Aug. 31, 1943. G. D. WOOD 2,328,243

CHAIR

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Fig. 1.

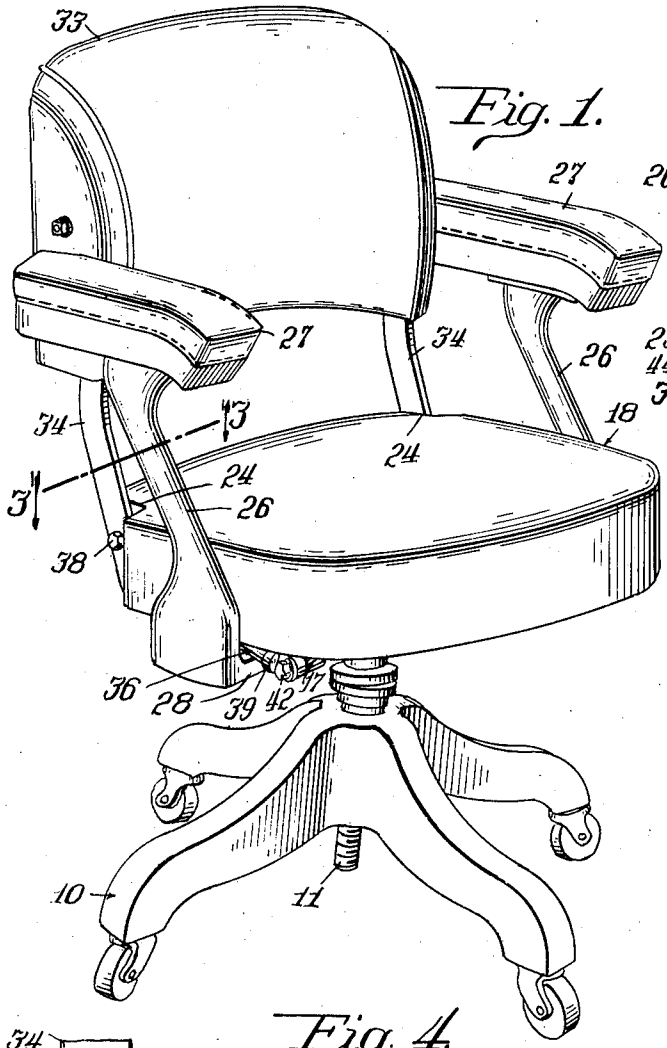


Fig. 5.

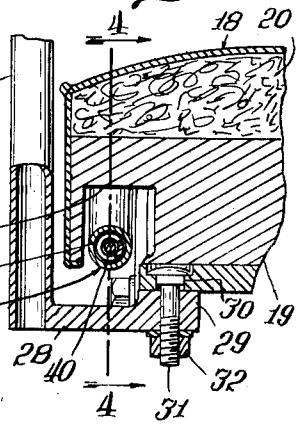
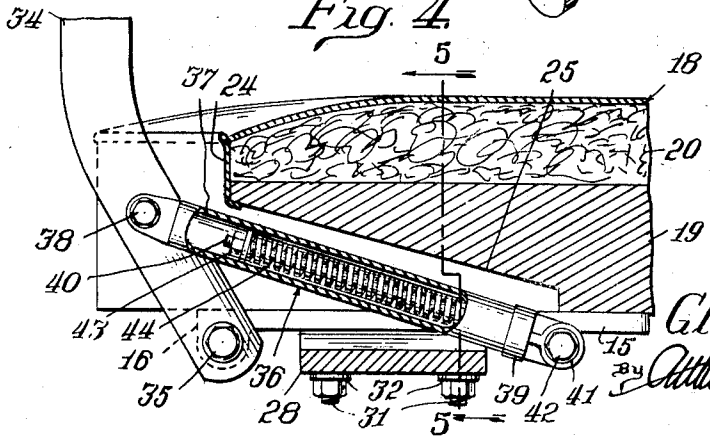


Fig. 4.



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CHAIR

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Fig. 2.

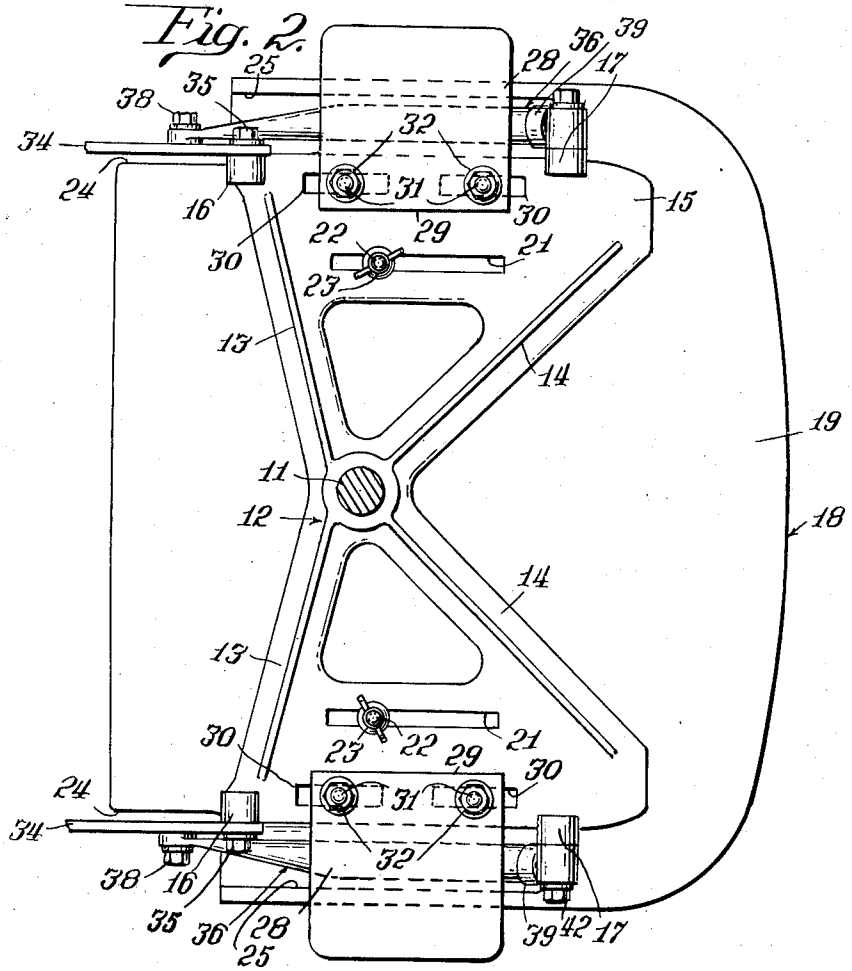
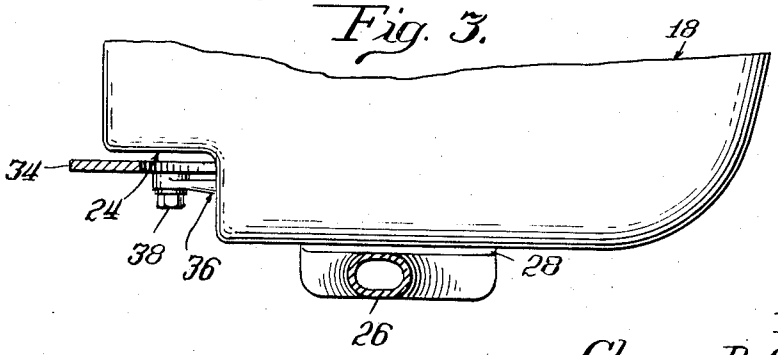


Fig. 3.



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Patented Aug. 31, 1943

2,328,243

UNITED STATES PATENT OFFICE

2,328,243

CHAIR

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Application April 28, 1941, Serial No. 390,684

6 Claims. (Cl. 155—164)

This invention relates to improvements in chairs and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The chair with which the present invention is more especially concerned is one adapted for office use and includes a seat and a back rest, the latter being capable of a back and forth, cushioned swinging movement with respect to the seat. As an example of a chair of this general type, reference is made to my prior patent, No. 2,018,825, of October 29, 1935.

One of the objects of the present invention is to provide in a chair of this kind, an improved construction wherein the cushioning means for the back rest is located in a position not only substantially concealed from view but in a position so protected that the same cannot be readily reached by the occupant of the chair.

A further object of the invention is to provide in a chair of this kind, means whereby the seat may be adjusted forwardly or rearwardly with respect to the back rest without disturbing the adjustment of the cushioning means for the back rest.

Another object of the invention is to provide in a chair of this kind means whereby the arm rests may be adjusted forwardly and rearwardly with respect to both the seat and the back rest without disturbing the adjustment of the cushioning means for the back rest or the adjustment of the back rest.

Again, it is an object of the invention to provide in a chair of this kind, an improved spider arrangement and upon which the arm rests, the seat and the back rest, along with its cushioning means are mounted with the arm rests and the seat capable of a backward and a forward adjustment thereon in a simple and easy manner.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawings:

Fig. 1 is a perspective view of a chair embodying the preferred form of the invention.

Fig. 2 is a bottom view, on an enlarged scale, of the seat of the chair showing the arrangement of the seat and other parts of the chair upon a novel supporting member or spider.

Fig. 3 is a horizontal sectional view, on the scale of Fig. 2, through a part of one side of the chair as taken on the line 3—3 of Fig. 1.

Fig. 4 is a front to rear vertical sectional view, also on the scale of Fig. 2, through a part of the side of the chair as taken on the line 4—4 of Fig. 5.

Fig. 5 is a transverse vertical sectional view through a part of the chair as taken on the line 5—5 of Fig. 4.

Referring now in detail to that embodiment of the invention illustrated in the drawings, 10 indicates a conventional type of base for an office chair and in which the lower end portion of a spindle or post 11 is engaged for a rotative as well as a vertically adjustable movement. The upper end portion of the spindle is fixed in the hub of a spider indicated as a whole at 12 in Fig. 2. The spider also includes a pair of laterally extending arms 13 and a pair of forwardly and laterally extending arms 14 which are fixed at their inner ends to the hub. The outer ends of each set of arms 13 and 14 are connected to a plate member 15. Along the outer edge of each plate member is a pair of depending bosses 16 and 17, the purpose of which will appear later.

18 indicates the seat of the chair as a whole which includes a bottom 19 of wood upon which is mounted the upholstered cushion 20 of conventional construction. The seat which is engaged upon the spider, as will later appear, is wider than the overall width of the spider and is deeper from front to rear than the overall depth of the spider. In each plate member 15 is a longitudinal slot 21 through which a bolt 22, carried by the seat bottom, extends to receive a wing nut 23 and associated washer. By loosening the wing nuts 23, the seat may be shifted forwardly and rearwardly of the spider into the desired adjusted position. In this respect, it is pointed out that the spindle 11 is normally disposed in a position closer to the rear edge of the seat than the front edge thereof, as best appears in Fig. 2.

In each rear corner of the seat is a recess 24 which best appears in Fig. 3 and in each lateral margin of the seat bottom is a channel or duct 25 which best appears in Figs. 4 and 5. The rear end of each channel opens into an associated recess 24 and the top wall of said recess is sloped downwardly and forwardly as appears in Fig. 4. The inner wall of each channel is disposed substantially coincident with the outer edge of each plate member of the spider.

At each side of the seat is a generally upright post 26 which at its top end supports an arm rest 27. The bottom end of each post flares from front to rear of the seat and is there provided with a horizontally disposed base 28 that

extends inwardly under the seat to overlap a part of the associated plate member 15 of the spider. This base has an elongated boss 29 on its upper face (see Fig. 5) which substantially covers a pair of slots 30 in the associated plate member, said slots being parallel with the slot 21 in said member as previously mentioned. A bolt 31 is trapped in each slot 30 so as to be movable longitudinally thereof without a turning therein or a dislodgement therefrom and the threaded end of each extends through the boss 29 to receive a nut and washer 32. By loosening the nuts 32, each arm rest may be adjusted forwardly and rearwardly on its plate member and then locked in the adjusted position.

33 indicates the back rest member for the chair which is normally disposed between the rear ends of the arm rests 27—27 in a position a suitable distance above the rear end of the seat. The back rest member is supported in operative position by laterally spaced arms 34—34. The lower end portion of each arm 34 is disposed in an associated recess 24 of the seat and has its bottom end extremity pivotally connected at 35 to a boss 16 of the associated plate member of the spider. By reason of the construction mentioned, the back rest is capable of a forward and rearward swinging movement with respect to the seat.

This movement of the back rest is limited by a pair of cushion action telescopic braces 36—36 similar to those disclosed in my patent previously referred to. As shown in Fig. 4, each brace includes a tubular body 37 flattened at one end and there pivotally connected to its associated back rest supporting arm 34 by a bolt 38, at a point below the top surface of the seat member. A bushing 39 is threaded on the other end of the tube and a rod 40 has a sliding bearing in said bushing. That end of said rod outside the bushing is formed as an eye 41 which is pivotally connected by a bolt 42 to the front end boss 17 of the associated plate member 15 of the spider.

That portion of the rod within the tube has a nut 43 threaded on its extremity and a helical expansion spring 44 surrounds that part of the rod between said nut and the bushing. As best appears in Fig. 4, each brace 36 is disposed substantially in a channel 25 in the seat bottom so that it is covered from above by that part of the seat above the channel. With this arrangement, only a relatively small portion of the rear end of each brace is visible at the associated recess 24 of the seat. The front end of the brace is disposed above the base 28 of the associated arm rest supporting post 26 in a manner whereby said front end of the brace is substantially concealed and protected in a position where it is quite impossible for the occupant of the chair to reach the same. This arrangement so disposes the front end of the braces, that no part of the clothing can be engaged therewith and soiled by such lubricant as may be necessary for an easy sliding of the rod 40 through the bushing 39.

It is apparent from the above that the braces 36—36 are so concealed from view as to give substantially no indication of their presence. The construction described permits a ready and convenient adjustment between the seat and back rest as well as between the arm rests and the seat or back rest. Thus the chair may be adjusted to the occupant so as to be restful and comfortable and assures a correct posture in use.

While in describing the invention, I have referred in detail to the form, arrangement and construction of the various parts, the same is to be considered only in the illustrative sense so that I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:

1. A chair embodying therein, seat providing means having a recess in each rear end corner and a channel in its bottom surface along one side that opens into an associated recess, supporting means for said seat providing means, a back rest having a normal position with respect to said seat providing means, supporting arms one connected to each side of the back rest and each having a bottom end portion disposed in a recess and being pivotally connected to one of said first mentioned means, and resilient cushioning means for at least one of said arms having a part thereof disposed in said channel in said one side of the seat providing means so as to be covered from above thereby and operatively connected at one end to said one of said arms and also operatively connected at its other end with one of said first mentioned means.

2. A chair embodying therein, seat providing means having a recess in each rear end corner and a channel in its bottom surface along each side that opens into an associated recess, supporting means for said seat providing means, a back rest having a normal position with respect to said seat providing means, supporting arms one connected to each side of the back rest and each having a bottom end portion disposed in a recess and being pivotally connected to said supporting means, resilient cushioning means for said arms, each having a part disposed in a channel in one side of the seat providing means so as to be covered from above thereby and operatively connected at one end to an associated arm and also operatively connected at its other end to said supporting means.

3. A chair embodying therein, seat providing means, a spider for supporting said seat providing means and having a plate-like portion at each side thereof, means providing a bolt and slot connection between each side of said seat providing means and said plate-like portions permitting of a forward or a rearward adjustment of the seat providing means on said seat supporting means, a back rest having a normal position with respect to said seat providing means, an arm rest at each side of the seat providing means and each having a part disposed under said seat providing means and engaged with a plate-like portion at the same side of the chair and a second bolt and slot connection between said part of said arm rest and that part of the plate-like portion engaged thereby providing a forward or a rearward adjustment of said arm rests with respect to said seat providing means.

4. A chair embodying therein a spindle, a spider having a hub fixed to the spindle and a pair of laterally spaced plate members connected to the hub by arms extending away therefrom, a seat engaged on the spider, said plate members and said seat having a bolt and slot connection whereby said seat may be adjusted forwardly and rearwardly thereon, a back rest, means including side arms for supporting said back rest from said spider, an arm rest at each side of the seat, a generally upright post for supporting each arm rest, each post including a laterally inward extension engaged with an associated plate member of the spider, and means for operatively con-

necting each post extension with the associated plate member, whereby said arm rests may be adjusted forwardly and rearwardly on said plate members of the spider.

5. A chair embodying therein a spindle, a spider having a hub fixed to the spindle and a pair of laterally spaced plate members connected to the hub by arms extending away therefrom, a seat operatively fixed to and supported upon said plate members of the spider, said seat member having a recess in each rear corner and a channel along the bottom of each side of the seat and opening into a associated recess, back rest supporting arms for the back rest and each having a part disposed in an associated recess and there having a pivotal connection with an associated plate member of the spider, an arm rest at each side of the seat, an upright post supporting each arm rest having a laterally inward extension overlapping and engaged upon an associated plate member, a cushioning element for each arm and pivotally connected at one end thereto, the other end of each element being pivotally connected to an associated plate member of the spider and disposed above the associated post extension and engaged at least in part in a channel in the associated side of the seat.

6. A chair embodying therein a seat having a channel that opens through its bottom surface along each side thereof, supporting means for the seat, a back rest having a normal position with respect to the seat, a supporting arm for each side of the back rest and having a pivotal connection with said supporting means, a cushioning device for each supporting arm and having the greater part of its length arranged in an associated recess, with its ends disposed outside of the ends thereof, one end of each device being operatively connected to an associated supporting arm and the other end of each device being operatively connected to said supporting means.

GLENN D. WOOD.