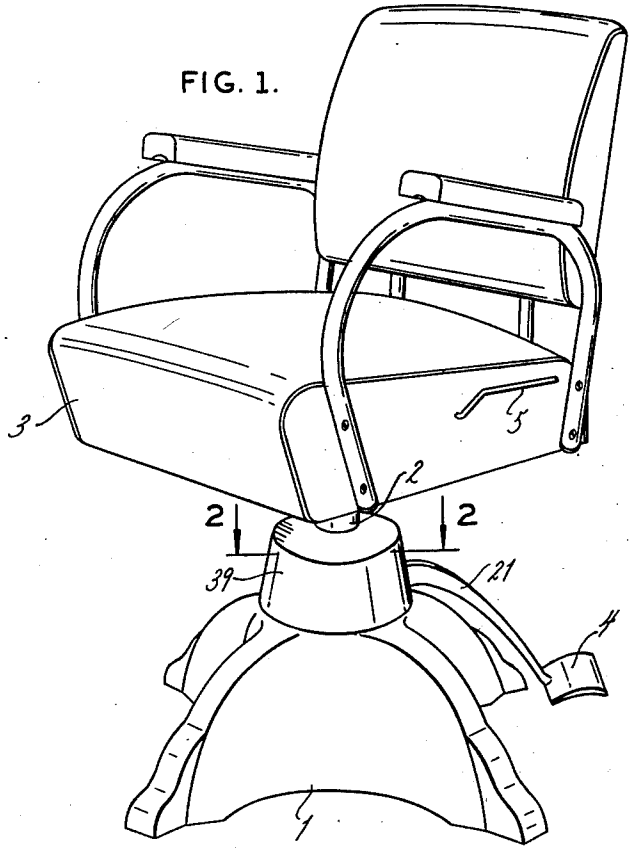
April 6, 1954 E. W. HARTING 2,674,301

JACK FOR BEAUTY CHAIRS

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FIG. 1.



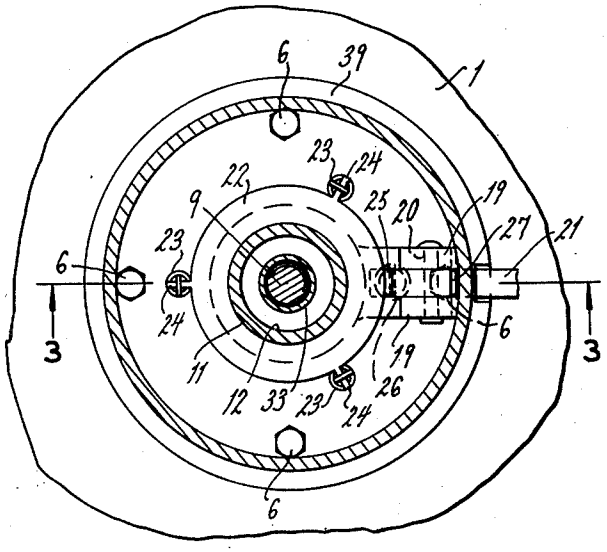


FIG. 2.

INVENTOR.
EDWIN W. HARTING
BY John W. Harting,
ATTORNEY

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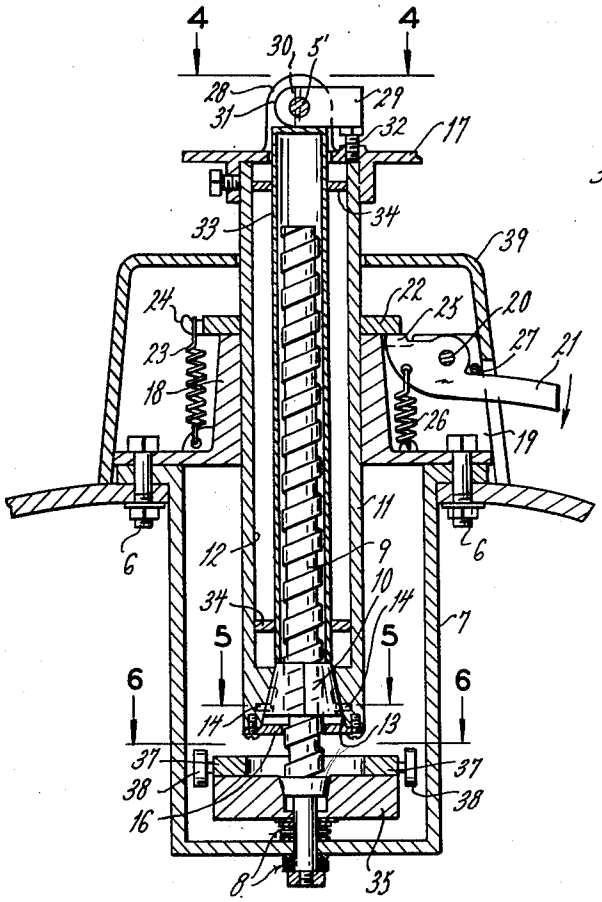


FIG. 3.

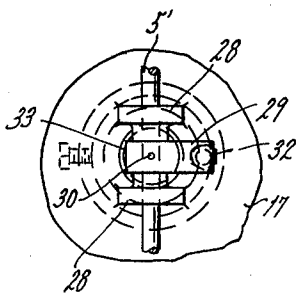


FIG. 4.

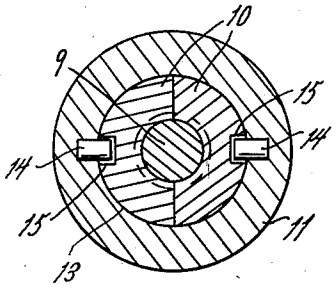


FIG. 5.

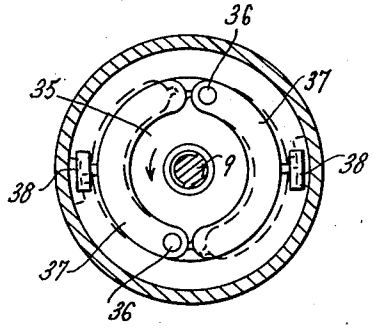


FIG. 6.

INVENTOR.
EDWIN W. HARTING
BY
ATTORNEY

Patented Apr. 6, 1954

2,674,301

UNITED STATES PATENT OFFICE

2,674,301

JACK FOR BEAUTY CHAIRS

Edwin W. Harting, St. Louis, Mo.

Application October 25, 1950, Serial No. 191,999

5 Claims. (Cl. 155—93)

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This invention pertains to lifting devices and more particularly a device for raising and lowering a chair such as a beauty chair.

In accordance with this invention, generally stated, the support for the chair comprises an upright screw mounted for rotation in the chair base. A chair support having a bore is mounted in the chair base for vertical sliding movement with the screw extending into the bore thereof. A split nut on the screw has a conical outer surface, and the chair support has a matching conical socket in which said nut is fitted. The arrangement is such that the weight carried by the support rests upon said nut, so that the latter is clamped against the screw to hold it at any given elevation. A treadle pivoted on the base is arranged to operate a gripping device engaging the support so as to lift said support relatively to the screw. At each depression of the treadle such gripping device lifts the chair support through a given distance, and when the treadle is released weight on the support causes the nut to clamp the same in its elevated position.

In order to lower the chair a member is provided adjacent the screw and engaging the nut, and manual manipulatory means are provided to shift said member so as to move the split nut to loosen it in its socket and thereby permit the screw to rotate. As the screw rotates it lets the chair support down in a gradual manner. A centrifugal brake associated with the screw controls the rotation thereof, so as to lower the chair slowly and without noise.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Fig. 1 is a perspective view of a chair having elevating means embodying this invention;

Fig. 2 is an enlarged section on line 2—2, of Fig. 1;

Fig. 3 is a vertical section on line 3—3, of Fig. 2;

Fig. 4 is a detail plan view of a portion of the chair support as seen from above, about at the line 4—4, Fig. 3;

Fig. 5 is an enlarged section on line 5—5, of Fig. 3; and

Fig. 6 is a section on line 6—6, Fig. 3.

As seen in Fig. 1 the chair comprises a base 1 on which is movably mounted a support 2 carrying the chair seat 3. A treadle 4 may be operated to elevate the chair and a handle 5 is provided for manipulation to lower the same.

Mounted on the base 1, by means of screws 6 or the like, is a cylindrical well member 7. Mounted on the bottom of the member 7 is an arrangement of thrust bearings 8, preferably ball bearings as illustrated in Fig. 3. Mounted in upright position on the bearings 8 is a screw 9. Arranged to embrace the screw 9 is a split nut 10, having a conical outer surface arranged with the

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small end of the cone up. A chair support 11 of tubular form, in the embodiment illustrated, has a bore 12 arranged to receive the screw 9, which extends upward partway through said bore.

At the lower end of the bore 12 a conical socket 13 is formed in the support 11. Said socket is fitted to the nut 10 so that when the weight of the chair comes on the support 11 the same is forced downward relatively to the nut 10 and the latter is clamped against the screw 9. Mounted in the socket 13 is a pair of dogs 14, one of which engages a groove 15 in each half of the split nut 10. These dogs prevent rotation of the nut in its socket. A ring 16 surrounding the screw 9 closes the lower end of the socket 13 so as to retain the nut 10 therein.

The upper end of the socket 11 has mounted thereon a bracket 17 of any preferred form upon which the chair seat 3 is mounted.

Mounted on the base 1, above the member 7, is a guide member 18 having a bore in which the support 11 is easily slidable. This member serves to guide the movement of said support and maintain its alignment. The guide member 18 is formed with a pair of ears 19 to which is pivoted at 20 the lever arm 21 of the treadle 4. Resting on top of the guide member 18, and surrounding the support 11 is a ring 22. This ring is normally held down upon the top surface of the guide member 18 by means of a plurality of springs 23 engaging lugs 24 uniformly spaced about the periphery of the ring 22. This ring is positioned so as to be engaged by a tip 25 on the lever 21. A spring 26 draws this tip downward normally until the lever 21 is arrested by a stop pin 27 extending between the ears 19.

In the operation of this mechanism, when the treadle 4 is depressed the tip 25 is elevated to engage the ring 22. The latter is cocked thereby with respect to the support 11, so as to grip the latter whereby the upward movement of the tip 25 carries with it the ring 22 and the support 11. As the support 11 is raised the nut 10 is loosened in its socket so that the screw 9 may rotate in response to the upward movement of said nut.

When the treadle is released the springs 23 draw the ring 22 down upon their seat and release the support 11 which then sinks upon the nut 10 to cause it to clamp the screw 9 and hold the parts in their new position. Thus by repeated operation of the treadle 4 the support 11 may be jacked up to any desired elevation. This of course carries the seat 3 with it as the latter is carried by the support 11.

In order to provide for lowering the chair, the bracket 17 is provided with a pair of upstanding ears 28 which are perforated to accommodate a part 5' of the handle 5. This may be merely a rod extending outward through an open-

ing in the side portion of the seat 3 and bent to form the handle 5. Mounted on the rod 5' between the ears 28 is a cam member 29. This is fixed to the rod 5' by a pin 30 so as to be rotated by manipulation of the handle 5. The portion of the member 29 to the left, Fig. 3, of the rod 5' is formed to the shape of an eccentric cam 31. That portion of the member on the opposite side of the rod 5' is extended to engage a stop screw 32 in the bracket 17. A tubular member 33 is mounted within the support 11 so as to embrace the screw 9 and rest upon the split nut 10. Spacing rings 34 may be provided to keep this member centered in the bore 12.

The upper end of the member 33 is closed, and is positioned to be engaged by the cam 31 when the handle 5 is operated. Such operation causes the cam 31 to force the tubular member 33 downward, thereby forcing the nut 10 downward in the socket 13 to loosen the nut on the screw 9. When thus loosened the screw 9 is permitted to rotate and thereby move the nut downward on the screw. This carries with it the support 11, and the chair seat 3 carried thereby.

In order to prevent too rapid descent of the chair when lowered, the screw 9 has mounted thereon a collar 35 which rotates with the screw. Pivoted at 36 to said collar is a pair of governor arms 37, each of which carries a brake shoe 38 positioned to engage the interior bore of the member 7 when the arms 37 move outward on their pivots 36. As the screw rotates in lowering the support 11, centrifugal force throws the arms 37 outward on their pivots so that the brake shoes 38 are forced against the walls of the member 7, whereby the rotation of the screw is retarded.

It will be seen, therefore, that this invention provides a simple mechanism for raising and lowering a chair of this kind noiselessly, and with relatively little effort. The arrangement of the split nut 10 within the socket 13 is such that the weight carried by the support 11 will tend to keep the parts clamped and immovable until they are manipulated either by the treadle 4 to raise the chair, or by the handle 5 to lower it. The action of the treadle and the gripping ring 22 is such that the support 11 is lifted directly, and this automatically releases the clamping device. During the elevating movement the screw 9 may turn freely in the nut 10, and when the clamping action has been resumed all parts are sustained in their new position.

In the lowering mechanism it will be noted that the handle 5 is in a position alongside of the seat 3. The arrangement is such that this handle must be lifted in order to operate the cam 31. If said handle should be depressed, as by an occupant of the chair touching it accidentally or otherwise, the member 29 prevents operation of the tubular member 33 by engaging the stop 32. Thus accidental operation of the lowering device is prevented. A cap 39 may be placed over the guide member 18 and the parts mounted thereon, as shown in Fig. 3.

Various changes may be made in the details of construction, within the scope of the appended claims, without departing from the scope of the invention, and parts of the invention may be used without the whole, and improvements may be added while retaining some or all the advantages of the invention.

I claim:

1. A chair jack of the character described, comprising, a base, an upright screw mounted for rotation on said base, a tubular chair support through which said screw extends, a split nut on said screw having clamping engagement with said tubular support, a treadle pivoted on said base, and gripping means engageable with said support and operable by said treadle to lift said tubular support relatively to said screw.

2. A chair jack of the character described, comprising, a base, an upright screw mounted for rotation on said base, a chair support having a bore along which said screw extends, a split nut on said screw, clamping means on said support engaging said nut to clamp the same upon said screw by action of the weight carried by said support, a treadle pivoted on said base, gripping means operable by said treadle to lift said support, and manually operable means for releasing said nut from said clamping means to permit rotation of said screw for lowering said support.

3. A chair jack of the character described, comprising, a base, an upright screw mounted for rotation on said base, a chair support having a bore along which said screw extends, a split nut on said screw, clamping means on said support engaging said nut to clamp the same upon said screw by action of the weight carried by said support, manually operable means for releasing said nut from said clamping means to permit rotation of said screw for lowering said support, and a brake connected to control the rotation of said screw.

4. A chair jack of the character described, comprising, a base, an upright screw mounted for rotation on said base, a chair support having a bore along which said screw extends, a split nut on said screw, clamping means on said support engaging said nut to clamp the same upon said screw by action of the weight carried by said support, a treadle pivoted on said base, gripping means operable by said treadle to lift said support, manually operable means for releasing said nut from said clamping means to permit rotation of said screw for lowering said support, and a centrifugal brake on said screw adapted to control the rotation thereof.

5. In a jack mechanism of the character described, a base, an upright screw mounted for rotation on said base, a tubular support having a bore along which said screw extends, a split nut on said screw having a conical outer surface, said support having a conical socket adapted to receive said nut to clamp the same upon said screw by action of the weight carried by said support, a guide on said base for said support, a treadle pivoted on said base adjacent said guide, gripping means operable by said treadle to lift said support, a tubular member embracing said screw and engaging said nut, and means operable to shift said member to loosen said nut in said socket to permit rotation of said screw for lowering said support.

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