

C. W. HIEBER.
CHAIR.

APPLICATION FILED NOV. 29, 1906.

2 SHEETS—SHEET 1.

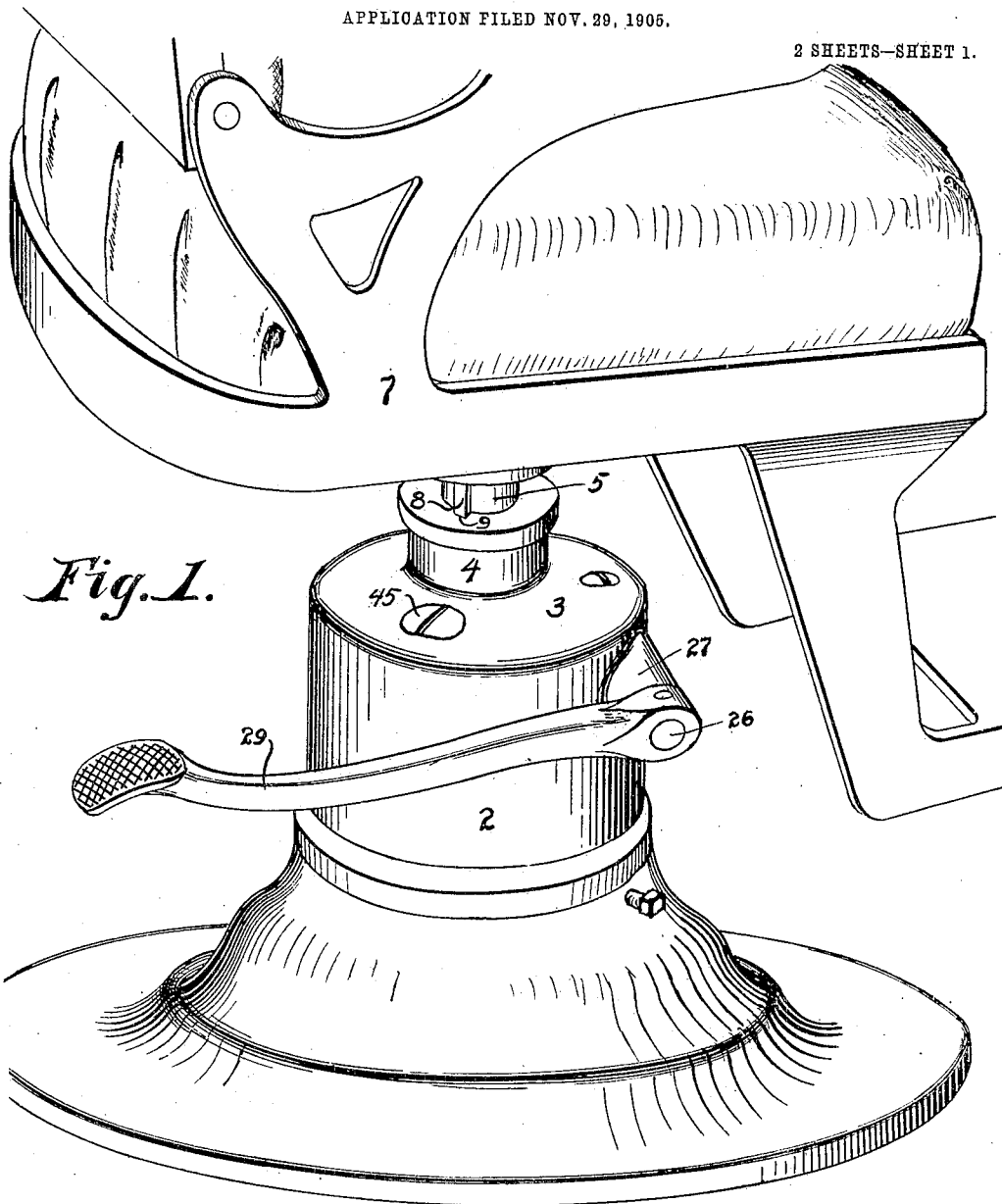
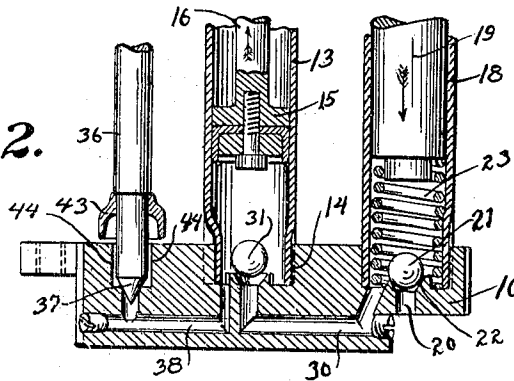


Fig. 1.

Fig. 2.



Witnesses
Joseph Kosler,
Sylvia Boron,

Inventor
Charles W. Heber.

By
J. W. Bond
Attorney

C. W. HIEBER.
CHAIR.

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2 SHEETS—SHEET 2.

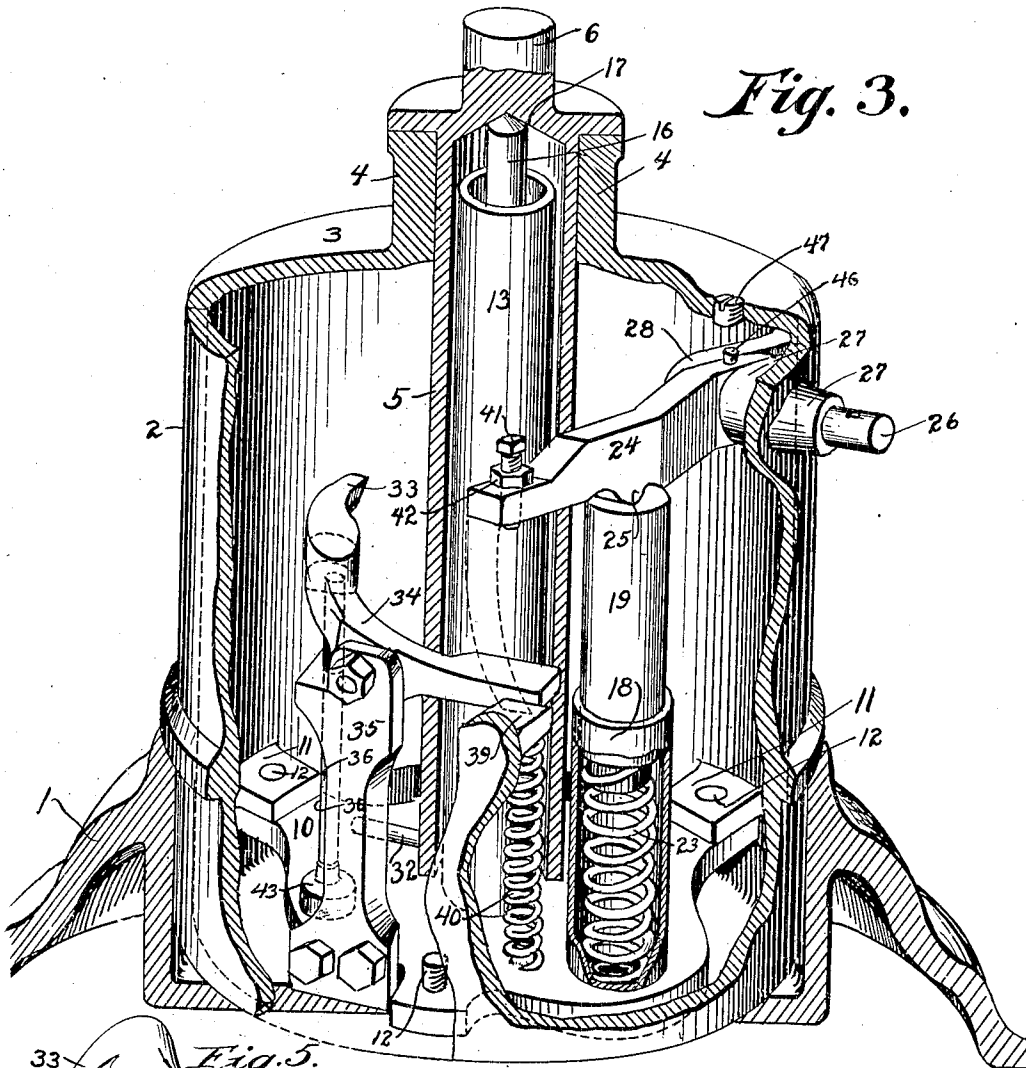


Fig. 3.

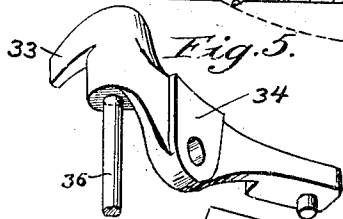


Fig. 5.

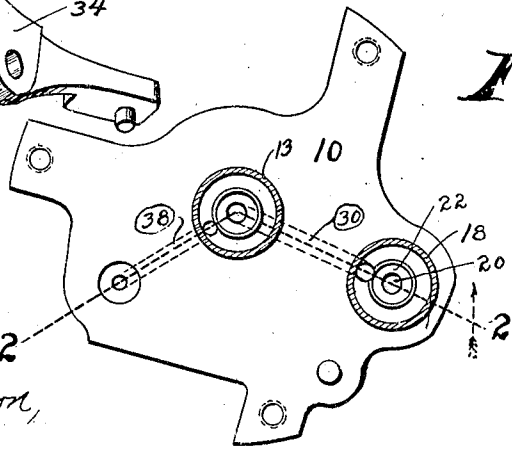


Fig. 4.

Witnesses
Josef Hosler
Sylvia Boron

Inventor
Charles W. Hieber
 By
F. W. Bond
 Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. HIEBER, OF CANTON, OHIO.

CHAIR.

No. 843,208.

Specification of Letters Patent.

Patented Feb. 5, 1907.

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To all whom it may concern:

Be it known that I, CHARLES W. HIEBER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Chairs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the numerals and figures of reference marked thereon, in which—

Figure 1 is a perspective view showing a portion of a chair mounted upon the base. Fig. 2 is a section on line 2 2, Fig. 4. Fig. 3 is a perspective view showing parts broken away and parts in sections. Fig. 4 is a top view of the valve-body, showing the passages in dotted lines and the cylinders in sections, also showing top view of valve-seats. Fig. 5 is a detached view of the trip-lever, showing a portion of the release-valve stem.

The present invention has relation to chairs pertaining to that class wherein the chair proper is elevated and lowered by means of a single lever in connection with a pump, motor-piston, valve mechanism, and fluid-passages.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the base, which is formed of a size to give the proper support to the various parts of the chair and of course is designed to rest upon the floor in the usual manner. To the base 1 is attached the cylinder 2, within which cylinder is located the various devices for raising and lowering the chair proper, except, of course, the operating-lever, which is located at one side of the cylinder 2, as best illustrated in Fig. 1. The top portion of the cylinder 2 is provided with the integral top 3, which integral top is provided with the upward, extended hollow flange or collar 4, through which collar is located the hollow stem 5, which hollow stem is extended downward and to the cylinder 2, as illustrated in Fig. 3. The top of the stem 5 is provided with the bearing 6, which bearing is for the purpose of pivotally attaching the chair 7, which chair may be of any desired construction, as the present invention has no special arrangement as to the particular kind of a chair designed to be carried.

For the purpose of preventing the stem 5 from rotating with the rotation of the chair said stem is provided with a rib 8, which rib is seated in the groove 9, formed in the collar 4, and of course the rib is to be of a length equal to the length of the stem 5, or substantially so. To the lower portion of the cylinder 2 is attached the valve body or plate 10, which is substantially of the form shown in Fig. 4 and is held in fixed position with reference to the cylinder 2 by means of the connecting-flanges 11 and suitable rivets 12 or their equivalents. Within the hollow stem 5 is located the piston-tube 13, which piston-tube is seated in the valve-plate 10, preferably by setting the lower end of said tube in a proper recess or socket 14. However, this is mechanical, and it may be fastened in any other well-known manner, but in such a manner that the liquid used for lifting the chair will not escape except through the proper passage, hereinafter described. Within the piston-tube 13 is located the piston 15, which piston is secured to the bottom or lower end of the rod 16, which rod extends upward and its upper end seated in the socket 17, which socket is located directly under the chair-bearing 6. At one side of the piston-tube 13 and a short distance therefrom and within the cylinder 2 is located the pump-cylinder 18, and within which cylinder is located the pump-plunger 19, which plunger is adapted to reciprocate in the cylinder 18. Directly below the plunger 19 is located the intake-passage 20, which is formed in the valve-plate 10. At the top of the passage 20 is located the valve 21, which valve rests upon its seat 22.

For the purpose of automatically elevating the plunger 19 after it has been lowered, as hereinafter described, the spring 23 is provided, which spring is confined at its ends by means of the plunger 19 and the valve seat or ring 22.

For the purpose of moving the plunger down the swinging arm 24 is provided, which swinging arm is provided with the plunger contact-point 25. The swinging arm 24 is securely attached to the rock-shaft 26, which rock-shaft is properly journaled in the flanges 27 and 28 and the swinging arm located between the flanges 27 and 28, as best illustrated in Fig. 3. To the rock-shaft 26 is securely attached the operating-lever 29, which operating-lever is formed of such a length

that the desired amount of leverage can be provided to easily elevate the chair. It will be understood that when a downward pressure is given to the lever 29 a downward movement will be imparted to the pump-plunger 19 by means of the swinging arm 24, which is securely attached to the rock-shaft 26; but when the lever 29 is released said lever will be automatically elevated by means of the spring 23 and the plunger 19. Within the valve-body 10 is located the passage 30, which passage communicates with the bottom or lower end of the pump-cylinder 18 and the piston-tube 13, said passage being provided with the valve 31, which is located in the bottom or lower end of the piston-tube 13, as best illustrated in Fig. 2. It will of course be understood that when in use that oil or other liquid is to be employed, and during the time of the upward movement of the pump-plunger 19 oil will find its way into the bottom or lower end of the cylinder 18; but when the plunger 19 moves downward the passage 20 will be closed by means of the valve 21 and the oil forced through the passage 30 and into the bottom or lower end of the piston-tube 13, which elevates the piston 15 and carries with it the rod 16, which in turn elevates the stem 5, together with the chair carried thereby. By continuous movement of the lever 29 the chair will be elevated a short distance at each downward stroke of the lever. After the chair has been elevated it will be held in proper elevation by means of the liquid contained in the piston-tube 13.

For the purpose of preventing the elevation of the stem 5 beyond a predetermined height the stem 5 is provided with the pin 32, which pin moves upward with the stem 5, and a continued upward movement of said pin will cause it to strike the bottom or underside of the arm 33, which arm is preferably formed integral with the trip-lever 34, which trip-lever is pivotally attached to the top or upper end of the post 35. Directly below the trip-lever 34 is located the valve-stem 36, which valve-stem extends downward and its lower conical end 37 adapted to close the outlet end of the release-passage 38. The trip-lever 34 is so located that its inner end will come below the swinging arm 24, and when said swinging arm is compressed a sufficient distance by means of the lever 29 it will move the inner end of the trip-lever downward, which downward movement releases the valve-stem 36 and permits it to move upward, and thereby opening the passage 38 and releasing the oil or other liquid contained in the piston-tube 13, thereby allowing the piston to move downward and lower the chair.

For the purpose of limiting the downward movement of the swinging arm 24 the stop-flange 39 is provided, which stop-flange limits or stops the downward movement of the arm 24, and of course the downward move-

ment of the lever 29, by reason of said arm 24 and the lever 29 both being securely attached to the rock-shaft 26, by which arrangement the oil can be released at any time by full downward movement of the lever 29, regardless of the elevation of the stem 5 and the chair carried thereby, by which arrangement the raising and the lowering of the chair proper is accomplished by a single lever and no additional release-lever is necessary.

For the purpose of normally closing the passage 38 the spring 40 is provided, which spring is for the purpose of holding the inner end of the trip-lever 34 up and the outer or oppositely-pivoted portion of said lever down, thereby holding the valve-stem and its valve portion down and in position to close the passage 38, at which time no oil can escape from the piston-tube 13.

For the purpose of adjusting the downward movement of the trip-lever 34 the arm 24 is provided at its free end with the adjustable bolt 41, the bottom or lower end of which strikes the trip-lever 14, and of course carries the lever down with the downward movement of the lever 34 after said bolt has come in contact with the lever 34.

For the purpose of holding the bolt in fixed position the jam-nut 42 is provided. For the purpose of preventing the oil from spurting upward during the time the chair is being lowered as it passes out from the passage 38 the valve-stem 36 is provided with the cup-shaped flange 43, which cup-shaped flange 43 is located over the aperture 44, but is held a sufficient distance away from the valve-plate 10 to allow the oil to pass outward and into the well proper.

For the purpose of providing a means of adjusting the nut 41 from time to time the top of the cylinder 2 is provided with a suitable opening, which is normally closed by means of the screw 45.

For the purpose of tightening the arm 34 in case it should become loosened or for any other purpose an opening is provided in the top of the cylinder 2, just above the connecting-pin 46, the opening being properly closed by means of the screw 47.

It will be understood that by providing adjustment for the bolt 41 the downward movement of the lever 34 can be regulated, and thereby increase or decrease the movement of the valve-stem 36 or, in other words, allow the valve-stem a greater or less degree of movement, by which the escape of oil through the passage 38 is increased or decreased and the lowering of the chair thereby regulated as to speed.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a chair of the class described, a base and a closed top cylinder, a rock-shaft having fixed thereto a swinging arm, a pump located

in the cylinder and actuated by the swinging
arm, a lever secured to the rock-shaft, a chair-
stem, a piston and a piston-rod and tube, a
trip-lever, a pin secured to the chair-stem
5 and adapted for contact with the trip-lever,
and a valve-stem and valve controlled by
the trip-lever, and a spring adapted for con-
tact with the inner end of the trip-lever and
passages communicating with the pump
10 mechanism, the piston-tube and the release-

valve, substantially as and for the purpose
specified.

In testimony that I claim the above I have
hereunto subscribed my name in the presence
of two witnesses.

CHARLES W. HIEBER.

Witnesses:

J. A. JEFFERS,
F. W. BOND.