

H. A. ATWOOD.

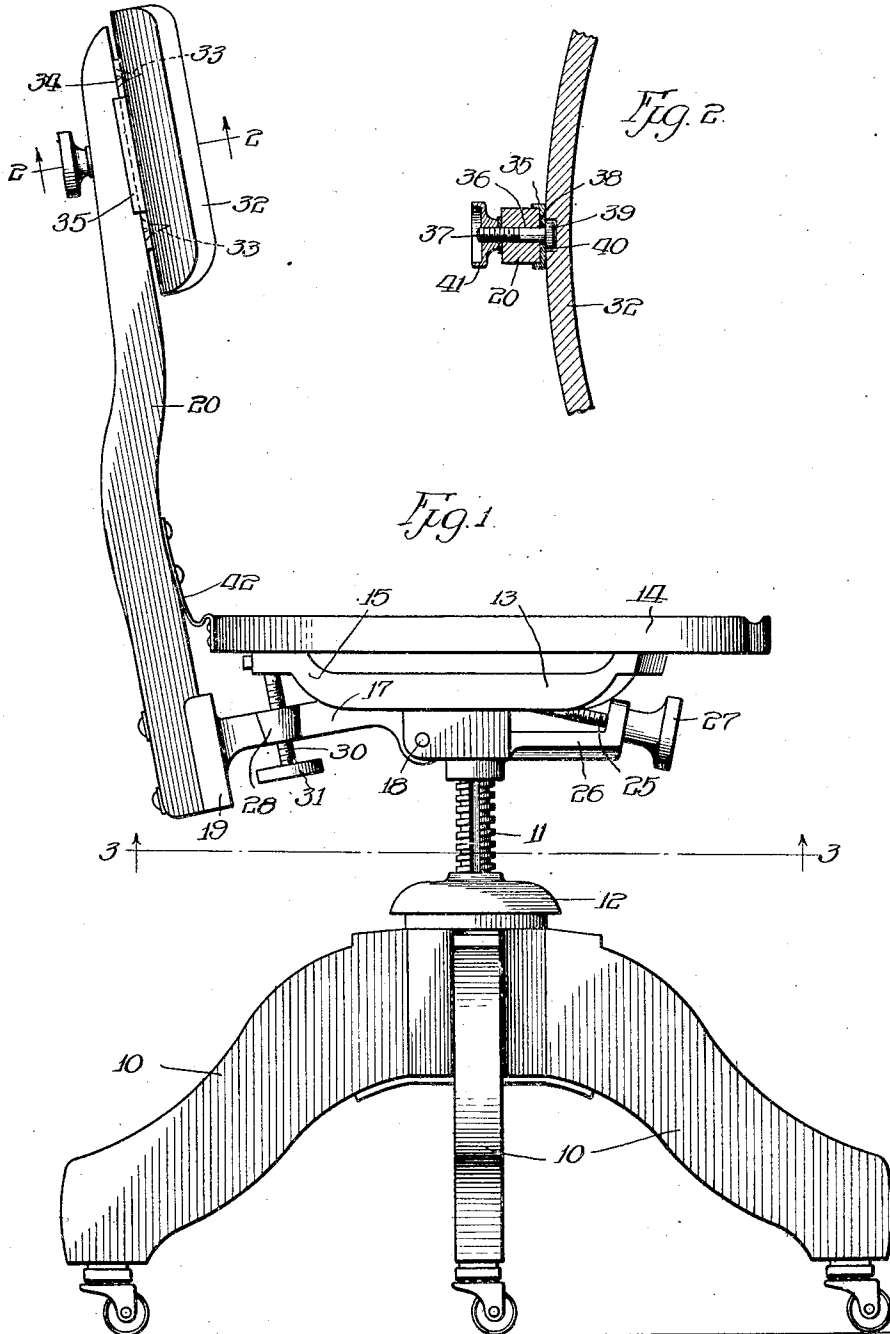
CHAIR.

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1,359,145.

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2 SHEETS—SHEET 1.



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CHAIR.

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2 SHEETS—SHEET 2.

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UNITED STATES PATENT OFFICE.

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CHAIR.

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To all whom it may concern:

Be it known that I, HARRY A. ATWOOD, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Chairs, of which the following is a specification.

My invention concerns improvements in chairs in general, but relates more particularly or especially to features of novelty and advantage in chairs with adjustable yielding backs such as are ordinarily used by stenographers when seated at the typewriter. One object of the invention is the production of a chair of this type in which the position of the back may be readily adjusted or regulated without modifying the spring tension imposed on the same, the adjustment being effected by an accessible regulating screw capable of manipulation by the occupant of the chair without changing her position. Another feature of the invention is the adjustment for the spring cushion or tension by means of a handle or nut in such position that it can be operated by the person seated in the chair. A still further element of the invention is the improved means for adjustably holding the back to the upright post or standard by which it is supported. Besides the accomplishment of these purposes, other salient features of the invention are simplicity in structure, economy in manufacture, accessibility of adjustable parts, and withal a construction of pleasing appearance.

To enable those skilled in this art to have a full and complete understanding of the invention and its various advantages, I have illustrated a preferred and desirable embodiment of the same in the accompanying drawings forming a part of this specification and throughout the various views of which like reference characters refer to the same parts.

In these drawings:

Figure 1 is a side elevation of the complete chair;

Fig. 2 is a horizontal section through the back on line 2—2 of Fig. 1;

Fig. 3 is a horizontal section on line 3—3 of Fig. 1, the parts being viewed in the direction indicated by the arrows; and

Fig. 4 is a fragmentary central vertical section on line 4—4 of Fig. 3.

Referring to these drawings, it will be

perceived that the improved chair comprises a suitable base composed of a plurality of legs 10, 10, an adjustable, threaded, vertical post or shaft 11, the position of which may be regulated by an adjusting nut 12 of usual construction, and a seat-frame on the top of the post having two, diverging, forwardly-extended arms 13, 13, fastened to the bottom of the seat 14, and a pair of shorter, diverging, rearwardly-extended arms 15, 15, likewise secured to the under face of the seat. These seat-supporting spider arms are connected together beneath the middle of the chair by a web or hub portion 16 into an aperture of which the upper end of the threaded shaft or post 11 is fitted.

The chair also includes a lever or arm 17 hinged or fulcrumed to the frame just to the rear of the post 11 on a cross-pin 18, such forward end of the lever or arm being bifurcated, as shown. This element 17 at its rear end is equipped with a pair of spaced, marginal flanges 19, 19, overlapping the opposite sides of an upright staff 20, the lower end portion of which is securely, permanently, and rigidly fastened to the end of the arm or lever by a pair of screws 21, 21, the threaded ends of which take into threaded holes in the enlarged end of the arm. As is clearly shown, the front bifurcated end portion of this hinged arm 17 has its two spaced parts cross-connected together by a bar portion 22 integral therewith and affording means for the attachment of the rear end of a coil-spring 23, the forward end of which engages the eye 24 of a threaded rod 25 which extends forwardly through a hole in the upwardly-directed end of an arm 26 integral with and projecting forwardly from the web or hub portion 16 of the main-frame. In front of such upturned arm end the threaded rod or shank is provided with a handle nut 27 by means of which the tension on the spring may be easily regulated by the occupant of the chair without shifting his or her position since such nut is quite accessible by reason of its location directly beneath the front portion of the seat.

Obviously, the action of this spring is to yieldingly rock or pull the staff 20 forwardly toward the seat, and, in order to limit such forward movement of the staff, I provide a thickened intermediate portion 28 of the horizontal arm or lever 17 with a threaded aperture 29 accommodating an al-

most vertical adjustable abutment or stop screw 30 equipped with a turning handle 31, the upper end of the screw bearing against a flat web 32 connecting together the end portions of the two rearwardly-extended seat-supporting arms 15, 15. It will be readily understood that the adjustment of the screw 30 determines the forward limit of travel of the staff 20 because the upper end of the screw performs the function of an adjustable abutment or stop, but the staff is free to swing rearwardly from such forward position under the cushioning and yielding restraint, however, of the coil-spring 23. Thus the degree of cushioning spring action on the staff may be determined or controlled by the handle 27 and the limit of forward swing of the staff regulated by screw 30, these two functions being capable, by reason of this construction, of independent control or regulation.

As is usual in chairs of this type or style, the back staff or standard 20 at its upper end carries an adjustable curved back piece 32, which has secured to its rear face, by screws 33, 33, a supporting member 34 with an intermediate or middle section 35 channel-shaped in cross-section, the flanges of which, as is shown in Figs. 1 and 2, overlap the opposite sides of staff or support 20, the latter having a hole 36 extended there-through for the accommodation of a threaded bolt 37 projecting forwardly through a vertical slot 38 in the part 35, its square or angular head 39 being seated in a vertical groove 40 cut in the rear face of the back 32. That portion of the bolt extended rearwardly of the staff is supplied with a handle-nut 41, which, under ordinary conditions, tightens the bolt-head against the member 34, holding the back in proper adjusted vertical position. When the nut is loosened, however, the adjustment or position of the back may be changed, tightening of the nut then holding the back securely in its new position. The groove in the back 32 by co-operation with the angular head of the bolt prevents the latter from turning, whereby the tightening and loosening of this bolt may be readily and easily accomplished by manipulation of the nut-handle.

In this structure there is no slotting of the wooden staff or standard 20 and hence the latter is not weakened by any such removal of a portion of its material. By countersinking the bolt head in the cavity 40 the two parts 20 and 32 may be brought close together with a minimum exposure of the supporting and adjusting device, thus preserving a neat and pleasing appearance of the parts.

If desired, in order to prevent garments from becoming caught between the back and seat, a strip of leather 42 may be fastened to those two elements, thus bridging the gap

and preventing the garments from entering the same.

The chair is adjusted in substantially the following manner, assuming that the desired height of the back 32 has been secured in the way indicated. The person is seated in the chair in normal working position and then by reaching under the seat and turning handle 31 the position of the staff or post 20 is adjusted until the back-rest 32 properly engages the back of the occupant. Then such occupant leans back to determine whether or not the adjustment of the spring 23 is proper. If not, it is modified by the manipulation of the nut-handle 27 without such occupant leaving the chair, the handle being readily accessible from the position assumed by the person seated in the chair.

Thus the position of the back staff and the tension of the cushioning spring may be independently and conveniently regulated by the occupant while seated in the chair in normal or working position. The connection of spring 23 with arm 17 being near its fulcrum no substantial change in the tension of the spring is caused by adjustment of the screw 30 throughout its ordinary ranges of adjustment. In any case, the adjustment of abutment screw 30 having been secured, the spring tension can be regulated to that desired without interfering with such previous stop-screw adjustment, so that both required conditions can be easily met.

It is not to be understood that this invention is limited and restricted to the precise and exact mechanical details described and illustrated because these may be modified within comparatively wide limits without departure from the heart and substance of the invention as defined by the appended claims and without the sacrifice of any of its substantial benefits and advantages. In other words, the preferred embodiment herein presented is only by way of example and is not to be taken in a limiting or restricting sense.

I claim:

1. A chair having a base, a post mounted thereon, a seat-support carried by said post, a seat on said support, a substantially-horizontal arm beneath said seat hinged to said support, a back-staff mounted on the rear end of said arm, a substantially-vertical extension on the front portion of said arm, a substantially-horizontal spring connected at its rear end to said extension and at its front end to said seat-support, and means to adjust the tension of said spring located beneath the front portion of said seat, substantially as described.

2. A chair having a base, a post mounted thereon, a seat-support carried by said post, a seat on said support, a substantially-horizontal arm beneath said seat hinged to said seat-support, a back-staff mounted on the

rear end of said arm, a substantially-vertical extension on the front portion of said arm, a substantially-horizontal spring connected at its rear end to said extension and
5 at its front end to said seat-support, means to adjust the tension of said spring located beneath the front portion of the seat, and an adjustable stop on said arm located beneath the rear portion of said seat, substantially
10 as described.

the combination of a suitably-supported chair-seat, a substantially-horizontal arm fulcrumed beneath said seat, a back-staff mounted on said arm, an adjustable stop co-
15 operating with said arm limiting the forward swinging of said back-staff, a substantially-horizontal spring connected to said arm, and means beneath the front of the chair-seat to adjust the tension of said
20 spring, substantially as described.

3. In a chair of the character described,

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