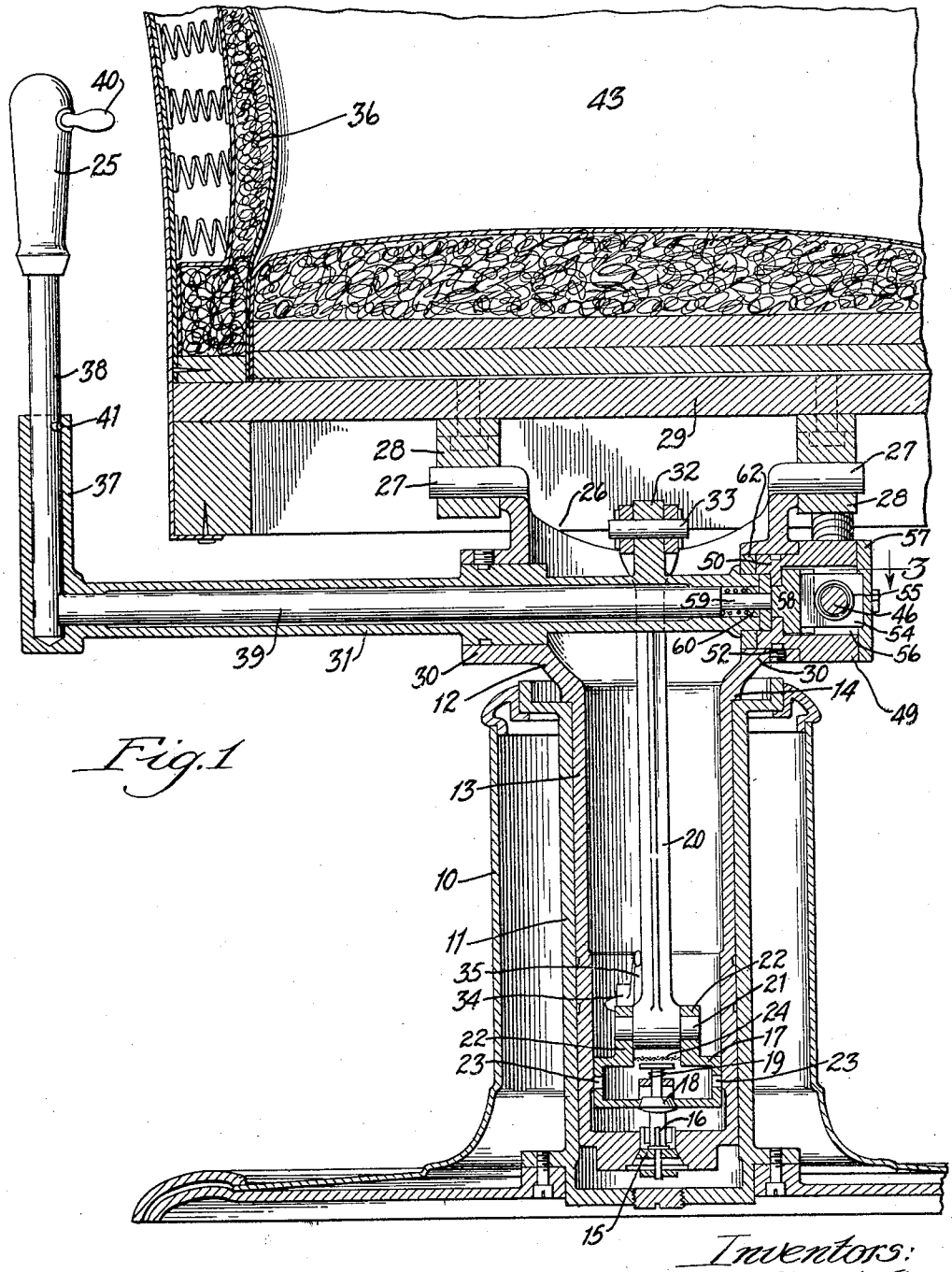


Fig. 1

Inventors:
Robert E. Kochs and
Arthur R. Schwarzkopf,
By Banning & Banning.
Attys.

Nov. 15, 1932. R. E. KOCHS ET AL 1,887,647

CHAIR

Filed Dec. 11, 1929 3 Sheets-Sheet 2

Fig. 2

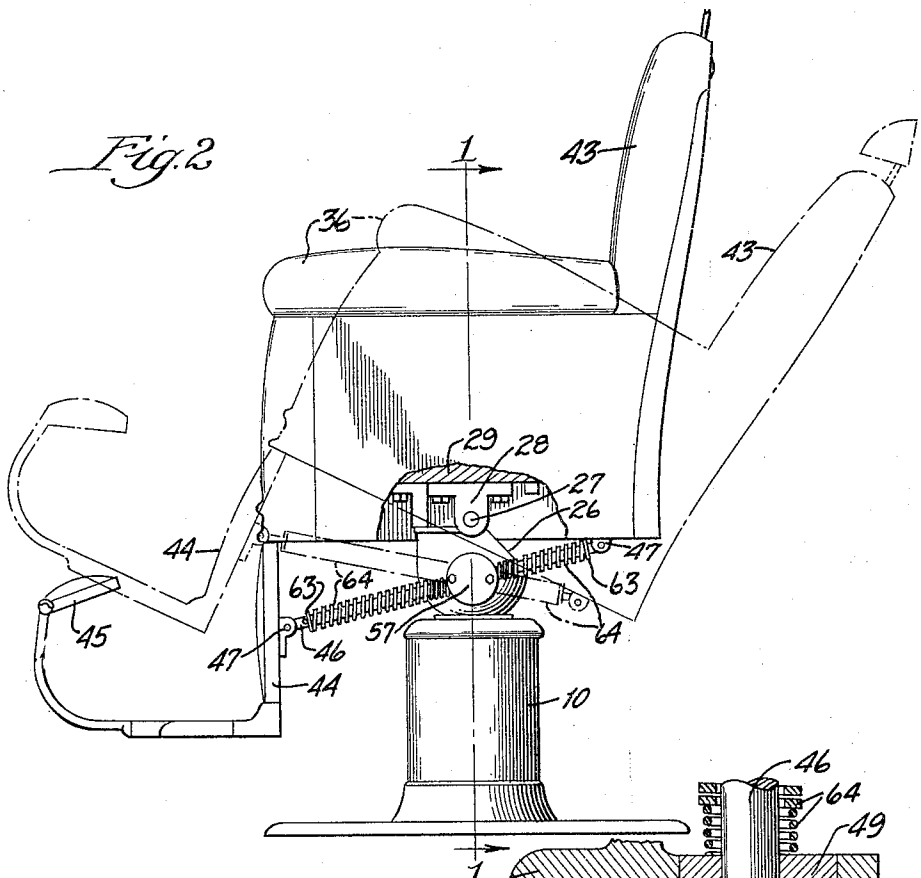


Fig. 3

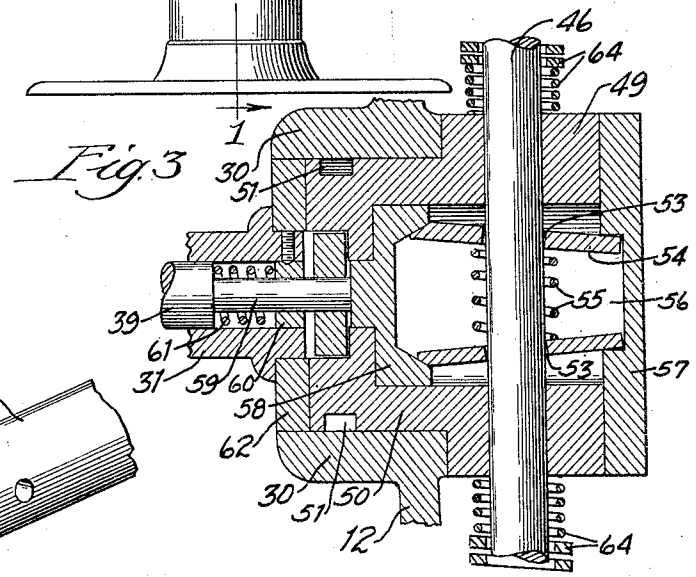
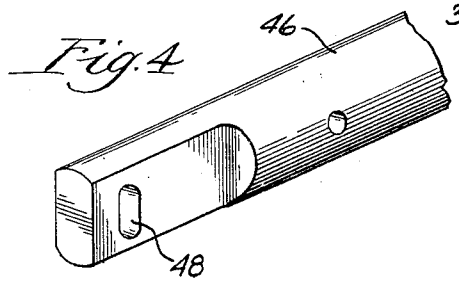


Fig. 4



Inventors:
Robert E. Kochs and
Arthur R. Schwarzkopf,
By Banning & Banning
Attys.

Nov. 15, 1932. R. E. KOCHS ET AL 1,887,647

CHAIR

Filed Dec. 11, 1929 3 Sheets-Sheet 3

Fig. 5

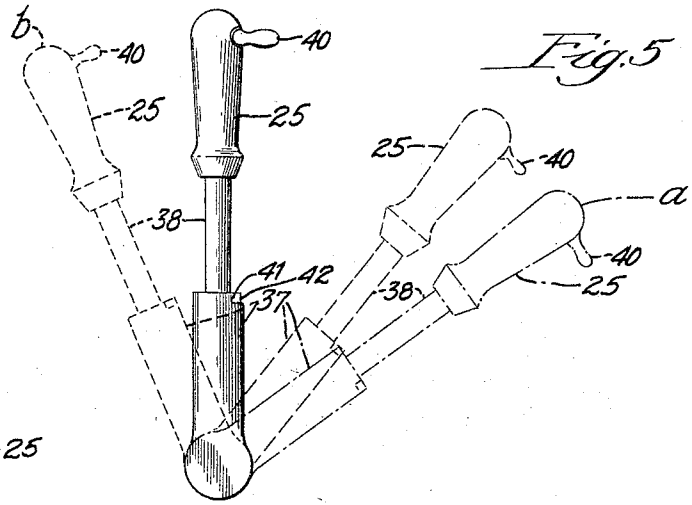
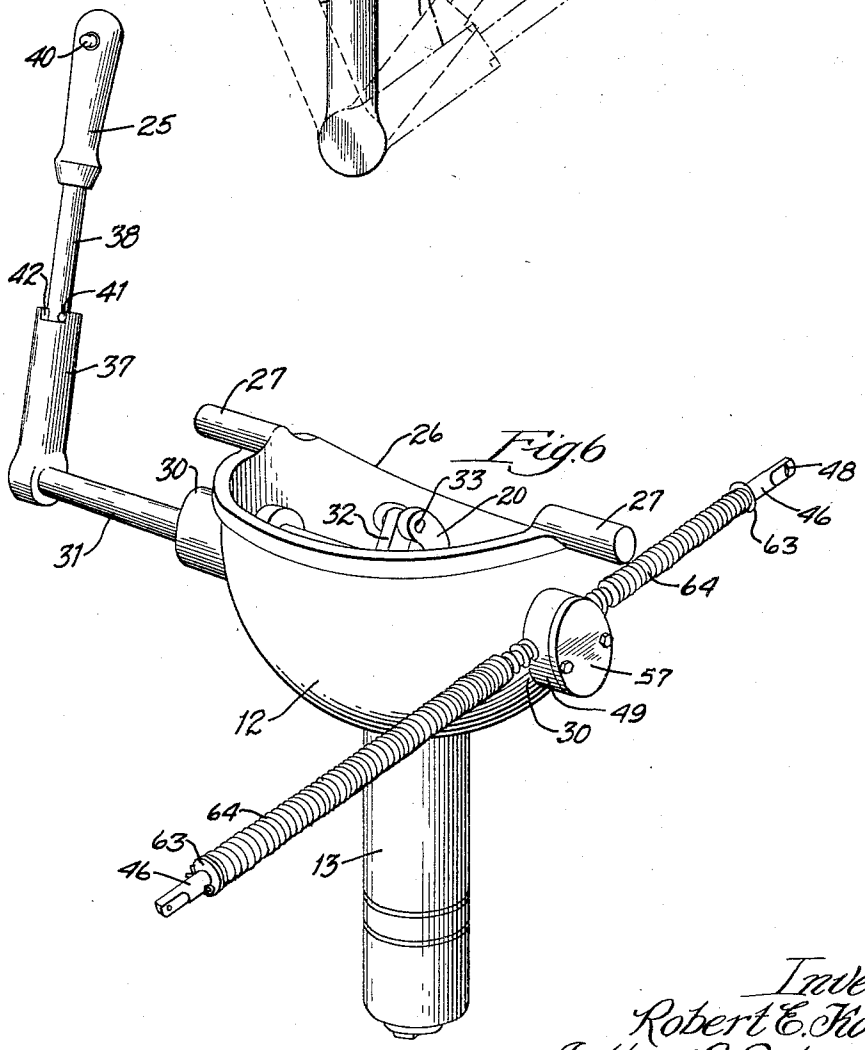


Fig. 6



Inventors:
Robert E. Kochs and
Arthur R. Schwarzkopf,
By Banning & Banning.
Attys.

Patented Nov. 15, 1932 1,887,647

UNITED STATES PATENT OFFICE

ROBERT ERNEST KOCHS AND ARTHUR R. SCHWARZKOPF, OF CHICAGO, ILLINOIS, ASSIGNORS TO THEO. A. KOCHS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

CHAIR

Application filed December 11, 1929. Serial No, 413,173.

This invention relates to chairs and particularly to chairs suitable for use by barbers, beauty specialists, and the like, having means by which an operator may manipulate the chair into desired positions.

One of the objects of the present invention is to provide such a chair in which the seat is adapted to swing around a vertical axis, be tilted upon a horizontal axis, be raised or lowered to a desired elevation, and be locked in a selected position, a single control means for these several purposes being provided at one or more points.

A further object of the invention is to provide a chair comprising a seat, back, sides, and apron connected together as a rigid unit so as to be adjustable to a desired position by a single manipulating handle which serves also to control a lock or release for the chair in each of its several adjusted positions.

Other objects, advantages and capabilities will later more fully appear.

Our invention further resides in the combination, construction and arrangements of parts illustrated in the accompanying drawings, and while we have shown herein a preferred embodiment we wish the same to be understood as illustrative only and not limiting the scope of our claims.

In the drawings:

Figure 1 is a fragmentary sectional elevation through a barber's chair, on the line 1—1 of Fig. 2,

Fig. 2 is a side elevation of said chair, part of the side being broken away to show concealed parts and showing in dotted lines the chair in tilted relation,

Fig. 3 is a sectional detail on the line 3 of Fig. 1, illustrating the means for locking the chair in desired tilted position,

Fig. 4 is a perspective detail illustrating the rear end of the rod 46.

Fig. 5 is a side elevation of the hand lever, various positions of said lever being shown in dotted lines, and

Fig. 6 is a perspective view of the chair support and associated parts.

Referring to the drawings, the numeral 10 designates the chair base which includes a vertical cylinder 11, the upper end of which is open. The numeral 12 designates the chair support, which includes a downwardly extending cylinder 13 which fits snugly within the cylinder 11 so as to be capable of vertical movement therein and rotary movement relative thereto. The support 12 comprises a shoulder 14 which limits the downward movement of the cylinder 13 within the cylinder 11. The lower end of the cylinder 13 is provided with an opening which is normally closed by a spring pressed valve 15 which is adapted to be opened by movement in the downward direction against the action of a compression spring. The stem of the valve 15 projects upwardly as shown at 16 for a purpose hereinafter described.

A piston 17 is located within the cylinder 13. This piston is preferably hollow and the lower face thereof is provided with an opening normally closed by a valve 18 which is pressed upwardly by a spring 19. The piston 17 is connected to a pump rod 20 by means of a pin 21 which passes through the lower end of said pump rod and through ears 22 carried by the upper side of the piston. Ports 23 are provided in the side wall of the piston 17 so as to extend into the space therein, and said space communicates with the upper side of the piston and a screen or strainer 24 is preferably provided to prevent foreign matter from passing downwardly into the operative parts. The interior diameter of the cylinder 13 is slightly increased near its lower end so that when the piston 17 is pushed inwardly to the bottom of the cylinder 13, which occurs when the pump handle 25 is moved to the extreme position *a* (Fig. 5), oil may pass from the lower side of the piston, through ports 23 and screen 24 to the upper side thereof. This position of the piston causes the valve 18 to depress the stem 16 of the valve 15 and open same, thereby permitting oil to flow from the under side of the cylinder 13 to the upper side of the piston 17 so that the chair descends vertically. It will readily be understood that if the pump handle 25 is oscillated so as to reciprocate the piston 17 to an extent short of its lowermost position within the cylinder 13,

oil will be pumped from the upper side of the piston through the valves 18 and 15 to the lower side of the cylinder 13 thereby causing the elevation of the chair to the desired extent.

The upper portion of the chair support is preferably dished and is cut away at the rear as shown at 26. At its upper edge the support 12 is provided with projecting trunnions 27 which are engaged by lugs 28 attached to the under side of the chair seat 29. In alignment with the trunnions 27 and at a lower level, the chair support 12 is provided with bosses 30 which provide bearings for a horizontal hollow shaft 31. The shaft 31 is provided with a crank arm 32, to which the bifurcated upper end of the pump rod 20 is secured by the pin 33. The upper end of the pump rod is preferably formed with laterally bent or U-portion to enable the hand lever to be swung back far enough to carry the wrist pin 33 beyond a vertical line passing into the axis of the hollow shaft 31. This position corresponds to the position *b* of the handle 25 as shown in Fig. 5. A brake shoe 34 of conventional or other suitable form may be provided so that when the handle 25 is moved to the position *b* a projection 35 on the pump rod 20 engages the brake shoe 34 so as to lock the cylinders 13 and 11 against relative rotation.

The hollow shaft 31 extends outwardly slightly beyond one of the sides 36 of the chair, and at its outer end it is provided with a sleeve 37 which receives the stem 38 of the handle 25. Within the hollow shaft 31 is located a shaft 39 which projects slightly into the sleeve 37 and engages a flat surface cut upon the cylindrical surface of the stem 38. The handle 25 is provided with a projecting finger or trigger 40 which enables same to be rotated upon its axis. A projection 41 upon the stem 38 is adapted to move in a recess 42 at the outer end of the sleeve 37 and thereby limit this movement.

The chair comprises the seat 29, arms 36 and back 43 which are preferably assembled rigidly with respect to each other so that they may be upholstered in any desired permanent fashion. At the front edge of the seat 29 is rigidly mounted a depending apron 44 which carries a foot rest 45 of any desired form. A rod 46 extends from the rear side of the apron 44 to a point near the rear edge of the seat 29. The rod 46 is pivotally connected to brackets 47 carried by the apron and seat so as to intersect the axis of the shaft 39. The rear end of the rod 46 is provided with an elongated opening 48 to permit a slight movement thereof relatively to the rear bracket 47 in order to permit engagement of the rod at an intermediate point by locking means which will now be described.

The locking means comprises a housing 49 provided with lateral openings through which the rod 46 extends. The housing 49 comprises a portion of reduced diameter which extends into the boss 30 adjacent the ends of the shafts 31 and 39, where it is held by suitable means, for example a circumferential groove 51 and set screw 52, so that it may rotate or oscillate within said boss. Within the housing 49 the rod 46 extends through openings 53 in plates 54 which are held in spaced relation by means of an interposed spring 55. The outer ends of the plates 54 are engaged in a recess 56 in the cover 57 of the housing 49. The inner ends of the plates 54 engage oppositely beveled surfaces of a slidable member 58 which is engaged by a reduced end 59 of the shaft 39 which projects beyond the end of the hollow shaft 31. The outer end of the hollow shaft 31 is closed by a collar 60 which forms an abutment for a spring 61 which tends to push the shaft 39 outwardly towards the handle 25. The outer end of the hollow shaft 31 is supported by a collar 62 which is mounted in the adjacent boss 30. Washers 63 mounted near the ends of the rod 46 serve as abutments for springs 64 of suitable strength which abut also against the outer sides of the housing 49. It is preferred to employ a relatively strong spring and a relatively weak spring on each side of the housing so that compressive force is exerted upon the housing in all positions of adjustment.

It will be understood that all the movements of the chair can be controlled by suitable operation of the handle 25. Thus, as previously described, the chair can be elevated by oscillating the handle through a range intermediate between the extreme positions *a* and *b* shown in Fig. 5. The chair may be caused to descend vertically by moving the handle 25 into the position *a* and may be locked against rotation on its vertical axis by moving the lever into the position *b*. The chair is normally locked with respect to tilting movement by the action of the spring 55 which normally holds the plates 54 so that the openings 53 therein grip the rod 46 and prevent longitudinal movement thereof. By rotating the handle 25 upon its axis into the position shown in full lines in Fig. 5, the shaft 39 is moved bodily against the action of the spring 61. This movement causes the member 58 to move outwardly so that the beveled surfaces thereof cause the inner ends of the plates 54 to approach each other. The chair is now capable of being tilted upon the trunnions 27 into any desired position. Upon releasing the handle 25 the plates 54 resume the gripping relation of the rod 46 and the chair is maintained in such position until further adjustment is desired.

One of the important results of our invention is the provision of a chair which is in-

tegral and may be upholstered as a unit, and which is capable of a large variety of movements which are adapted to be operated and controlled by suitable actuation of the same controlling member.

We claim:

1. In combination, a chair-seat adapted to tilt about a horizontal axis, means movable about an axis non-concentric with respect to the axis of the chair-seat and connected to the chair-seat on opposite sides of its horizontal axis for locking and supporting the chair-seat in desired tilted position, means for elevating the chair-seat, and an actuating member operatively connected to both the elevating means and locking means.

2. In combination, a chair-seat adapted to rotate on a vertical axis and tilt about a horizontal axis, means connected to the chair-seat on opposites sides of its horizontal axis for locking the chair-seat in desired tilted position, means for locking the chair-seat against rotation, means for elevating the chair-seat, and an actuating member operatively connected to both the elevating means and the locking means.

3. In combination, chair-seat, a chair-seat support on which the seat is pivotally mounted for tilting about a horizontal axis, a base in which the support is rotatably mounted, seat elevation means including a piston within said support adapted to transfer fluid to cause the elevation of the support in the base, piston actuating means including a pump handle, a rod connected to the chair-seat on opposite sides of the pivotal mounting, and means mounted on said base and associated with said pump handle and operable thereby for holding the rod against endwise movement.

4. In combination, a chair-seat, a pivotal support on which the seat is tiltably mounted, a base in which the support is rotatably mounted, seat elevating means including a piston within said support adapted to transfer fluid to cause the elevation of the support in the base, piston actuating means including a pump handle, a housing mounted on said base, a rod connected to the chair-seat on opposite sides of said pivotal support and movable through said housing, resilient means associated with the rod tending to oppose tilting of the chair-seat, means carried by said housing normally gripping the rod to prevent movement thereof, and means associated with the pump handle and operable thereby for releasing the gripping means.

5. In combination, a chair comprising a back, sides, seat and apron rigidly connected together, a pivotal support on which the chair is tiltably mounted, a base in which the support is rotatably mounted, chair elevating means including a piston within said support adapted to transfer fluid to cause the elevation of the support in the base, piston actuating means including a pump handle, a housing mounted on the base, a rod connected at one end to the chair-seat and at its opposite end to the apron and moving through said housing, springs on the rod bearing against said housing and opposing tilting of the chair, means carried by said housing normally gripping the rod to prevent movement thereof, and means operable by rotation of the handle on its axis for releasing the gripping means.

In testimony whereof, we have hereunto set our hands this 5th day of December, 1929.

ROBERT ERNEST KOCHS.
ARTHUR R. SCHWARZKOPF.