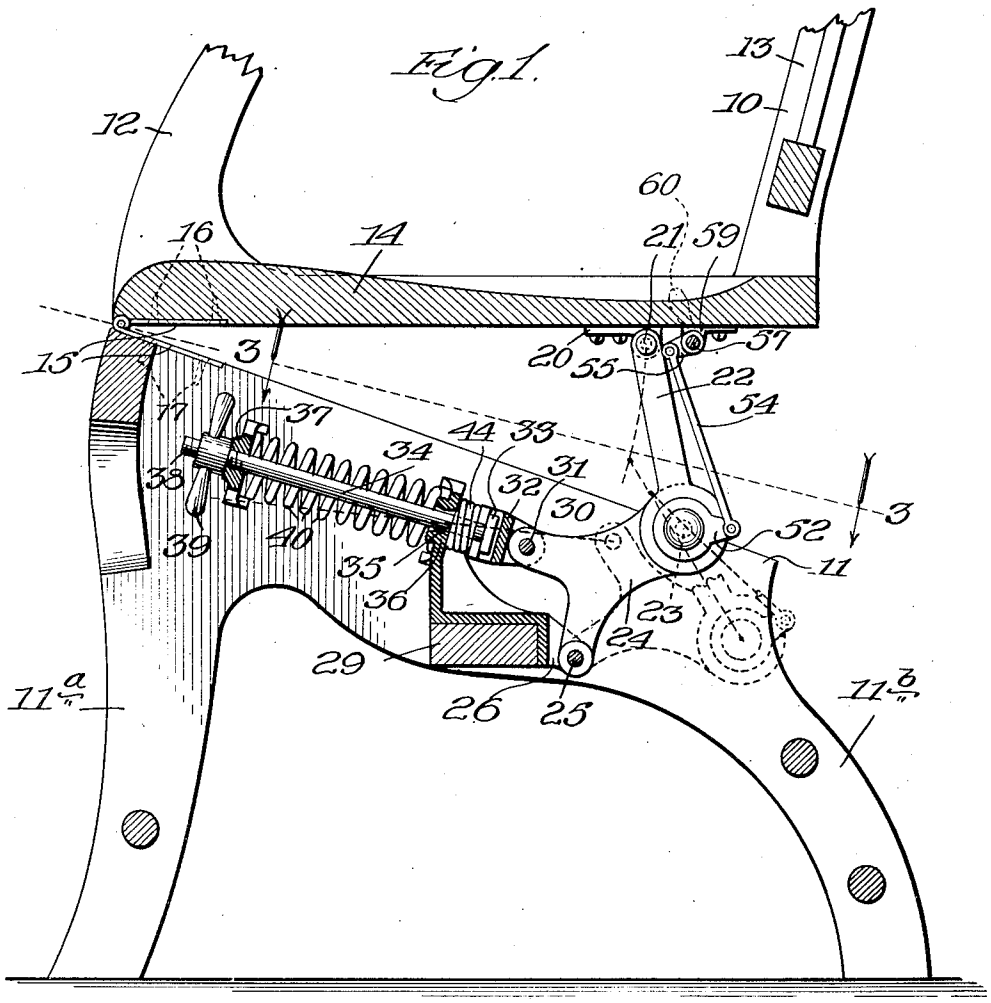
Nov. 20, 1934. H. E. BENNETT 1,981,579

CHAIR

Filed Feb. 24, 1930 2 Sheets-Sheet 1

Fig. 1.



Inventor:
Henry E. Bennett,
By Dyrenforth, Lee, Chritton & Wiles,
Attys.

Nov. 20, 1934. H. E. BENNETT 1,981,579

CHAIR

Filed Feb. 24, 1930 2 Sheets-Sheet 2

Fig. 2.

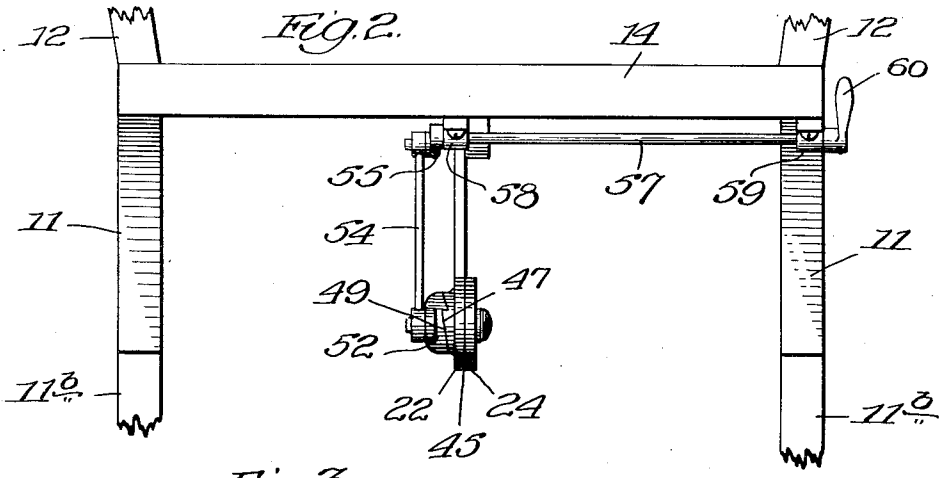
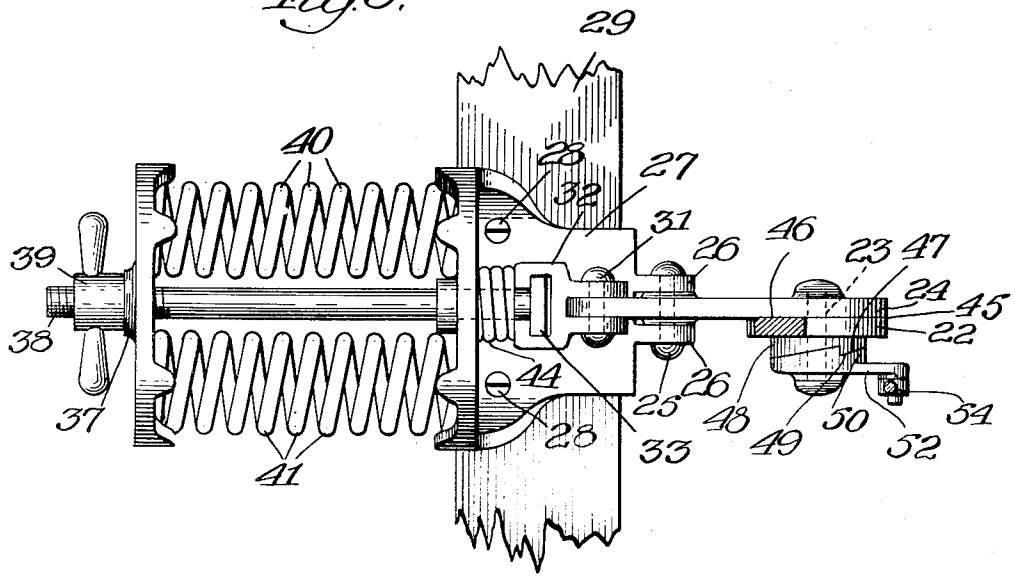


Fig. 3.



Inventor:
Henry E. Bennett,
By Dyrenforth, Lee, Chrittons & Wiles
Attys.

Patented Nov. 20, 1934 1,981,579

UNITED STATES PATENT OFFICE

1,981,579

CHAIR

Henry E. Bennett, Chicago, Ill.

Application February 24, 1930, Serial No. 430,994

2 Claims. (Cl. 155—55)

The invention relates to chairs, and has for its primary object the production of a chair which can be readily swung into adjusted positions by the user, and is at all times comfortable and conducive to good posture.

One form of the invention is embodied in a chair comprising a base-portion; a seat-portion hinged adjacent its front edge; yielding means for normally holding the seat in a substantially horizontal position; means for locking the seat in a plurality of adjusted positions relative to the base, and yielding means acting against the action of the first-mentioned yielding means to snub or soften that action.

Chairs embodying the invention are exceedingly comfortable in view of the fact that the seat-portion may be tilted downward without having the feet of the user lifted from the floor. This is due to the fact that the forward portion of the seat is not elevated during the downward tilting of the seat.

Yielding means for normally holding the seat in a substantially horizontal position is connected to the seat by means which preferably comprises a lever pivoted to the base portion, the lever being adapted to increase the moment arm by which force is exerted on the spring through the backward tilting of the chair when the occupant thereof leans backward.

Many other objects and advantages will appear as this description progresses, reference being had to the accompanying drawings, wherein:

Figure 1 is a fragmentary vertical longitudinal section taken through a chair embodying the invention;

Fig. 2 is a fragmentary elevation looking at the back of the chair; and

Fig. 3 is an enlarged section taken on line 3—3 of Fig. 1.

Referring to the drawings, the reference character 10 designates, generally, the seat-portion of a chair which comprises a frame or base designated, generally, by the reference character 11. In this instance, the seat-portion 10 comprises arms 12, a back 13, and a seat 14, the seat 14 being secured to the base 11 by a hinge 15 having its pivotal axis adjacent the forward edge of the seat.

One leaf of the hinge 15 is secured to the seat 14 by screws 16 and the other leaf of the hinge is secured to the base 11 by screws 17. Obviously, when the seat 14 is angularly displaced around the pivotal axis of the hinge 15, its forward edge is not appreciably elevated or lowered and the feet of the user may be kept upon the floor.

The base 11 may be of any suitable construction. In this instance, it comprises front and back legs 11*a* and 11*b*, respectively. The upper edges of the base 11 are inclined downwardly from the forward side of the frame to the back thereof so that the seat 14 may be tilted.

20 is a bracket rigidly secured to the bottom surface of the seat 14, and pivoted on a pin 21 projecting from the bracket 20 is an arm or lever 22 which has its other end pivoted upon a pin 23 carried by a lever 24, the lever 24 being pivoted upon a pin 25 mounted in bifurcations 26 which project from a bracket 27. Screws 28 rigidly secure the bracket 27 to a cross-bar 29 forming part of the base 11. The lever 24 preferably comprises an arm 30 pivoted by a pin 31 to a clevis 32 which engages the head 33 of a bolt 34 extending through an aperture 35 formed in a boss 36, the boss 36 being preferably formed integral with the bracket 27. The bolt 34 projects through and carries a bracket 37 and is screw-threaded, as at 38, to receive a wing-nut 39 which abuts the bracket 37.

Interposed between the bracket 37 and the bracket 27 are helical compression springs 40 and 41 which urge the bracket 37 and, therefore, the bolt 34 in a direction away from the pin 31, whereby the clevis 32 is pivotally connected to the lever 24. Obviously, the tension of the springs 40 and 41 may be adjusted by manipulating the wing-nut 39.

Disposed around the bolt 34 and interposed between the boss 36 and the clevis 32 is a compression spring 44 which is relatively short as compared with the springs 40 and 41 and acts against the action of the springs 40 and 41. The purpose of this construction will presently appear.

As best shown in Fig. 3, the lever 22 has a relatively large surface 45 frictionally engaging a similar surface 46 provided upon the lever 24. Means is provided for causing the surface 45 to frictionally engage the surface 46 with such force or pressure that this frictional engagement may be employed to lock the seat 14 in a plurality of positions with respect to the base.

The means for effecting the locking engagement between the surfaces 45 and 46 preferably comprises cam surfaces 47 formed upon a boss 48 projecting from the lever 22, the cam surfaces 47 being engaged by similar surfaces 49 provided upon a boss 50 forming part of a lever 52 pivoted upon the pin 23. A link 54 connects the free end of the lever 52 with a lever 55 secured to a shaft 57 journaled in brackets 58 and 59, the

brackets 58 and 59 being rigidly secured to the bottom surface of the seat 14.

It will be noted that the shaft 57 extends transversely with respect to the seat 14 and that at its outer end it is provided with a handle lever 60 whereby it may be rotated manually. The construction is such that when the shaft 57 is angularly displaced in a clockwise direction (Fig. 1), the lever 52 will be angularly displaced in a counter-clockwise direction and the cam surfaces 49 will co-operate with the cam surfaces 47 to cause effective frictional engagement between the surfaces 45 and 46 provided upon the levers 22 and 24, respectively. Obviously, the seat 14 may be locked in any desired position with respect to the base 11. Thus, when the chair is to be used at a table, or the like, the user may lock the seat in a substantially horizontal position, or when the seat has been tilted downward it may be locked in that position if the user so desires.

The operation of the above described chair is substantially as follows: Assuming that the chair is occupied and that the handle lever 60 is in the position wherein it is shown in Fig. 1 so that the chair portion 10 is not locked in the position shown, it is readily apparent that the user may tilt the seat-portion downward to any desired angle, or if the chair is being used in connection with a desk, or table, the user may leave it with its seat substantially horizontal. Of course, if desired the seat 14 may be locked in the position shown in full lines in Fig. 1, or in a position wherein the bottom surface of the seat is substantially parallel to the upper surfaces of the frame 11, or in any intermediate position. The tension of the springs 40 and 41 may be adjusted by manipulating the wing-nut 39.

In the event the chair portion is tilted backward so that the springs 40 and 41 are compressed and so that the clevis 32 is displaced away from the boss 36, the spring 44 will expand so that if the user rises suddenly from the chair, or tilts it forward hurriedly, the spring 44 will snub or soften the action of the springs 40 and 41 in such manner that the seat-portion 10 will not snap into its normal position, as shown in Fig. 1, with sufficient force to break any of the apparatus, or to make any undue amount of noise.

It will be readily understood that when the occupant of the chair leans backward so that the lever 24 is displaced from the position wherein it is shown in full lines in Figure 1 to the position wherein it is shown in dotted lines, or in any intermediate position, the springs 40 and 41 will be compressed by the force exerted thereon through the lever 24 and the effective length of the moment arm represented by the lever will increase continuously as the lever 24 travels from its full line position to the position wherein it is shown in dotted lines. Therefore the occupant may assume any desired position and will not have to exert any pressure by his feet, or otherwise, to supplement the action of his weight upon the springs.

It will be noted that the springs 40 and 41 are compressed when the seat-portion tilts downward. This results in a compact balancing-structure which is readily carried by the cross-bar 29.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. A chair comprising a base portion, a seat pivoted adjacent its forward edge to said base portion for downward movement of said seat, a spring balancing the weight of the occupant in any position of the seat and resisting downward movement of the seat, and a lever pivoted to said base portion and operatively connected to said spring, a link connecting said lever to said seat, said lever being displaced by said seat during downward movement thereof to force said spring, said lever moving during said downward movement of said seat from a position wherein it exerts on said spring a certain component of the force acting on it to a final position wherein it exerts on said spring a larger component of the force acting on it.

2. A chair comprising a base portion, a seat pivoted adjacent its forward edge to said base portion for downward movement of said seat, said seat being provided with a back fixed with respect to the seat, a spring balancing the weight of the occupant in any position of the seat and resisting downward movement thereof, and a toggle operatively connecting said seat to said spring, said toggle comprising one arm pivoted to said base and connected directly to said spring and a second arm pivoted to the first mentioned arm and to said seat, the arms of said toggle being in an intermediate position when the seat is in its uppermost position.

HENRY E. BENNETT