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G. D. WOOD

2,652,272

SEAT POST CONSTRUCTION FOR CHAIRS

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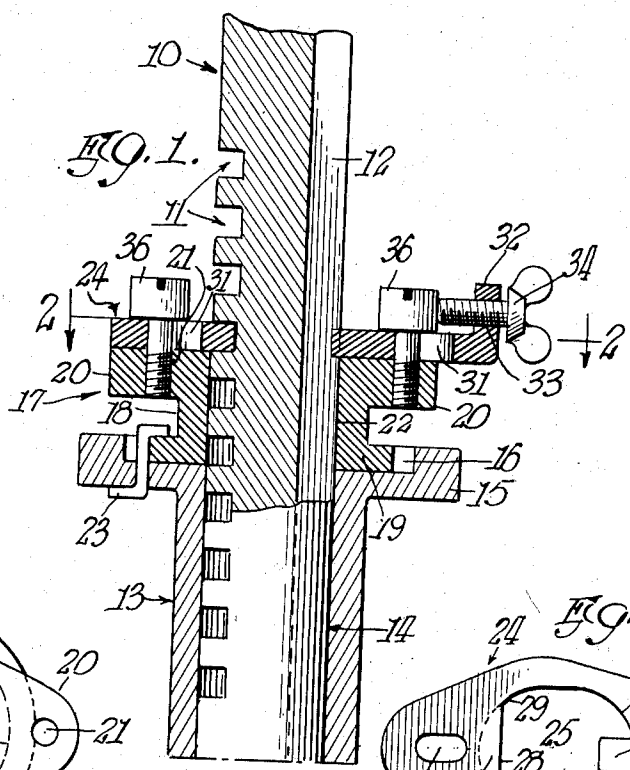


FIG. 1.

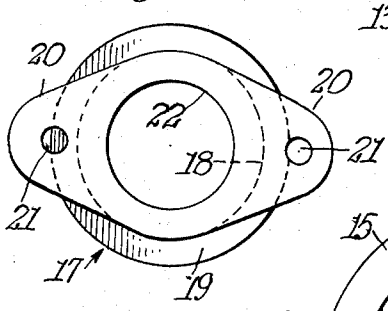


FIG. 4.

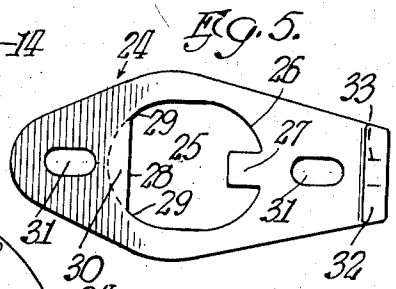


FIG. 5.

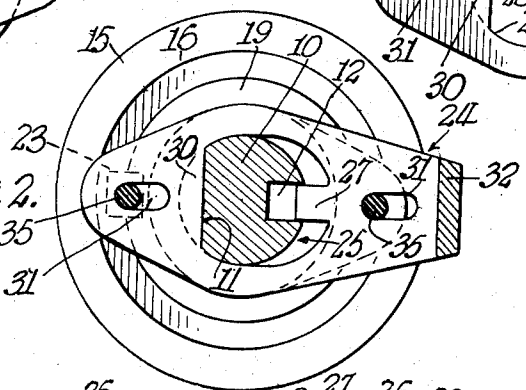


FIG. 2.

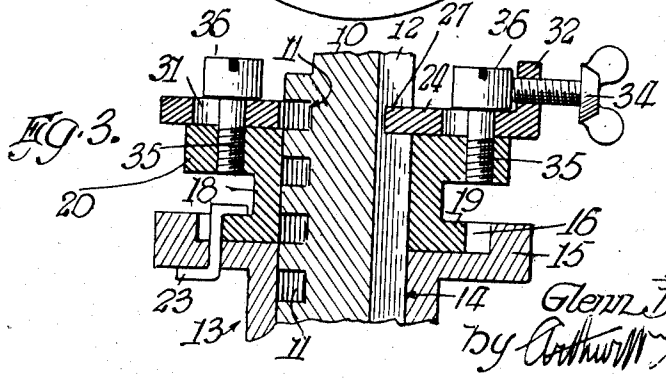


FIG. 3.

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SEAT POST CONSTRUCTION FOR CHAIRS

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7 Claims. (Cl. 287—58)

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This invention relates to improvements in seat post construction for chairs and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The invention is more especially concerned with a construction of this kind in which the seat post is mounted upon a supporting member forming a part of the base of the chair not only for a turning movement but also for vertical adjustment to raise or lower the seat height.

One of the objects of the present invention is to provide a construction of this kind in which the seat post is positively locked to its supporting member against accidental longitudinal movement from the adjusted position while permitting a free turning movement of the post relative to said supporting member.

Another object of the invention is to provide a construction of this kind in which the adjustment for the post relative to its supporting member may be quickly made by inexperienced persons and without the use of hand tools or the like.

A further object of the invention is to provide a construction of this kind that includes a collar which turns with a thrust bearing engagement upon the supporting member and which carries a locking member having a limited guided movement on the collar transversely of the post, which locking member may be positively moved in that direction that locks the locking member to a selected recess in the post providing the desired seat height.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawing:

Fig. 1 is a vertical sectional view through the improved seat post construction with the parts in a position permitting the seat post and an associated collar to turn freely upon the post supporting member of the base while positively preventing longitudinal movement of the post relative to said member.

Fig. 2 is a horizontal sectional view through the improved construction as taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1 with certain of the parts in a position permitting a longitudinal adjustment of the post relative to its supporting member forming a part of the base of a chair.

Fig. 4 is a plan view of a certain collar employed in the improved seat post construction and which will be more fully described later.

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Fig. 5 is a plan view of a certain locking member employed in the improved construction for locking the seat post to the collar of Fig. 4 and for unlocking the same therefrom, and which will be more fully described later.

Referring now in detail to that embodiment of the invention, 10 indicates as a whole the seat post which supports a seat (not shown) at its top end in any conventional manner. This post, which is made from a piece of cylindrical shafting, is provided in one side for a desired part of its length with longitudinally spaced recesses 11 and is provided in its opposite side with a longitudinal groove 12 for a desired part of its length, beginning at the bottom thereof. This groove has a depth greater than that of the recesses 11.

13 indicates a tubular sleeve-like post supporting member forming a part on the upper end of the base (not shown) of a chair. This member 13 has a longitudinal bore 14 therein in which the post has a good practical fit so as to turn therein without wobbling. At the upper end of the member 13 is a radial flange 15 and in the top face of said flange is a shallow recess 16.

17 indicates a collar that includes a short cylindrical body 18 having a radial flange 19 at the bottom and a pair of oppositely disposed ears 20 at the top and in each ear is a threaded opening 21. Axially in this collar is a bore 22 of the same diameter as the bore 14 in the member 13 so as also to receive the post 10 with a practical fit. The flange 19 has a thrust bearing turning engagement upon the upper face of the recess 16 and a clip 23 carried by the flange 15 extends up through the same to be bent at its top end to overhang the flange 19 of the collar and holds the collar against longitudinal upward displacement relative to said flange.

The top surface of the collar, including its ears 20 is flat and engaged thereon is a locking plate 24 which best appears in Fig. 5. This plate is elongated in one direction and in the mid portion thereof is an opening 25 of special shape. It has a width approximating the diameter of the post 10, a length greater than that diameter, and a thickness approximating the longitudinal extent of each recess 11. One end 26 of said opening is made on an arc having the radius of the post and projecting inwardly from said end is a tongue 27 having a width approximating that of the groove 12 in the post, but having a length less than the depth of said groove. The other end 28 of said opening is substantially straight and it meets portions 29 of said opening 25, which portions have the same radius as that of the end 26.

The straight end 28 of the opening is spaced from the axis of the end portion 29 of the opening the same distance that the inner ends of the recesses 11 are spaced from the axis of the post. This leaves a portion 30 of the plate that may be entered into a selected recess 11.

Said plate member 24 is also provided with longitudinal slots 31—31 that match up with the threaded openings 21 in the collar 17 and at that end of the plate associated with the plate is an upturned flange 32 in which is a threaded hole 33 that is aligned with the slots 31. A wing bolt 34 is operatively engaged in said hole 33.

The locking plate 24 is so secured to the top surface of the collar 17 that while it may be moved a limited distance in one direction on said surface, it cannot be displaced therefrom in the direction of the axis of the post. To so secure the plate to the collar, I provide a pair of screws 35, each having a shank that may be passed through an associated locking plate slot 31 so as to have a threaded engagement in its associated opening 21 in the ears 20 of the collar. Each screw has an enlarged head 36 that engages the top surface of the plate and overhangs margins of the slots 31 therein. Thus the screws, in connection with the slots 31, provide a limited guided movement for the plate on the collar, this movement being of such extent that the part 30 of the plate may be moved fully into the selected recess, as appears in Fig. 2, without removing the tongue 27 of the plate from the groove 12 in the post. This is the locking position for the plate and it is afforded by turning the wing bolt 34 in one direction and as its free end engages the head 36 of the adjacent screw 35 this draws the locking plate into the position shown in Figs. 1 and 2. At this time the left hand ends of the slots 31 will engage the screws 35.

Should it be desired to change the seat height position of the post, it is first unlocked from the collar 17 by turning the wing bolt 34 in the other direction so that it moves away from the head 36 of the adjacent bolt 35, which it before engaged, and this provides a clearance which permits the plate 24 to be moved in the other direction within the limits afforded by the slots 31 and screws 35. In this position, which is shown in Fig. 3, the tongue 27 moves further into the groove 12 and the part 30 of said plate moves out of the recess in said post, which it previously occupied. With the parts in this position the post may be raised or lowered with respect to the collar to bring the newly selected recess 11 in line with the locking plate 24. At this time, as the tongue 27 is engaged in the groove 12 in the post, the post cannot turn relatively to the locking plate and collar. Upon turning the wing bolt 34 in the first direction, the parts are returned to the position appearing in Figs. 1 and 2, wherein the post is held against longitudinal movement, but it may, with the plate and collar, turn freely relatively to the supporting member.

I claim as my invention:

1. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member having a limited sliding guided movement on said collar transversely of the axis of the post and through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member and said collar to the post, coacting means on said locking member and on the opposite side of the post for preventing a relative turning movement between said collar and said post, and means carried by said locking member and adapted to be engaged with a part fixed with respect to the collar to move the locking member in the proper direction on the collar to engage said part of the locking member in said selected recess in the post.

2. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member having a limited sliding guided movement on said collar transversely of the axis of the post and through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member and said collar to the post, the post having a longitudinal groove in its opposite side and said locking member having a tongue engaged in said groove for preventing a relative turning movement between said collar and post, and means carried by said locking member and adapted to be engaged with a part fixed with respect to the collar to move said locking member in the proper direction on the collar to engage said part of the locking member in said selected recess in the post.

3. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member having a limited sliding guided movement on said collar transversely of the axis of said post and through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member to the post, means carried by said collar and engaged with the top surface of the locking member for holding the same against an upward separation from the collar, coacting means on said locking member and on the opposite side of the post preventing a relative turning movement between said member and said post, and means carried by said lock-

ing member and adapted to be engaged with said means on said collar and operative to move the locking member in the proper direction on the collar to engage said part of the locking member in said selected recess in the post.

4. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member engaged on said collar through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member to the post, coacting means on said collar and locking member respectively providing a pin and slot limited guided movement of said locking member on the collar as well as for holding the member down upon the collar in the movement of said member transversely of the post between locked and unlocked positions for the post, coacting means on said locking member and on opposite sides of said post preventing a relative turning movement between said member and said post, and means carried by said locking member and operable to move said locking member on the collar in the proper direction to engage said part of said locking member in the selected one of the recesses in the post.

5. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member engaged on said collar and through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member to the post, coacting means on said collar and locking member respectively providing a pin and slot limited guided movement of the member on the collar as well as for holding the member down upon the collar in the movement of the member transversely of the collar between locked and unlocked positions for the post, the post having a longitudinal groove in its opposite side and said locking member having a tongue engaged in said groove for preventing a relative turning movement between said collar and said post, and means carried by said locking member and operable to engage a part of said pin and slot connection for moving said locking member on the collar in the proper direction to engage said part of said locking member in the selected one of the recesses in the post.

6. A seat post construction for chairs embodying therein a seat post supporting member having a vertical bearing opening therein, a seat post engaged in said opening for a turning as well as a longitudinal adjustable movement, a collar surrounding a part of said post and having a rotative thrust bearing engagement upon a part of said supporting member, coacting means on said member and collar respectively for holding the same against longitudinal separation, said post having a plurality of longitudinally spaced recesses in one side thereof, a locking member having a limited sliding guided movement on said collar transversely of the axis of the post and through which said post extends, a part of said locking member being adapted to be engaged in a selected recess in said one side of the post when said locking member is moved in one direction on said collar to lock said member and said collar to the post, the post having a longitudinal groove in its opposite side and said locking member having a tongue engaged in said groove for preventing a relative turning movement between said collar and post, and means carried by said locking member and adapted to be engaged with a part fixed with respect to the collar to move said locking member in the proper direction on the collar to engage said part of the locking member in said selected recess in the post, said groove having a depth greater than that of said recesses so that a part of said tongue will remain in said groove, whether said part of said locking plate is disposed in or out of a selected recess.

7. A locking member for a chair embodying therein a plate-like body having a length greater than its width and formed at a point between its ends with an opening therein of a predetermined width and having a length greater than said width, a tongue extending inwardly from one end of said opening, the other end of said opening being arranged perpendicular to the length of said opening, there being other and elongated openings of a lesser width in the body, one arranged outwardly from each end of the first mentioned opening, one end of said body being formed with a transverse upstanding portion in which is a threaded hole arranged in line with said other and elongated openings in the body.

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