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D. L. BATES ET AL
CHAIR

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2 Sheets-Sheet 1

Fig. 1

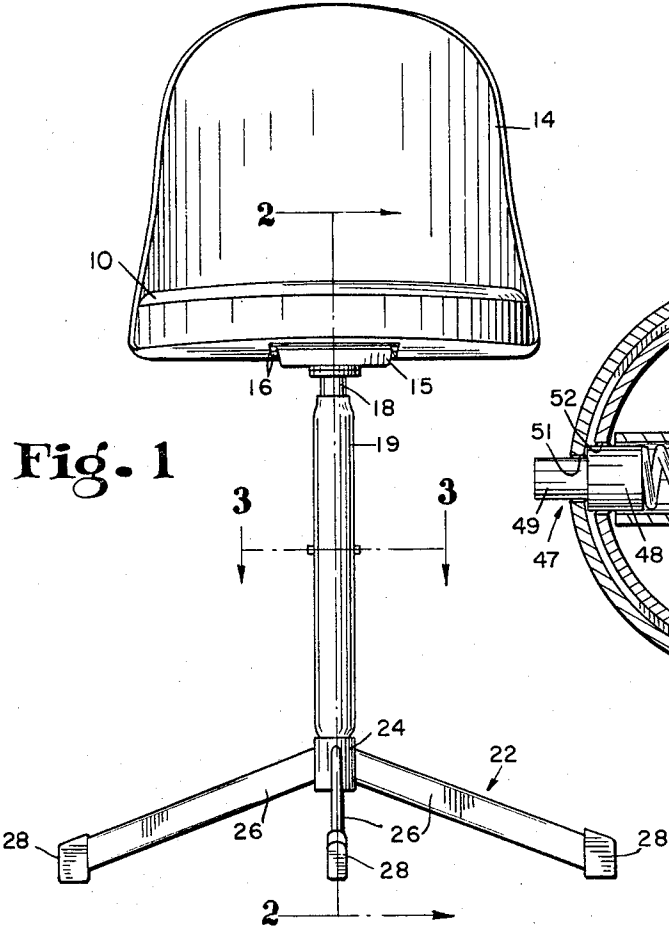


Fig. 3

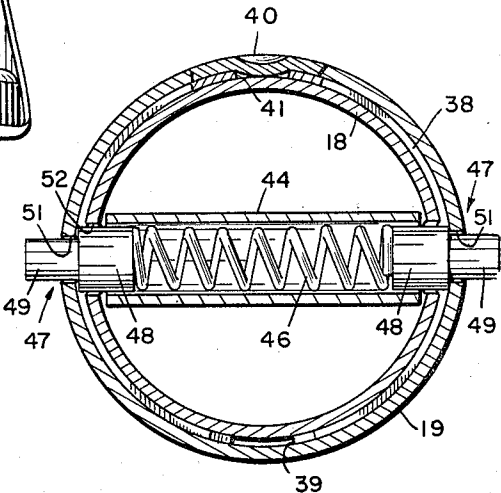
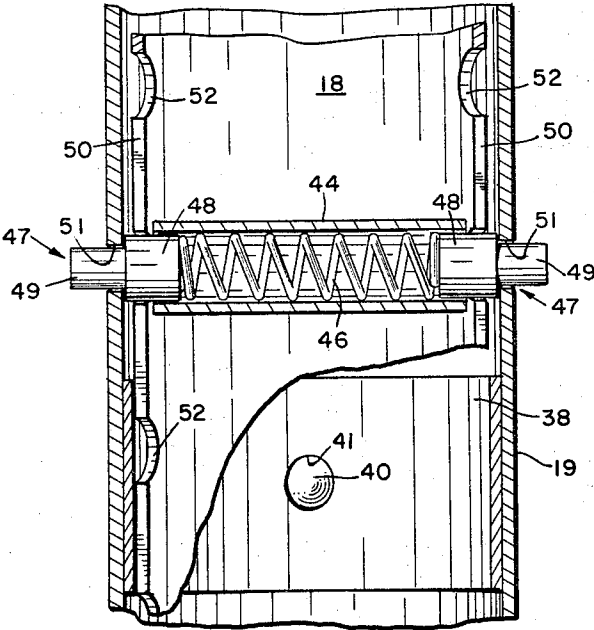


Fig. 4



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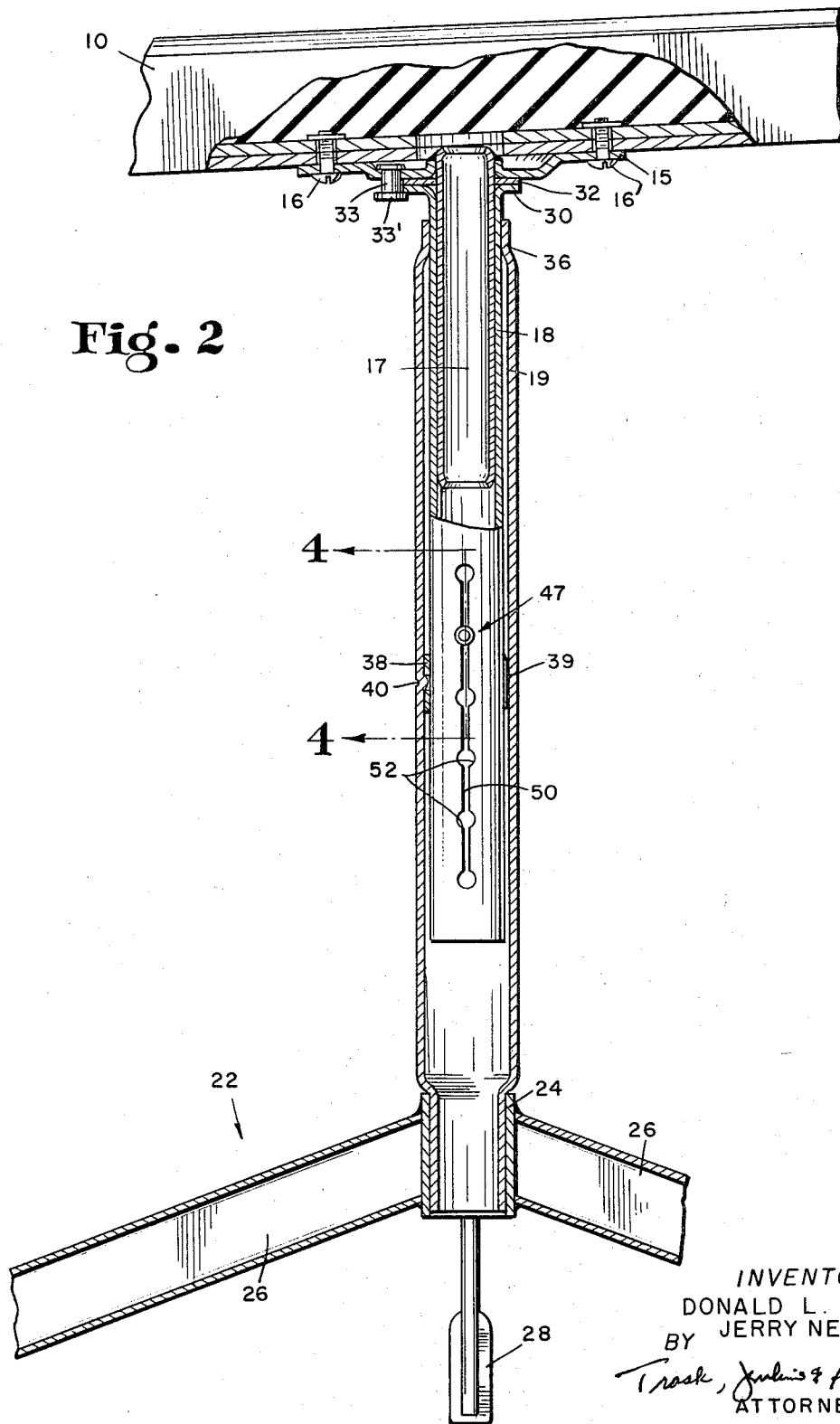
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2 Sheets-Sheet 2

Fig. 2



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1

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ABSTRACT OF THE DISCLOSURE

A vertically adjustable chair having a seat carried on an inner support vertically slidable in an outer support upon which a ground engageable base is mounted. Angularly spaced slots provided with vertically spaced abutments are provided in the inner support and a pair of openings are provided in the outer support. A pair of locking members are carried in the inner support and are releasably engageable with the vertically spaced abutments in the inner support and the openings in the outer support for releasably locking the inner support and thus the seat in the desired position of adjustment.

This invention relates to a chair, and more particularly to a vertically adjustable chair.

It is an object of the invention to provide a chair having a vertically adjustable seat, which can be quickly and easily adjusted into a plurality of positions, which can be releasably locked in the desired position of adjustment, and which will permit rotation of the seat in any of its positions of adjustment. It is a further object of the invention to provide such a chair which will be of attractive appearance yet prove sturdy and durable in use.

In accordance with one form of the invention, there is provided a chair comprising a first support member mounted on a ground-engageable base. A second support member is vertically slidable in said first support member and projects upwardly therefrom to rotatably support the chair seat which is vertically movable with said second support member. Locking means are carried in said first and second support members and are releasably engageable with vertically spaced abutments formed in said second support member for releasably locking said second support member, and thus the seat, in the desired position of vertical adjustment, while permitting the seat to be rotated with respect to said first and second support members.

Other objects and features of the invention will become more apparent from the more detailed description which follows and from the accompanying drawings, in which:

FIG. 1 is a front elevation of a chair embodying the invention;

FIG. 2 is an enlarged fragmentary vertical section taken on the line 2—2 of FIG. 1;

FIG. 3 is an enlarged horizontal section taken on the line 3—3 of FIG. 1; and

FIG. 4 is an enlarged vertical section taken on the line 4—4 of FIG. 2.

As shown in the drawings, the chair comprises a seat 10 connected at its rear edge to an upwardly projecting back rest 14. A bracket 15 is mounted on the underside of the seat as by fasteners 16 and is connected to a downwardly projecting post 17. Said post is rotatably carried in a support assembly comprising inner and outer support tubes 18 and 19 mounted on a ground-engageable base 22. As shown, said base, which is connected to the lower end of tube 19, comprises a collar 24 mounted on the lower end of said tube and connected to a plurality of downward projecting legs 26 having anti-skid caps 28 mounted on their outer ends.

As shown in FIG. 2, the upper end of tube 18 projects

2

above tube 19 and receives the seat bracket post 17. An outwardly projecting flange 30 is formed on the upper end of tube 18, and a bearing 32 is interposed between said flange and the seat bracket 15 to thus rotatably support said seat on the support assembly. A pin 33 is mounted in the seat bracket 15 and is provided with a head 33' underlying the marginal edge of flange 30 to interconnect seat 10 and tube 18 while permitting relative rotational movement therebetween.

Tube 18 is vertically slidable with respect to tube 19 for adjusting the vertical positioning of the seat. As shown in FIG. 2, the upper end of tube 19 is necked-down, as at 36, to provide a bearing support for tube 18 adjacent its upper end, while bearing support for the lower portion of tube 18 is provided by a collar 38 interposed between the pair of tubes. Said collar is split, as at 39, to facilitate its insertion into the tube 19, and it is fixedly retained in said tube by inwardly projecting dimples 40 received in openings 41 formed in the collar. Thus, the upper end 36 of tube 19 and the collar 38 act in combination to provide axially spaced bearing surfaces for slidably supporting tube 18 within tube 19.

In order to releasably lock tube 18, and thus seat 10, in the desired position of vertical adjustment, there is provided a locking assembly best illustrated in FIGS. 3 and 4. As shown, said locking assembly comprises a transverse sleeve 44 mounted in the tube 18 and carrying a coil spring 46. The opposed ends of said spring bear against a pair of shouldered locking buttons 47 each comprising an inner larger diameter base 48 and a smaller diameter neck 49. The necks 49 are slidably carried in a pair of diametrically opposed, axially extending slots 50 in tube 18 and a pair of diametrically opposed openings 51 formed in tube 19 above the collar 38. Pluralities of aligned, axially spaced abutments 52 engageable with the button bases 48 are formed along the slots 50. As shown in FIG. 3, the abutments 52 are only slightly larger than the bases 48 of buttons 47 and the slots 50 and openings 51 are only slightly wider than the button necks 49 and not as wide as said bases. Thus, with the buttons 47 biased outwardly under the action of spring 46, their bases 48 register with and engage the desired abutments 52 in the tube 18 and their necks 49 project outwardly through the tube openings 51 to lock tube 18 and seat 10 in a fixed vertical position. To adjust the positioning of said tube and seat, it is merely necessary to push the buttons 47 inwardly to compress spring 46 and disengage the bases 48 from the abutments 52, whereupon tube 18 and seat 10 can be moved vertically into the desired position of adjustment. During such vertical movement, said tube will be guided by collar 38 and the upper necked portion 36 of tube 19. When the seat has been moved into the desired vertical position, the inward pressure on buttons 47 is released, and the spring 46 will cause the button bases 48 to move outwardly into register with the pair of aligned abutments 52 for thus releasably locking the seat in the desired position of vertical adjustment.

We claim:

1. A chair, comprising a first support member, a ground-engageable base mounted on said first support member, a second support member vertically slidable in said first support member, a seat operatively connected to said second support member for movement therewith, said second support member having a pair of arcuately spaced slots provided with vertically spaced abutments therealong and said first support member having a pair of openings formed therein, a pair of buttons slidably received in said slots and first support member openings, locking means on said buttons engageable with said abutments for releasably locking said second support member against vertical and rotational movement with re-

spect to said first support member, and means biasing said locking means into engagement with said abutments.

2. The invention as set forth in claim 1 with the addition that said biasing means comprises a coil spring, and said spring and buttons are carried in a transversely extending sleeve in said second support member.

3. The invention as set forth in claim 1 in which said seat is rotatably interconnected to said second support member.

4. A chair, comprising a first support member, a ground-engageable base mounted on said first support member, a second support member vertically slidable in said first support member, a seat, a bracket on said seat rotatably supported in the upper end of said second support member and having a post rotatably received therein, means interconnecting said bracket to said second support member for vertical movement therewith, said second support member having a pair of arcuately spaced slots provided with vertically spaced abutments therealong and said first support member having a pair of openings formed therein, a pair of buttons slidably received in said slots and first support member openings, locking means on said buttons engageable with said abutments for releasably locking said second support member against rotational and vertical movement with respect to said first support member, and means biasing said locking means into engagement with said abutments.

5. The invention as set forth in claim 4 with the addition that said second support member has a flange at its upper end to support said seat bracket, bearing means are interposed between said flange and bracket, and said means interconnecting said bracket, said second support member comprises a member connected to said bracket and underlying the marginal edge of said flange.

6. A chair, comprising a first support member, a ground-engageable base mounted on said first support member, a second support member vertically slidable in said first support member, a seat operatively connected to said second support member for movement therewith, said second support member having a pair of arcuately spaced slots provided with vertically spaced abutments therealong and said first support member having a pair of openings formed therein, a pair of buttons slidably received in said slots and first support member openings, a pair of buttons having necks slidably received in said slots and first support openings and bases engageable with said abutments for releasably locking said second support member against rotational and vertical movement with respect to said first support member, and means urging

said buttons to move into a position to dispose said bases in engagement with said abutments.

7. The invention as set forth in claim 6 in which said slots and first support member openings have widths greater than said button necks and less than said button bases.

8. A chair, comprising a first support tube, a ground-engageable base mounted on said first tube, a second support tube vertically slidable in said first tube, means at the upper end of said first tube providing a first bearing support for said second tube, a collar interposed between said first and second tubes adjacent the lower end of said first tube providing a second bearing support for said second tube, said second tube having a pair of arcuately spaced slots provided with vertically spaced abutments and said first tube having a pair of openings formed therein, a pair of buttons slidably received in said slots and first tube openings, locking means on said buttons engageable with said abutments for releasably locking said second tube against rotational and vertical movement with respect to said first support tube, and means biasing said locking means into engagement with said abutments.

9. A chair, comprising a first support member and a second support member vertically slidable therein, a ground-engageable base mounted on the lower end of one of said support members, a seat interconnected to the upper end of the other of said support members, said second support member having arcuately spaced slots provided with spaced abutments formed therealong, said first support member having openings formed therein in alignment with said slots, and locking means slidably carried in said slots and openings and engageable with said abutments for releasably locking said second support member against rotational and vertical movement with respect to said first support member.

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