Dec. 6, 1927. 1,651,506

E. BERNINGHAUS

VERTICALLY ADJUSTABLE CHAIR

Filed April 17, 1923

Fig. 1.

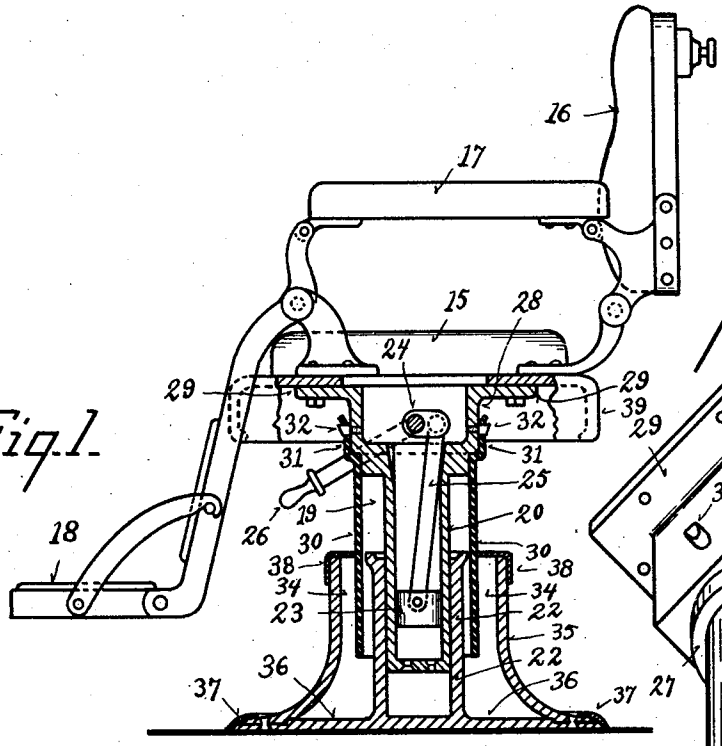


Fig. 2.

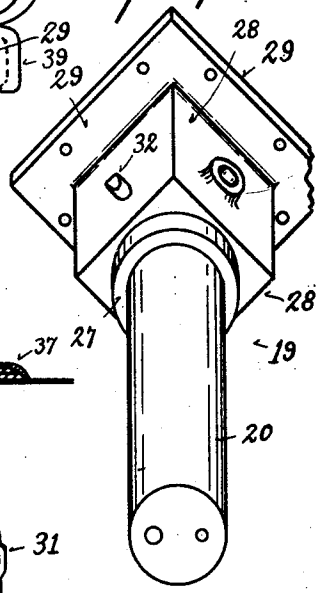
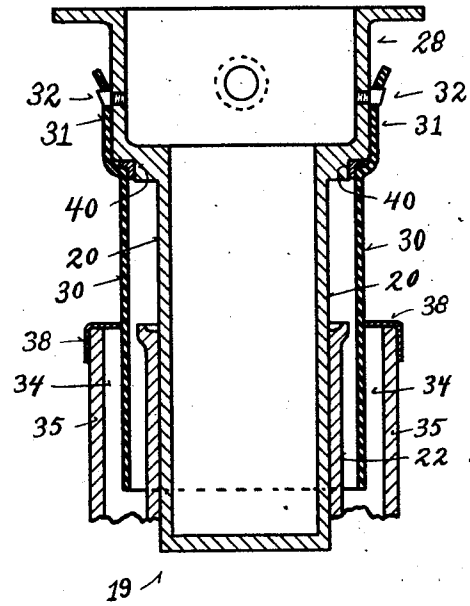


Fig. 4.



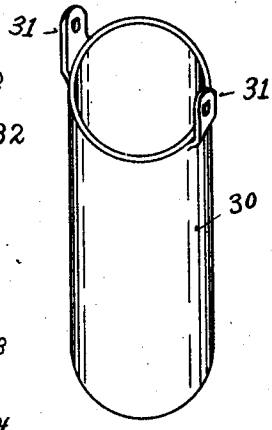


Fig. 3.

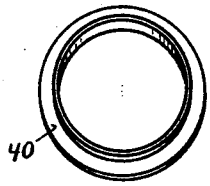


Fig. 5.

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UNITED STATES PATENT OFFICE.

EUGENE BERNINGHAUS, OF CINCINNATI, OHIO.

VERTICALLY-ADJUSTABLE CHAIR.

Application filed April 17, 1923. Serial No. 632,665.

My invention relates to improvements in vertically adjustable chairs. One of its objects is to house and protect the oil coated surfaces of a vertically adjustable chair to keep the oil coated surfaces clean and free from dust, grit and other foreign substances suspended in the air or liable to be brought into contact with such oil coated surfaces, and which tends to collect upon and adhere to such surfaces. Another object is to house and conceal from view the oil coated or machine finished surfaces of a vertically adjustable chair, and to provide an exposed surface over such oil coated or machine finished parts adapted to be aseptically treated or kept clean in substantially the same manner that other surfaces of the chair are customarily treated. Another object is to provide an improved housing and protecting apparatus, adapted to be conveniently assembled or taken apart as required. Another object is to provide an improved housing and protecting apparatus which is simple, efficient and noiseless in operation. My improved apparatus also comprises certain details, and combination and arrangement of components, all of which will be fully set forth in the description of the accompanying drawings, in which;

Fig. 1 is a side elevation, partly in central vertical section, of a vertically adjustable chair embodying my invention.

Fig. 2, is a perspective view of the pedestal or plunger of said chair detached.

Fig. 3, is a perspective view of the housing or protecting sleeve detached.

Fig. 4, is a vertical section through the base and pedestal of a vertically adjustable chair showing a modification of Fig. 1.

Fig. 5, is a perspective view of a detached flexible gasket employed in Fig. 4.

The accompanying drawings illustrate the preferred embodiments of my invention in Figs. 1, 2, and 3 of which I have illustrated my improvements as applied to a hydraulically vertically adjustable chair, such for instance as a barber's chair or surgical chair. The chair may however be vertically adjustable by other means, as for instance by screw or ratchet feed mechanism, within the scope of my invention.

As illustrated a chair seat 15, a chair back 16, chair arms 17, and a foot rest 18 are connected together in the usual manner and are mounted upon a pedestal or hydraulic plunger 19, to the upper end of which the chair seat is rigidly attached. The plunger 19 comprises a hollow cylindrical plunger section 20, having its lower end closed and provided with valves through which a liquid may pass from the interior of the plunger to a cylinder 22 beneath the plunger, or pass from the cylinder 22 to the interior of the plunger as may be required to elevate or lower the plunger within the cylinder. A liquid pump piston 23 is adapted to be reciprocated within the interior of the plunger 19 to pump the liquid into the cylinder below the plunger when required to elevate the plunger and chair seat carried thereby. A crank shaft 24 is journaled in the upper portion of the plunger and operatively connected by means of a connecting rod 25 with the piston 23. A hand lever 26 is employed to reciprocate the crank shaft, and also when moved to other positions to control the flow of liquid from the cylinder back to the interior of the plunger, and also to apply a brake mechanism to lock the plunger to its adjusted position, which apparatus may be of known types.

At the upper end of the cylindrical section 20 I provide an annular shoulder or offset 27, and above said shoulder 27 a rectangular section 28 forming a journal support for the crank shaft, and also a housing for the upper end of the connecting rod. At the upper end of the rectangular section 28 is an annular flange 29 by means of which the pedestal or plunger 19 is bolted or otherwise rigidly attached to the chair seat.

Ordinarily that portion of the pedestal 19 projecting above the upper end of the cylinder, whatever type of seat elevating means may be employed, would be exposed to view and would have machine finished surfaces as distinguished from enameled surfaces, and such machine finished surfaces would ordinarily be coated with lubricating oil, and therefore present unsanitary appearances, and exposing surfaces tending to attract and hold dust, grit and similar sub-

stances taken from the atmosphere. The accumulation of dust and grit upon the machined surfaces is detrimental to the operation of the mechanism and unsightly as well as having an unsanitary appearance.

In order to present a finished and pleasing appearance, and a sanitary appearance, and at the same time to protect the machined and oil coated surfaces I provide a cylindrical tubular housing member 30, the upper end of which fits snugly over the exterior of the annular shoulder 27 and against the under face of the rectangular section 28. A pair of ears 31 project upwardly from the upper edge of the housing member 30 alongside of opposite faces of said rectangular section 28. The rectangular section 28 is provided with dogs or studs 32 preferably having inclined outer ends, and the ears 31 are provided with perforations to receive and interlock with said studs 32 to hold the housing member 30 rigidly but detachably in place upon and relative to the pedestal 19. The ears 31 are sufficiently resilient to enable said ears to be spread apart, by the inclined ends of the studs 32 until said studs reach a position opposite the perforations in said ears 31, when the ears 31 spring toward each other and hug the faces of the rectangular section 28, with the studs 32 projecting into or through the perforations in said ears 31. In the event that it becomes necessary to detach the housing 30 from the pedestal 19, wedges are inserted between the ears 31 and the faces of the section 28 until the studs 32 are free from the perforations of said ears whereupon the housing and pedestal are separated. The lower end of the housing member 31 projects downwardly and telescopically enters and moves within the annular space 34 between the cylinder 22 and an annular flange 35 projecting upwardly from the base 36. The flange 35 may be formed integral with the cylinder 22 and base 36, but is preferably formed separately and bolted or otherwise attached to the base. A polished metal annular facing member 37 is preferably employed as an ornamental finish, and to conceal the joint between the base 36 and flange 35. A polished sheet metal annular collar 38 is preferably employed fitted over the upper end of flange 35 to make a close joint and finished appearance between the flange 35 and the housing member 30. The exterior face of the housing member 30 is preferably finished in white fused enamel, and also the exterior face of the flange 35 to correspond with a similar finish applied to the seat frame 39 and to the chair arms 17. The housing member 30 thus has the appearance of an upward extension of the flange 35, and said housing 30 moves telescopically within the flange 35 as the pedestal 19 is raised or lowered, with an invisible joint between said housing 30 and flange 35. The chair thus presents a sanitary appearance throughout, the enameled faces may be cleaned through the use of strong chemicals without injury to said enameled faces, and the machined faces are protected from injury, from dirt, grit or chemicals.

In the modification Figs. 4 and 5 I have illustrated an annular gasket 40 of rubber, paper fiber or other similar nonmetallic material of slightly resilient nature interposed between the upper edge of the housing member 30 and the flange 27 and lower face of the rectangular section 28, to yieldingly and noiselessly hold the ears 31 and studs 32 in locked engagement.

The apparatus herein shown and described is capable of considerable modification without departing from the spirit of my invention.

What I claim is:

1. A chair comprising a chair base having an upwardly extending chair pedestal supporting member, an annular flange projecting upwardly from said base about said pedestal supporting member to provide an annular recess between said pedestal supporting member and said flange, a chair pedestal vertically adjustable upon and relative to said pedestal supporting member, said pedestal being provided at its upper end with an enlarged head and near its upper end with a spacing shoulder, locking projections extending outwardly from the enlarged head of said pedestal, a chair seat mounted upon said pedestal and vertically adjustable with said pedestal, and a tubular pedestal housing provided with perforated ears projecting upwardly and outwardly from the upper end of said pedestal housing to engage said locking projections to lock said tubular housing with its upper end rigidly against the shoulder of said pedestal and with said tubular housing spaced from said pedestal and in position to move vertically into and out of the annular recess of the base as the pedestal is adjusted vertically relative to said base.

2. A chair comprising a chair base having an upwardly extending chair pedestal supporting member, an annular flange projecting upwardly from said base about said pedestal supporting member to provide an annular recess between said pedestal supporting member and said flange, a chair pedestal vertically adjustable upon and relative to said pedestal supporting member, said pedestal being provided near its upper end with means to space a tubular housing away from said pedestal, a shoulder near the upper end of said pedestal, and locking projections extending outwardly from the enlarged head of said pedestal, a chair seat

mounted upon said pedestal and vertically adjustable with said pedestal, and a tubular pedestal housing provided with upwardly directed yielding perforated ears to yieldingly engage over said locking projections to lock said tubular housing rigidly against the shoulder of said pedestal with said tubular housing in position to move vertically into and out of the annular recess of the base as the pedestal is adjusted vertically relative to said base.

In testimony whereof I have affixed my signature.

EUGENE BERNINGHAUS.