

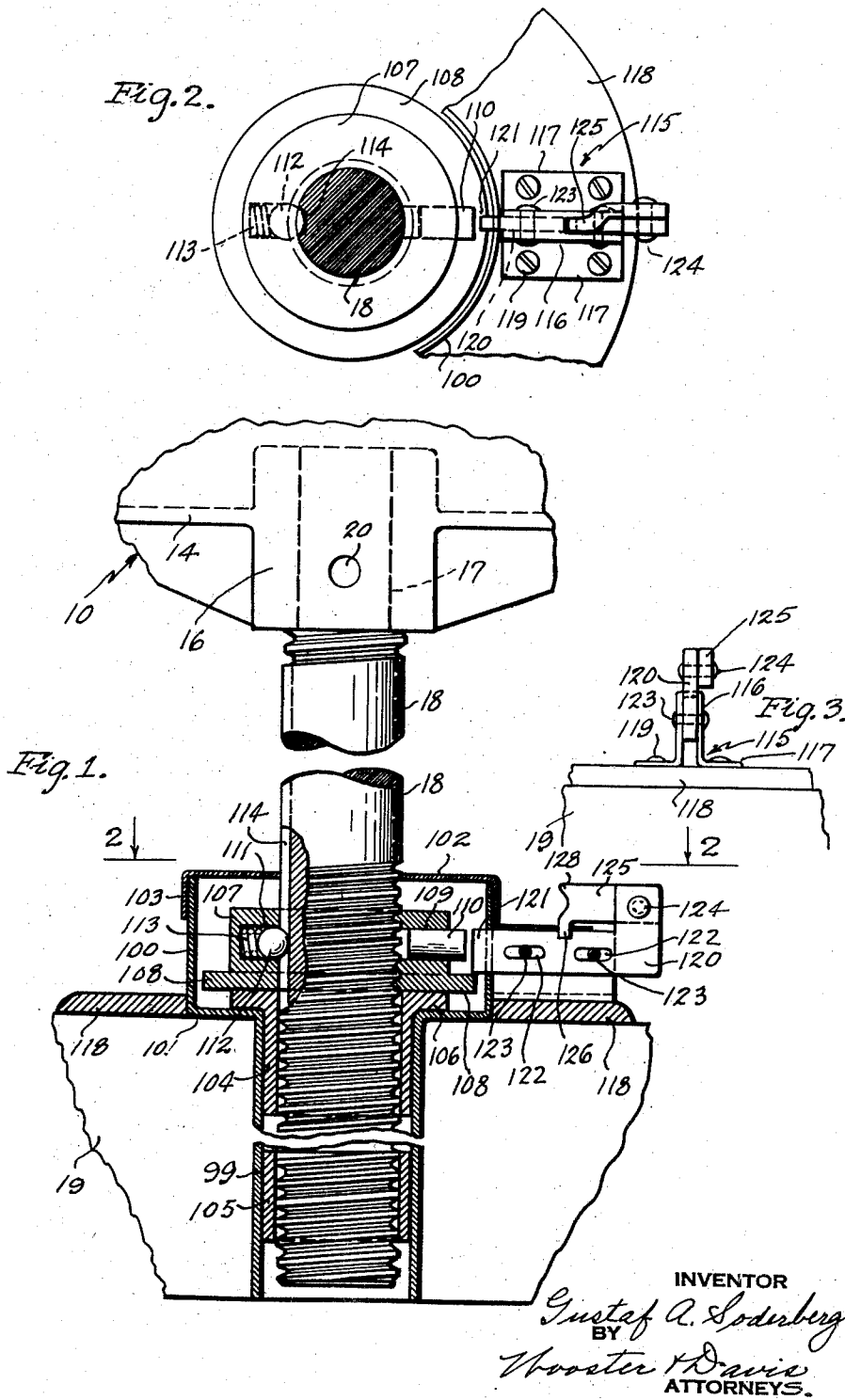
Nov. 12, 1957

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2,812,799

HEIGHT ADJUSTING SUPPORT FOR SWIVEL CHAIRS

Original Filed April 28, 1955



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HEIGHT ADJUSTING SUPPORT FOR SWIVEL CHAIRS

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Original application April 28, 1955, Serial No. 504,477, now Patent No. 2,784,767, dated March 12, 1957. Divided and this application October 24, 1956, Serial No. 618,059

5 Claims. (Cl. 155—93)

This invention relates to a seat support for a swivel type chair, and has for an object to provide a simple and improved means whereby the height of the chair seat may be readily and easily adjusted, and after adjustment the chair may be used without the swivelling or turning operation of the seat affecting its height above the floor.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood the invention is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In this drawing:

Fig. 1 is a partial elevation and partial vertical section for the height adjusting means for the chair seat;

Fig. 2 is a transverse section substantially on line 2—2 of Fig. 1 with the cover for the supporting hub removed; and

Fig. 3 is an end view of the release looking from the right of Fig. 1.

This application is a division of my prior application Serial No. 504,477, filed April 28, 1955, now Patent No. 2,784,767 of March 12, 1957.

This support and adjusting means comprises a body member 10 extending transversely under the seat (not shown) and forming a support for this seat. This body member or support may be of different forms, but in the form shown includes a transverse bottom wall 14, and at the center of the body member has a downwardly extending lug or extension 16 having a socket 17 to receive the upper reduced end of the screw post 18 for supporting the chair seat and back (not shown) on the usual type of base support or feet 19. This body member or support 10 may be secured to the upper end of this post by any suitable means such, for example, as the transverse pin 20. Any suitable or usual type of base or supporting legs is employed, the top or upper portion of which is partially shown at 19 provided with an opening in which is seated a tubular hub 99 provided with an enlarged hollow head portion 100, thus providing a laterally extending flange or shoulder 101 seating on the top of the base 19. This hollow head is open at the top but is closed by a cover or closure 102 having side walls 103 telescoping with the head 10. Mounted within this tubular hub are upper and lower bearings 104 and 105 respectively for the screw post 18. These bearings can be a tight fit in the sleeve 99, and the upper bearing is provided with a laterally extending flange 106 at its upper end resting on the offset 101 of the tubular hub. Resting on the top of this flange 106, and therefore having a supporting thrust bearing thereon, is a nut 107 having threaded engagement with the screw post 18, and therefore by rotating this nut the height of the post in the base 19 may be adjusted, or, more correctly, if the nut is held stationary and the post 18 is rotated, the height of the chair seat

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may be adjusted. This nut is provided with an outwardly extending flange 108 at its lower end, and the nut has a laterally extending opening 109 in one side wall in which is mounted the stop pin 110 having its free end projecting outwardly a certain distance beyond the outer wall of the nut. This pin may be a drive or force fit in the nut. At the opposite side of the nut it is provided with a recess 111 extending outwardly from the threaded opening through the nut, and in this recess is a steel ball 112 in back of which is a spring 113 tending to force this ball inwardly and normally keep it seated in a longitudinally extending channel or groove 114 in one side of the screw post 18. This spring-pressed ball cooperating with this groove or channel provides a yieldable connection between the post 18 and the nut 107, which will normally cause the nut to rotate with the post unless it is held stationary by some other means, and thus the nut will provide a supporting thrust bearing for the post and will rotatably support the post and the chair seat with its control carried thereby on the lower flange bearing 106 and on the base 19. While the nut is free to turn, rotation of the chair seat and therefore the post 18 will rotate the nut and therefore permit swivel or turning movements of the chair seat without varying the height of the seat.

However, means is provided whereby the nut may be held stationary so that turning movements of the chair and therefore the post 18 may be employed to adjust the height of the chair above the base 19, and therefore, of course the floor. For this purpose there is mounted on the base 19 at one side of the head 100 of the tubular hub a bracket 115, in this case comprising a strip of metal having its intermediate portion 116 bent to substantially inverted U shape and laterally extending flanges forming feet 117 resting on the top of the flat metal ring 118 on top of the base 19, and the bracket may be secured to this ring by any suitable means such as the screws 119. Mounted in this bracket between the side walls 116 is a slide 120 having its inner end 121 projecting through an opening in the side wall of the head 100. This slide is mounted for lateral in and out movements in the bracket 115. In the arrangement shown it is provided with a pair of elongated slots 122 through which are transversely extending guide pins 123. Pivoted to the outer head portion of the slide 120 at 124 is a lock finger or catch 125 having a downwardly extending lug 126 at its free end adapted to seat in an opening 127 in the top wall of the bracket 115 to hold the slide 120 in the normal position shown in Figs. 1 and 2, which is an intermediate position for this slide, with its inner end 121 overlapping the top of the flange 108 on the nut 107, as shown. In this position this slide cooperates with this flange to prevent the nut 107 being lifted off its bearing support 106. Therefore, this provides a connection between the chair seat and the base to prevent lifting the chair seat from the base.

The catch 125 has an overhanging finger grip 128 at its free end by which it may be lifted to remove the lug 128 from the opening 127. This will release the slide 120 and permit it to be shifted either inwardly or outwardly from the position shown in Fig. 1. If it is shifted outwardly, or to the right as viewed in this figure, this movement will shift its inner end 121 away from its overhanging position with respect to the flange 108 on the nut 107 and therefore will release it and permit lifting of the chair seat and the supporting control carried by the post 18, separating them from the base 19. If the slide 120 is shifted inwardly from the position of Fig. 1, its inner end 121 may be shifted inwardly beyond the free end of the stop pin 110. Then if the chair seat and the post 18 are rotated, this pin 110 will engage the inner end 121 of the slide and hold the nut 107 against rotation. Then the

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spring-pressed ball 112 will yield and permit the chair seat and the post 18 to be rotated with respect to this stationary held nut and adjust the height of the chair seat either upwardly or downwardly, as desired. After the proper adjustment has been secured, shifting of the slide 120 back to its intermediate position will release the nut 107 and prevent relative turning movement between the post and this nut, and prevent further adjustment. Slide 120, however, being in this position, with its inner end overhanging the flange 108, will prevent separation of the nut post and therefore the chair seat from the base. This provides a simple and effective means for connecting the chair seat to the base, and one which may be readily manipulated with a simple operation to permit adjustment of the height of the chair seat, and then after the proper adjustment has been secured, may be easily reset to permit swivelling of the chair seat without causing height adjustment, and at the same time will secure the post and the seat and other construction carried thereby to the base.

Having thus set forth the nature of my invention, I claim:

1. In a swivel chair of the character described, a supporting base, a support for a chair seat and a screw post connected to and supporting said support, an upright tubular hub mounted in the base, a bearing member in the hub for said post, a nut threaded on the post and supported on said member for free turning movement with the post, said nut provided with a lateral flange, yieldable means connecting the nut to the post to turn therewith, a movable element mounted on the base extending over the flange to secure the post to the base and shiftable away from the flange to release the post, and a stop means on the nut adapted to engage said movable element when in its inner position to arrest turning movement of the nut for adjustment on the post by turning movement of the post.

2. In a chair of the character described, a support for a chair seat including an upright screw post, a supporting base having a bearing for the post to permit turning movement of the post in the base, a nut threaded on the post, a bearing for the nut in the base permitting the nut

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to turn with the post, yieldable means connecting the nut to turn with the post, said nut having a lateral flange, a slide mounted on the base and movable to and from a position over the flange to connect the post to the base and release it, and a stop on the nut adapted to cooperate with the slide to arrest turning movement of the nut to adjust it along the post by turning movement of the post.

3. In a chair of the character described, a support for a chair seat including an upright screw post, a supporting base having a bearing for the post to permit turning movement of the post in the base, a nut threaded on the post, a bearing for the nut in the base permitting the nut to turn with the post, yieldable means connecting the nut to turn with the post, said nut having a lateral flange, a slide mounted on the base for movement toward and from the nut, the inner end of the slide adapted to be positioned over the flange to prevent removal of the post from the base and movable away from the flange to release the post, a stop projecting laterally from the nut above the flange, said slide being shiftable inwardly to engage the stop and hold the nut against turning with the post, and releasable means for retaining the slide in its different positions.

4. The device of claim 1 in which the yieldable means connecting the nut with the post to turn therewith comprises a longitudinal channel in one side of the post and a spring-pressed ball mounted in the nut and yieldably held in the channel by the spring.

5. The device of claim 2 in which the slide is mounted for movement to and from a position in the path of movement of the stop on the nut, and there is a releasable catch means to normally retain the slide in a position out of the path of movement of the stop and in a position to extend over the flange.

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