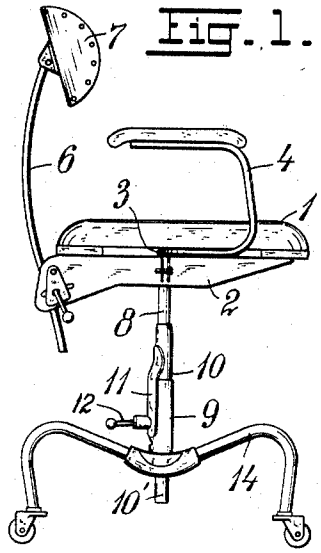
Dec. 23, 1958 F. FOLKNER 2,865,430

ARRANGEMENT IN DISMOUNTABLE OFFICE SWIVEL CHAIRS

Filed Jan. 22, 1957

Fig. 1.



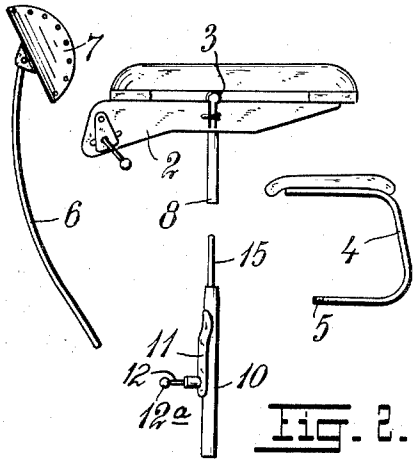


Fig. 2.

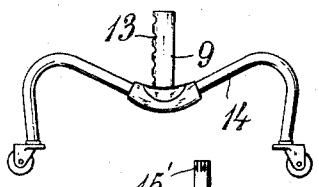


Fig. 4.

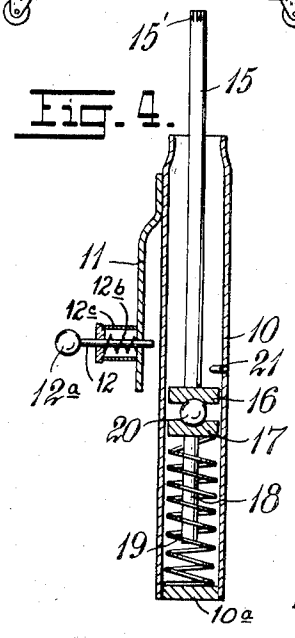
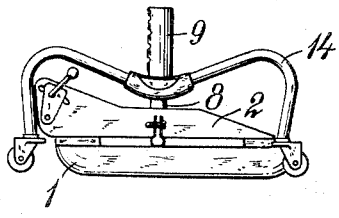


Fig. 3.



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ARRANGEMENT IN DISMOUNTABLE OFFICE SWIVEL CHAIRS

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5 Claims. (Cl. 155—95)

The present invention relates to a swivel chair and has for its object to provide such a chair which can be dismantled easily and quickly into a number of separate parts capable of being stowed or re-packed in such a manner as to occupy a minimum of space, for transport or storage purposes, but which can also be re-assembled quickly and easily by unskilled persons.

Another object of the invention is to provide a chair having the above characteristics which is of the kind comprising a spider supported sleeve and a seat provided with a central journalling shaft, the connection between said seat and the spider supported sleeve being resilient and adjustable in height and such that said seat is also rotatable in relation to the spider. Such chair is further preferably provided with an adjustable back rest and arm rests also. In the chair according to the invention a spider provided with a central journalling sleeve for a pivot shaft secured to the seat contains a spring device and a height adjustment device constructed as a separate closed unit, which when dismantled permits the seat and the spider to be stored with a minimum occupation of space by arranging the seat pivot in the journalling sleeve of the spider.

The invention will be better understood from the following description of one particular embodiment, by way of example, with reference to the accompanying drawings, wherein:

Figure 1 is a side view of a swivel chair according to the invention,

Figure 2 is a similar view with the parts separated,

Figure 3 is a side view showing the seat and the spider in stowed position, and

Figure 4 is a cross section on an enlarged scale through the springing and height adjusting means which also constitutes the means for permitting rotation of the seat in the horizontal plane.

The chair in the illustrated embodiment comprises a seat 1 which is secured to supporting cross bearers 2 and 3 of suitable sheet material extending from front to back and laterally, respectively. Secured substantially centrally between the cross-bearers 2 and 3 is a downwardly extending tubular seat pivot 8. By means of a part shown in Figure 4 the pivot 8 is connected with a spider 14, which is provided with a central journalling sleeve 9 and preferably mounted on casters as shown.

The chair is provided in a conventional manner with an adjustable back rest 6, 7 and arm rests 4.

The cross-bearers 2, 3 are substantially U-shaped in cross-section and provided with an oval cavity, as clearly shown in Figure 2 with respect to the laterally extending cross-bearer 3. This cavity of the cross-bearer 3 may be narrowed by means of a screw so that the lower end 5 of the arm rest 4, which is bent laterally inward, may be introduced in the cavity and will be held tightly so as securely to support the arm rest. By loosening of said screw it is possible easily to pull out the arm rest and thereby separate it from the seat. The back rest

6, 7 may be raised or lowered or removed from its support in known manner.

The connection between the seat 1 and the spider 14 comprises an intermediate unit shown on an enlarged scale in Figure 4. This unit consists of a sleeve 10 closed at its lower end by a plug 10*a*. At the opposite end of the sleeve 10 is secured a downwardly extending external arm 11 which at its upper end is welded to the sleeve 10 and near its lower end is provided with a locking pin 12 projecting into the space between the inside of the arm and the outer surface of the sleeve 10. The locking pin may be pulled out by means of a knob 12*a* against the action of a spring 12*b* located in a spring housing 12*c*.

A helical spring 19 is arranged inside the sleeve 10 and said spring abuts at one end against the plug 10*a* in the lower end of sleeve 10 and at its other end engages a disc 17 mounted at the upper end of a pin 18 extending between the convolutions of spring 19. The pin 18 is somewhat shorter than the spring 19 in its expanded state and thus serves as a means for restricting the compression of the spring, so that the latter cannot be fractured by being overloaded. The upper surface of the disc 17 is provided with a spherical recess in which is placed a steel ball 20, and resting on ball 20 is a corresponding disc 16 with a similar recess. An upwardly projecting spindle 15 extends from the disc 16. A stop pin 21 projects into the interior of sleeve 10 above disc 16 and prevents the parts located in the sleeve 10 from being removed therefrom. When the parts are assembled the tubelike seat pivot 8 is introduced in the sleeve 10, and the spindle 15 enters the inner cavity of the pivot 8. The spindle 15 is at its upper end provided with means for causing it to engage frictionally in the upper end of the tubular pivot 8. This can be achieved by making the spindle 15 tubular also, and slotting the upper end as illustrated at 15' in Figure 4, the upper end of the tubular pivot 8 then being constructed correspondingly to provide a convenient friction securing means between the upper ends of the spindle 15 and pivot 8 so that the chair may be lifted by the seat without the lower parts falling out under their own weight.

The lower end of the sleeve 10 is adapted to be placed in the sleeve 9, secured to the spider 14, whereupon the locking pin 12 is selectively engaged in one of a series of vertically spaced apertures 13 in the sleeve 9 according to the desired adjusted height for the chair.

When the parts of the chair are dismantled the seat 1 and the spider 14 may be stowed in the manner shown in Figure 3, wherein the seat is inverted with the pivot 8 being directed upwards and the spider 14 is arranged on the seat in such a way that the pivot 8 extends upwardly into the sleeve 9, as shown. Thus, the seat and spider may be stowed in a manner which gives a minimum height, and the other parts, that is, the sleeve 10, the arm rests 4 and the back rest 6, 7 may be stowed around the main parts, whereby the entire dismantled chair may be packed in a relatively small space.

In addition to providing for the convenient separation and assembling of the parts of the chair as above described, the described chair has a journalling arrangement embodied in the sleeve 10 which provides advantages over the previously known devices. The fact that the springing, rotation and height adjustment are effected by elements assembled in a closed separable unit has the advantage that no oil or grease can come into contact with the person who uses the chair. The lower part of the sleeve 10 is preferably filled with grease so that the parts of the chair are effectively lubricated. Besides providing a chair which is convenient for transport and storage, the invention also provides a chair which, in

mounted condition, provides a simple height adjustment and gives a pleasant springing, while at the same time, the rotation of the seat about a vertical axis can be effected easily and freely. The chair may be used with or without arm rests if desired since the removal and assembling of these parts can be carried out in a simple way. The connection between the back rest 6 and the back support itself may also be carried out in any known manner, whereby a quick separation and assembling of the parts can be simply achieved.

I claim:

1. A swivel chair comprising a seat having a pivot shaft depending therefrom, a spider having a central, vertically extending open-ended sleeve, a height adjustment device removably fitting in said sleeve and rotatably receiving said pivot shaft which is axially separable therefrom, and releasable cooperating means on said device and said sleeve for adjustably determining the vertical position of said device relative to said sleeve, the inner diameter of said sleeve being at least as large as the outer diameter of said pivot shaft so that, when said height adjustment device is removed from said sleeve and separated from said shaft, said seat can be disposed in inverted position below said spider with said shaft extending upwardly into said sleeve for storage in a relatively small space; said height adjustment device including a tubular member which is closed at its lower end and dimensioned to extend slidably into said sleeve, a helical spring in said tubular member and resting on said lower end of the latter, rotatable means supported by said spring, and a spindle carried by said rotatable means and projecting upwardly from said tubular member, said pivot shaft being hollow and opening downwardly to telescope into said tubular member around said spindle.

2. A swivel chair as in claim 1; further comprising means for preventing withdrawal of said spindle from said tubular member, and frictionally engageable means for holding said spindle in said hollow pivot shaft so that the chair can be lifted by its seat without inadvertently

separating said shaft from said height adjustment device.

3. A swivel chair as in claim 1; wherein said rotatable means includes lower and upper discs resting on said spring and secured to said spindle, respectively, said discs having central, spherical recesses in the confronting faces thereof, and a ball bearing between said discs and located in said recesses.

4. A swivel chair as in claim 3; further comprising a pin depending from said lower disc and surrounded by said helical spring, said pin having a length substantially less than the length of said helical spring in the unstressed condition of the latter, said pin being adapted to engage said lower end of the tubular member for preventing overloading of said spring.

5. A swivel chair as in claim 1; wherein said sleeve has a series of vertically spaced apart openings therein, and said releasable cooperating means for adjustably determining the vertical position of said device relative to said sleeve includes an arm extending vertically at the outside of said tubular member and secured to the latter only adjacent its upper end, said arm being spaced radially from said tubular member along a substantial portion of the length of the arm to extend downwardly at the outside of said sleeve when said tubular member is slidably received in said sleeve, and a locking pin carried by said arm and spring urged in the direction toward said tubular member to enter a selected one of said series of openings in said sleeve.

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