

July 28, 1931.

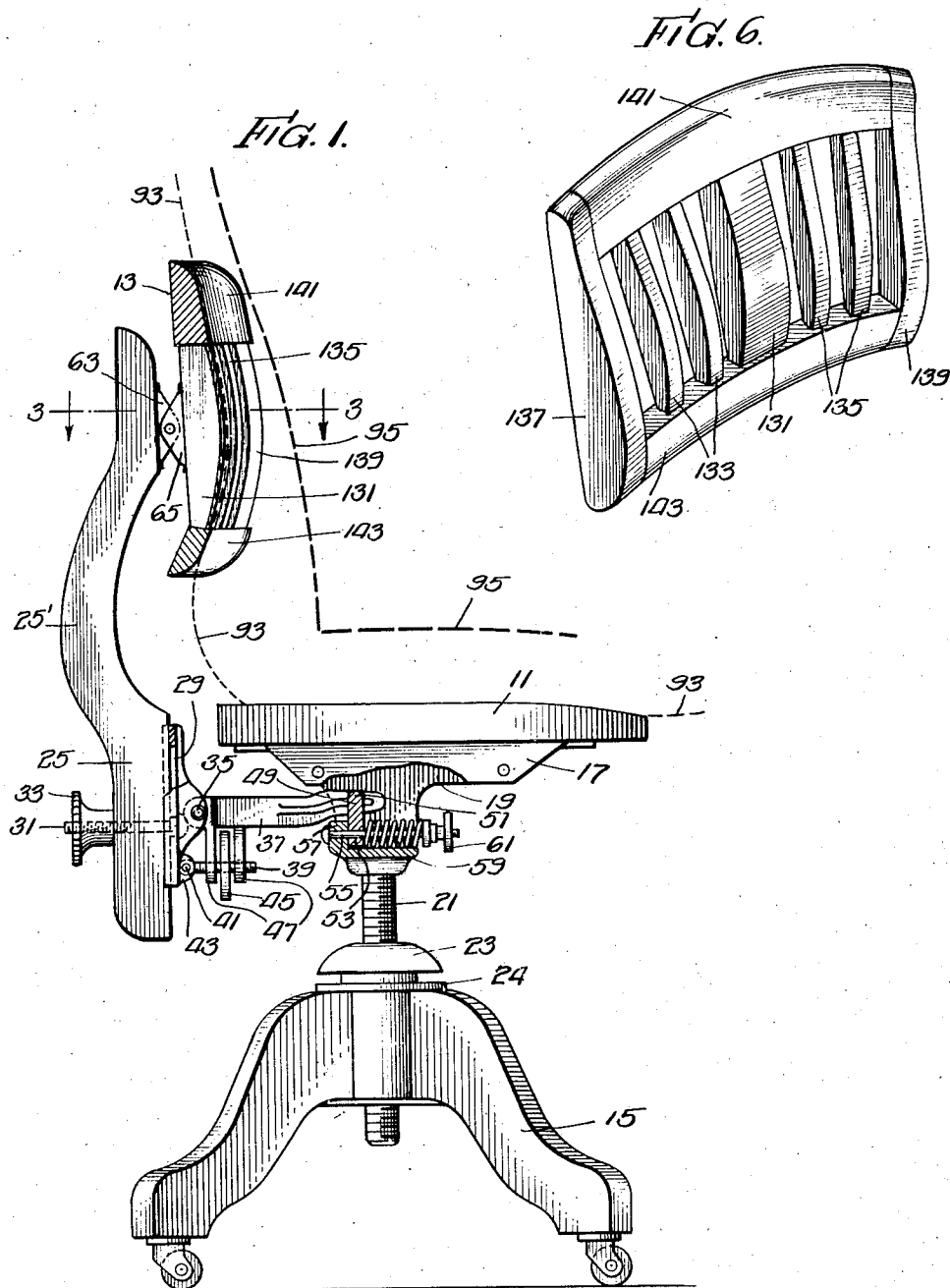
A. L. JOHNSON

1,816,486

CHAIR

Filed Oct. 13, 1930

2 Sheets-Sheet 1



INVENTOR:
ARTHUR L. JOHNSON,
By: Cheever, Cox & Moore
ATTYS

July 28, 1931.

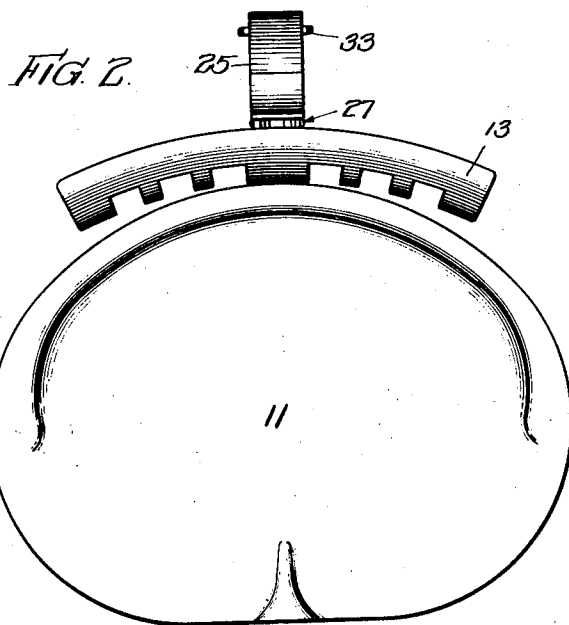
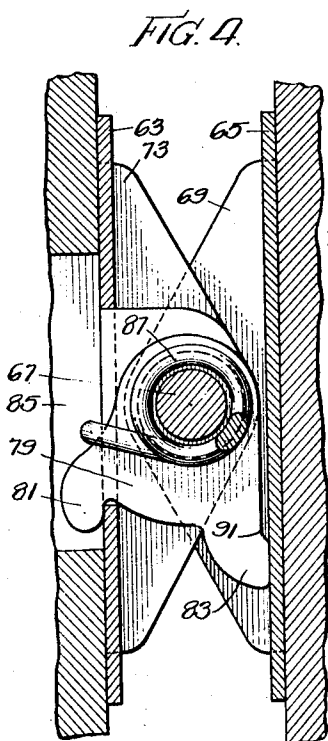
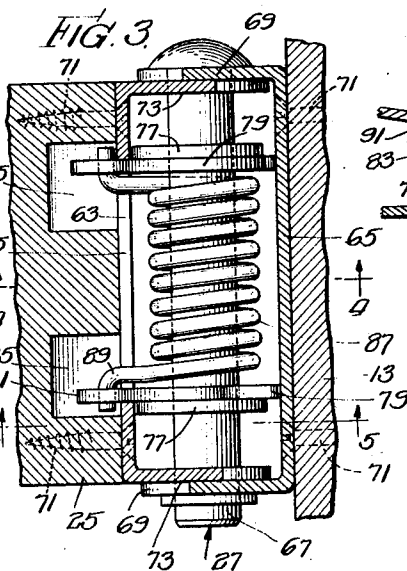
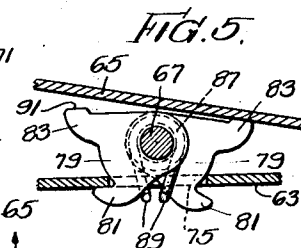
A. L. JOHNSON

1,816,486

CHAIR

Filed Oct. 13, 1930

2 Sheets-Sheet 2



INVENTOR:
ARTHUR L. JOHNSON
By: *Cheever, Cox & Moore* ATTY.

UNITED STATES PATENT OFFICE.

RICHARD F. BEUTLICH, OF CHICAGO, ILLINOIS, ASSIGNOR TO TWENTIETH CENTURY MACHINERY CO., OF CHICAGO, ILLINOIS, A CORPORATION OF WISCONSIN.

BOTTLE-WASHING MACHINE.

1,144,023.

Specification of Letters Patent.

Patented June 22, 1915.

Application filed January 23, 1915. Serial No. 3,904.

To all whom it may concern:

Be it known that I, RICHARD F. BEUTLICH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bottle-Washing Machines, of which the following is a specification.

My invention relates to an improvement in the class of machines which are known in the practical art as bottle-soaking machines, because of their purpose of soaking the labels off the bottles as well as washing and rinsing the latter.

The primary object of my invention is to improve the type of bottle-washing machine exemplified in Letters Patent No. 1,018,046, granted February 20, 1912, to S. L. Goldman and Letters Patent No. 1,130,015, granted March 2, 1915, to J. T. H. Paul, particularly in the matters of speeding the operation by rendering the travel of the endless bottle-carrier continuous, instead of intermittent, reducing the work of the pump, thereby also keeping the water-spraying nozzles from clogging, and effectually disposing of the labels washed from the bottles.

In the accompanying drawings, Figure 1 is an outline view of the machine in side elevation, partly broken and showing parts by dotted representation; Fig. 2 is an enlarged section on line 2—2, Fig. 1, and Fig. 3 is a similar section but taken on line 2—2 at the side of the machine opposite that presented in Fig. 1; Fig. 3^a is a broken view in elevation and partly sectional, showing certain details; Fig. 4 is a section on line 4—4, Fig. 6; Fig. 5 is a broken view in section on line 5—5, Fig. 6, and Fig. 6 is a similar view in section on line 6—6, Fig. 5, or on line 6—6, Fig. 4.

In its general construction, the machine is the same as that described in said patents. The tank 7, in the present instance, however, contains only two compartments separated by a partition 8 and forming, respectively, the hot cleansing-water or solution compartment 9 and the fresh rinsing-water compartment 10. A hood 11 extends in elevated position over the tank, lengthwise about which an endless-chain bottle-carrier 12 travels over sprockets, indicated at 13, the shaft of a sprocket, shown at the discharge-end of the machine where a chute 15 is represented in Fig. 1, carrying a gear-wheel indicated at 14. The two chains of the endless

carrier are connected together at intervals by cross-bars 16 (Figs. 2 and 3), each of which is provided with a series of pockets 17 for seating bottles 18 in inverted position, and centering them relatively to funnel-like nozzles 19 in the lower extensions of the pockets. Each bar has bracket-extensions 16^a of the conveyer-chains bolted to its opposite ends, and on these chains are journaled rollers 16^b to travel on tracks 20 supported on angle-posts 20^a (Figs. 2 and 3) rising at intervals on opposite sides of the tank. An electric motor 21 drives a centrifugal pump 22, which takes the hot water from the compartment 9 through a pipe 23 and forces it through a pipe 24 terminating at its upper end in a manifold 25 extending along the top of the tank below the plane of bottles traveling over the latter, this manifold containing a partition 26 dividing it into hot and cold water sections; and the pump also forces hot water from the tank-compartment 9 through a valved pipe 24^a supplying a series of spraying pipes 25^a extending parallel with the manifold 25 above the plane of the aforesaid bottles, each of these spraying-pipes extending lengthwise over a different row of the bottles. Fresh water is supplied to the tank-compartment 9, to be mixed therein with a suitable cleansing substance, if desired, and to be heated as hereinafter described, through a pipe 27 containing a valve at 28 and a valve at 29: and from this pipe lead a branch-pipe 30 into the fresh-water compartment of the manifold 25 and a branch-pipe 31 to a series of spraying-pipes 25^b extending in line with the pipes 25^a.

The parts as thus far described are substantially the same as the corresponding parts in the machines of the aforesaid patents.

The endless carrier 12 is driven continuously by a belt-connection with the motor-shaft, as indicated at 32 in Fig. 1, a shaft journaled in bearings on a side of the tank and provided on one end with a worm 34 meshing with a worm-wheel, indicated at 35, on a shaft 36 carrying a pinion 37 meshing with the gear 14.

The manifold 25 is connected at intervals along its length, as hereinafter described, with another manifold 38 (Fig. 3) extending along the opposite inner side of the tank; and both of these manifolds are supported,

support and in combination with a spring construction for yieldingly urging the central upright support in slightly forward position with respect to the seat of the chair, whereby the peculiarly formed back rest will operate to hold the back and spine of the person seated in the chair in normal sitting position in various sitting postures.

Yet another object of my invention resides in the provision of a re-entrant or concave portion to the vertical central upright, which supports the back rest, and in locating this re-entrant or concave or cut-away portion substantially at the level of the seat, whereby to permit the body of the sitter to extend beyond the rearmost edge of the seat.

Numerous other objects and advantages of my invention will be apparent as it is more fully understood from the following description which, taken in connection with the accompanying drawings, discloses a preferred embodiment of my invention.

Referring to the drawings:

Figure 1 is a side view of the chair embodying my invention, parts of which chair are shown in section to reveal details of construction;

Figure 2 is a top plan view of the chair illustrated in Figure 1;

Figure 3 is a horizontal section taken substantially along the line 3—3 in Figure 1 to illustrate the details of my improved hinge;

Figure 4 is a vertical cross-section taken substantially along the line 4—4 in Figure 3; and

Figure 5 is a vertical cross-section taken substantially along the line 5—5 in Figure 3; and

Figure 6 is a perspective view of my improved chair back, showing the manner in which it is curved in transverse directions.

To illustrate my invention I have shown on the drawings a chair comprising a seat 11 and a lumbar back rest 13 suitably supported from a base 15. The base 15 may be any conveniently arranged support, and I have illustrated this base as comprising readily extending legs provided with suitable casters at their lower extremities.

The seat 11 is supported on a frame 17 comprising a plate to which the seat is secured and downwardly extended spaced flanges 19, the lower portions of which are joined and secured to a threaded support column 21. The column 21 has a collar 23 threaded thereon and fits through a bushing 24 carried in the supporting base 15. The collar 23 rests on the upper end of the bushing 24 and by adjusting the collar on the column 21, the seat 11 may be raised or lowered in order to accommodate various leg lengths of persons who may use the chair.

The seat 11 may be formed of any con-

venient material, although I prefer to use a wood slab, the upper surface of which is formed to provide a comfortable seat. The peripheral edges of the slab forming the seat also are configured to eliminate all unnecessary extensions to the end that the chair may present a neat, compact appearance, and may occupy only a necessary amount of space; that is to say, the front of the seat 11 is extended forwardly sufficiently to provide a frame seat beneath the spine of the sitter, but is not extended beneath the lower portions of the upper leg portions of the sitter, since such extension is unnecessary and, in fact, is undesirable, since it will interfere with free leg movements.

The lumbar back rest 13 is supported by means of a support assembly including a single vertical upright member 25 to the upper end of which the lumbar back rest 13 is pivotally mounted by means of a hinge 27. By using a single upright I am able to provide a resiliently spring pressed back rest having the curved conformation illustrated in Figure 2 and well adapted to embrace the back of a person seated in the chair to thereby furnish maximum support. The provision of a single upright also improves the appearance and reduces the cost of the chair. The lower end of the upright 25 is resiliently pivoted to the seat supporting bracket 17 by means of devices which I will now describe in detail. The lower end of the upright 25 is slidably secured to a bracket 29 by means of a stud 31 and a nut 33, the stud 31 passing through an aperture formed in the upright 25 through a slot formed longitudinally of the bracket 29 and having a head engaging the back of the bracket on either side of the slot, whereby upon loosening the nut 33, the upright 25 may be adjusted vertically, the head of the stud sliding longitudinally in the slot of the bracket 29. When the upright is adjusted to a desired height, that is to say, so that the back rest 13 registers with the small of the back of a person using the chair, the nut 33 may be tightened in order that the back rest be secured in its adjusted position.

The slide bracket 29 is pivoted at 35 in one end of an intermediate link bracket 37 which, in turn, is pivoted as at 51 between the spaced flanges 19 of the seat supporting bracket 17. I provide means for adjusting the angularity of the slide bracket 29 with respect to the intermediate link bracket 37 in order that the back rest 13 may be adjusted forwardly or backwardly to accommodate the various back configurations of persons who may desire to use the chair of my invention. These means comprise spaced ears 43 formed in the slide bracket 29 at points therein spaced from the pivot 35. A threaded rod 39 is pivoted at 41 between

holes 54. Such portions of the labels as are carried with the solution past the baffle-plates 51 and 52 into the compartment 55 are intercepted by and deposit gently on the conveyer 56 because of the gentle flow of the solution carrying such matter, and will therefore not be forced through the perforations in the conveyer-plates. In Fig. 6 is shown a bent pipe 63 leading from the inner wall of the tank-compartment 10 lengthwise through the compartment 9 and terminating beyond the latter in a valved spout 64. This pipe takes rinsing water from the compartment 10 to flow it against the traveling conveyer 56 and wash label and other refuse-matter off the latter, while the rotating brush 61 coöperates to loosen such matter adhering to the perforated plates. By thus passing through the hot water in the compartment 9 the cold rinsing water, the latter becomes heated and is thus better adapted for its purpose in cleaning the perforated conveyer-plates; and, besides, by taking heat out of the water in the compartment 9 it tends to prevent excessive heating of that water by the steam employed for the described injecting purpose. As the carrier 12 brings the washed and rinsed bottles to the chute 15 they fall out of the pockets 17 upon and slide down the chute to be caught by an attendant.

By means of my improved features thus described, the injector-action of the steam not only greatly reduces the work of pumping, enabling a single pump to be used for operating the machine, but in effecting that saving the further advantages are afforded of causing the steam to keep the nozzles clear and to heat the washing water, besides forcing the water at a high speed into the bottle with resultant enhancement of its cleansing effect. Furthermore, by avoiding intermittent motion of the bottle-conveyer and causing it to travel steadily and uninterruptedly, and moving the injector-nozzles along with the bottles, as described, the washing of bottles is performed in a thorough manner much more speedily, and enables the length of the machine to be materially reduced over one wherein the same work is performed in a machine wherein an intermittently moving bottle-conveyer is employed. Moreover, the means provided for removing refuse-material from the machine adds greatly to its efficiency.

I realize that considerable variation is possible in the details of construction thus specifically shown and described, and I do not intend, by illustrating a single, specific or preferred embodiment of my invention to be limited thereto, my intentions being in the following claims to claim protection upon all the novelty there may be in my invention as broadly as the state of the art will permit.

What I claim as new and desire to secure by Letters Patent is:—

1. In a bottle-washing machine of the character described, the combination of a tank, an endless carrier movable lengthwise over the tank and provided with supports for bottles in inverted position, means including a motor for driving said carrier, a motor-driven pump connected at its suction-side with the tank, water-tubes supported to extend at intervals crosswise over the tank below the upper section of said carrier and communicating with the discharge-side of the pump, nozzles projecting upwardly from said tubes, and steam-tubes extending along said water-tubes and provided with jets coinciding and coöperating with said nozzles.

2. In a bottle-washing machine of the character described, the combination of a tank, an endless carrier movable lengthwise over the tank and provided with supports for bottles in inverted position, means including a motor for driving said carrier, a motor-driven pump connected at its suction-side with the tank, a manifold for the wash-water supported to extend over the tank along one side thereof below the upper section of said carrier and communicating with the discharge-side of the pump, a manifold for steam extending along the opposite side and over the tank, water-tubes extending at intervals at the inner side of said first-named manifold and provided with upwardly projecting nozzles, and steam-tubes extending along said water-tubes from the steam-manifold and provided with jets coinciding and coöperating with said nozzles.

3. In a bottle-washing machine of the character described, the combination of a tank, an endless carrier movable lengthwise over the tank and provided with supports for bottles in inverted position, means including a motor for driving said carrier, a motor-driven pump connected at its suction-side with the tank, a manifold for the wash-water supported to extend over the tank along one side thereof below the upper section of said carrier and communicating with the discharge-side of the pump, a manifold for steam extending along the opposite side and over the tank, water and steam-tubes connecting said manifolds at intervals and being formed in pairs having their members parallel and integral with each and closed at respectively opposite ends, nozzles projecting upwardly from the water-tubes and jets extending from said steam-tubes into and coöperating with said nozzles.

4. In a bottle-washing machine of the character described, the combination of a tank, an endless carrier movable lengthwise uninterruptedly over the tank and provided with supports for bottles in inverted position, a motor-driven pump connected at its

In cooperation with this specifically formed back rest and with the central upright, which is yieldingly urged in a forward direction by means of the lower spring 59, I mount the back rest on the upper end of the central upright in a particular manner, whereby it is yieldingly balanced in a normal, substantially vertical position, or substantially parallel to the central upright 25, but is arranged so that it will yieldingly rock about a central horizontal axis in accordance with the movement of the back of the person sitting in the chair, and will tend to return to such neutral balanced position when tilted about its axis in either direction. This back rest is thus yieldingly mounted on the central upright 25 by a re-active resilient means, preferably incorporated as a part of the hinged connection between the back rest and the upright.

In carrying out this feature of my invention, in order to permit of the oscillation of the back rest about a horizontal axis relative to the upright 25, I have provided a hinge 27 characterized by the fact that it is neat and compact, and hence may be mounted on the forward face of the relatively narrow upright 25, and also to the relatively narrow middle slat member of the back rest, thus permitting the sides of the back rest 13 to be curved forwardly in order to properly embrace and support the back of a person seated in the chair.

The hinge 27 comprises relatively movable brackets 63 and 65 mounted for relative rotation to a common hinge pin 67. The brackets 63 and 65 may be conveniently formed from single pieces of sheet metal stamped to the desired size and shape. Each bracket comprises a flat, substantially rectangular body portion having apertures for the accommodation of fastening members such as wood screws 71 adapted to engage through the apertures and taken into the body of the members which are to be hingedly connected. The bracket 65 is provided on each side with offset lugs 69 extending outwardly at right angles and provided with apertures through which the pivot pin 67 may extend. The bracket 63 also is provided with corresponding lugs or ears 73, the spacing of which is such that the ears 73 engage the inner faces of the ears 69 when the pivot apertures of the brackets are aligned and the pivot 67 arranged in position therethrough. The central portions of the body of the bracket 63 also are offset to provide additional lugs or ears 77 having apertures through which the pivot pin 67 extends. These ears 77 provide additional bearing support for the pivot pin and also provide a cut-out portion 75 in the body of the bracket 63.

In order that the brackets 63 and 65 may be normally urged to assume a definite

relative relationship, the pivot pin 67 carries a coil spring 87 which is mounted upon the pin 67 between the lugs or ears 77. Shiftable latch members or rocking stops 79 are also mounted upon the pivot pin 67 between the ears 77, one latch member being arranged at either end of the coil spring 87. These rocking stops or latch members have legs 83 having flattened bottoms 91 adapted to normally engage the bracket 65 and also have shouldered latch portions 81 adapted to extend through the cut-out portion 75 of the bracket 63 and engage the back of the bracket, the member 25 to which the bracket 63 is secured being apertured as at 85 to receive the portions 81 behind the bracket 63. The opposed ends of the coil spring 87 are offset outwardly as at 89 to bear upon the rocking stops 79 in order to normally and resiliently urge them in opposite directions about the pivot pin 67 so that the legs 83 thereof may normally bear against the bracket 65.

When the bracket 65 is rotated about the pivot pin 67 in either direction as shown in Figure 5, the leg 83 of one rocking stop 79 will disengage from the bracket 65 for the reason that the detent 81 will not permit the rocking stop to follow the bracket. The movement of the bracket 65, however, will carry the other rocking stop with it and will tension the spring 87. The greater the movement of the bracket 65 about the pivot pin, the greater will be the tension exerted in the spring so that the spring will always urge the bracket 65 to return to its normal position. If the bracket 65 is then released, it will immediately return to its normal position. Any tendency of the bracket to overrun upon its return to normal position will be immediately counteracted by the tensioning of the spring 89 in the opposite direction, as will be clearly apparent by an inspection of Figure 5 of the drawings, so that the bracket 65 will return to rest in its normal position quickly and without chattering. The restraining force against the rocking of the pivot beyond its normal position is applied not in a gradual manner but with practically full strength at the instant that the effect is needed, and thus vibration of the back rest or chattering of the rocking members cannot occur. In other words, a chair back supported on my improved hinge will spring back to its neutral position and instantly stop in this position.

Among the advantages of the hinge 27 are, that it is a simple, rugged and easily constructed two-way hinge which will automatically bring itself back to a neutral position without vibration; that it may be easily assembled and may be readily applied to chairs without detracting from the pleasing appearance of the chair and without

marring or injuring the parts between the hinge; and that it may be attached directly to the relatively movable parts which it is to pivotally connect, the only change necessary being that the support 25 is provided with cut-out portions 85 in order to accommodate the detents 81 of the rocking lugs or stops 79 as shown in Figure 3. Obviously, either the member 13 or the member 25 may be provided with these cut-outs.

It is thought that the invention and numerous of its attendant advantages will be fully understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction, and arrangement of the various parts without departing from the spirit and scope of the invention, or sacrificing any of its material advantages, the form hereinbefore described being of a preferred embodiment for purposes of illustration.

I do not herein claim the hinge construction 27 per se, since the same forms the subject matter of my co-pending application, Serial No. 232,337, filed November 10, 1927.

The foregoing application contains subject matter disclosed but not claimed in an application filed jointly by me and Walter J. Johnson on July 14th, 1927, Serial Number 205,701, which has issued as Patent No. 1,769,294 of July 1st, 1930, and the subject matter of the instant application is also disclosed and partly claimed in my application Serial Number 344,995, filed March 7, 1929, whereof this application is filed in substitution.

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

The combination of a chair having a seat, a single narrow upright pivotally connected to the seat, below the top of the seat and near the center thereof, said upright being tiltable rearwardly, resilient means for urging the upright forwardly, a lumbar back rest pivoted to the upright on a horizontal axis, and resilient means for holding the rest in a predetermined position but permitting the rest to move on its pivot when pressure is applied thereto.

In witness whereof, I have hereunto subscribed my name.

ARTHUR L. JOHNSON.