

July 8, 1930.

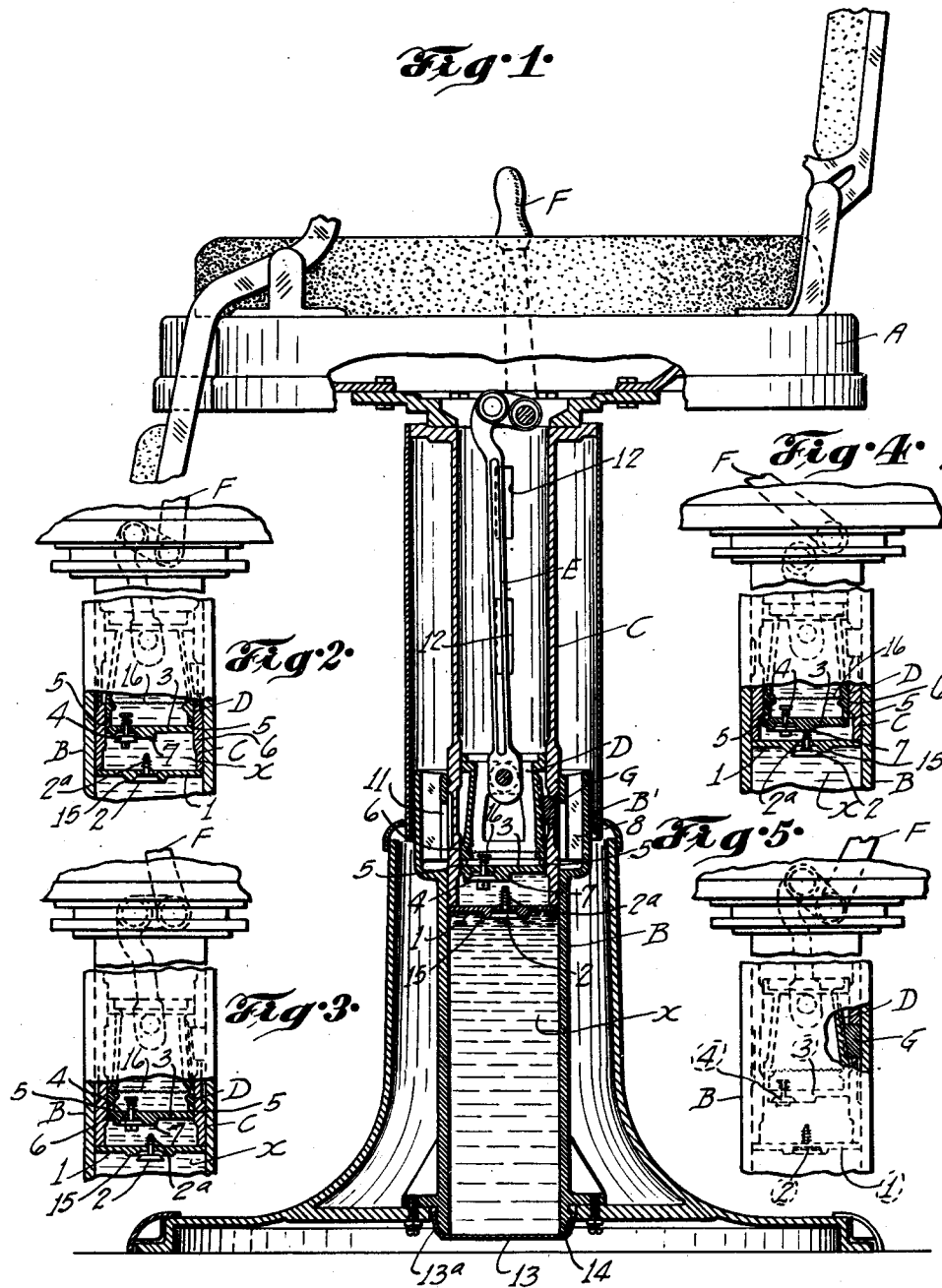
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1,770,197

BARBER'S CHAIR

Filed March 19, 1928

2 Sheets-Sheet 1



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Fig. 6.

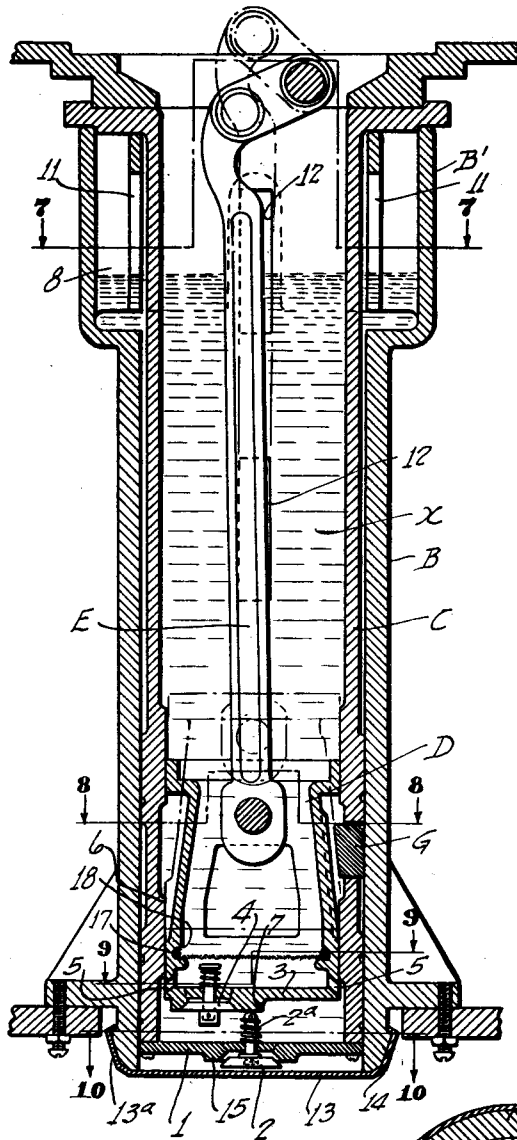


Fig. 7.

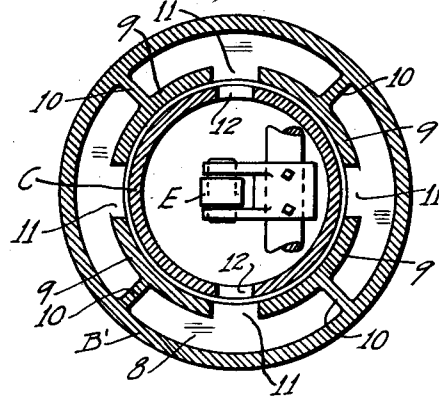


Fig. 8.

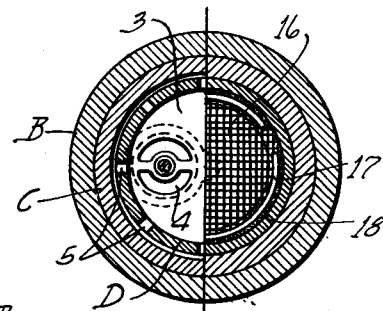
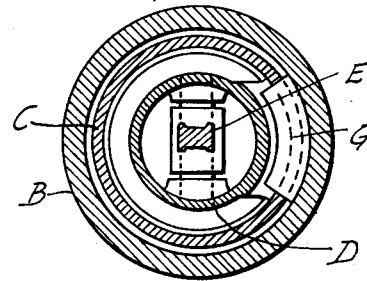
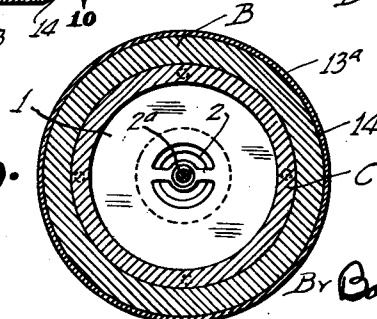


Fig. 9.

Fig. 10.



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BARBER'S CHAIR

Application filed March 19, 1928. Serial No. 282,868.

This invention relates to chairs of the kind that are commonly referred to as hydraulic barber chairs.

One object of the invention is to provide an hydraulic barber's chair whose seat frame is capable of being moved downwardly to a lower position, or to a lower level than is possible with conventional chairs of this type, thereby enabling the seat frame to be adjusted in a convenient position for a short barber who is cutting the hair of a tall person sitting in the chair.

Another object is to provide an hydraulic barber's chair whose seat frame has a relatively great range of vertical movement from a low position, and whose socket is of such construction that there is no liability of the liquid in the socket escaping over the top edge of the same when the seat frame of the chair is in its extreme low position.

Another object is to provide an hydraulic barber's chair in which the plunger is equipped with a screen of relatively great area that is mounted in the plunger in a novel manner, and which is so disposed that it serves as a baffle which tends to prevent the liquid from squirting upwardly a considerable distance in the stem during the operation of lowering the seat frame.

And still another object of my invention is to provide a socket for a barber's chair that is easy to machine and which is of such construction that it permits the stem to move downwardly into the socket a greater distance than is possible with conventional hydraulic barber's chairs. Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 is a view, partly in side elevation and partly in vertical section, of a barber's chair embodying my invention.

Figure 2 is a view, partly in side elevation and partly in vertical section, illustrating the action of the valves when the plunger in the stem of the chair is moving upwardly.

Figure 3 is a similar view, illustrating the action of the valves when said plunger is moving downwardly.

Figure 4 is a similar view, illustrating the

action of the valves during the operation of lowering the seat frame.

Figure 5 is a side elevational view, partly broken away, of the socket of the chair, illustrating the plunger in engagement with the locking device that prevents the stem from moving relatively to the socket.

Figure 6 is an enlarged vertical sectional view of the socket, the stem and the plunger that is reciprocatingly mounted in the stem; and

Figures 7, 8, 9 and 10 are horizontal sectional views taken on the lines 7—7, 8—8, 9—9 and 10—10, respectively of Figure 6.

In the accompanying drawings which illustrate the preferred form of my invention, A designates the seat frame of the chair to which the arms, apron and back are connected, B designates the socket, C designates the hollow stem reciprocatingly mounted in the socket B and attached at its upper end to the seat frame A, D designates the reciprocating plunger in the stem C, and E designates the link that is operated by the hand lever F, so as to actuate the plunger D, and thus cause a non-compressible liquid, preferably oil, to be forced downwardly from the stem C into the socket B, so as to exert upward pressure on the lower end of the stem, and thus raise the seat frame of the chair. The stem C is hollow and is provided with an end wall 1 in which a spring-pressed check valve 2 is arranged, preferably at the center of said wall. The plunger D is also hollow and is provided with an end wall 3 in which a spring-pressed check valve 4 is arranged, preferably at one side of the check valve 2 in the stem, as shown in Figure 1. By-pass ports 5 are formed in the cylindrical side wall of the plunger D adjacent the lower end of the same, and the stem C is provided on its side wall with a cylindrical portion 6 that acts as a valve to close the by-pass ports 5 in the plunger when the plunger is in a certain position.

To raise the seat frame of the chair the operator rocks the hand lever F back and forth, so as to impart short strokes to the plunger D, and cause said plunger to force the liquid x in the stem of the chair downwardly into the socket B. When the plunger

D moves upwardly, as shown in Figure 2, the check valve 4 in the lower end wall 3 of the plunger opens automatically, and thus permits the liquid on the upper side of the end wall 3 of the plunger to pass downwardly through the opening controlled by the valve 4 into the space between the end 3 of the plunger and the end wall 1 of the stem C. On the reverse stroke or downward stroke of the plunger the check valve 4 in the end wall of same remains seated, as shown in Figure 3, thus causing the charge of liquid that entered the space between the lower end of the plunger and the end wall 1 of the stem on the previous upward stroke of the plunger, to be forced out of said space into the socket B through the port or opening in the end wall 1 of the stem controlled by the valve 2, the charges of liquid that are forced into the lower portion of the socket B intermittently when the plunger is in operation gradually forcing the stem C upwardly. To lower the seat frame A the operator imparts a full downward stroke to the plunger D, so as to cause a projection 7 on the underside of the end wall of the plunger to strike against the stem 2^a of the valve 2 in the end wall of the stem, as shown in Figure 4, thus moving the valve 2 into its open position and holding it open, so that the liquid in the socket B can pass upwardly through the opening controlled by the valve 2, and thence upwardly through the by-pass ports 5 into the stem C, with the result that the stem and the seat frame A connected to same will move downwardly by gravity. When it is desired to arrest the downward movement of the stem and lock it in adjusted position, the operator moves the plunger D upwardly into the position shown in Figure 5, so as to cause the tapered portion of the plunger D to exert pressure on the locking shoe G on the stem and force said shoe outwardly into engagement with the side wall of the socket B.

One desirable feature of the chair herein described is that the seat frame has a relatively great range of vertical movement and is capable of being moved downwardly to a lower position, or to a lower level than is possible with conventional hydraulic chairs of this general type. Another desirable feature is that there is no possibility of liquid escaping over the top edge of the socket B when the seat frame is in its extreme low position. These desirable results are attained by providing the socket B with a bottom end wall of novel construction that permits the stem C to have a long downward stroke without increasing the overall length or height of the socket, and by arranging a sump at the upper end of the socket that is of greater diameter than the socket, thereby making it possible for the socket to contain sufficient liquid to provide for a long upward stroke of the stem, without, however, caus-

ing the liquid in the socket to stand at such a level or height when the seat frame is in its extreme low position that there is a possibility of the liquid escaping from the socket over the top edge of the sump which constitutes the upper end portion of the socket. As shown in Figures 1 and 6, the socket B is provided at its upper end with an enlarged portion B' of greater diameter than the socket which constitutes a sump 8 for receiving part of the liquid. When the seat frame is in its extreme low position, as shown in Figure 6, the portion of the stem C lying in the zone of the sump 8 is surrounded either by an annular wall having openings in same, or is surrounded by segmental members 9 in concentric relation with the outer wall B' of the sump and sustained by inwardly-projecting ribs 10 on said wall, the ends of said segmental members being spaced away from each other, as shown in Figure 7, and the bottom edges of said members being spaced away from the bottom of the sump, so as to form openings 11 that co-operate with vertically-disposed slots 12 in the stem to establish direct communication between the interior of the stem and the interior of the sump 8, and thus permit the liquid to pass back and forth between the stem and the sump.

The socket B is formed from a cylindrical open-ended member, but instead of forming the bottom end wall of the socket from a casting or other part of considerable thickness that projects upwardly into the socket member and reduces the effective length of the side wall of the socket, as has heretofore been the usual practice in chairs of this general type, I form the bottom end wall of the socket B from a thin element 13, usually a piece of sheet metal, that extends transversely across the lower end of the socket member and contacts with the bottom edge of the side wall of same, said element 13 being connected to the socket member in any suitable manner, preferably by crimping a flange 13^a on the element 13 over an annular rib 14 on the outer face of the side wall of the socket member. The bottom end closure 13 of the socket is of such thickness that it will not contact with the floor on which the chair rests, and as said closure is arranged entirely on the outside of the socket and does not take up any space inside of the socket, I materially increase the internal volume of the socket without adding to the overall length or height of the socket. Another advantage that results from forming the socket in this manner is that the interior of the socket can be machined easily, due to the fact that it is of uniform diameter from the lower end of same up to the point where the sump joins the socket. To further increase the downward stroke of the stem C and permit said stem to move downwardly into such a position that the end wall 1 of

same almost contacts with the bottom closure 13 of the socket, I use a substantially disk-shaped check valve 2 in said wall that is provided with a tapered edge which acts upon a tapered valve seat formed in a shallow rib 15 on the underside of the bottom end wall of the stem. The check valve 4 that is mounted in the plunger 3 is preferably of substantially the same form, and as previously stated, the valves 2 and 4 are arranged in offset relationship so that a central portion of the bottom of the plunger D will co-operate with the stem of the valve 2 to unseat said valve.

A screen 16 is arranged inside of the plunger D, as is usual in chairs of this general type, but instead of using a beehive screen, I use a screen that is preferably flat and which extends across the entire area of the interior of the plunger, as shown in Figure 6, thereby providing a screen of relatively great area which is disposed in such relationship with the by-pass ports 5 that it will serve as a baffle to retard the upward movement of the streams of liquid that squirt upwardly through the by-pass ports 5 when the seat frame of the chair is being lowered, thereby effectively preventing the liquid from being thrown upwardly to a considerable height in the stem C when said stem is moving downwardly into the socket B. The screen 16 can be retained in position in various ways without departing from the spirit of my invention, but I prefer to equip said screen with a split expansion ring 17 that forces the peripheral portion of the screen 16 into an annular groove 18 formed on the inside of the plunger D at a point above the by-pass ports 5 in the plunger.

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

1. A barber's chair or the like of the hydraulic type, provided with a socket, a hollow stem reciprocatingly mounted in the socket, and an enlargement at the upper end of the socket that communicates with the interior of the stem and which is adapted to serve as a sump which receives part of the hydraulic medium when the seat frame of the chair is in its extreme low position.

2. A barber's chair or the like of the hydraulic type, provided with a socket formed by a cylindrical member, a bottom wall for said socket formed by a thin plate arranged on the exterior of said cylindrical member so as to not reduce the internal volume of said cylindrical member, a stem that carries the seat frame of the chair reciprocatingly mounted in said socket, a sump at the upper end of the socket, and means for establishing communication between said sump and the interior of the stem so as to permit the hydraulic medium to pass into said sump when the seat frame of the chair is in its extreme low position.

3. A barber's chair or the like of the hydraulic type, comprising a socket, a hollow stem reciprocatingly mounted in said socket, an enlarged portion at the upper end of the socket that constitutes a sump, a part in said enlarged portion that surrounds the stem, and means for establishing communication between said sump and the interior of said stem.

4. A barber's chair or the like of the hydraulic type, comprising a socket provided at its upper end with a cylindrical portion of greater diameter than the socket that constitutes a sump, a hollow stem reciprocatingly mounted in said socket, and substantially segmental-shaped members that surround the stem and which are connected to the cylindrical wall of said sump.

5. A barber's chair or the like of the hydraulic type, comprising a socket provided at its upper end with an enlarged portion that constitutes a sump, a hollow stem reciprocatingly mounted in said socket and provided with openings which establish communication between said sump and the interior of the stem, a hollow reciprocating plunger in said stem, check valves in the lower end of the plunger and in the lower end of the stem arranged in offset relation, by-pass ports formed in the lower portion of the plunger, and a substantially disk-shaped screen arranged horizontally in said plunger above the by-pass ports in same.

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