

Jan. 20, 1942.

R. J. SHAW

2,270,233

CHAIR

Filed May 6, 1939

3 Sheets-Sheet 2

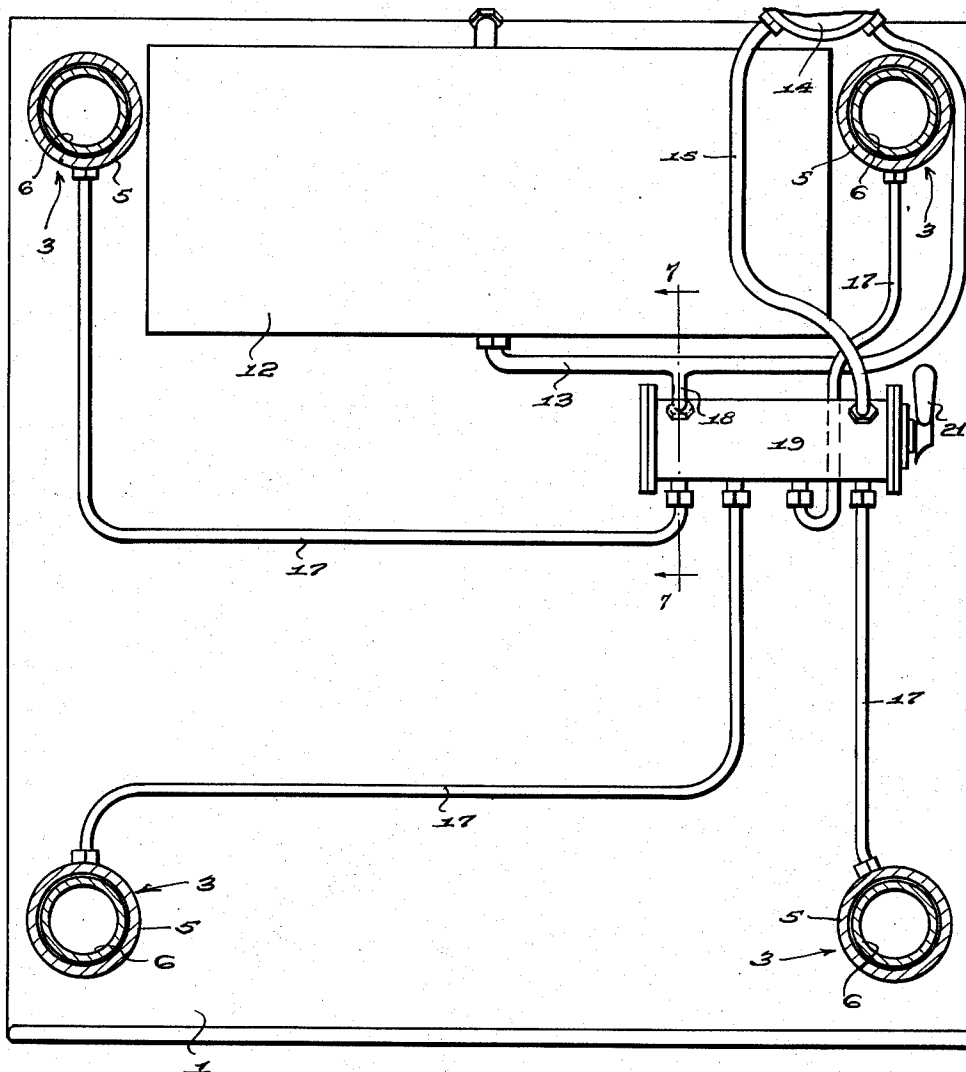


FIG. 2

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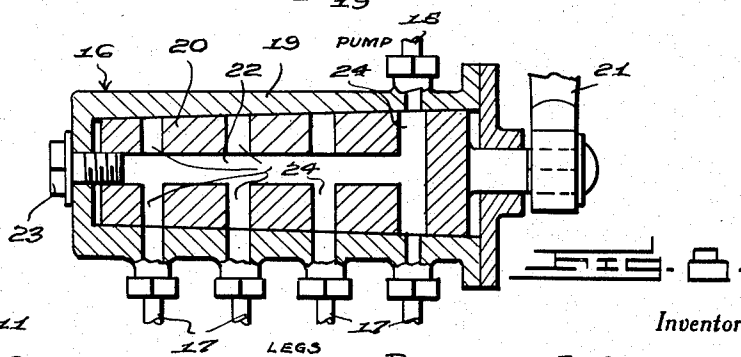
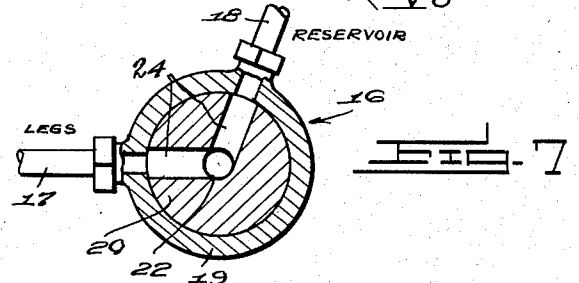
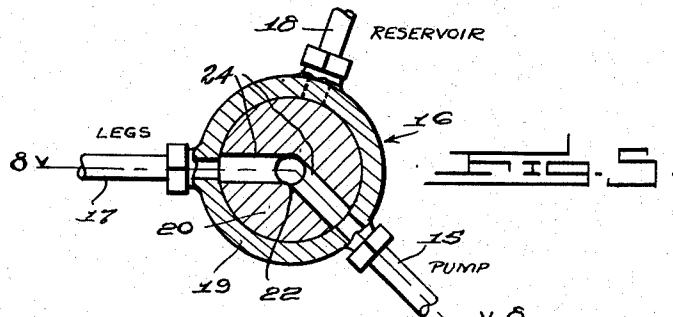
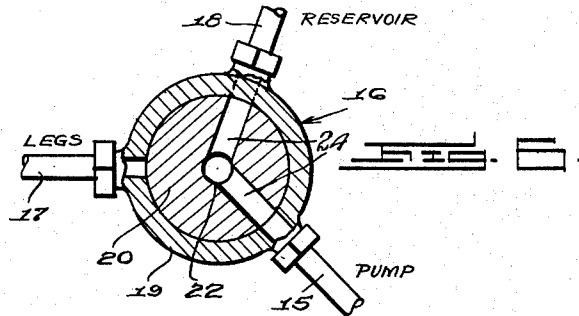
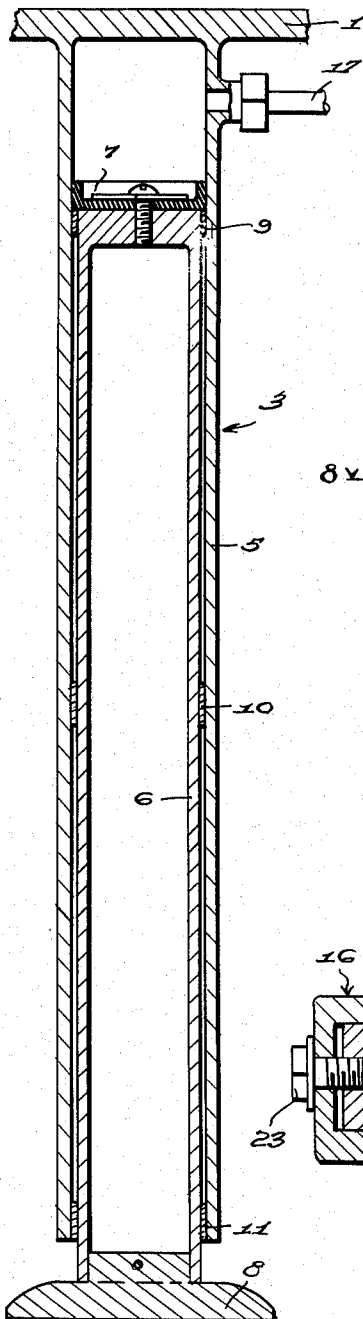
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,270,233

CHAIR

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Application May 6, 1939, Serial No. 272,258

1 Claim. (Cl. 155—88)

The present invention relates to new and useful improvements in chairs and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character comprising a construction and arrangement which is such that vertical adjustment may be conveniently made.

Another very important object of the invention is to provide a chair of the aforementioned character comprising novel hydraulic means for raising said chair.

Other objects of the invention are to provide a hydraulically operated vertically adjustable chair of the character described which will be comparatively simple in construction, strong, durable, reliable, compact, light in weight and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of a chair constructed in accordance with the present invention.

Figure 2 is a view in front elevation thereof.

Figure 3 is a view in horizontal section, taken substantially on the line 3—3 of Fig. 2, looking upwardly, as indicated by the arrows.

Figure 4 is a vertical sectional view, through one of the legs.

Figure 5 is a cross sectional view through the multiway control valve, showing same in position for raising the chair.

Figure 6 is a cross sectional view, showing the valve in position for retaining the chair in raised position.

Figure 7 is a cross sectional view through the valve, on line 7—7 of Fig. 3 showing said valve in position for lowering the chair.

Figure 8 is a view in longitudinal section through the control valve, taken substantially on the line 8—8 of Fig. 5.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a seat 1 which may be of any suitable material. Rising from the seat 1 is a back 2. The seat 1 is mounted on vertically adjustable supporting legs which are designated generally by the reference numeral 3, four of such legs being provided. Braces 4 extend between the legs 3.

As illustrated to advantage in Fig. 4 of the

drawings, each of the legs 3 comprises an elongated cylinder 5 depending from a corner portion of the seat 1. The cylinder 5 is open at its lower end to accommodate a vertically slidable fluid actuated piston 6 having mounted on its upper end a cup washer 7. On the exposed lower end of the piston 6 is a foot 8. A ring 9 is fixed on the upper end portion of the piston 6. Substantially similar rings 10 and 11 are fixed in an intermediate portion and the lower end portion of the cylinder 5. The rings 9, 10 and 11 are adapted to frictionally prevent the pistons 6 from dropping out of the cylinders 5 when the chair is lifted.

Mounted beneath the seat 1 is a reservoir 12 for the reception of a suitable fluid. A conduit 13 connects the reservoir 12 to a suitable hand pump 14 which, in the embodiment shown, is mounted on the back 2 of the chair. The reference numeral 15 designates a conduit which connects the outlet side of the pump 14 with a multiway control valve which is designated generally by the reference numeral 16. Conduits 17 connect the control valve 16 with each of the legs 3. The reference numeral 18 designates a fluid return branch connecting the conduit 13 with the control valve 16.

Referring now to Fig. 8 of the drawings, it will be observed that the valve 16 comprises a casing 19 having rotatably mounted therein a tapered plug 20 which is operated through the medium of a handle 21. The plug 20 has formed centrally therein a longitudinal bore 22 one end of which is closed by the stud 23 which secures said plug in position in the casing. The plug 20 is further provided with ports 24 for establishing communication with the various conduits connected to the control valve.

It is thought that the operation of the invention will be readily apparent from a consideration of the foregoing. Briefly, when it is desired to raise the chair the control valve 16 is set in the position shown in Fig. 5 of the drawings for establishing communication between the conduit 15 and the leg conduits 17. Then, by operating the pump 14 fluid is drawn from the reservoir 12 through the conduit 13 to said pump and then forced through the conduit 15, through the valve 16 and the conduits 17 into the upper portions of the cylinders 5. As the fluid enters the upper portions of the cylinders 5 under pressure the pistons 6 are forced downwardly therein thereby elevating the seat 1. To secure the seat 1 in raised position the control valve 16 is turned to the position shown in Fig. 6 of the drawings wherein communication is established between

the valve and the conduit 13 through the branch 18. Should the pump 14 be operated with the valve in this position the fluid will simply circulate between said pump and valve through the conduits 15, 18 and 13. To lower the chair the valve 16 is turned to the position illustrated in Fig. 7 of the drawings and the fluid then flows from the cylinders 5 back through the conduits 17, through the valve 16, through the branch 18 and returns to the reservoir 12 through the conduit 13.

It is believed that the many advantages of a chair constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be

resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

5 A chair comprising, in combination, a seat, a back, a plurality of fluid operated telescopic legs mounted beneath said seat, a fluid reservoir mounted on the seat, a pump mounted on said back, a multiway control valve mounted on said seat, a conduit connected to the reservoir, the valve and to the intake side of the pump, a conduit connected to the discharge side of the pump and the valve, and conduits connected to said valve and the legs, said reservoir, pump, valve and conduits constituting means for actuating
10 the telescopic legs for raising the seat, retaining same in raised position and for lowering said seat.

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