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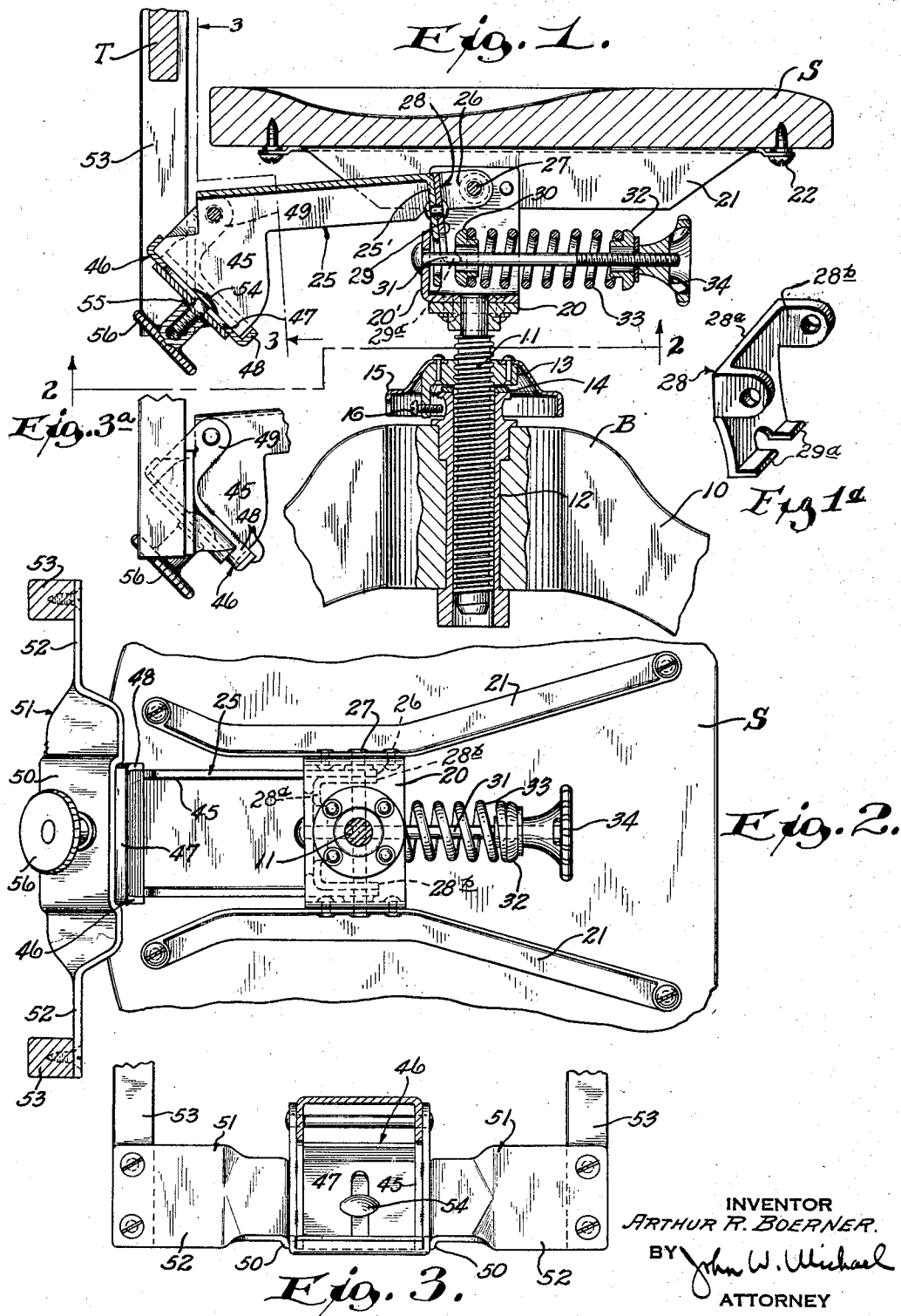
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POSTURE CHAIR

Filed May 31, 1940

2 Sheets-Sheet 1



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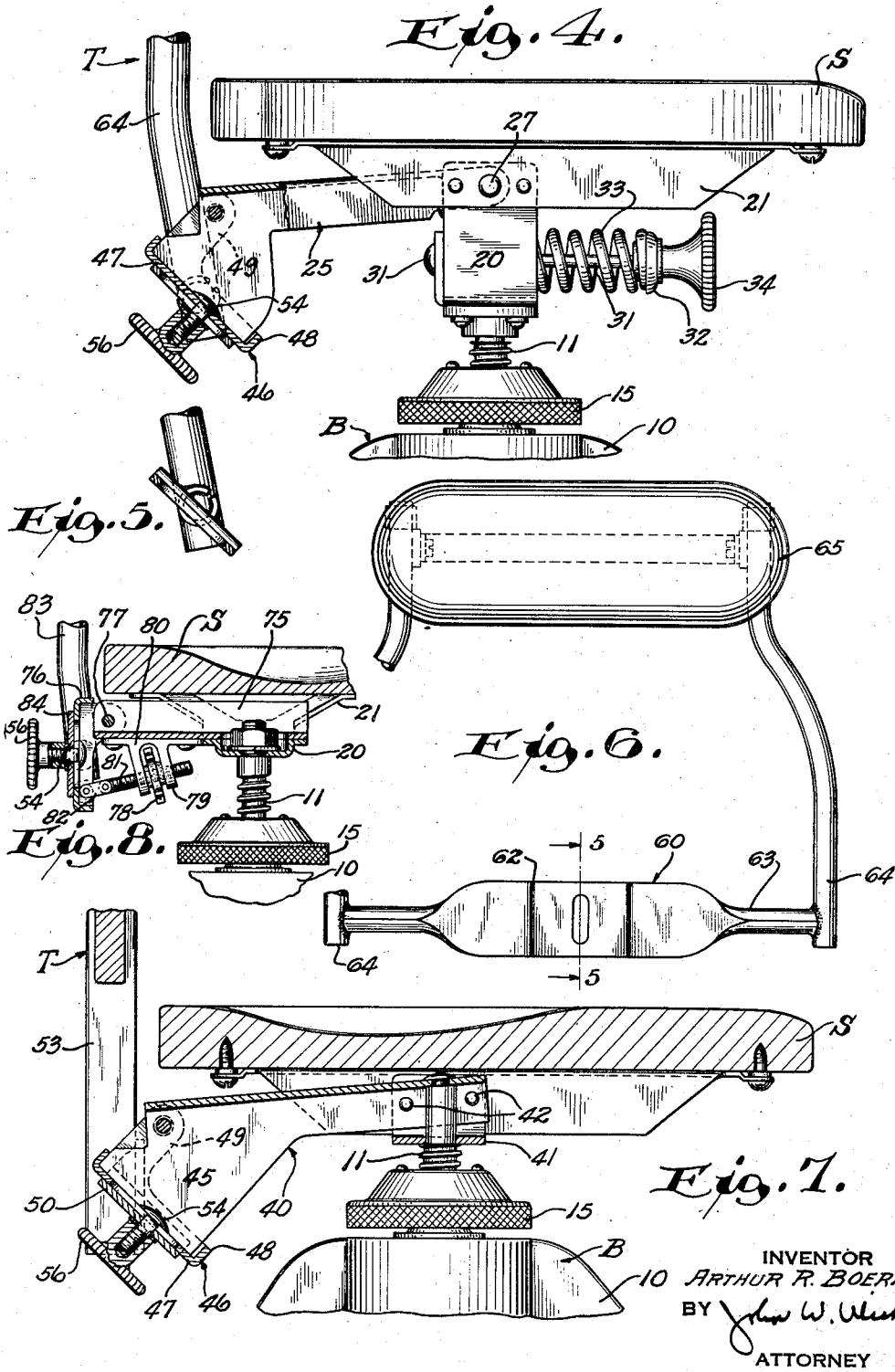
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POSTURE CHAIR

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2 Claims. (Cl. 155—157)

This invention relates to a posture chair of the type including a base and seat and an adjustable back.

An object of the invention is to provide a simplified and practical means between the base, seat, and back for adjusting the position of the back to the size and weight of the user of the chair.

Another object of the invention is to provide a means of this character which may be embodied in the type of chair in which the back is fixed in one selected adjustment, or in which the back may be tilted against a cushioned or resilient stop.

A further object of the invention is to provide a chair of the character mentioned, and having the advantages referred to, and wherein provision is made for ready and fine adjustment of the position of the back to suit the needs of the user of the chair.

Another object of the invention is to provide a chair of this character and having the advantages specified, and which is simple and durable in construction, reliable and comfortable in use, and adapted to be manufactured economically from material and by means of facilities readily available.

Other objects and advantages reside in certain novel features of the construction, arrangement, and combination of parts, which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming a part of this specification, and in which:

Figure 1 is a fragmentary view in central, vertical, longitudinal cross section illustrating means employed between the base, seat, and back of the chair embodying the present invention and of the type which has a tiltable back equipped with a spring cushioned stop.

Figure 1a is a detail view in perspective of the reinforcing member 28;

Figure 2 is a view in horizontal cross section taken on line 2—2 of Figure 1;

Figure 3 is a view in vertical cross section taken on line 3—3 of Figure 1;

Figure 3a is a fragmentary view in side elevation of the means employed for adjustably mounting the back on the base.

Figure 4 is a fragmentary view partly in side elevation and partly in central, vertical, longitudinal section, illustrating the mounting means for the back of the type illustrated in Figures 1 to 3a inclusive, but combined with a different type of interconnection between the chair back and its adjustable mounting means.

Figure 5 is a view in vertical cross section taken on line 5—5 of Figure 6.

Figure 6 is a fragmentary view in front elevation of the chair back utilized in the construction shown in Figures 4 and 5.

Figure 7 is a fragmentary view partly in side elevation and partly in central, vertical, longitudinal, cross section, showing the invention embodied in that type of chair in which the chair back, though adjustable, is rigidly supported in any selected adjustment.

Figure 8 is a fragmentary view partly in central, vertical, longitudinal cross section and partly in side elevation, showing the invention embodied in the type of structure which provides for a refined or nice adjustment for the chair back over a wider range.

Referring to the drawings, it will be seen that in all embodiments of the invention the chair is comprised of generally a base designated at B, a seat designated at S, and a tiltable back-rest or support, designated at T. The base B may be of any suitable type, and has the usual legs 10, fragments of which are shown in Figure 1.

A vertical spindle 11 is fitted into a bushing 12 which lines the bore provided therefor in the hub of the base B. A nut 13 is threaded on the spindle and engages the upper end of the ball bearing or anti-friction washer, or similar device, 14, provided between the nut and the upper end of the bushing 12. Where a washer is employed there is a lug and notch connection between the spindle and the washer of the character conventionally employed in chairs of this kind. The nut 13 may be equipped with the usual knurled cap 15 which is riveted to the nut. The nut and cap are retained against axial movement by means of a screw 16 carried by the depending portion of the nut and projecting into an annular groove formed in the upper end of the bushing 12.

In all embodiments of the invention the upper end of the spindle 11 is equipped with some form of head or yoke, which is in turn connected by a suitable spider to the seat S of the chair.

In the form of the invention shown in Figures 1 to 3a, inclusive, the head or yoke is designated at 20 and includes a generally U-shaped sheet metal stamping having its body portion rigidly and securely interconnected with the upper end of the spindle 11 and having its sides riveted to the arms 21 of the spider. The spider arms 21 are in turn fastened by screws 22 to the under side of the seat S.

A supporting arm 25 for the chair-back is combined with the head 20, and in the forms of

the invention shown in Figures 1 to 4 this arm is of channel shape with its forward end disposed between the sides of the head 20. The forward end of the supporting arm is of special construction to adapt it to be pivotally mounted on the head and to enable it to effectively cooperate with a yieldable or spring stop which is combined therewith to resist resiliently tilting of the arm 25 and consequently of the chair-back. To accomplish these purposes the forward end of the web is severed from the side flanges and bent downwardly in the manner shown at 25'. The portions of the side flange projecting forwardly of the portion 25' provide in effect pivot ears, designated at 26, which are disposed against the inner faces of the sides of the head or yoke 20, and which are apertured to receive a pivot or fulcrum pin 27. The pin 27 is carried by the head 20 and provides a pivotal support for the arm 25. To strengthen the structure as well as adapt it for cooperation with the spring stop, a reinforcing member 28, generally U shape in form, is interfitted with the forward end of the arm 25 and is riveted or otherwise securely fastened thereto. This member is of general U shape in form and its web portion 28a abuts flushly against the down-turned forward portion 25' of the web of the arm 25 and is riveted or securely fastened thereto, whereas the side members or legs 28b of the member 28, which correspond in outline to the ears 26, are aligned with the ears and also have apertures registering with the apertures thereof and through which the pivot pin 27 also passes. The web portion 28a of the reinforcing member 28 is provided with a depending centrally notched extension 29 having bent lower edges which provide fulcrums 29a for one of the spring abutments 30 on the spring-tensioned stop.

This stop includes a tension rod 31, the head of which abuts the transverse plate 20' of the head 20. In addition to the spring abutment 30, which loosely encircles the rod, there is a second spring abutment 32. The coil spring 33 of the stop is confined between these abutments and of course encircles the tension rod. A hand nut 34 is threaded on the outer end of the tension rod and coacts with the abutment 32 to regulate the tension of the spring. With this construction, when the user of the chair tilts the chair-back T rearwardly, the arm 25 swings about the fulcrum 27, and in so swinging it moves against the tension of the spring.

In the form of the invention shown in Figure 7, a supporting arm, designated at 40, is provided as before, and like the arm 25 is of channel-shaped form although of slightly different construction. The arm 40, instead of having its forward end pivotally supported on the head 41 which corresponds to the head 20, has such end rigidly secured to the sides of its head 41, as for example by means of rivets 42, or in any other suitable way. The construction of the rearward end of both arms 25 and 40 is identical.

In each instance the side flanges of the rearward end of the supporting arm are formed with integrally outwardly and rearwardly inclining enlargements 45, which terminate in edges located at an angle of 45° to the vertical. These extensions 45 are connected and in effect are capped by a sheet metal supporting guide 46 which has a body plate 47 spanning the extensions 45 and equipped with marginal flanges 48 and extensions 49, which snugly embrace the portions of the extensions which they engage and

which are welded, riveted, or otherwise appropriately rigidly connected thereto.

Interfitted with the guide 46 for sliding movement along the inclined outer face thereof is the central guide portion 50 of a chair-back supporting bar 51. This bar comprises a sheet metal stamping which is formed with an offset central guide portion designed to embrace and slidably interfit with the guide 46. The central portion 50 of the arm is disposed at an angle of 45° to the vertical, but the ends 52 thereof are twisted with respect to the central portion so as to be vertically disposed and adapted to be connected to the side members 53 of the chair-back T and support the chair-back in an upright position.

For the purpose of releasably securing the chair-back supporting bar 52 in its various adjustments, suitably releasable securing means is provided, and in the present instance comprises a stud 54 extending through a slot in the guide 46 and through an opening in the central portion of the supporting bar 51 and cooperable with a washer 55 and a hand nut 56 to effect the desired releasable securing of the chair back supporting bar 51 in any of its various adjustments.

The form of the invention shown in Figure 4 is identical with that just described, in so far as the construction of the base, spindle, head, arm 25 and spring-tensioned stop are concerned, and in fact the only difference resides in the particular construction of the supporting bar for the chair-back. In Figures 4, 5, and 6 this supporting bar for the chair-back is designated generally at 60. Like the bar 51 it has the centrally socketed or offset guide portion 62 which coacts with the guide 46 as before. However, the end portions of the bar 60, instead of being twisted as before, are formed into integral split tubes designated at 63. The tube 63 may be welded or otherwise suitably secured to the sides 64 of the chair-back 65. The same releasable fastening means employed in Figures 1 to 3 and 7 for releasably securing the supporting bar to the guide 46 may also be employed in Figures 4, 5, and 6.

Figure 8 illustrates a further refinement of the invention embodied in the type of chair iron similar to that shown in Figure 7, although obviously it may also be utilized in connection with the other types of chair irons shown in the drawings and hereinabove described. As illustrated, the chair iron shown in Figure 8 has the base 10, spindle 11, and head 20, which supports the spider 21 to which the seat S is connected. The chair-back supporting arm, designated at 75, has its forward portion supported on and fixed to the head 20. At its rearward end it is provided with a guide 76 corresponding in its function to the guide 46, but differing in that the guide 76 is pivotally mounted, as at 77, on the rearward end of the arm 75, and is adjusted as to position by suitable adjusting means. In the construction shown, the adjusting means for the guide 77 comprises a hand nut 78 rotatably mounted between the bearing plates 79 of a supporting bracket 80. The bracket 80 is riveted or otherwise suitably secured to the arm 75. A screw 81 is threadedly engaged with the nut 78 and is connected by means of a link 82 with the lower portion of the guide 76. When the nut 78 is turned the angular position of the guide 76 with respect to the vertical is varied. As shown, the guide 76 is vertical and may be adjusted to either side of the vertical. The chair back employed in the form of the invention shown in Figure 8 is only fragmentarily illustrated, a por-

tion of one of its side members being shown at 83. The chair-back is supported on the supporting bar 84 which may be either of the construction corresponding to the supporting bar 60 or the supporting bar 51. In either event a centrally offset guide portion slides along the guide 76 and is releasably secured in various vertical adjustments with respect thereto.

In all of the embodiments of the invention a very simple and effective means is provided for adjusting the position of the back of the chair. In the form of the invention shown in Figures 1 to 7, merely one hand nut need be loosened and tightened to position the back of the chair as desired. A single means provides for both fore and aft and vertical adjustment of the chair back. In the construction shown in Figure 8, this is also largely true, although the second nut gives adjustment over a wider range and a more refined fore and aft adjustment.

While I have shown and described several constructions in which the invention may be advantageously embodied, it is to be understood that the constructions shown have been selected merely for the purpose of illustration or example, and that various changes in the size, shape, and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A posture chair of the type including a base, a seat, and an adjustable back, and comprising a spindle mounted on the base, a head fixed to the upper end of the spindle, a spider fixed to the head and to the underside of the seat, a back-supporting arm having its forward end mounted on the head, said back-supporting arm being of

channel-like form and having its side flanges formed at their rear ends with integral downwardly and rearwardly inclining enlargements terminating in edges disposed at approximately forty-five degrees to the vertical, a cap-like guide spanning the enlargements of said side flanges, and engaged with the outer sides of said flanges and abutting said inclined edges, a back-supporting bar interconnected with the back and having a central offset guide slidably embracing said cap-like guide, and readily releasable means for securing said guides in various relative positions.

2. A posture chair of the type including a base, a seat, and an adjustable back, and comprising a spindle mounted on the base, a head fixed to the upper end of the spindle, a spider fixed to the head and to the underside of the seat, a back-supporting arm having its forward end mounted on the head, said back-supporting arm being of channel-like form and having its side flanges formed at their rear ends with integral downwardly and rearwardly inclining enlargements terminating in edges disposed at approximately forty-five degrees to the vertical, a cap-like guide spanning the enlargements of said side flanges and engaged with the outer sides of said flanges and abutting said inclined edges, a back-supporting bar constituted of a single piece of sheet metal having a flat central portion offset to provide a guide structure adapted to have sliding interengagement with said cap-like guide, releasable means for holding said back-supporting bar to said cap-like guide, the end portions of the bar being of tubular form and having supporting engagement with the chair-back.

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