G. C. LARAIA.

BARBER OR DENTAL CHAIR.

APPLICATION FILED FEB. 27, 1915.

1,255,321.

Patented Feb. 5, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

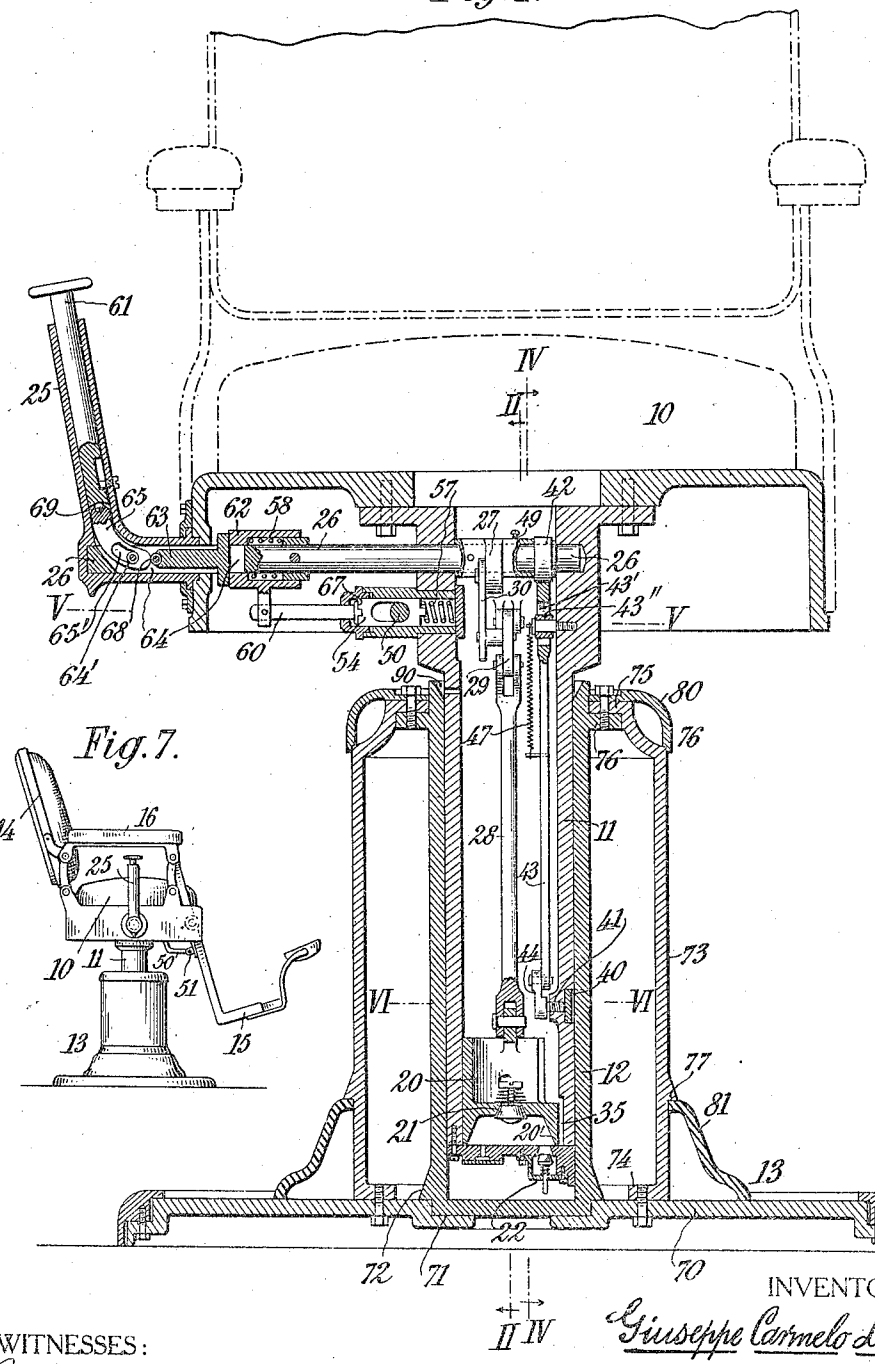


Fig. 7.

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2 SHEETS—SHEET 2.

Fig. 2.

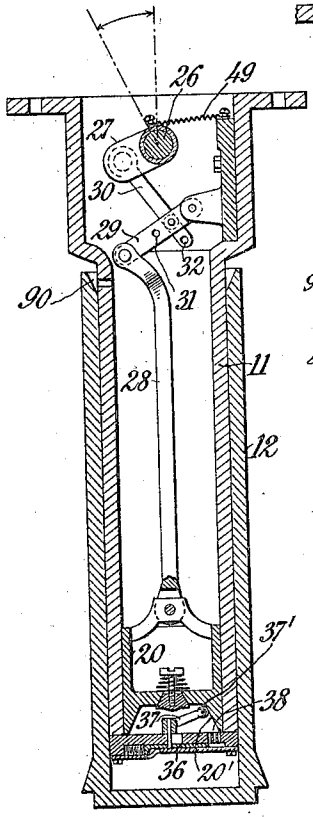


Fig. 3.

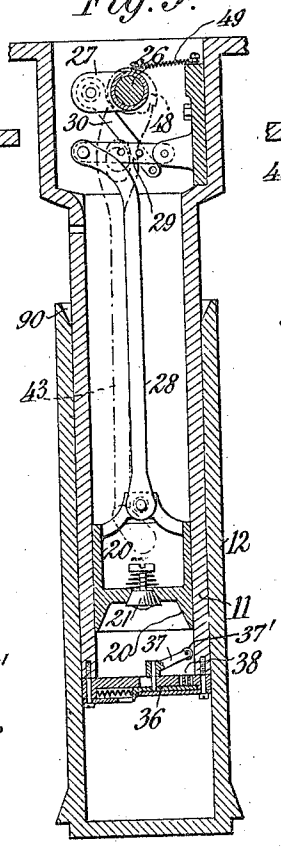


Fig. 4.

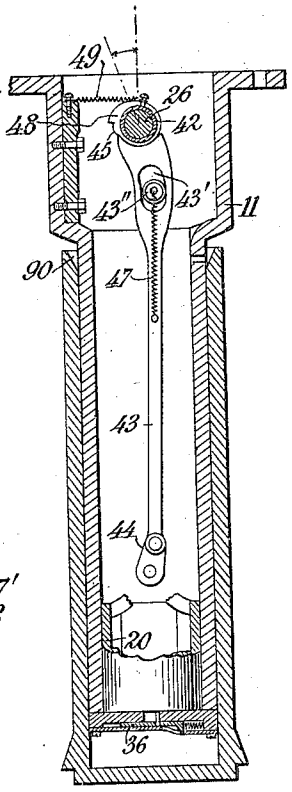


Fig. 5.

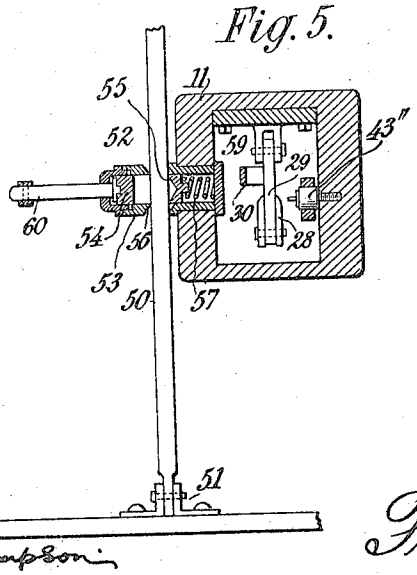
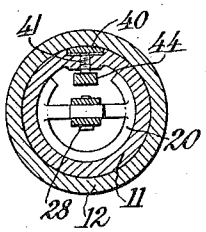


Fig. 6.



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UNITED STATES PATENT OFFICE.

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BARBER OR DENTAL CHAIR.

1,255,321. Specification of Letters Patent. Patented Feb. 5, 1918.

Application filed February 27, 1915. Serial No. 10,907.

To all whom it may concern:

Be it known that I, GIUSEPPE CARMELO LARAIA, a citizen of the United States of America, residing at New York city, borough of Manhattan, New York, have invented certain new and useful Improvements in Barber or Dental Chairs, of which the following is a specification.

This invention relates to improvements in barbers' chairs, or the like, and aims to provide improvements therein.

The present invention comprises a barber chair, the seat of which may be raised or lowered by means of fluid under pressure, and provides improved means for effecting the raising and lowering thereof. The invention also comprises a chair in which the seat may be turned on a vertical axis. Means for fixing the seat of the chair in its adjusted position are preferably provided.

The back-and-foot-rest of the chair are also preferably adjustable, and improved means for fixing the back-and-foot-rest in its adjusted positions are provided.

The invention also provides an improved base.

Other features of improvement will be pointed out.

An embodiment of my invention is illustrated in the accompanying drawings, and the invention will be described in greater detail with reference thereto.

In said drawings:

Figure 1 is a vertical sectional view of the chair.

Figs. 2 and 3 are vertical sections on the line II—II of Fig. 1 looking in the direction of the arrow; Fig. 2 illustrating the plunger at the limit of its down-stroke, and Fig. 3 illustrating the plunger on its up-stroke.

Fig. 4 is a vertical section on the line IV—IV of Fig. 1, looking in the direction of the arrow;

Fig. 5 is a horizontal section on the line V—V of Fig. 1.

Fig. 6 is a horizontal section on the line VI—VI of Fig. 1.

Fig. 7 is a side elevation of the chair illustrating the adjustable back-and-foot-rest and parts of the means for fixing these parts in adjusted position.

Referring to the drawings, numeral 10 designates the seat of the chair, 11 a piston which is attached to the underside of the seat and adapted to fit within a cylinder 12 of the base 13.

14 designates the pivoted back, and 15 the pivoted foot-rest, the back-and-foot-rest being pivotally connected to the arm-rest 16, and being adapted to move in unison.

The piston 11 is hollow, closed at its lower end, and adapted to contain a liquid, such as oil.

In order to raise the seat, oil is forced from the interior of the piston 11 into the lower end of the cylinder 12. For this purpose a plunger 20 is provided inside of the piston 11. The plunger 20 is provided with a valve 21 opening downwardly and adapted to permit oil to pass from the upper face of the plunger to the lower side, and the lower end of the piston 11 is provided with an outwardly opening valve 22 adapted to permit oil to be forced from the piston 11 below the plunger 20 into the lower part of the cylinder 12.

The plunger 20 may be operated by a handle 25 attached to a rock shaft 26, which rock shaft has a crank 27 thereon connected to a rod 28 attached to the plunger 20. The crank 27 is preferably attached to the rod 28 through a lever 29 and a link 30. The motion of the crank is multiplied by the lever 29. The amount of motion of the lever 29 may be adjusted by adjusting the connection of the link 30 to the lever, a plurality of holes 31 32 being provided in the lever and link respectively.

By rocking the handle 25 as indicated by the arrow in Fig. 2, the plunger 20 is reciprocated, and oil is forced from the interior of the piston 11 into the lower part of the cylinder 12, and the piston 11 is thus made to rise.

In order to lower the chair seat, a by-pass 35 around the plunger 20 is provided at or near the lower end of the piston 11, and a spring-pressed slide-valve 36, or other suitable valve, is provided at the lower end of the piston. To lower the chair seat, the handle 25 is moved to its limit, as indicated in Fig. 2, thus bringing a bevel 20′ on the lower side of the plunger 20 into a position to contact with the arm 37 on the valve 36 and move the valve 36 to open position. The arm 37 preferably carries an antifriction roller 37′. In this position of the plunger 20, oil will flow around the plunger 20 through the by-pass 35 (Fig. 1) and from the cylinder 12 into the piston 11 through one or more passages 38 controlled by the slide valve 36. A plurality of passages 38

is preferably provided. By the operator regulating the amount of throw of the handle 25, the movement of the plunger 20 may be regulated, and in consequence the amount of movement of the slide valve, whereby one or more of the passages 38 may be uncovered and the flow of oil controlled. The rate at which the piston 11, and consequently the seat 10, descends, may be thus regulated.

Means are preferably provided for fixing or locking the piston 11 from turning in the cylinder. The clamping means also preferably operates to prevent descent of the piston when in elevated position. The clamping means may comprise a plate 40 carried by the piston 11 and adapted to be pressed against the cylinder 12 by means of a screw 41. The screw 41 is preferably actuated by the handle 25 by means of a cam 42 on the rock shaft 26, a rod 43, and a crank 44. The cam is placed on the rock shaft so that the nose 45 thereon is opposite the crank 27. When the handle 25 is rocked, as indicated by the arrow in Fig. 2, for the purpose of operating the plunger 20, the nose 45 is moved in the opposite direction from the crank and does not come into operative engagement with the rod 43, so that during pumping the clamping plate 40 is not pressed into clamping engagement with the cylinder 12 and the piston 11 is hence free to move. On turning the handle 25 in the opposite direction, as indicated by the arrow in Fig. 4, the nose 45 of the cam comes into engagement with the rod 43, depresses the same, and causes the crank 44 to be turned and the screw 41 to press the plate 40 into binding contact with the cylinder 12. A shoulder 48 is provided on the cam 42, and when the shaft 26 is turned to the limit of its movement, as indicated by the arrow in Fig. 4, the shoulder 48 engages the end of the rod 43 and acts to push the latter beneath the axis of the shaft 26, and hold the rod 43 in clamping position. The handle 25 will be held in a corresponding position. The rod 43 is preferably provided with a curved slot 43′ fitting around a roller 43″ carried by the piston 11. When the rod 43 is depressed the slot and roller act to guide the rod to a position under the axis of the shaft 26. A spring 47 pulls on the rod 43 in such manner that when the end of the rod 43 is opposite the plain part of the cam 42, the rod will be raised so as to turn the crank 44 and relieve the plate 40 from the pressure of the screw 41. A spring 49 is preferably attached to the shaft 26 at one side in such manner as to normally offset the weight of the piston upon the opposite side of the shaft. The piston is thereby prevented from settling and opening the slide valve 36.

The back-and-foot-rest of the chair are preferably reclinable, and means are preferably provided for holding the back-and-foot-rest in the several positions thereof. These means preferably comprise a rod 50 attached to a part of the foot-rest as indicated at 51 (Fig. 5) and a clamp 52 swiveled upon the upper end of the piston 11. The clamp 52 preferably comprises a block 53 and a slide 54 having openings therein through which the rod 50 extends. The slide 54 is preferably provided with teeth 55 and the block 53 is preferably provided with teeth 56, adapted to bite the rod 50, and prevent axial movement thereof. A strong spring 57 is provided for pressing the slide 54 against the rod and the rod against the block 53. The clamp 52 therefore acts to normally hold the rod 50 against movement. In order to operate the clamp to release the rod 50, the slide 54 is provided with a push rod 60. The push rod 60 may be pressed inwardly by a rod 61 carried by the handle 25. The push rod 60 is connected to a sleeve 62, loose and slidable upon the shaft 26, the sleeve 62 being slidable along the shaft by means of a T-shaped plate 63 fitting within a slot 64 in the shaft 26, and a curved plate 65 having one end adapted to fit within the slot 64. An antifriction roller 68 is placed between the T-piece 63 and the plate 65 and an antifriction ball 69 is placed between the rod 61 and the plate 65. The plate 65 is also preferably provided with a slot 65′ within which is fitted a roller 64′ journaled in the shaft 26. The slot 65′ and roller 64′ act to guide the plate 65 when moved by the rod 61. By pushing upon the rod 61 the plate 65 and the T-piece 63 are moved and the sleeve 62 is thereby slid along the shaft 26, and moves the push rod 60, which in turn moves the slide 54, and thus releases the rod 50. The rod 61 may be pressed to operate the clamp to release the rod 50 in any angular position of the handle 25 and shaft 26, as the cross-piece of the T-piece is always in contact with the sleeve 62. In order to permit the clamp 52 to turn, there is a swiveled connection 67 between the push rod 60 and the slide 54. A spring 58 is provided for pressing the sleeve 62 outwardly, and consequently the T-shaped piece, the curved piece, and the rod 61 into normal position. The cylinder 12 is preferably supported on a base plate 70. The base plate 70 may be provided with an opening or recess 71 in which the lower end of the cylinder 12 sets, and the cylinder 12 may be provided with shoulders 72 which bear against the upper face of the base plate. Surrounding the cylinder 12 there is preferably a barrel 73. The barrel 73 is provided at its lower end with a flange 74 which is connected to the base plate 70 by means of screws or bolts. The upper end of the barrel 73 is provided with a shoulder 75 which preferably fits

above a flange 76 provided on the cylinder 12. The shoulder 75 bearing on the flange 76 holds the cylinder 12 against the base plate. The flange 76 and the shoulder 75 may be fastened together by means of screws, thus rendering the structure more secure and preventing the cylinder 12 from turning in the base. Moldings 80, 81, 82 may be provided for ornamental purposes. A shoulder 77 is provided on the barrel 73 for holding the molding 81 in place.

In order to prevent oil from being scraped off of the piston 11 by the upper edge of the cylinder 12, and running over onto the base, the upper end of the cylinder is preferably beveled, as indicated at 90, and the piston is provided with a small hole 91 through which oil which may accumulate in the cup formed by the bevel 90, may flow into the interior of the piston 11.

The handle and the parts operated thereby are so arranged that the operator by simple movement with one hand can operate the handle to raise or lower the seat, release or hold the back and foot-rest, or lock the seat against turning, the operator, with his other hand being able to turn the chair on its axis when free and to move the back and foot-rest to desired positions when released. Furthermore, the back and foot-rest may be released by a simple pressure on the end of the rod 61 of the handle 25 and the rod 61 may be operated to release the back and foot-rest in any position of the handle. Furthermore movement of the handle through a short arc only is required, and the degree of movement is adjustable by means of the link 30 and lever 29.

The inventive ideas are capable of other embodiments than those illustrated and specifically described.

The plunger mechanism disclosed herein is claimed in my application Serial No. 150.654, filed February 24, 1917.

What is claimed is:—

1. A barber or dental chair, comprising a seat, a piston on which said seat is mounted, a cylinder, and means for fixing said piston in said cylinder, comprising a plate on said piston, a screw for pressing said plate into contact with said cylinder, and means for turning said screw.

2. A barber or dental chair, comprising a seat, a piston on which said seat is mounted, a cylinder, and means for fixing said piston in said cylinder, comprising a plate on said piston, a screw for pressing said plate into contact with said cylinder, a crank for turning said screw, a rod attached to said crank, and means for operating said rod.

3. A barber or dental chair, comprising a piston adapted to support a seat, a cylinder, and means for fixing said piston in said cylinder, means for operating said fixing means, comprising an operating rod, an operating shaft, and means on said shaft adapted to axially and transversely move said rod, whereby said rod may be moved to a position beneath the axis of said shaft when the rod is at or near the limit of its movement.

4. A barber or dental chair, comprising a piston adapted to support a seat, a cylinder, and means for fixing said piston in said cylinder, means for operating said fixing means, comprising an operating rod, an operating shaft, a cam on said shaft adapted to axially move said rod, and a shoulder on said cam adapted to transversely move said rod, whereby said rod may be moved to a position beneath the axis of said shaft when the rod is at or near the limit of its movement.

5. A barber or dental chair, comprising a piston adapted to support a seat, a cylinder, and means for fixing said piston in said cylinder, means for operating said fixing means, comprising an operating rod, an operating shaft, and a cam on said shaft adapted to axially move said rod, and also to shift said rod transversely in the direction of the axis of the shaft.

6. A barber or dental chair, comprising a piston adapted to support a seat, a cylinder, and means for fixing said piston in said cylinder, means for operating said fixing means, comprising an operating rod, an operating shaft, and a cam on said shaft adapted to axially move said rod, and a spring adapted to pull on said rod to normally retain said fixing means in inoperative position.

7. A barber or dental chair, comprising a reclinable back, a seat-carrying piston, a cylinder, a pump-plunger in said piston, a clamp for said back carried by said piston, a rock-shaft carried by said piston having means thereon for operating said pump-plunger, a handle for rocking said shaft, a sleeve on said rock shaft connected to said clamp, said rock-shaft being rotatably loose in said sleeve, a part axially slidable on said shaft having an arm adapted to engage said sleeve, a rod in said handle adapted to operate said axially slidable part, and a part intermediate said rod and axially slidable part, said shaft having a longitudinal slot for said axially slidable part and said intermediate part.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GIUSEPPE CARMELO LARAIA.

Witnesses:
GUSTAVE R. THOMPSON,
FRED WHITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."