March 25, 1952 C. E. E. LUNDQUIST 2,590,718

ADJUSTABLE CHAIR BACK

Original Filed April 29, 1944

Fig. 1.

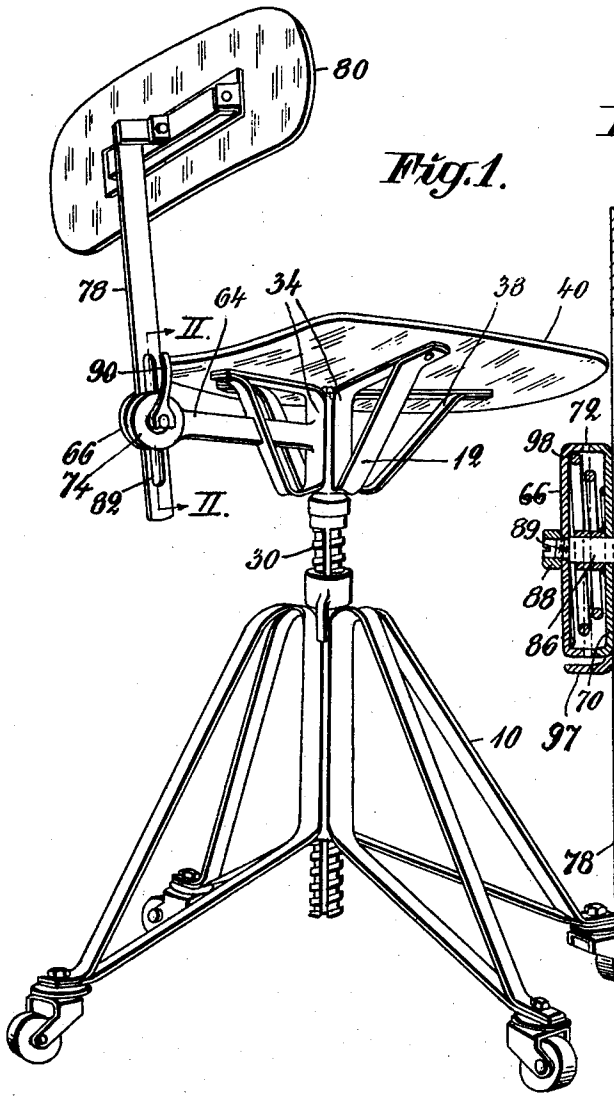



Fig. 2.

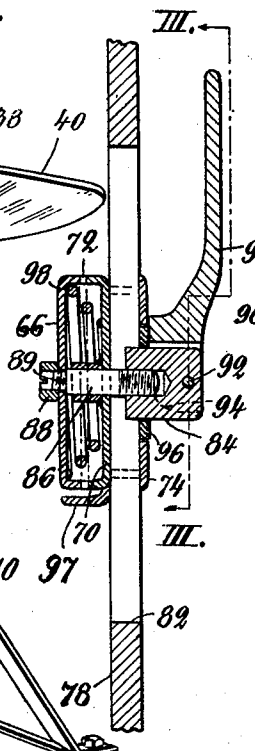
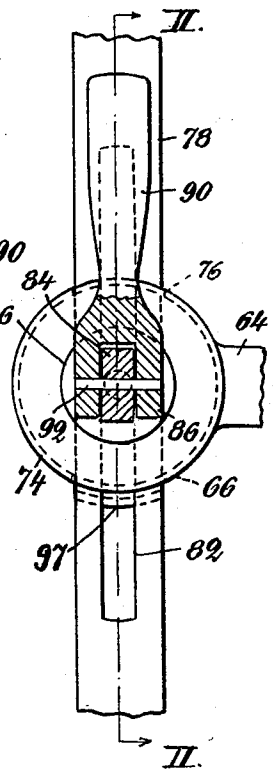



Fig. 3.

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Patented Mar. 25, 1952 2,590,718

# UNITED STATES PATENT OFFICE

2,590,718

## ADJUSTABLE CHAIR BACK

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Original application April 29, 1944, Serial No. 533,370. Divided and this application January 15, 1948, Serial No. 2,512. In Sweden May 12, 1943

3 Claims. (Cl. 155—157)

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This application is a division of my copending application Serial Number 533,370, filed April 29, 1944, now Patent 2,476,258 granted July 12, 1949.

The present invention relates to adjustable chairs having a frame, a seat supported thereby and means for connecting said seat with a chair back adjustably as to its height and angularity.

It is an object of the invention to provide connecting means of this kind adapted to perform the adjusting operation in a very easy and handy way.

A further object of the invention is to provide connecting means ensuring that the chair back when being adjusted is guided in an unfailing manner and after the adjustment effectively secured against displacement as to its height or angularity.

Further objects and advantages of the invention will be apparent from the following description considered in connection with the accompanying drawings, which form a part of this specification, and of which:

Fig. 1 is a perspective view of an office chair with an adjustable back constructed in accordance with the invention,

Fig. 2 shows on an enlarged scale the guiding and locking device for the adjustable back in section on the lines II—II of Figs. 1 and 3, and

Fig. 3 is a view, partly sectioned, on the line III—III of Fig. 2.

In the embodiment illustrated, the chair comprises a lower frame 10, the threaded tubular center of which is engaged by a spindle 30 carrying an upper frame 12 for the seat 40, which frame is freely rotatable on said spindle and consists of a central portion 34 and outwardly bent brace portions 36.

Extending through a slot in one of the said brace portions 38 is an arm 64, which is preferably rigidly connected with the central portion 34 of the same brace, for instance by welding. This arm carries on its other end a gear rim 66. Parallel to said gear rim is a clutch disk 70 welded to a hub and provided on its periphery with teeth 72 engaging the teeth of the gear rim 66. A guide element for a post 78, such as a cover 74, is connected to the clutch disk 70, said cover being provided with apertures 76 for the post, which latter carries a chair back 80. The post 78 is provided with a longitudinally extending slot 82 engaged by an element 84 of rectangular cross section. Screwed into this element is a bolt 86 extending through the hub of the disk 70 and through a central aperture of restricted diameter in the center of the gear

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rim 66. On the outer side of the gear rim 66, a nut 88 is screwed onto the end portion of the bolt 86, said end portion having a restricted diameter, so that the gear rim 66 is pressed between the nut and a shoulder 89 of the bolt. The bifurcated end portion of a handle 90 embraces the element 84 and is supported thereon by means of a pin 92. This bifurcated end portion is formed as an eccentric, the eccentric surface 94 of which bears on a disk 96, which, in turn, bears on the post 78. In the position shown in Figs. 2 and 3, the gear rim 70 is locked by the disk 66, that is to say, by turning the handle 90 upwards it moves the disk 70 to the left as viewed in Fig. 2 through the medium of the disk 96 and the post 78 in such a manner that the teeth of the two geared elements 66 and 70 engage each other against the action of the spring 98 located therebetween. At the same time, the eccentric surface 94 thus forces the disk 96 against the post 78 so as to hold it fast. By turning the handle 90 through 90° in a clockwise direction according to Fig. 2, the locking engagement between the geared elements 66 and 70 is released by the action of spring 98, which moves rim 66 to the left (Fig. 2), so that the post 78 may be adjusted to another angular position. This angular movement may be limited by means of a projection 97 on the disk 70, said projection being brought into contact with the arm 64 when the chair back 80 is lowered. By this shifting of the handle 90, the post 78 has also been released, so that the same may be moved in its longitudinal direction for the adjustment of the height of the chair back 80. By the fact that the handle 90, which is preferably directed upwardly for the purpose of facilitating an adjustment of the chair back in locked position, cooperates with the element 84 positively guided by the guide 82 of the post 78, the handle 90 will always take a position parallel to the post.

While one preferred embodiment of the invention has been described, it is to be understood that the same is for purpose of illustration only, and that the invention is not to be limited thereby, but its scope is to be determined by the appended claims.

I claim:

1. In an adjustable chair, a seat supporting frame, an arm secured to and extending rearwardly from said frame, a first gear member rigidly secured to said arm, a longitudinally slotted back supporting post, a second gear member on one side of said post and an apertured retaining member on the other side of said

post rigidly fixed to said second gear member to provide a guide for said post, said post being longitudinally slidable and non-rotatable relative to said guide, a pressure plate located in the aperture in said retaining member, and means for locking said post against movement relative to said arm comprising a locking element fixed to said first gear member and extending through said second gear member, the slot in said post and said pressure plate, and a handle pivoted on said locking member, said handle having a cam located to bear on said pressure plate to draw said gear members into locking engagement and to grip said post between said second gear member and said pressure plate.

2. Apparatus as set forth in claim 1, in which said guide includes a stop located to engage said arm to limit the rotative movement of said arm.

3. Apparatus as set forth in claim 1, in which said locking member includes a block non-rotatable in said slot, said handle being pivoted to said block to turn in a plane extending longitudinally of said post.



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## REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 369,143 | White | Aug. 30, 1887 |
| 1,860,096 | Headley | May 24, 1932 |
| 1,927,491 | Gabb | Sept. 19, 1933 |
| 2,137,335 | Gabb | Nov. 22, 1938 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 132,968 | Great Britain | Mar. 18, 1919 |