

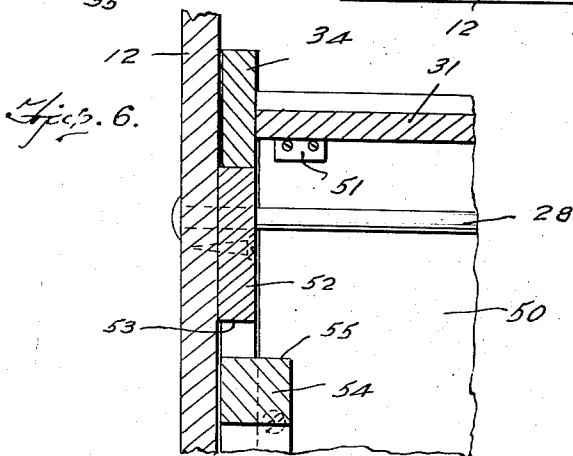
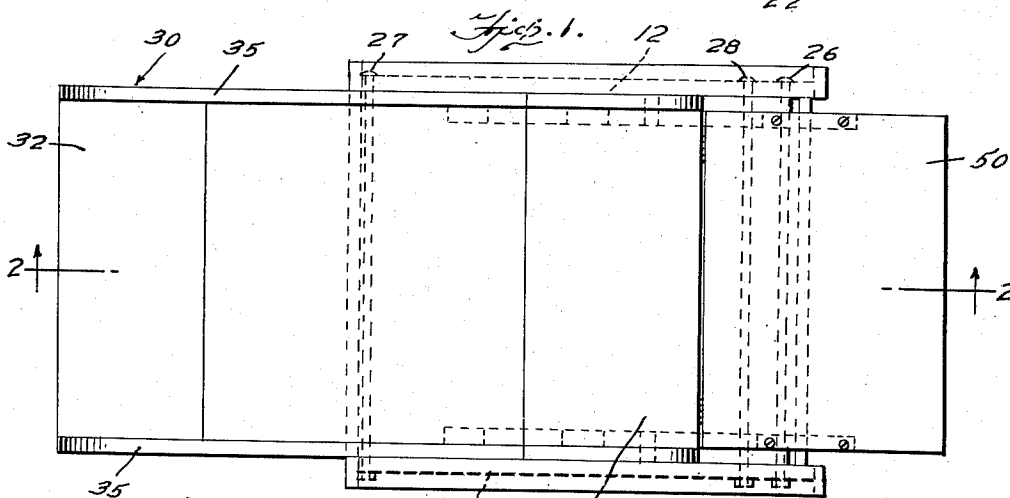
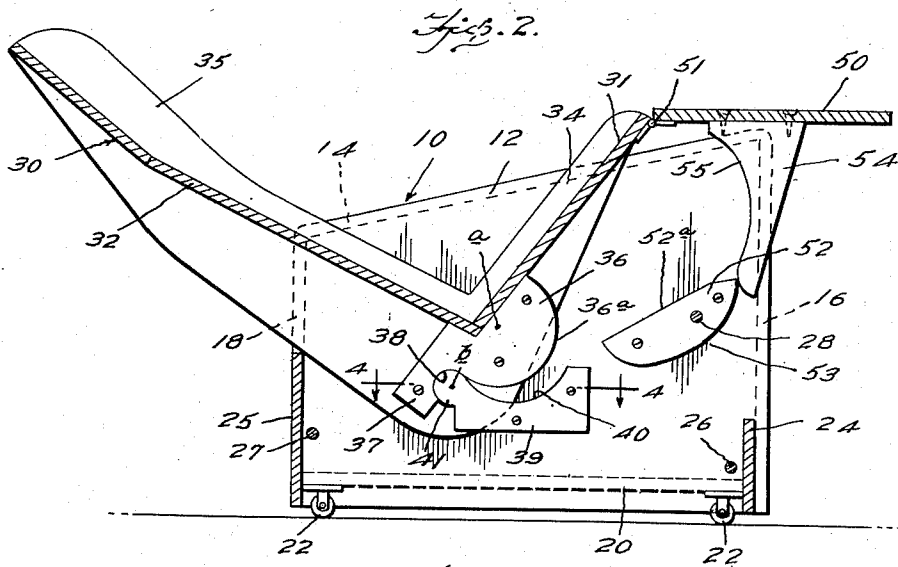
July 9, 1957

J. J. CURTIS
RECLINING CHAIR

2,798,534

Filed July 14, 1953

4 Sheets-Sheet 1



Inventor
John J. Curtis
By *Wilfred Lawson*
ATTY.

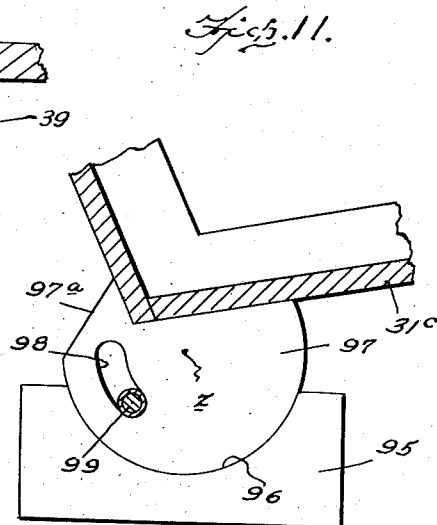
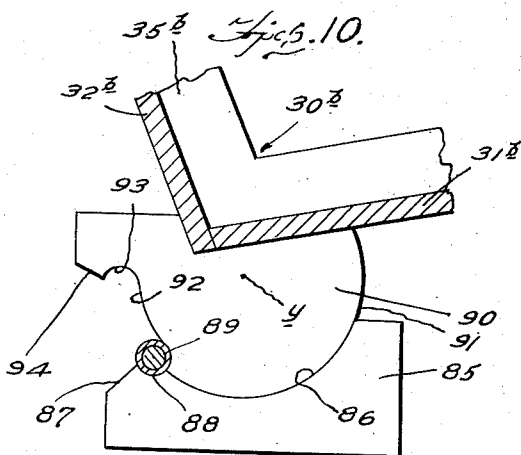
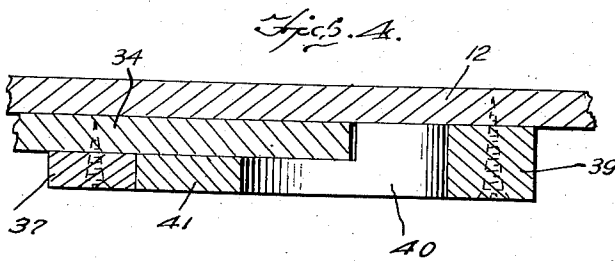
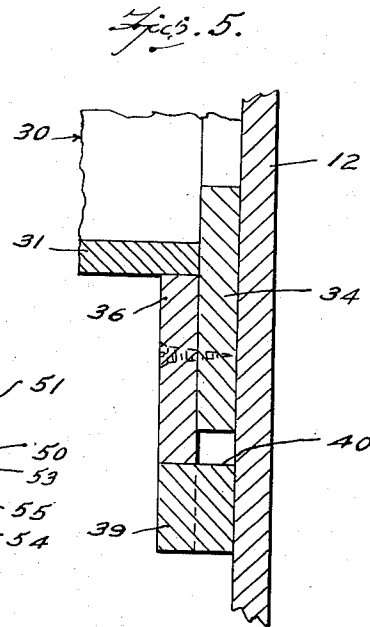
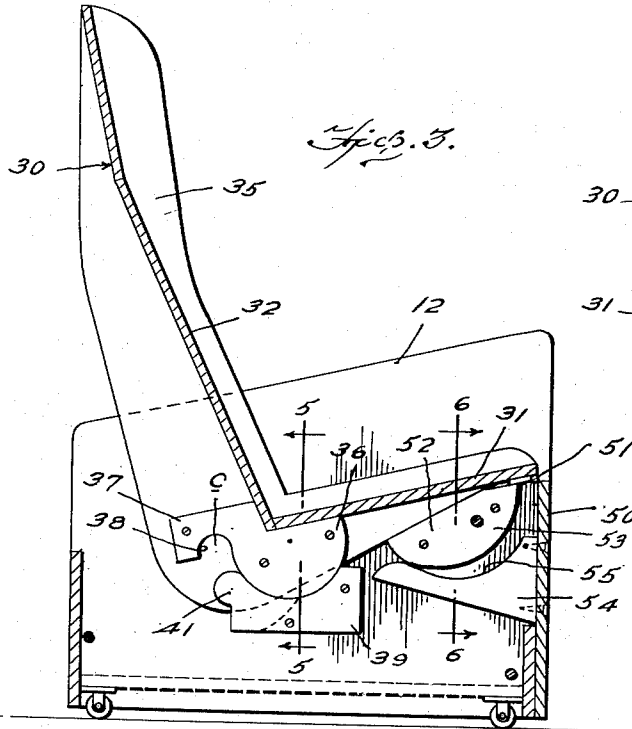
July 9, 1957

J. J. CURTIS
RECLINING CHAIR

2,798,534

Filed July 14, 1953

4 Sheets-Sheet 2



Inventor
John J. Curtis

By *Wilfred Lawson*
ATTY.

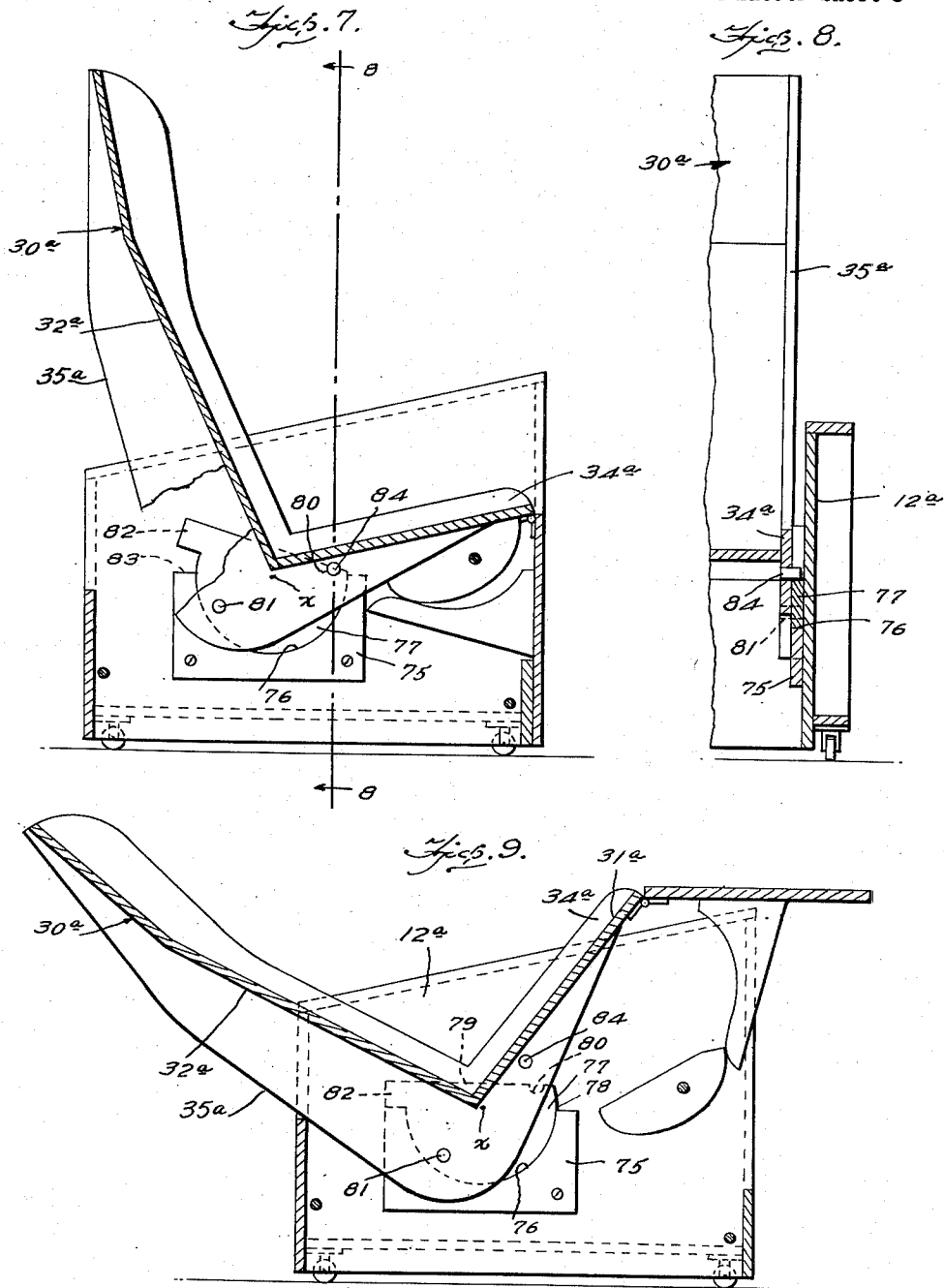
July 9, 1957

J. J. CURTIS
RECLINING CHAIR

2,798,534

Filed July 14, 1953

4 Sheets-Sheet 3



Inventor
John J. Curtis

By *Wilfred J. Larson*
ATTY.

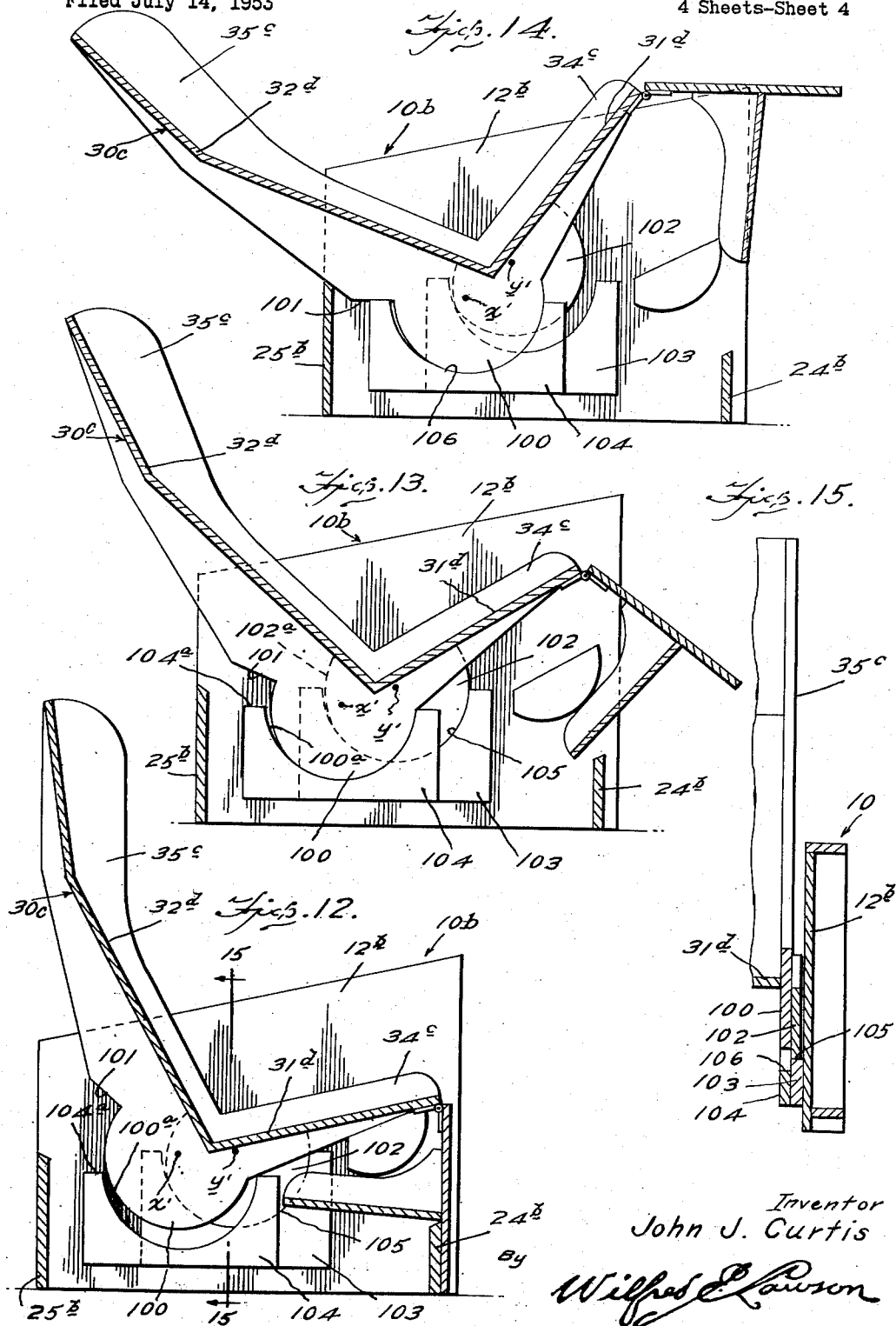
July 9, 1957

J. J. CURTIS
RECLINING CHAIR

2,798,534

Filed July 14, 1953

4 Sheets-Sheet 4



Inventor
John J. Curtis

Wilfred E. Lawson

ATTY.

1

2,798,534

RECLINING CHAIR

John J. Curtis, Lexington, Ky.

Application July 14, 1953, Serial No. 367,820

8 Claims. (Cl. 155—105)

This invention relates generally to the class of furniture and is directed particularly to improvements in reclining chairs.

A principal object of the present invention is to provide an improved chair structure wherein the seat and back may be caused to swing back, up and down so that the occupant can be positioned in a reclining attitude, the construction of the chair being of novel character whereby the backward and downward swinging of the chair back under the weight of the occupant's body will be effected smoothly and without jarring or jolting the occupant when it comes to rest in the fully reclined position.

Another object of the invention is to provide a reclining chair of the above described character which is designed with an automatically raising foot rest which becomes elevated as the chair swings back into a reclining position so that the lower parts of the legs will be disposed substantially horizontally and slightly lower than the head when an occupant is in fully reclining position in the chair.

Still another object of the invention is to provide an improved reclining chair of the character above set forth, having a leg rest which is disposed vertically at the front of the chair when the chair is in upright position and which, through the medium of cam elements and followers connected between the leg rest and the sides of the chair frame, is swung upwardly to a horizontal position as the chair swings backwardly and downwardly into reclining position and which returns to its vertical position when the chair is swung back to upright position.

A still further object of the invention is to provide in a reclining chair of the character stated, a novel pivot means whereby the chair turns or rocks on two successive axes which may be referred to as primary and secondary axes, the chair turning on the first or primary axis at the beginning of the rearward swinging movement and then shifting to the secondary axis at the completion of its swinging movement so that the back of the chair becomes lowered easily and smoothly without jolting the occupant.

Still another object of the invention is to provide a reclining chair of the character stated, having primary and secondary axes of oscillation, wherein the secondary axis is positioned rearwardly of and at a lower elevation than the primary axis for effecting the smooth oscillation of the chair either into reclining position or in returning to its upright position.

Other objects and advantages of the invention will become apparent as the description of the same proceeds and the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of the specification, with the understanding, however, that the invention is not to be limited to the exact details of construction shown and described since obvious modifications will occur to a person skilled in the art.

In the drawings:

Figure 1 is a view in top plan of one embodiment of the present invention, showing the chair structure without upholstery or other covering.

2

Figure 2 is a sectional view taken in a vertical plane substantially on the line 2—2, of Figure 1 showing the chair in reclining position.

Figure 3 is a sectional view corresponding to Figure 2 but showing the chair in upright position.

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 2.

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 3.

Figure 6 is a sectional view taken substantially on the line 6—6 of Figure 3.

Figure 7 is a sectional view taken in a vertical plane through the center of a second embodiment of the invention, the line of section corresponding to the line taken for Figures 2 and 3.

Figure 8 is a vertical transverse section taken substantially on the line 8—8 of Figure 7.

Figure 9 is a view of the modified construction, in vertical section corresponding to Figure 7 but showing the chair in reclining position.

Figure 10 is a detail view illustrating another means for pivotally supporting the chair seat and back in the frame.

Figure 11 is a detail view illustrating still another method of supporting the chair seat and back in the frame.

Figure 12 illustrates a fifth embodiment of the invention showing the chair in upright position.

Figure 13 shows the chair of Figure 12 in half reclining position.

Figure 14 shows the position of the parts of the fifth and preferred embodiment when the chair is in full reclining position.

Figure 15 is a sectional view taken on the line 15—15 of Figure 12.

Referring now more particularly to the drawings and especially to the first embodiment of the invention as illustrated in Figures 1 to 6, the numeral 10 generally designates the chair frame which comprises the upright side walls 12 which may be designed to have suitable upholstery, not shown, applied thereto and for which purpose each wall has a top plate 14 which extends along the upwardly and forwardly inclined top edge thereof, the front and rear vertical plates 16 and 18 respectively, and the bottom plate 20 which is horizontally positioned slightly above the bottom edge of the wall 12 to which it is attached and to the front and rear ends of which bottom plate suitable casters 22 may be secured.

Extending across the front and back of the chair structure are the front and back panels 24 and 25.

In addition to the front and back panels 24 and 25 the frame structure is strengthened by the transverse tie rods 26 and 27 at the front and back respectively and the upper transverse front tie rod 28.

The numeral 30 generally designates the movable chair seat which is mounted within the frame between the sides 12 as shown. This seat comprises the seat bottom 31 and the back 32 which is connected to the rear edge of the bottom 31 and forms a slightly obtuse angle therewith.

Joined to the opposite side edges of the seat bottom and back are the side plates 34 and 35 respectively which are here shown as formed in a single flat substantially L-shaped unit.

The overall width of the frame between the inner faces of the sides 12 is slightly greater than the overall width of the seat between the outer faces of the plates 34 and 35 and the seat is supported for rocking movement between the sides 12 in the following manner.

Secured to each seat bottom plate 34 beneath the seat bottom, as shown in Figures 2 and 3 is a substantially semi-circular supporting disk 36, the rounded edge of which is directed downwardly. As shown this disk is located with its top portion in the plane of the under face of the seat bottom 31 and projecting beyond the back edge

3

of the seat portion so that the axial center *a* is close to the angle formed between the seat bottom and the lower edge of the seat back.

Forming an integral part of the disk 36 is a rearwardly extending arm 37 which has formed therein the downwardly opening circular socket 38, one side of which joins the rear portion of the curved edge 36*a* of the disk 36, as shown. The center of this socket 38 is in line with the center *a* of the disk 36, which line parallels the bottom face of the seat bottom 31.

Secured to the inner face of each side 12 of the chair frame is the seat supporting block 39 which has formed in its top edge the circular socket 40 of the same radius as the curved edge 36*a* of the disk 36.

The block 39 has formed integral with the rear portion thereof the disk head 41 which is the same radius as the socket 38 and therefore the center of this disk head which is designated *b* is in line with the center *a* for the disk 36.

As illustrated the disk head 41 and the socket 38 therefor are materially smaller than the disk 36 and the socket 40 in which the disk 36 seats and turns and accordingly the center of the head is not only farther back, with respect to the seat bottom 31, than the center *a* for the disk 36 but is lower than the center *a*.

When the seat is in the fully reclined position as shown in Figure 2, where the disk 36 is elevated, the center *b* of the head 41 is then in line with the center *a* but when the seat is in upright position, as it is shown in Figure 3, the line passing through centers *a* and *b* is not parallel with the bottom of the seat 31 but the center *c* for the socket 38 is in such line as shown in Figure 3.

From the foregoing description thus far given it will be seen that when the chair has the seat 30 in upright position, as illustrated in Figure 3, the large circular bearing surfaces of the edges 36*a* of the two disks 36 which are on opposite sides of the seat, will be resting or seated in the sockets 40 of the supporting blocks. When the occupant of the chair throws his weight back against the chair back 32, the chair will swing on a transverse axis passing through the centers *a* until the socket 38 in each of the rearwardly extending arms 37 is moved into a position to receive the adjacent head 41. The weight will then be transferred from the sockets 40 to the heads 41 and the sockets 38 will turn around the heads 41 thus transferring the turning axis for the chair seat from the centers *a* to the centers *b* of the heads 41. Due to the fact that these latter centers are at a lower elevation and farther to the rear than the centers *a* the back of the chair will be lowered smoothly and without jolting until the rear edges of the side plates 35 come to rest upon the top edge of the back panel 25 as shown in Figure 2.

For the support of the legs of the occupant of the chair when the latter is in the reclining position shown in Figure 2, there is provided the leg rest in the form of a board 50 which is hingedly attached at its top edge as at 51, to the front edge of the chair seat bottom 31 as shown.

When the chair seat is in upright position the leg rest 50 will hang straight down against the front panel 24.

In order to effect the raising of the leg rest 50 to a substantially horizontal position when the chair seat is in reclining position, there are provided the two cam blocks 52 which are secured to the inner faces of the frame sides 12, forwardly of the blocks 39 and at a slightly higher elevation. Each of these cam blocks has a downwardly and rearwardly curving cam edge 53.

Secured to the rear side of the leg rest 50 at each side thereof is the lifting arm 54 which has a cam follower face or surface 55. As shown each of these arms 54 is of substantial length and the cam follower edge or surface 55 curves downwardly and rearwardly in the top edge of the arm. Thus when the leg rest 50 is in vertical position, as shown in Figure 3, the arms 54 will have the cam follower surface 55 in engagement with the rear part of the cam face 53 and when the chair seat swings back-

4

wardly and downwardly the upward and rearward pull applied to the top edge of the leg rest 50 will draw the ends of the arms 54 up and around the camming surfaces or edges 53, thus pushing out upon the ends of the arms and causing the same to raise the leg rest 50 to a substantially horizontal position as shown in Figure 2.

As illustrated the tie rods 28 pass through the cam blocks 52 and the top edges 52*a* of the cam blocks are inclined or otherwise suitably formed to have the lower edges of the adjacent side plates 34 rest thereon when the seat is in the upright position shown in Figure 3. In this manner the cam blocks and the tie rod 28 provide with the blocks 39, a firm support for the seat.

Figures 7, 8 and 9 illustrate another embodiment of the invention. In this embodiment the principal features of construction are the same as in the form first described but the construction is such as to admit of wide variation of the pivot points and at the same time allow the chair seat to be lifted from the frame at any time without having to remove any fastenings.

Since the alternative arrangement shown in Figures 7, 8 and 9 applies only to the construction of the socket or cradle blocks and the bearing disks the description will be confined to these parts, it being understood that the parts of the chair frame and chair seat are the same as in the first described form.

The cradle or socket blocks which are secured to the sides 12*a* of the chair frame, are generally designated 75. Each of these blocks 75 has formed therein the semi-circular cradle or socket 76 which opens or is directed upwardly.

The numeral 77 designates the bearing disk which has the semi-circular bearing edge 78 which positions in the socket or cradle 76. This disk has the straight edge 79 which lies above the axial or radial center *x* of the disk and has a notch 80 therein adjacent to the forward end thereof.

The center *x* of each bearing disk is located approximately at the angle between the seat bottom 31*a* and the seat back 32*a* and each bearing disk is pivotally attached to the adjacent side plate 35*a* of the seat back, by a pivot bolt 81 which passes through the bearing disk close to the curved bearing edge 78 and rearwardly of the lowest point of the socket or cradle 76.

Each bearing disk 77 has extended rearwardly therefrom a short arm 82 which is above the radial center *x* and is adapted to come to rest upon the top edge of the block 75 at 83, when the chair seat is swung back to its reclining position as illustrated in Figure 9.

Each of the seat bottom side plates 34*a* carries a short stop pin 84 in a position to engage in the adjacent notch 80 when the seat is in upright position as shown in Figure 7.

In this second embodiment it will be seen that when the seat which is generally designated 30*a*, is swung to upright position the stop pins 84 will engage in the notches 80 of the bearing disks and cause the bearing disks to turn in the cradles or sockets 76. This will elevate the arm 82 and swing the pivot bolts or pins 81, which are attached to the side plates 35*a*, up in the rear part of the socket for cradle 76.

When the occupant of the seat throws his weight back against the seat back 32*a* the weight carried by the seat will be shifted from the center *x* of the bearing disks onto the pivot bolts 81 so that the bearing disks will be caused to turn in the cradle or sockets 76 until the arms 82 are stopped by contact with the surfaces 83 of the blocks 75. The turning center for the chair will then be transferred from the centers *x* to the centers of the pivot bolts 81 so that the chair will then turn on the secondary axis provided by these pivots 81, from the primary axis provided by the centers *x* of the bearing disks.

Figures 10 and 11 illustrate two other pivot arrangements for the chair seat wherein the secondary fulcrum or axis of oscillation of the chair is located closer to the primary axis or imaginary center of the bearing cradles

5

and the disks positioned therein. In other words the secondary fulcrum or axis may be either outside of the bearing cradle or bearing disk circumference, on the circumference or within this circumference as may be required to secure the correct balance for different size chairs.

In the arrangement shown in Figure 10 the numeral 85 designates the cradle body or block which is secured to the side frame of the chair, not shown. In this block is formed the upwardly opening cradle 86. This cradle is less than a semi-circle and the rear portion of the block 85 is cut away to form the downwardly inclined stop shoulder 87 and between this shoulder and the curved surface 86 is a recess 88 in which lies a pivot rod 89. This pivot rod which may be in the form of a bearing sleeve having a solid rod extending through it, extends from one side of the chair to the other and forms a coupling between the chair sides as, for example, the sides indicated by the numeral 12 in Figure 2.

The chair which is movably positioned between the side members, is generally designated 30b, the seat and back being respectively designated 31b and 32b while the numeral 35b designates the side plate, there being one on each side of the chair as will be readily understood.

The numeral 90 designates the pivot disk which is secured to the underside of the chair bottom 31b and which has its circular edge 91 resting in the cradle 86 as illustrated.

The center of the pivot bar 89 lies on the radius line of the cradle 86 and also of the disk 90 and the disk is provided in its rear edge with its arcuate recess 92 terminating in the notch 93 and rearwardly from this notch the body 90 is cut away to form the inclined stop shoulder 94.

The turning center of the disk 90 is indicated at y and this is also the center for the cradle 86 when the chair is in upright position or when the disk is fully seated in the cradle as shown.

In this embodiment it will be seen that when an occupant of the chair desires to lean back a disk 90 at each side of the chair will turn in an arcuate cradle 86 until the notch 93 in the turning disk seats on a pivot bar 89. The turning center of the chair will then shift to the center of the bar 89 and the disk 90 will swing around the bar and rise from the cradle 86. This turning of the disk around the secondary center will continue until the stop shoulder 94 contacts the shoulder 87, thus stopping the rearward swinging of the chair.

In the form illustrated in Figure 11 the secondary center is inside the center of the disk and the cradle. In this construction the cradle block is designated 95 and has formed in the top thereof the substantially semi-circular cradle recess 96.

The pivot disk is designated 97 and, like the disk 90, is secured to the underside of the seat bottom which is here designated 31c.

The center of the turning disk 97 is indicated at z and the disk has formed therein the short arcuate slot 98 which is struck from the center z as illustrated.

The back edge of the disk 97 is cut away at 97a to provide clearance for the upward and rearward swinging of the disk on the secondary pivot which comprises the transverse rod 99.

As shown, the rod 99, which like the rod 89 extends across the chair to form a tie between the chair arms, lies in the arcuate slot 98 and when the chair is in upright position the rod will be engaged in the lower end of the slot so that the chair cannot swing forward beyond the desired upright position. When an occupant desires to swing back, the supporting disks 97 one on each side of the chair, will turn in the cradle 96 until the upper end of the slot 98 engages the pivot bar 99. Further turning of the disk 97 around its center z is then stopped and the disk will swing upwardly and rearwardly out of the cradle 96, turning about the rod 99 as a center until the inclined back shoulder 97a of the disk engages the rear corner of

6

of the cradle whereupon further back swinging of the chair is prevented.

Figures 12 to 15 illustrate a fifth embodiment of the invention employing at each side of the chair seat, a pair of substantially semicircular cradles and pivot lobes or disks in off set relation for shifting the center of turning or motion toward the back of the chair structure as the chair seat and back are swung rearwardly.

In this last embodiment one of the two side arm rests is illustrated and is generally designated 10b and comprises a flat upright wall member 12b as shown which is connected to the opposite wall member by the transverse front and back panels 24b and 25b.

The chair which is rockably mounted between the arm rest walls 12b, is generally designated 30c and comprises the seat 31d and the back 32d secured between the two seat side plates 34c and back side plates 35c.

In accordance with this embodiment the lower end of each side plate 35c is formed to provide the semi-circular lobe or disk 100, the radial center x' of which lies rearwardly of the back edge of the seat bottom 31d as illustrated and at the rear end of the semi-circle defined by this lobe or disk the side plate is formed to provide a rearwardly extending downwardly facing stop shoulder 101.

Secured against the outer face of each seat plate 34c in partial overlapping relation with the lobe or disk 100, is the outer circular lobe or disk 102, the radial center y' of which is located forwardly from the center x' of the lobe or disk 100.

Secured to the inner face of each wall 12b are the front and rear overlapping cradle blocks 103 and 104 respectively.

The cradle block 103 has formed in the top edge thereof the circular recess 105 in which is received the outer disk 102 and the rearwardly disposed block 104 has formed in the top edge the substantially semi-circular cradle recess 106 in which is positioned the rearward lobe or disk 100 as shown.

It will also be seen that the two recesses 105 and 106, in addition to being offset from one another in a front to rear direction in the chair structure, are disposed at different elevations, the rear recess 106 having its lowest part lower than the lowest part of the recess 105 adjacent thereto.

In order to facilitate the turning motion of the lobes or disks in their respective cradles, the forward or primary lobe or disk has its radius decreased through a portion of its extent at the rear end of the disk edge as indicated at 102a while the recess 106 for the secondary lobe or disk, at the rear end of its curvature has its radius increased or lengthened as indicated at 100a.

In the operation of the chair illustrated in Figures 12 to 15, it will be seen that when the chair is upright the forward disks or lobes 102 will be seated fully in their recesses 105 and the rear or secondary pivot disk 100 will be elevated from its recess, as shown in Figure 12.

As the chair is swung rearwardly the primary lobes or disks 102 will rotate in their recesses about the centers y' until the edges or peripheries of the rear or secondary disks 100 come to rest in their recesses 106. The rotary movement will then be transferred from the primary disks 102 to the secondary disks 100 and these latter disks will then rotate in their respective recesses and the primary disks will rise from their recesses as shown in Figure 14.

When the limit of rearward swinging of the chair is reached the shoulder 101 at the back edge of each of the secondary disks 100 will come to rest upon the top edge 104a of the cradle block 104 at the rear of the recess 106 as illustrated in Figure 14.

From the foregoing it will be seen that there is provided by the present invention a novel chair structure which may be easily rocked from an upright position to a fully reclining position by a smooth transition from a

primary pivot to a secondary pivot, such primary and secondary pivots being located in a novel manner whereby the transfer of the weight from one pivot to the other is accomplished smoothly without jolting or jarring the occupant of the chair and the arrangement in formation of the secondary pivots being such that the chair is brought to rest or stopped in its rearward movement in a comfortable manner.

It will also be seen that the foot rest provided for the chair structure is automatically elevated as the chair swings backwardly, by the novel association of the cam block and the cam follower arm attached to the underside of the foot rest.

I claim:

1. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to the rear edge of said bottom and extending upwardly therefrom, side plates secured to opposite side edges of said bottom and said back, a secondary, semi-circular downwardly and rearwardly extending disk on each side plate, the center of said disk being disposed substantially in the plane of said bottom and rearwardly of the rear edge, a primary disk secured to the outer surface of each side plate and having an arcuate edge surface greater than a semi-circle, the center of said surface being disposed forwardly of the rear edge of said bottom, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting said primary disk, a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in over-lapping relation and extending rearwardly thereof, each of said last mentioned blocks having an upwardly open arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame during movement from an upright to a semi-reclining position and said secondary disks to support said frame during movement from a semi to a full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly and cooperating means on said side plates and the blocks forming said secondary cradle for preventing reclining movement of said frame beyond a pre-determined point.

2. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to the rear edge of said bottom and extending upwardly therefrom, side plates secured to opposite side edges of said bottom and said back, a secondary, semi-circular downwardly and rearwardly extending disk on each side plate, the center of said disk being disposed substantially in the plane of said bottom and rearwardly of the rear edge thereof, a primary disk secured to the outer surface of each side plate and having an arcuate edge surface greater than a semi-circle, the center of said surface being disposed forwardly of the rear edge of said bottom, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting one of said primary disks and a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in over-lapping relation and extending rearwardly thereof, each of said last mentioned blocks having an upwardly opening arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame during movement from an upright to a semi-

reclining position and said secondary disks to support said frame during movement from a semi to full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly.

3. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to said bottom and extending upwardly therefrom, side plates secured to opposite side edges of said bottom and said back, a secondary arcuate downwardly and rearwardly extending disk on each side plate, the center of said disk being disposed substantially on the plane of said bottom and rearwardly of the rear edge thereof, a primary disk secured to the outer surface of each side plate and having an arcuate edge surface, the center of said surface being disposed forwardly of the rear edge of said bottom, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting said primary disks and a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in over-lapping relation and extending rearwardly thereof, each of said last mentioned blocks having an upwardly opening arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame during movement from an upright to a semi-reclining position and said secondary disks to support said frame during movement from a semi to a full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly.

4. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to said bottom and extending upwardly therefrom, side plates secured to opposite side edges of said bottom and said back, a secondary arcuate downwardly and rearwardly extending disk on each side plate, the center of said disk being disposed rearwardly of the rear edge of said bottom, a primary disk secured to the outer surface of each side plate and having an arcuate edge surface, the center of said surface being disposed forwardly of the rear edge of said bottom, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting said primary disks and a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in over-lapping relation and extending rearwardly, each of said last mentioned blocks having an upwardly opening arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame to bring movement from an upright to a semi-reclining position and said secondary disks to support said frame during movement from a semi to a full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly.

5. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to said bottom and extending upwardly therefrom, side plates secured to opposite side edges of said bottom and said back, a secondary arcuate downwardly and rearwardly extending disk on each side plate, a primary disk secured to the outer surface of each

side plate and having an arcuate edge surface, the center of said surface being disposed forwardly of the center of said secondary disk, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting said primary disks and a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in over-lapping relation and extending rearwardly thereof, each of said last mentioned blocks having an upwardly opening arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame during movement from an upright to a semi-reclining position and said secondary disks to support said frame during movement from a semi to a full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly.

6. A reclining chair comprising a base having spaced side members and a chair frame pivotally mounted between said side members, said frame comprising a seat bottom, a seat back secured to said bottom and extending upwardly therefrom, a secondary arcuate downwardly and rearwardly extending disk on each side of said frame, a primary disk secured to each side of said frame and having an arcuate edge surface, the center of said surface being disposed forwardly of the center of said secondary disk, a primary supporting cradle comprising blocks secured to the inner surfaces of said side members, each block having an upwardly opening arcuate recess receiving and pivotally supporting said primary disks and a secondary supporting cradle comprising blocks secured to the inner surfaces of said first mentioned blocks in

over-lapping relation and extending rearwardly thereof, said last mentioned blocks each having an upwardly opening arcuate recess spaced rearwardly and below said first mentioned recess for receiving and pivotally supporting one of said secondary disks whereby said primary disks serve to pivotally support said frame during movement from an upright to a semi-reclining position and said secondary disks to support said frame during movement from a semi to a full reclining position, the center of rotation of said frame moving rearwardly and downwardly during such movement as the center of gravity of said frame and occupant moves rearwardly and downwardly.

7. A reclining chair structure, as defined in claim 1 in which the radius of the edge surface of each of said primary disks decreases for a portion of the periphery thereof.

8. A reclining chair structure, as defined in claim 1, in which the radius of each of the recesses in the blocks forming the secondary cradle increases for a portion of the length thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

532,579	Person	Jan. 15, 1895
537,869	Teel	Apr. 23, 1895
1,688,576	Doyle	Oct. 23, 1928
1,970,577	Schauss	Aug. 21, 1934
2,100,170	Parks	Nov. 23, 1937
2,181,345	Schauss	Nov. 28, 1939
2,604,141	Maurer	July 22, 1952
2,628,661	Kluglein	Feb. 17, 1953

FOREIGN PATENTS

26,852	Great Britain	Oct. 2, 1897
--------	---------------	--------------