Oct. 12, 1954 J. KUPSKI 2,691,407

GRAVITY SEAT RETURN

Filed Dec. 13, 1949

Fig. 1

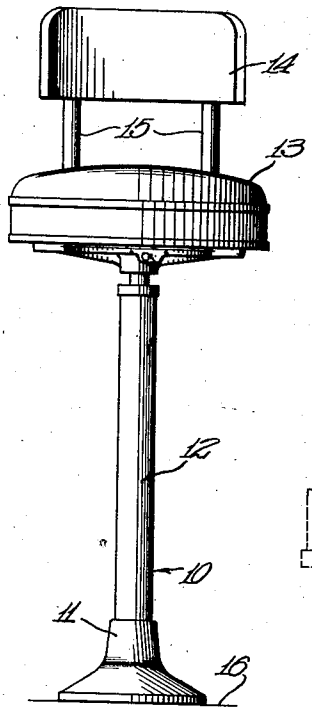


Fig. 2

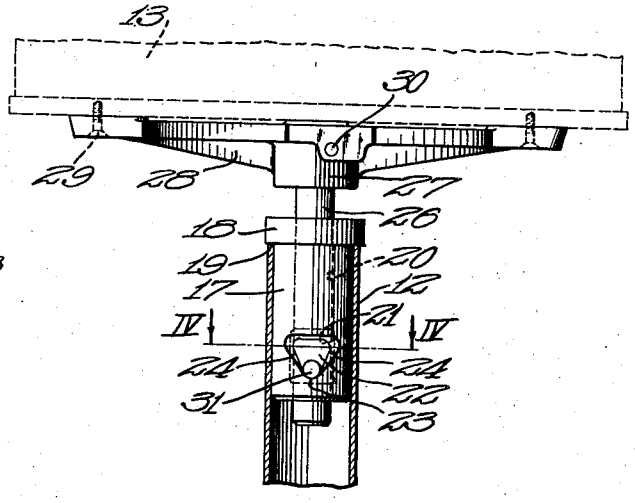


Fig. 3

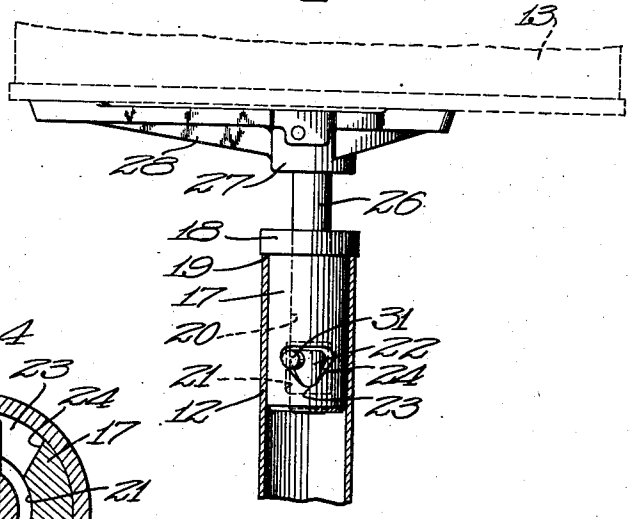
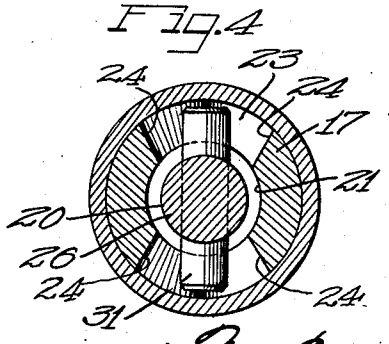


Fig. 4



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Patented Oct. 12, 1954

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UNITED STATES PATENT OFFICE

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GRAVITY SEAT RETURN

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Application December 13, 1949, Serial No. 132,759

5 Claims. (Cl. 155—95)

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This invention relates to a gravity seat return and more particularly to means for accommodating rotational movement of a seat or the like and for subsequently automatically counter-rotating the seat to return it to its normal position.

The gravity seat return of the present invention is particularly adapted for use with soda fountain or bar stools or the like which are provided with backs and which are aligned along the length of the counter. In order to insure a neat appearance and also to position such seats for ready use, it is desirable to align the seat backs when the seats are unoccupied. Prior to the present invention, complicated spring or hydraulic actuating mechanisms have been employed to so position a plurality of seats in aligned relation. Such seat mechanisms have proved to be expensive, unwieldly, and susceptible to damage upon continued use.

The present invention now provides a simple, inexpensive, gravity seat return which accurately repositions the seat in its aligned position following rotative movement thereof. The gravity return herein disclosed accommodates rotative movement through a relatively wide traverse angle with the weight of the seat itself being employed to return the seat to its initial, aligned position.

The means employed are extremely simple and may suitably comprise interengaging, relatively movable, means carried by the seat stem and in the pedestal, respectively, within which the stem is rotatably received. More particularly, the means includes an inclined surface formed on one of a pair of relatively rotatable members and means carried by the other of the rotatable members engaging the inclined surface for movement therealong as the seat is rotated. The inclined surface accommodates both rotational and vertical movement of the seat from an initial position of rest, with counter-rotation of the seat to its position of rest being effected by gravitational forces acting upon the seat itself, thus causing relative movement of the interengaging members.

It is, therefore, an important object of the present invention to provide an improved form of rotatable seat provided with gravity return means for returning the seat to its normal position following rotation thereof.

Another important object of the present invention is to provide an improved gravity return seat including a pair of concentric relatively rotatable members, one of which carries the seat

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for rotation therewith, and means carried by the rotatable members for accommodating relative rotational movement of the seat and for subsequently returning the members to their normal starting position.

It is a further important object of the present invention to provide a stool including a pedestal telescopically receiving a seat stem, the stem being rotatable within the pedestal and carrying means engaging an inclined supporting surface on the pedestal, thereby accommodating rotational movement of the seat while at the same time vertically shifting the seat relative to the pedestal.

Still another important object of the present invention is to provide an improved means for accommodating rotational movement of a seat positioned upon a supporting pedestal and having a portion telescopically received by the pedestal, the means including a sleeve interposed between the seat portion and the pedestal for rotatably receiving the seat portion, the sleeve having a vertically inclined, radially extending surface which is engageable by means carried by the seat portion, thereby accommodating vertical and rotational movement of the seat portion within the sleeve.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a front elevational view of a seat provided with a gravity seat return of the present invention;

Figure 2 is a greatly enlarged fragmentary sectional view, with parts shown in elevation, of the seat of Figure 1, illustrating the seat in its normal position;

Figure 3 is a view similar to Figure 2, illustrating the relative position of the gravity return means upon rotation of the seat; and

Figure 4 is an enlarged sectional view taken along the plane IV—IV of Figure 2.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to a stool provided with the novel gravity seat return means of the present invention. The stool comprises generally a base 11, an upwardly extending tubular post 12 seated on the base 11, and a seat proper 13 provided with a back 14 secured thereto by suitable means, as by a pair of connecting members 15.

More particularly, the base 11 is adapted to be secured to a supporting surface 16 by suitable

means, such as are well known in the art. The upstanding post 12 is fixedly secured to the base 11, and that end of the post remote from the base 11 telescopically receives a generally cylindrical sleeve 17 having an enlarged terminal portion 18 forming an external annular shoulder 19 seated upon the adjacent open end of the post 12. The sleeve 17 is press-fitted or otherwise secured in the tubular post 12 in non-rotative relationship therewith.

The sleeve 17 is provided with an internal axially extending bore 20 having an enlarged interior cavity 21 intermediate its ends. A pair of diametrically opposed, generally triangular apertures 22 extend radially through the sleeve 17 into communication with the enlarged cavity 21, the apices 23 of the triangular apertures extending downwardly of the sleeve toward the base 11. The cross-sectional area of the apertures 22 increases radially outwardly throughout the sleeve 17 to thereby define a tapered aperture, and each of the walls 24 adjoining the apices 23 is inclined vertically upwardly and radially outwardly therefrom. The side walls 24 of the aperture 22 are thus inclined both axially of the sleeve 17 and radially thereof.

The sleeve 17 receives a stem 26 extending axially therethrough, the stem 26 fitting snugly within the bore 20 of the sleeve while still being free for rotational movement relative thereto. The stem carries at its upper end projecting beyond the sleeve 17 a tripod 27 having peripherally spaced radially outwardly directed arms 28 supporting the seat 13 and secured thereto by suitable means, as by screws 29. The tripod 27 is secured to the stem 26 by means of a dowel pin or the like 30.

The stem 26 also carries a stop pin 31 extending therethrough and radially therebeyond into the triangular apertures 22 of the sleeve 17. The pin 31 is of an overall length less than the internal diameter of the post 12 and greater than the diameter of the stem 26, as best shown in Figure 4. It will be seen that upon rotation of the seat 13, the tripod 27 and the stem 26, the pin 31 will be moved vertically upwardly from its position in Figure 2 along the inclined surfaces 24 of the apertures 22. In this manner, upon rotation of the seat, the pin 31 and the stem 26 are each moved both radially and axially with respect to the sleeve 17 and the post 12, as best shown in Figure 3. Upon the release from the rotational force maintaining the pin 31 in the position shown in Figure 3, the weight of the seat 13 will cause the pin 31 to ride axially downwardly of the sleeve 17 along the surfaces 24 to the normal position shown in Figure 2. In this manner, counter-rotation of the seat 13 is effected so that it may be positioned in the original or normal position.

The particular application of the gravity seat return means of the present invention to stools or seats employed in alignment, as along the length of a counter, bar, soda fountain, or the like, will be readily appreciated inasmuch as it is only necessary to position the sleeves so that all of the backs of the seats or stools are aligned when the seats are in their normal position. Sliding movement of the pin 31 along the inclined supporting surfaces 24 will accommodate rotational movement of the seat, with the weight of the seat itself forcing the same into its initial aligned posiion upon the release of the force holding it in relatively rotated position.

The simplicity of the device of the present invention insures its operability under all conditions, particularly since all of the relatively movable parts of the device are housed within the upstanding post 12, thus obviating the possibility of forcing the device out of alignment, snagging the clothes of a user, etc. The device is inexpensive when compared with those previously employed to serve a similar function and it eliminates the necessity of replacement parts, such as springs, and the like. In addition, it is possible to accommodate a 70° radial traverse of the seat with an overall vertical movement of approximately $\frac{7}{16}$th inch, thus obviating the necessity for excessive vertical or axial movement during rotation. Further, the stop pin is guided at each end by the diametrically opposed slots or apertures 22 thus giving a positive guiding action for both axial and rotational movement of the pin relative to the sleeve.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A gravity return stool comprising a base, an upstanding cylindrical post carried by the base, a cylindrical sleeve telescopically received by said post in spaced relation to said base and having a pair of diametrically opposed triangularly shaped apertures therethrough, said apertures having their apices directed toward said base and inclined supporting edges extending upwardly therefrom to terminate in stop edges, a cylindrical stem extending axially into said sleeve for rotation therein, a pin carried by said stem and projecting radially therebeyond into said opposed apertures in said sleeve, and a seat secured to said stem and carried thereby for rotation therewith, whereby, upon rotation of said seat relative to said sleeve, said pin moves radially and axially of the sleeve along said supporting edges and said seat returns automatically to a centered position with said pin at the apices of said apertures, angular displacement of said seat being limited by contact of said pin with the stop edges of said apertures.

2. In a seat having a dependent stem telescopically entered in a supporting post, the improvements of a tubular sleeve interposed between said stem and said post for rotatably receiving said stem, said sleeve having upwardly divergent supporting surfaces terminating in terminal stop edges and formed in diametrically opposed inner wall portions thereof, and a member carried by said stem and engaging said surfaces for movement over said surfaces as said stem is rotated between the limits imposed by said stop edges.

3. A gravity return stool comprising a seat having a depending cylindrical stem, a fixed sleeve having a cylindrical bore freely receiving said stem and having diametrally opposed openings therein, each of said openings having a lower rounded edge and upwardly flared edges smoothly extending therefrom to terminate in an upper stop edge, and a cylindrical pin fixed in said stem to project radially therebeyond into said openings for engagement with said edges, whereby said pin normally rests by gravity against said lower rounded edges, rides up said upwardly flared edges when turning forces are applied to said seat in either direction and automatically returns by gravity to rest against said lower rounded edges when turning forces are released.

4. A gravity return stool comprising a base, a seat having a depending stem, an upstanding post carried by said base, means carried by said post spaced above said base and defining a cylindrical bore extending axially of said post for rotatably receiving said stem, said means having opposed apertures opening into said bore and defined by downwardly converging side surfaces and an upper stop surface, and means carried by said stem and movable along either of said convergent surfaces upon rotation of said seat to effect axial displacement of said seat relative to said post, upward and downward movement of said seat being limited by said upper stop surface and by the convergency of said side surfaces, respectively.

5. In a stool including a seat having a dependent stem telescopically entered in a supporting post, the improvements of a sleeve fixedly supported in said post for rotatably receiving said stem, said sleeve having a pair of diametrically opposed triangularly shaped apertures having lower rounded apices and smooth upwardly divergent surfaces thereabove merging into said

apices and terminating upwardly in rounded abutment corners, and a supporting pin extending through said stem into said apertures for normal seated position in said lower apices, whereby upon rotational forces being applied to said stem said pin is caused to rise up out of said lower apices along said divergent surfaces and is free to return by gravity to normal seated position upon release of the rotational forces, the extent of the rotation of said pin being limited by the entry of the opposite ends of said pin into said corners.

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