Dec. 29 1925. 1,567,696

R. C. ANGELL

CHAIR SEAT

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FIG. 1.

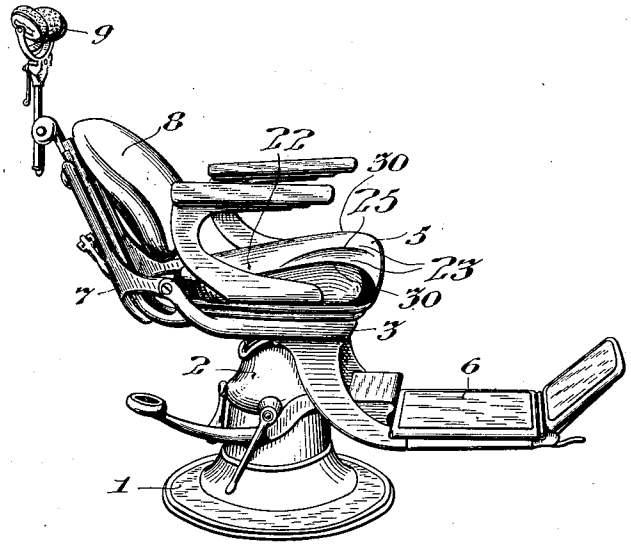
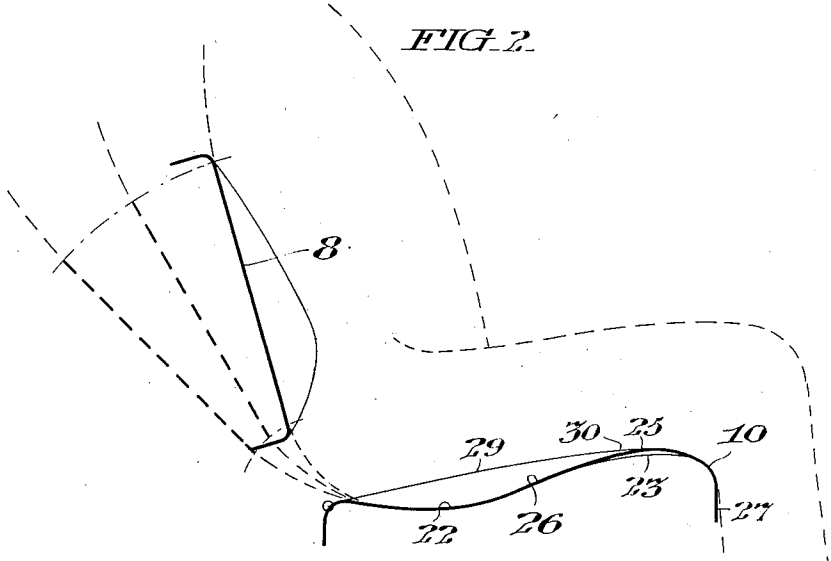


FIG. 2.



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CHAIR SEAT

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FIG. 3.

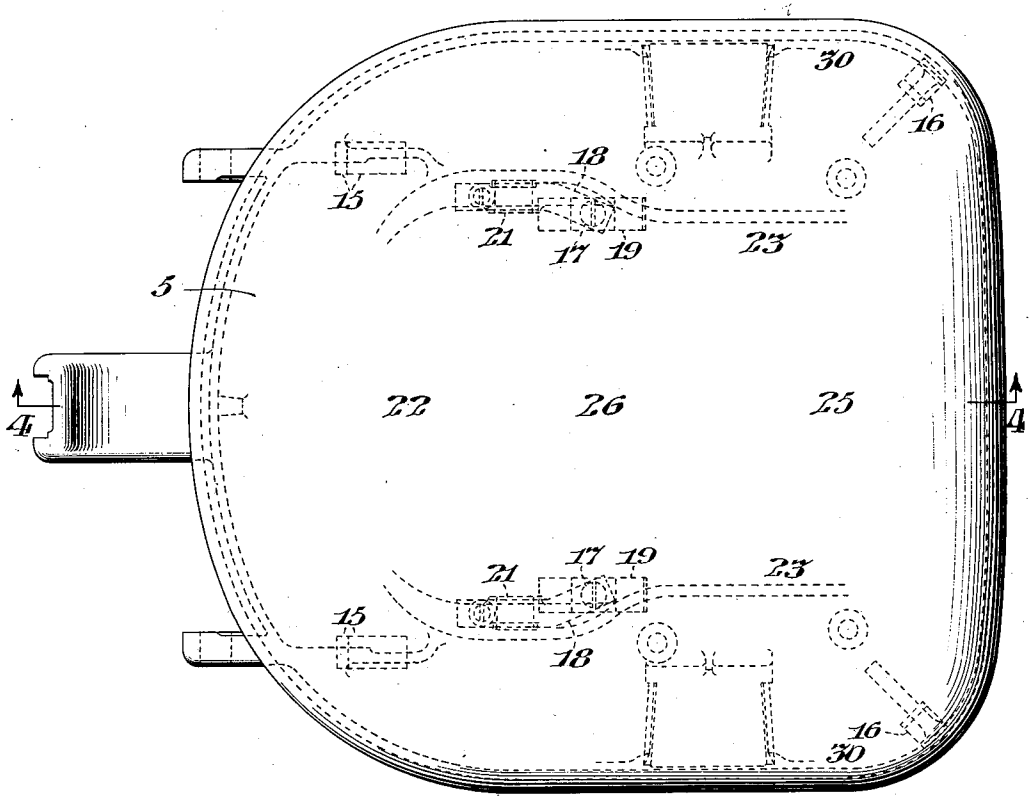
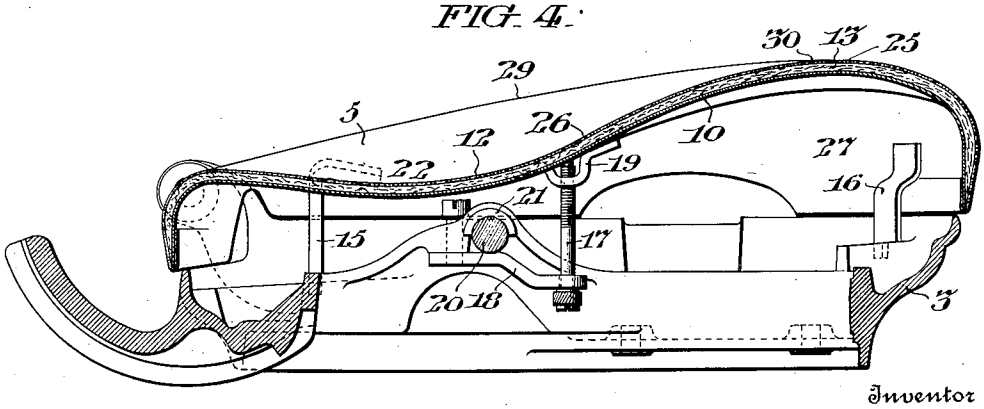


FIG. 4.



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CHAIR SEAT

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FIG. 5.

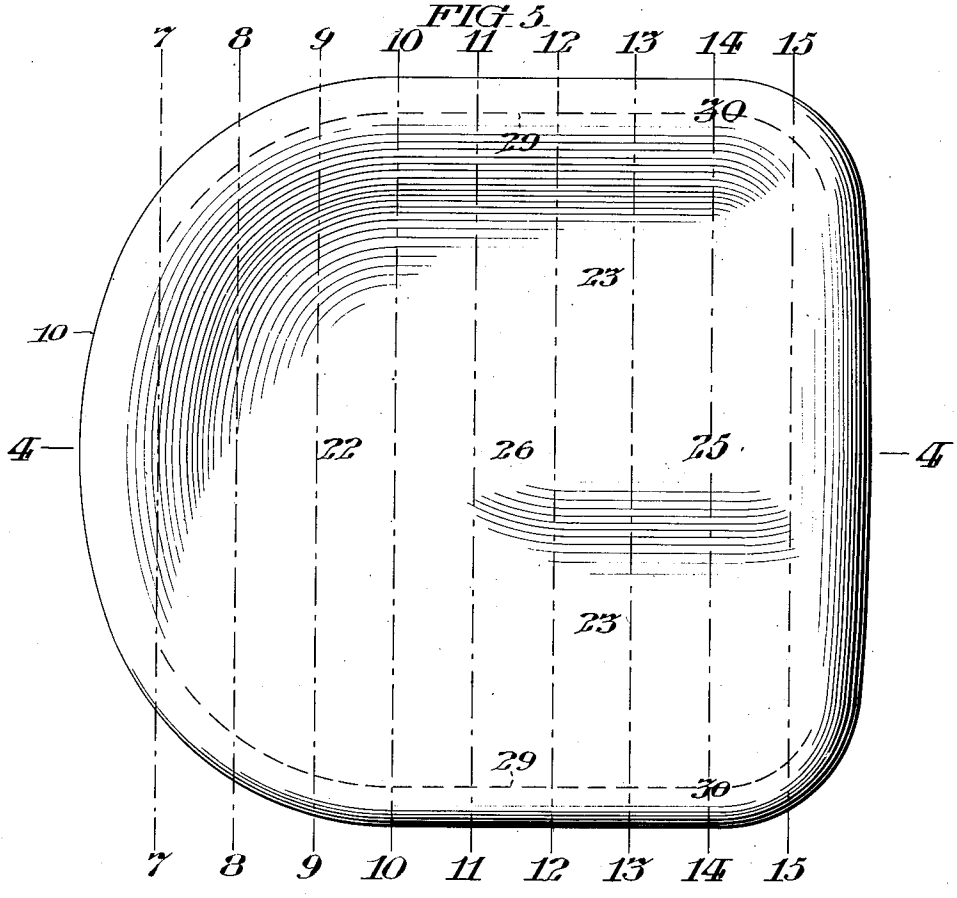
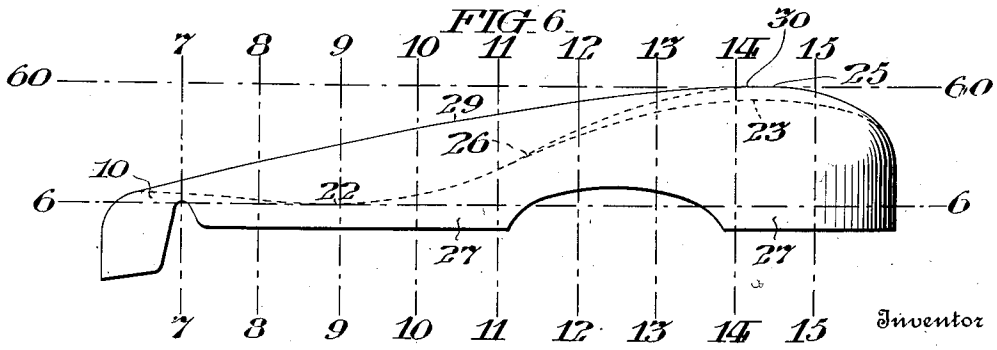


FIG. 6.



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CHAIR SEAT

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FIG. 7.



FIG. 8.

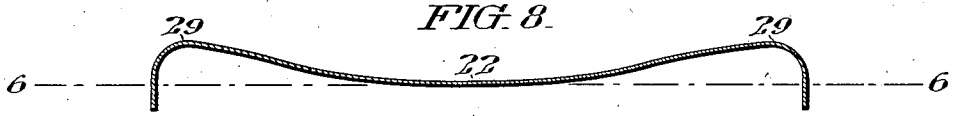


FIG. 9.

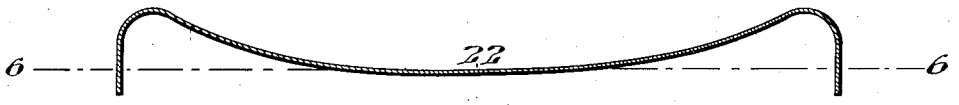


FIG. 10.

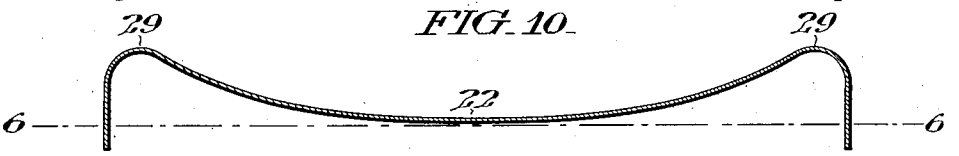


FIG. 11.

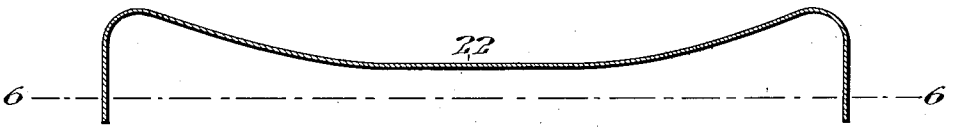


FIG. 12.

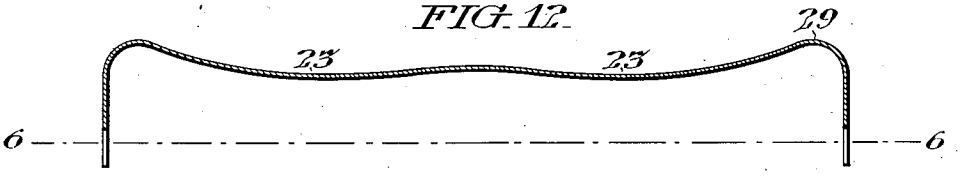


FIG. 13.

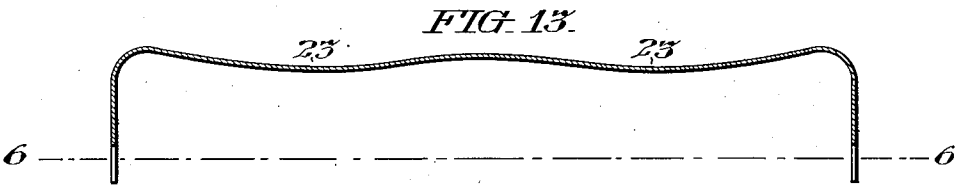


FIG. 14.

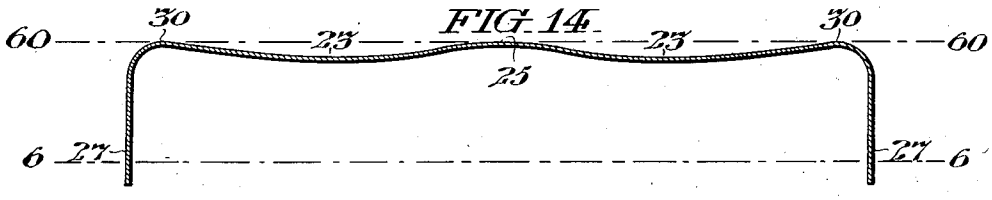
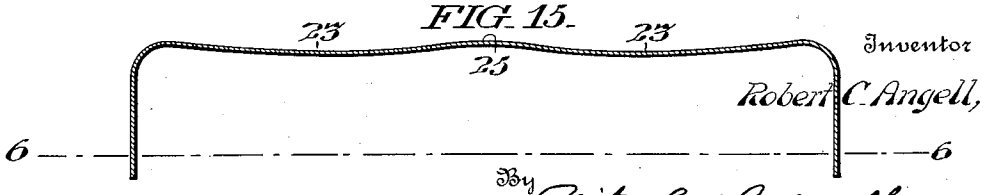


FIG. 15.



Inventor

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By Clifton C. Hallowell Attorney

Patented Dec. 29, 1925. 1,567,696

UNITED STATES PATENT OFFICE.

ROBERT C. ANGELL, OF PRINCE BAY, NEW YORK, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CHAIR SEAT.

Application filed February 29, 1924. Serial No. 695,904.

To all whom it may concern:

Be it known that I, ROBERT C. ANGELL, a citizen of the United States, and a resident of Prince Bay, in the county of Richmond, State of New York, have invented certain new and useful Improvements in Chair Seats, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates particularly to that class of seats that are designed for embodiment in dental chairs, and is especially directed to the configuration of its supporting surface upon which the buttocks and contiguous parts of an occupant of the chair may rest.

The principal objects of my invention are to provide a chair-seat formed of variably curved transverse zones so related to a peculiar longitudinal contour of said seat as to afford a supporting surface arranged to closely conform intaglio to the glutæus maximus and adjacent biceps femoris or biceps flexor cruris, constituting the buttocks and forward contiguous parts of the human body, and so formed and arranged as to maintain the body of the occupant in such a rearward position on the seat as to hold the body in contact with the back-rest of the chair, and thereby afford a constant feeling of security and consequent comfort and confidence.

Other objects of my invention are to provide a vertically adjustable chair-seat which has its supporting surface so depressed as to afford a minimum low position of the occupant of the chair when the seat support is lowered to the limit of its movement.

Further objects of my invention are to provide a chair-seat formed of sheet material, shaped to form a shell arranged to conform to the rump and thighs of the human form, and having its perimetral margin drawn downwardly to provide a continuous deeply depending bracing flange gradually decreasing in depth rearwardly, so as to effect a substantial rearward inclination of the seat surface, whereby the occupant may be prevented from accidentally slipping forward.

My invention comprehends a chair-seat that will not only afford maximum comfort, but that is relatively light in weight, rigid, readily covered with leather, fabric, paint, enamel, or other superficial covering; that will conduct and radiate the heat of the body occupying the chair, thereby producing a sensation of coolness in hot weather; and that is highly sanitary.

My invention further includes novel means arranged to attach to and support the chair upon the seat frame of the chair.

The form of my invention, as hereinafter described, comprises a chair-seat formed of a shell of stamped sheet metal having a deeply depending rim flange decreasing in depth rearwardly, and having its upper surface shaped substantially intaglio to the human rump and thighs when in sitting posture, said seat surface having a deeply depressed hollow arranged to maintain the occupant toward the rear of the seat, and in contact with the back-rest of the chair, and having two shallow channels separated by a central hump or protuberance joining said hollow and extending therefrom toward the front of the seat and gradually merging into the deeply depending forward flange.

My invention also includes all of the various novel features of construction and arrangement as hereinafter more definitely specified.

In the accompanying drawings Figure 1 is a perspective view of a dental chair conveniently embodying a chair-seat formed in accordance with my invention; Fig. 2 is a diagrammatic illustration showing the relation of the chair-seat and back-rest with the outline of the occupant shown in dash lines; Fig. 3 is a plan view of the chair-seat shown in Fig. 1 attached to and supported upon the chair-seat frame of well known general construction; Fig. 4 is a central vertical longitudinal sectional view of the structure shown in Fig. 3, taken on the plane of symmetry 4—4 in said figure; Fig. 5 is a plan view of the chair-seat shell per se; Fig. 6 is a side elevational view of the chair-seat shell as shown in Fig. 5; Fig. 7 is a transverse vertical sectional view taken in a plane at one-tenth of the length of the chair-seat shell spaced from the back edge thereof on the line 7—7 in Figs. 5 and 6; Fig. 8 is a transverse vertical sectional view taken in a plane at two-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 8—8 in Figs. 5 and 6; Fig. 9 is a transverse vertical sectional view taken in a plane at three-tenths of the length of the chair-seat shell

spaced from the back edge thereof on the line 9—9 in Figs. 5 and 6; Fig. 10 is a transverse vertical sectional view taken in a plane at four-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 10—10 in Figs. 5 and 6; Fig. 11 is a transverse vertical sectional view taken in a plane at five-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 11—11 in Figs. 5 and 6; Fig. 12 is a transverse vertical sectional view taken in a plane at six-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 12—12 in Figs. 5 and 6; Fig. 13 is a transverse vertical sectional view taken in a plane at seven-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 13—13 in Figs. 5 and 6; Fig. 14 is a transverse vertical sectional view taken in a plane at eight-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 14—14 in Figs. 5 and 6; and Fig. 15 is a transverse vertical sectional view taken in a plane at nine-tenths of the length of the chair-seat shell spaced from the back edge thereof on the line 15—15 in Figs. 5 and 6.

In said figures the chair comprises the base 1, in the pedestal 2 of which is enclosed the usual raising and lowering mechanism of well known construction, supporting the seat frame 3 carrying the seat 5. Said seat frame 3 also carries the foot-board 6 and the back-rest frame 7 upon which the back-rest 8 and head-rests 9 are adjustably mounted.

The seat 5 comprises a shell 10 formed of a unitary piece of sheet material shaped to conform intaglio to the human form in sitting or reclining posture, as shown in Fig. 2; and as best shown in Fig. 4 may be provided with a covering 12 of leather or fabric with an interposed lining 13 of felt or other suitable material preferably of uniform thickness so as to maintain said covering in substantially parallel relation with the shell 10.

As shown in Figs. 3 and 4, the seat shell 10 is provided with the supporting legs or standards 15 and 16 which rest upon the seat supporting frame 3, and said seat shell is retained in position thereon by the screws 17 which extend through the plates 18 in threaded engagement with the threaded yoke 19 secured to the under surface of said shell and which also serve to vary the frictional engagement of the trunnions 20 and the bearings 21 of the raising and lowering mechanism upon which said seat frame 3 is arranged to rock.

The seat shell 10 is shaped to conform to the buttocks and adjacent thighs of the human form and is provided toward the back with a deeply dished bowl 22 merging forwardly into two shallow parallel leg supporting channels 23 which are separated by a central hump or protuberance 25 which merges into said bowl 22 by sharply declining rearwardly at the central portion of said seat and affording an abutment surface 26 slanting at approximately thirty degrees and tending to maintain the occupant against the back-rest 8 and preventing any tendency of said occupant to slip forward.

The seat shell 10 conforms along its central longitudinal plane of symmetry 4—4, to an ogee curve whose lower plane of tangency 6—6 and upper plane of tangency 60—60 are spaced apart a distance in excess of one-seventh of the length of the chair-seat, its lowermost locus of tangency with said plane 6—6 being approximately three-tenths of the length of the seat from the back edge thereof, and its uppermost locus of tangency with said plane 60—60 being between approximately eight-tenths and nine-tenths of the length of said seat from the back edge.

In order that the novel contour of the seat shell 10 may be better understood, it has been divided transversely into ten equal parts, as shown in Figs. 5 and 6, by vertical planes 7—7 to 15—15 inclusive, each disposed normal to the plane of symmetry 4—4 and the tangential planes 6—6 and 60—60, in the order of their notation from the back forward.

As shown in Figs. 7 to 15 inclusive, representing the transverse sections which divide the shell 10 into ten equal parts, the outer margin of the shell is sharply curved downwardly to form the deeply depending rim flange 27 which serves to stiffen the seat structure, and affords the perimetral convexed ridge crests 29, variably spaced from the plane of symmetry 4—4 and from horizontal tangential planes 6—6 and 60—60, reaching their maximum height, tangent to the plane 60—60, which defines not only the upper limit of the ridge crests, but alike the upper limit of the contral hump or protuberance 25.

Said ridge crests 29 project substantially from said horizontal plane 6—6 to its maximum extent, and substantially co-extensive with the hump or protuberance 25, between the transverse planes of sections 14—14 and 15—15 to form the lateral protuberances 30, which cooperate with said central hump or protuberance 25 to form the leg supporting channels 23, which tend to maintain the occupant in a predetermined position in the chair.

In the plane of section 7—7 at one-tenth of the length of the chair-seat-shell from the back, the ridge crests are spaced approximately nine-and-one-half inches apart or fifty-one-hundredths of the length of said shell and approximately nine-sixteenths inches or three-hundredths of said length,

from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within three-sixteenths of an inch or one-hundredth of said length, at the medial line or plane of symmetry 4—4.

In the plane of section 8—8 at two-tenths of the length of the shell from the back, the ridge crests are spaced approximately thirteen-and-one-half inches apart or seventy-two-hundredths of the length of said shell, and approximately one inch or six-hundredths of said length, from the tangential plane 6—6, and between said crests the shell concaves toward said tafigential plane 6—6 to within one-sixteenth of an inch or one-third-of-one-hundredths of said length, at the medial line or plane of symmetry 4—4.

In the plane of section 9—9 at three-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-one-quarter inches apart or eighty-two-hundredths of the length of said shell, and approximately one-and-three-eighths inches or eight-hundredths of said length, from the tangential plane 6—6, and between said crests the shell concaves into tangential relation with the tangential plane 6—6, at the medial line or plane of symmetry 4—4.

In the plane of section 10—10 at four-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-three-quarters inches apart or eighty-five-hundredths of the length of said shell, and approximately one-and-seven-eighths inches or ten-hundredths of said length, from the tangential plane 6—6 to within one-quarter of an inch or one-and-one-half-hundredths of said length, at the medial line or plane of symmetry 4—4.

In the plane of section 11—11 at five-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-three-quarters inches apart or eighty-five-hundredths of the length of said shell and approximately two-and-one-eighth inches or twelve-hundredths of said length, from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within three-quarters of an inch or four-hundredths of said length, at the medial line or plane of symmetry 4—4.

In the plane of section 12—12 at six-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-three-quarters inches apart or eighty-five-hundredths of the length of said shell, and approximately two-and-three-eighths inches or thirteen-hundredths of said length, from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within one-and-five-eighths inches or nine-hundredths of said shell length upon opposite sides of the upwardly curved, centrally disposed hump, whose convexed crest rises one-and-three-quarters inches or ten-and-one-half-hundredths of said length above the tangential plane 6—6 at the medial line or plane of symmetry 4—4.

In the plane of section 13—13 at seven-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-three-quarters inches apart or eighty-five-hundredths of the length of said shell, and approximately two-and-five-eighths inches or fourteen-and-one-half-hundredths of said shell length, from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within two-and-one-eighth inches or twelve-hundredths of said shell length, upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises two-and-one-half inches or fourteen-hundredths of said shell length above the tangential plane 6—6 at the medial line or plane of symmetry 4—4.

In the plane of section 14—14 at eight-tenths of the length of the shell from the back, the ridge crests are spaced approximately fifteen-and-three-quarters inches apart or eighty-five hundredths of the length of said shell, and approximately two-and-three-quarters inches or fifteen-hundredths of said shell length, from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within two-and-three-eighths or thirteen-and-one-half hundredths of said shell length, upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises two-and-three-quarters inches or fifteen-hundredths of said shell length above the tangential plane 6—6 at the medial line or plane of symmetry 4—4.

In the plane of section 15—15 at nine-tenths of the length of the shell from the back, the ridge crests are spaced approximately fourteen-and-three-quarters inches apart or seventy-nine-hundredths of the length of said shell, and approximately two-and-five-eighths inches or fourteen-and-one-half-hundredths of said shell length, from the tangential plane 6—6, and between said crests the shell concaves toward said tangential plane 6—6 to within two-and-one-quarter inches or thirteen-hundredths of said shell length, upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises two-and-five-eighths inches or fourteen-and-one-half-hundredths of said shell length above the tangential plane 6—6 at the medial line or plane of symmetry 4—4.

As best shown in Fig. 6, the seat-shell 10 is so contoured that its maximum depth is disposed at approximately three-tenths of the length of the shell from the back thereof, and the maximum height is approxi-

mately between eight-tenths and nine-tenths of said shell length, consequently the extreme hollow of the bowl 22 and crest of the hump 25 are spaced longitudinally but approximately five-tenths of the shell length apart, and being relatively spaced vertically in excess of one-seventh, or approximately fifteen-hundredths of the shell length, a sharply inclined intermediate seat surface 26 is afforded which tends to maintain the occupant of the chair in contact with the back-rest 8, of the chair irrespective of the relative position of said back-rest and seat, as shown in Fig. 2.

As before stated, the seat-shell 10 is formed of unitary piece of sheet material, and has its peripheral margin turned downward to provide the deeply depending rim flange 27, which not only serves to stiffen the seat structure, but provides an apron or shield extending substantially below the bowl 22 and to an extent in excess of one-sixth of the length of said shell 10, from its uppermost crests, at the front and sides of the shell, and to approximately one-fourth of the shell length at the rear of said shell.

My invention is advantageous in that the proportions herein set forth provide a chair-seat, that is so cooperative with the back-rest of the chair, as to afford equal comfort to a wide range of persons of varying size and weight, including alike children as well as adults.

I do not desire to limit my invention to the precise details of construction and arrangement as herein set forth, as it is obvious that various modifications may be made therein, without departing from the essential features of my invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A chair-seat formed of a unitary piece of sheet material, and comprising a shell having a rearwardly disposed hollow bowl, and a forwardly disposed hump cooperative with said bowl to afford a sharply inclined abutment extending across the medial region of said seat-shell, and a deeply depending perimetral flange extending substantially below said bowl and providing a perimetral ridge crest which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl, said hump and crests rising approximately fifteen-hundredths of the length of said shell above a horizontal plane tangent to said bowl surface, and the trough of said channels at their maximum height approaching said plane to within thirteen-hundredths of said length.

2. A chair-seat formed of a unitary piece of sheet material, and comprising a shell having variably curved transverse zones so related to a longitudinal substantially uniform ogee configuration as to afford a rearwardly disposed hollow bowl, a forwardly disposed hump cooperative with said bowl to provide a sharply inclined abutment extending across the medial region of said shell, and a deeply depending peripheral flange affording a perimetral ridge crest which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl; in a transverse plane at one-tenth of the length of said shell from the back, the ridge crests are spaced apart approximately fifty-one-hundredths of said length and extend three-hundredths from a horizontal plane tangent to said bowl, and between said crests the shell concaves toward said plane to within one-hundredth of said length; at two-tenths the ridge crests are spaced apart approximately seventy-two-hundredths of said length and extend six-hundredths from said tangential plane, and between said crests the shell concaves to within one-third of one-hundredth of said length; at three-tenths the ridge crests are spaced apart approximately eighty-two-hundredths of the length of said shell and extend eight-hundredths of said length from said horizontal tangential plane, and between said crests the shell concaves into tangential relation with said tangential plane; at four-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of said length and extend from the tangential plane approximately ten-hundredths of said length, and between said crests the shell concaves toward said tangential plane to within one-and-one-half-hundredths of the length of said shell; at five-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of the length of the shell and extend to approximately twelve-hundredths of said length from the tangential plane, and between said crests the shell concaves to within four-hundredths of said length; at six-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of said length, and extend approximately thirteen-hundredths of said length from the tangential plane, and between said crests the shell concaves to within nine-hundredths of said length upon opposite sides of the upwardly curved centrally disposed hump whose convex crest rises ten-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry; at seven-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of the length of said shell, and extend approximately fourteen-and-one-half-hundredths of said length from the tangential plane, and between said crests the shell concaves toward said tangential plane to within twelve-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fourteen-hundredths of said length above said tangential plane;

at eight-tenths the ridge crests are spaced approximately eighty-five-hundredths of said length and extend approximately fifteen-hundredths of said length from the tangential plane, and between said crests the shell concaves toward said tangential plane to within thirteen-and-one-half-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fifteen-hundredths of said length above said tangential plane; at nine-tenths the ridge crests are spaced apart approximately seventy-nine-hundredths of said length and extend fourteen-and-one-half-hundredths of said length from said tangential plane, and between said crests the shell curves toward said tangential plane to within thirteen-hundredths of said shell length upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises fourteen-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry.

3. A chair-seat formed of a unitary piece of sheet material, and comprising a shell having variably curved transverse zones so related to a longitudinal substantially uniform ogee configuration as to afford a rearwardly disposed hollow bowl, a forwardly disposed hump cooperative with said bowl, to provide a sharply inclined abutment extending across the medial region of said shell, and a depending peripheral flange affording a perimetral ridge crest, which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl; in a transverse plane at one-tenth of the length of said shell from the back, the ridge crests are spaced apart approximately fifty-one-hundredths of said length and extend three-hundredths from a horizontal plane tangent to said bowl, and between said crests the shell concaves to within one-hundredth of said length; at three-tenths the ridge crests are spaced apart approximately eighty-two-hundredths of said length and extend eight-hundredths of said length from said horizontal tangential plane, and between said crests the shell concaves into tangential relation with said tangential plane at the medial line or plane of symmetry; at five-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of the length of the shell, and extend to approximately twelve-hundredths of said length from the tangential plane, and between said crests the shell concaves to within four-hundredths of said length; at seven-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of the length of said shell, and extend approximately fourteen-and-one-half-hundredths of said length from the tangential plane, and between said crests the shell concaves toward said tangential plane to within twelve-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fourteen-hundredths of said length above said tangential plane at the medial line or plane of symmetry; at nine-tenths the ridge crests are spaced apart approximately seventy-nine-hundredths of said length and extend fourteen-and-one-half-hundredths of said length from said tangential plane, and between said crests the shell curves toward said tangential plane to within thirteen-hundredths of said shell length upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises fourteen-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry.

4. A chair-seat formed of a unitary piece of sheet material and comprising a shell having variably curved transverse zones so related to a longitudinal substantially uniform ogee configuration as to afford a rearwardly disposed hollow bowl, a forwardly disposed hump cooperative with said bowl to provide a sharply inclined abutment extending across the medial region of said shell, and a depending peripheral flange affording a perimetral ridge crest which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl; in a transverse plane at three-tenths of the length of the seat-shell the ridge crests are spaced apart approximately eighty-two-hundredths of the length of said shell, and extend eight-hundredths of said length from said horizontal tangential plane, and between said crests the shell concaves into tangential relation with a horizontal plane tangent to the hollow surface of said bowl; at five-tenths of said length the ridge crests are spaced apart approximately eighty-five-hundredths of said length, and extend to approximately twelve-hundredths of said length from the tangential plane, and between said crests the shell concaves to within four-hundredths of said length; at seven-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of the length of said shell, and extend approximately fourteen-and-one-half-hundredths of said length from the tangential plane, and between said crests the shell concaves toward said tangential plane to within twelve-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fourteen-hundredths of said length above said tangential plane at the medial line or plane of symmetry; at nine-tenths the ridge crests are spaced apart approximately seventy-nine-hundredths of said length, and extend fourteen-and-one-half-hundredths of said length from said tangential plane, and be-

tween said crests the shell curves toward said tangential plane to within thirteen-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises fourteen-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry.

5. A chair-seat formed of a unitary piece of sheet material, and comprising a shell having variably curved transverse zones so related to a longitudinal substantially uniform ogee configuration as to afford a rearwardly disposed hollow bowl, a forwardly disposed hump cooperative with said bowl to provide a sharply inclined abutment extending across the medial region of said shell and a depending peripheral flange affording a perimetral ridge crest which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl; in a transverse plane at three-tenths of the length of the seat-shell the ridge crests are spaced apart approximately eighty-two-hundredths of the length of said shell and extend eight-hundredths of said length from a horizontal plane tangent to the hollow of said bowl, and between said crests the shell concaves into tangential relation with the tangential plane at the medial line or plane of symmetry; at five-tenths of the length of the shell the ridge crests are spaced apart approximately eighty-five-hundredths of the length of the shell, and extend to approximately twelve-hundredths of said length from the tangential plane, and between said crests the shell concaves to within four-hundredths of said length; at six-tenths the ridge crests are spaced apart approximately eighty-five-hundredths of said length, and extend approximately thirteen-hundredths of said length from the tangential plane, and between said crests the shell concaves to within nine-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises ten-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry; at eight-tenths the ridge crests are spaced approximately eighty-five-hundredths of the length of the shell and approximately fifteen-hundredths of said length from said tangential plane, and between said crests the shell concaves toward said tangential plane to thirteen-and-one-half-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fifteen-hundredths of said shell length above said tangential plane at the medial line or plane of symmetry; at nine-tenths the ridge crests are spaced apart approximately seventy-nine-hundredths of said length and extend fourteen-and-one-half-hundredths of said length from said tangential plane and between said crests the shell curves toward said tangential plane to within thirteen-hundredths of said shell length upon opposite sides of the upwardly curved, centrally disposed hump, whose crest rises fourteen-and-one-half-hundredths of said shell length above the tangential plane at the medial line or plane of symmetry.

6. A chair-seat formed of a unitary piece of sheet material, and comprising a shell having variably curved transverse zones so related to a longitudinal substantially uniform ogee configuration as to afford a rearwardly disposed hollow bowl, a forwardly disposed hump cooperative with said bowl to provide a sharply inclined abutment extending across the medial region of said shell, and a depending peripheral flange affording a perimetral ridge crest which cooperates with said hump to form spaced shallow channels merging rearwardly into said bowl; in a transverse plane at one-tenth of the length of said shell from the back, the ridge crests extend three-hundredths of the length of said shell, from a horizontal plane tangent to the hollow surface of said bowl, and between said crests the shell concaves to within one-hundredth of said length; at two-tenths the ridge crests extend six-hundredths from said tangential plane, and between said crests the shell concaves to within one-third-of-one-hundredth of said length; at three-tenths the ridge crests extend eight-hundredths of said length from said tangential plane, and between said crests the shell concaves into tangential relation with said tangential plane; at four-tenths the ridge crests extend from the tangential plane approximately ten-hundredths of said length, and between said crests the shell concaves toward said tangential plane to within one-and-one-half-hundredths of said length; at five-tenths the ridge crests extend to approximately twelve-hundredths of said length from the tangential plane, and between said crests the shell concaves to within four-hundredths of said length; at six-tenths the ridge crests extend approximately thirteen-hundredths of said length from the tangential plane, and between said crests the shell concaves to within nine-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose convex crest rises ten-and-one-half-hundredths of said length from the tangential plane at the medial line or plane of symmetry; at seven-tenths the ridge crests extend approximately fourteen-and-one-half-hundredths of said length from the tangential plane, and between said crests the shell concaves towards said tangential plane to within twelve-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fourteen-hundredths

of said length above said tangential plane; at eight-tenths the ridge crests extend approximately fifteen-hundredths of said length from the tangential plane, and between said crests the shell concaves toward said tangential plane to within thirteen-and-one-half-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fifteen-hundredths of said length above said tangential plane; at nine-tenths the ridge crests extend fourteen-and-one-half-hundredths of said length from said tangential plane, and between said crests the shell curves toward said tangential plane to within thirteen-hundredths of said length upon opposite sides of the upwardly curved, centrally disposed hump whose crest rises fourteen-and-one-half-hundredths of said length above the tangential plane at the medial line or plane of symmetry.

In witness whereof, I have hereunto set my hand this 15th day of February, A. D., 1924.

ROBERT C. ANGELL.