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(54) Novel structure of inlaid rattan network for seating and bed furnitures.

(57) This invention is related to a kind of novel structure for binding the inlaid rattan network for the rattan seating furnitures, especially provides a kind of simple and ready method for doing the job of binding the rattan network. And, no matter whether in flat surface or curved surface, the rattan network bound on it will be in a flat and tight binding condition. It is only necessary to make an outer frame and an inner ring according to the size and shape of the integral outer appearance of the seat, or seat back, or the integrated seat and back in one piece of the seating furniture to be bound with the rattan network, with a rattan network of the size a little larger than seat surface, seat back, or the integrated seat surface and back in one piece to be placed on the top of the inner ring; then, with the help of such machinery as punching machine or the like, the outer frame is placed on the rattan network covered inner ring and punched and pressed tightly, or further, filled or painted with viscous gum or melting liquid for further tightening combination. Thus, a rattan network type seat surface, seat back, or integrated seat surface and back in one piece is finished up, and can be conveniently matched with plastics, metals, or materials other than wood and rattan to form the novel structure of inlaid rattan network part to be assembled to various types of seating furnitures such as chairs, stools, and couches, etc. through integrated operation of total automation.

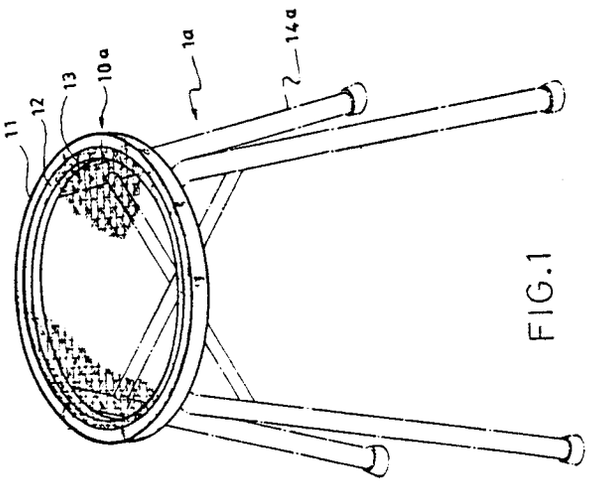


FIG.1

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NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING AND BED FURNITURES

This invention is related to a novel structure of inlaid rattan network for binding the rattan network to the seating chairs or stools, especially for providing a novel structure fitting to bind the rattan network to the seat or the back of the chair, and combine the rattan network for the seat and back of the chair in one piece. The main structure is to fit an outer frame and an inner ring consistent in shape of the outlines of the seat or the seat back of the chair, and the combined piece of seat and back, to be bound with rattan network. The rattan network shall be in the size a little larger than the aforesaid outlines and be laid flatly on the inner ring; then, with help of such machinery like punching machine, etc., the outer frame in corresponding shape is punched and pressed fixedly on the inner ring, or, in addition, adhered with viscous liquid for fixing more securely. Thus, a rattan network type seat surface or seat back, or a combined piece of seat and back, is instantly finished up, so that it can be fixed to such materials as plastic, metal, or other than wood and rattan through integrated operation to form various rattan network type chair, stool, or other furnitures. Besides, the work of binding the rattan network is quite simple and fast; and the rattan networks so bound, no matter whether they are shaped in plane surface or with curvatures, are all finished up with features of flat and secure binding.

This invention provides a rattan network binding in a fast and simple manner. The rattan network so bound is always finished up with the features of flat and secure binding. The method of such binding for the rattan network type seating furnitures is a novel structure, especially the designs of one outer frame and one inner ring consistent in shape of the outlines of the seat or the back, or the com bined piece of seat and back of the chair to be bound with rattan network; also, the rattan network is in the size a little larger than the aforesaid outlines, and to be laid flatly on the inner ring, and then, the outer frame is to be punched and pressed with such machinery like punching machine, etc., and further sticked with viscous liquid for fixing securely; thus, a rattan network type seat or back, or a combined piece of seat and back, is instantly finished up, so that it can be assembled with other materials such as plastic, metal or other than wood and rattan through integrated operation to form into various rattan network type chairs, stools, or other similar furnitures by means of the "NOVEL STRUCTURE OF THE INLAID RATTAN NETWORK."

The seat surface 20 of the conventional stool with rattan network as shown in Figures 9 and 10 is made by furnishing first a "U"-shaped trough 211 on the surface plate or frame 21 of body 210, and then, a soft rattan strip 22 is inserted in the "U"-shaped trough for binding the rattan network 30 prelaid on the body 210. Therefore, there are inevitably the following defects:

1. The materials for the surface plate or frame 21 of the seat 20 of the conventional rattan network type stools are usually limited to wood. And such structure is not fit for such materials as plastic or metal. Besides, it requires much labor in making the "U"-shaped trough 211 on the body 210. Therefore, not only the production cost is much high, but the variety of patterns or styles is limited.

2. The hold-down soft rattan strips 22 of the seat 20 of the conventional rattan network type stools are exclusively for inserting in the "U"-shaped trough 211 in order to bind securely the rattan network 30. Hence the width and thickness of those strips must be prepared evenly; otherwise, strips with larger width will be difficult or unable to insert into the "U"-shaped trough 211, and those with smaller width with be unable to bind the rattan network securely and tightly; strips with larger thickness will jut out of the seat surface and those with smaller thickness will have the seat surface indented, thus affecting the outer appearance of the seat surface. Such situations always seriously affect the quality and production of the products as well as the speed of processing and assembling.

3. Furthermore, in binding the rattan network 30 to the seat 20 of the rattan network type stool, the job is almost done by manual operation (i.e., semi-automation). It is absolutely by no means of using machinery instead of manual labor in total automation for the binding jobs. (Because, in total automatic operation, the rattan network surface can never be bound tightly and flatly as done by machinery, besides, the tightness cannot be automatically regulated when any position of the rattan network is not tightly bound; moreover, the rattan strips might be easily broken off when the binding is too tight.) Hence, the speed of production or assembling is very slow, thus increasing the production cost. Apart from being impossible to meet the requirements of exporting orders in large quantity or urgent delivery which can only be accepted through integrated operation by total automation, the profit from such slow production is quite low.

Both inventors of this invention are engaged in practical manufacturing and marketing of various seating furnitures. In view of the above mentioned defectes in production and assembling of the seat of the conventional rattan network type stools, through laborious researches and improvements, we together have developed the "NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING AND BED FURNITURES". The detailed descriptions of this invention with reference to the attached drawings are as follows:

Figure 1 is a perspective view of a round stool according the present invention.

Figure 2 shows the rear view and vertical section of the round rattan network type seat according to the present invention.

Figure 3 is a disassembled and perspective view of the round rattan network type seat according to the present invention.

Figure 4a -4f show the various detailed cross-sectional views of the frame portions of the round, square, and polygonal rattan network type seats according to the present invention.

Figure 5 is an enlarged view of the structure at the angle position of the inner wall, inner ring, and outer ring wall of the outer frame according to the present invention.

Figure 6 is a perspective view of a chair with rattan network type seat and back according to the present invention.

Figure 7 is a perspective view of a reclining chair or couch with combined seat and back according to the present invention.

Figure 8a and 8b are the cross-sectional view of the outer frame portion of the seat and back of the chair shown in Figure 6, and the combined piece of the couch shown in Figure 7 respectively.

Figures 9 and 10 are the top view and the vertical sectional view of a conventional stool.

As displayed in Figures 1, 6, and 7, they are respectively the seating furnitures of Stool 1a, Chair 1b, and Couch 1c fitting with various rattan network types of: seat 10a and 10a', or seat back 10b, and combining seat with seat back in one piece 10c. Among the embodiments, the rattan seat 10a of the stool 1a is usually to be made in round shape; and the seat 10a' of the chair 1b is usually made in square shape, while its seat back 10b in the rectangular or oval shape; as to the couch 1c, its combined seat and back in one piece 10c is usually made in "L" or curved shape. However, no matter what shape is adopted from the above mentioned various embodiments of seats 10a or 10a', or seat back 10b, and combined one piece 10c, the manner of inlaying the rattan network--i.e., the novel structure--is basically all the same. Now, further detailed descriptions of the implementation of various novel structures in inlaying the rattan network are given as follows:

As displayed in Figures 1, 2, 3, and 4a, in making the seating furnitures like the round stool 1a with the Novel Structure of Inlaid Rattan Network of this invention, it is essential to design the rattan network type seat 10a in round shape, including an outer frame 11 and an inner ring 12, with a rattan network 13 having a diameter a little larger than the outline (diameter) of the round seat 10a laid flatly on the inner ring 12; then, by means of a machinery such as punching machine or the like having the outer frame 11 covered on the inner ring 12, and again, punched and pressed fixedly of further filled and adhered with viscous liquid for fixing more securely. Thus a rattan network type seat 10a for the above mentioned round stool 1a is finished up. The outer frame 11 has a frame body 110 in an inverted "L" shape, including a flange 111 in its upper inner edge and a jutted packing ring 112 on its inner wall; the size of its inside diameter is just to contain a round rattan network 13 tightly fitting on the inner ring 12. The outer frame 11 is better to be molded with such materials like plastics or other synthetic resins, also can be molded with metallic materials by punching or rolling, and through lathe and press. The inner ring 12 is chiefly a solid ring 120 or an inverted "U" shape, with a sloped surface 121 of rattan strip fitted on the upper surface of the inner edge for preventing the rattan network 13 from pulling apart and a concave channel ring 122 fitted on the outer wall at the position corresponding to the jutted packing ring 112 on the inner wall of outer frame 11a. And, screws 124 are mounted under the ring body 120, extending downward to lock with the stool stand 14a with screw nuts for the purpose of forming a seating furniture like the round stool 1a (as shown in Figure 1). Of course, the action of screw joint may also be changed to fix screw holes directly at the lower side of the ring body 120 or to furnish several screw nuts separately, then to lock the stool stand 14a with some screws so that a seating furniture is formed. In forming this ring body 120 by molding, it is usually to mold the ring body in inverted "U" shape with plastics, the same material for the outer frame 11a. Besides, it is better to fix some supplementary or reinforced ribs 126 in the centre of the "U" shape trough 125 so that in performing the action of combining the inlaid rattan network 13 with the frame body 110 of the outer frame 11, the liquid used for melting the plastics or synthetic resin material can be filled in through the lower seam in order to combine this ring body 120 with the frame body 110 thoroughly and securely into one integrated body, without becoming loos-

ened or falling apart. If the outer frame 11a and the inner ring 12 are formed from metallic molding or lathe work and through punching or rolling, viscous gum may be first painted on the inner wall of the frame body 110a or the outer wall of the ring body 120, and then the action of combining the inlaid rattan network 13 is performed. This will also combine this ring body 120 with the frame body 110 thoroughly and securely into one integrated body, without again becoming loosened or falling apart. The rattan network 13 is woven with rattan strips either by manual labor or by automatic weaving machine to form imitated bird-eye type (as shown in the Figures) or the similar type networks with paper fiber molding. The sizes of diameter, or length/width are subjected to twice the thickness of the frame body 110 larger than the inside diameter of the outer frame 11a or the length/width of its inner wall; besides, it should be cut by the punching or shearing machine into the same outline and outer appearance of the seat 10a.

As mentioned above, the operation of combining the inlaid rattan network together with the outer frame and the inner ring of the seat can be done in the manner of first using viscous gum or again filling with appropriate liquid for melting together in order to obtain a proper and secure combination, without fear of loosening or falling apart. However, for saving the quantity or omitting the procedures of painting the viscous gum or filling the liquid for melting, a number of jutted beads 115, 127 or some jutted rings 114 and rough cuts are furnished on the inner wall of the frame body 110 of the outer frame 11 and the outer wall angle of the ring body 120 of the inner ring 12 as shown in Figure 5 so that the frame body 110 of the outer frame 11, in performing the action of combining the inlaid rattan network with the ring body 120 of the inner ring 12, can bind each of the rattan strips of the rattan network 13 by means of a number of jutted beads 113, 127 or some jutted rings 114 and rough cuts to enable the bound rattan network 13 to be held on the seat flat by and securely, without fear of loosening of any one of the rattan strips through long duration of seating or reclining on the seat. Again, for the convenience of performing the above mentioned operation of binding the rattan network 13 to the outer frame and the inner ring in this invention, inclined or curved catch portion 113, 123 are correspondingly furnished in positions of the corner of the inner wall of the frame body 110 of the outer frame 11 and the outer wall corner of the ring body 120 of the inner ring 12.

According to the Novel Structure of Inlaid Rattan Network as above mentioned, the square, rectangular, or polygonal rattan network type seat can, of course, be produced through the same procedures in producing the round rattan network type seat 10a of the round stool 1a for making square, rectangular, or polygonal (omitted in the Figs.) seating furnitures. As to the production of the above mentioned seating furnitures such as the chair 1b and couch 1c respectively shown in Figs. 6 and 7, it is basically required to changed only the corresponding shapes of square, rectangular, or oval and curved "L" shape for the outer frame 11 and the inner ring 12 according to the shapes and sizes of the square seat 10a' or back 10b and the integrated piece of seat 10c. And, the operation of combining the seat with the seat stands 14b and 14c, in addition to applying the same manner as above mentiond, can also be changed to fix securely with screws from the inner side of the ring body 120 of the inner ring 12, as shown in Figs. 8a and 8b that the legs 140 and 140' of the seat stands may be inserted into the "U"-shaped trough 125 of the ring body 120 of the inner ring 12 and other proper combining methods. Again, for enhancing the beautiful outer appearance of the seating furnitures and the comfort of seating and reclining, the lower side of the seat back, of the outer frame 11 and the inner ring 12 as well as the center of the front side of the seat surface--are furnished with an arch 101, wave 102, or curve 100 portions respectively.

As shown in Figs. 8a and 8b, upon producing the above mentioned Chair 1a or Couch 1c with the method of "Novel Structure of Inlaid Rattan Network for Seating Furnitures" of this invention, owing to the too large face area of the seat or the seat back, a flange 111 is designed to be fitted in the upper inside edge of the outer frame 11, and at least one jutted packing ring 112 shall be fitted on the inverted "U"-shaped frame body 110 of the outer frame 11, again, simi lar to the ring body 120 of the inner ring 12, some supplementary or reinforced ribs 128 are fixed in the inverted "U"-shape trough 129 on the back side of the frame body 110', for the purposes of enhancing its strength and preventing from causing deformation.

As shown in Figs. 4b, 4c and 4d, the manner of assembling the concave channel ring 122 on the inner wall of the frame body 110, and the jutted packing ring 112 on the outer wall of the ring body 120, may be modifiable by fixing a corresponding concave channel ring 122' on the outer wall of the ring body 120 (as shown in Fig. 4b) and inserting a metallic ring 30 into the concave channel ring 122 on the inner wall of the frame body 110, and then the action of mutual combining the inlaid rattan network 13 is performed. At the same time, as shown in Fig. 4c, a " ⟅ "-shaped subdivision of inner and outer walls is fixed between the inner wall of the frame body 110 and the outer wall of the ring body 120 for performing the action of mutually combining the inlaid rattan network 13.

Again, synthesizing both the above mentioned methods, as shown in Fig. 4d, the corresponding lower flange and upper flange of the above mentioned " } "-shaped subdivision of inner and outer walls may be designed into a corresponding curved shapes, and a metallic ring is inserted before performing the mutual combination of the inlaid rattan network 13.

Apart from making the seat 10a and 10b or the seat back of round stool 1a and chair 1b, and the integrated one piece seat surface 10c of couch 1c, with the "NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING AND BED FURNITURES" of this invention, it is also modifiable to produce structures as shown in Figs. 4e and 4f for making large rectangular-seat or seat back for seating or reclining furnitures like sofa with capacity of carrying heavy load, enabling to seat 3 or 4 persons at the same time. The basic structures are all the same as those mentioned above, except further extending a winglike flange 111' from the outer side of the frame body 110 of the outer frame 11, and, correspondingly, extending an inverted "T"-shaped supporting flange 121' from the outer side of the ring body 120 of the inner ring 12. It is just necessary to put the rattan network 13' with larger size on the ring body 120, thus inlaying with the frame body 110 for combining together, and then, by means of the aforesaid inverted "T"-shaped supporting flange 121', inlay the rattan network 13' with the winglike flange 111'; so, this structure of the inlaid rattan network 13' in the combination of frame body 110 and ring body 120 not only produces the original tightening effect as above mentioned, but also the double tightening effect from the combination of the inverted "T"-shaped supporting flange 121 inserted into the winglike flange 111'. Hence, even though no viscous gum or melting liquid be filled in or painted on after performing the action of inlaying the rattan network, it will never be loosened or become apart. Again, in performing the action of inlaying the rattan network 13', the rattan fluffs adhering around the exterior of the rattan network or remaining in the crevice or gap 128' inside the flange 111' will enhance the beautiful appearance of the finished seat or seat back. In summing up, as the "NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING FURNITURES" of this invention is tightened by the actions of punching and pressing through machinery operations, and, again, secured by filling or painting with viscous gum or liquid, in addition, fitted with specially designed structures such as jutted packing ring, concave channel ring, jutted beads, and jutted rings on the inner wall of the frame body and the outer wall of the ring body, they not only can be made of materials other than plastics of metals or wood through integrated operation in total automation, but also can make various patterns of seat or seat back, and the integrated one piece seat surface for various seating furnitures; furthermore, shapes of arch, wave, and curve can be correspondingly set in the positions situated at the lower side of the seat back, or the center of the front side of the seat. In addition, the most distiguished features are the fast and simple method of binding the rattan netowrk, and the flatness and tightness of the binding job no matter whether the rattan network bound is in plane or in curves; besides, the binding will never the loosened or broken apart, including every piece of the rattan strips of the rattan network. Therefore, the seating furnitures manufatured according to this invention, with reduced labor, time, production procedures, and manufacturing cost, can be produced and exported in large quantities to earn foreign exchanges for our country.

Moreover, by means of the "NOVEL STRUCTURE OF INLAID RATTAN NETWORK", some other articles such as pillow, motorcycle twin seat, the separate-type seats for "Scooter" motorcycle, or cabinet, etc. may also be made.

Claims

1. A Novel Structure of Inlaid Rattan Network for Seating and Bed Furnitures, comprising:

a outer frame, with flange fitted on the upper inside edge, and with an inverted "L" type frame body composed of at least one jutted packing ring on its inner wall;

a inner ring, its essential structures including a sloped surface of rattan strip fitted on the upper surface of the inside edge for preventing the rattan network from pulling apart, and a inverted "U"-shaped trough or solid ring body on its outer wall in the position corresponding to the jutted packing ring on the inner wall of the outer frame; and

a rattan network, of which the size is a little larger than the outline of the seat of the seating furniture to be laid flatly on the inner ring, then having the outer frame in the corresponding shape covered on inlaid with the inner ring, and having the combined structure punched and pressed tightly and securely by such mechinery as punching machine or the like; with such features, the rattan network type seat, seat back, or integrated in one piece of combined seat and seat back for the seating furniture can be instantly finished up.

2. A "NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING AND BED FURNITURES", according to Claim 1, which includes

seat, seat back, integrated in one-piece of combined seat and seat back with "L"-shaped or curved seat for the seating furnitures.

3. A "NOVEL STRUCTURE OF INLAID RATTAN NETWORK FOR SEATING FURNITURES" according to Claim 2. wherein said rattan network includes various shapes such as round, square, polygonal and elliptical, rect angular, and oval.

4. According Claim 1. wherein said ring body of the inner ring includes supplementary or reinforced ribs fitted in the lower side of the inner ring, and the screw or screw nut buried at the lower side of the ring body extending downward to lock the seat leg stand or seat stand of the seating furnitures through screw combination.

5. According to Claim 1, wherein the outer frame and the inner ring include a number of jutted beads, or some jutted rings and rough veins fitted on the corner between the inner wall of the frame body of the outer frame and the outer wall of the ring body of the inner ring.

6. According to one of Claims 1, 4, or 5 wherein the outer frame and the inner ring include the shapes of arch, wave, and curve patterns correspondingly fitted in the positions situated at the lower side of the seat back, and the center of the front side of the seat.

7. According to Claim 1, wherein the engagement between the frame body of the outer frame and the ring body of the inner ring includes the structures of corresponding concave channel rings fitted on the outer wall of the frame body of the outer frame, and a metallic ring inlaid in the concave channel ring on the inner wall of the frame body for performing the action of fitting the rattan network by inlaying together.

8. According to Claim 1, wherein the engagement between the frame body of the outer frame and the ring body of the inner ring includes the structures of the separate " ⎫ "-shaped subdivision of inner and outer walls correspondingly fitted between the inner wall of the frame body and the outer wall of the ring body, and a metallic ring inserted between the corresponding lower flange and upper flange in summetrical curves of the above mentioned " ⎭ "-shaped subdivision of inner and outer wall for performing the action of fitting the rattan network by inlaying together.

9. According to Claim 1, wherein the engagement between the frame body of the outer frame and the ring body of the inner ring includes the structures of the winglike flange extending from the outer side of the frame body of the outer frame, and the inverted "T" supporting flange extending from the outer side of the ring body of the inner ring for the purpose of doubly tightening the rattan network.

10. According to any one of the aforesaid Claims, the features of said device can also be used for other articles such as a pillow, a motorcycle seat, or a cabinet and the like.

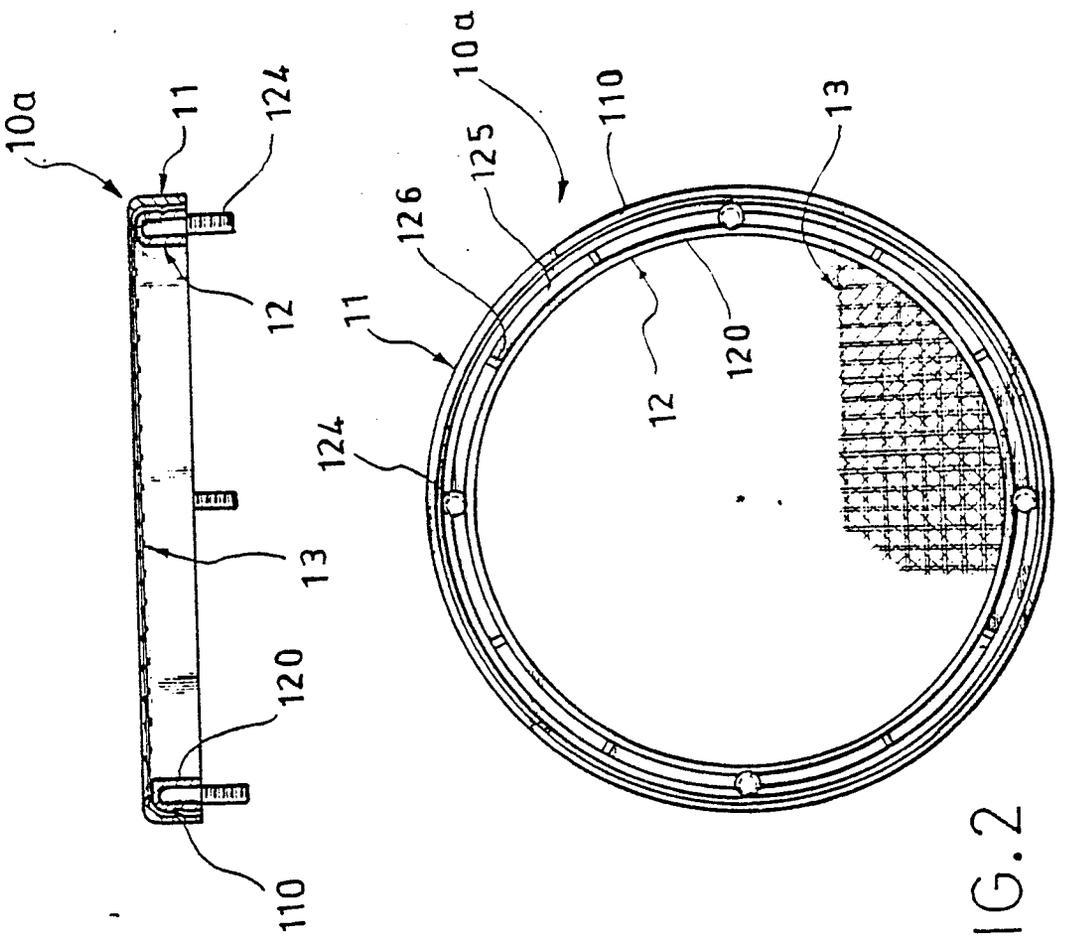

10a
11
124
12
13
120
110
10a
110
125
126
11
124
12
120
13

FIG.2

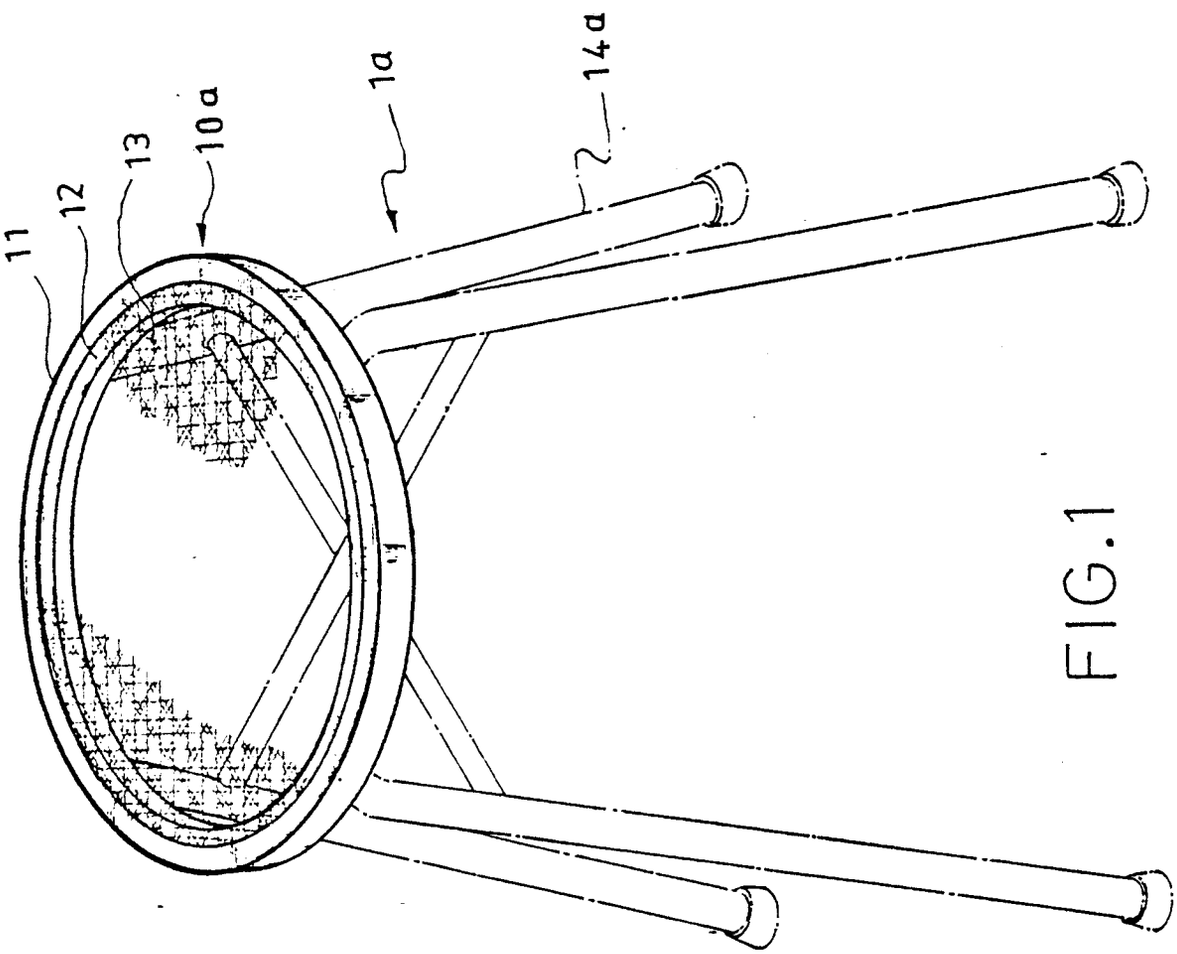

11
12
13
10a
1a
14a

FIG.1

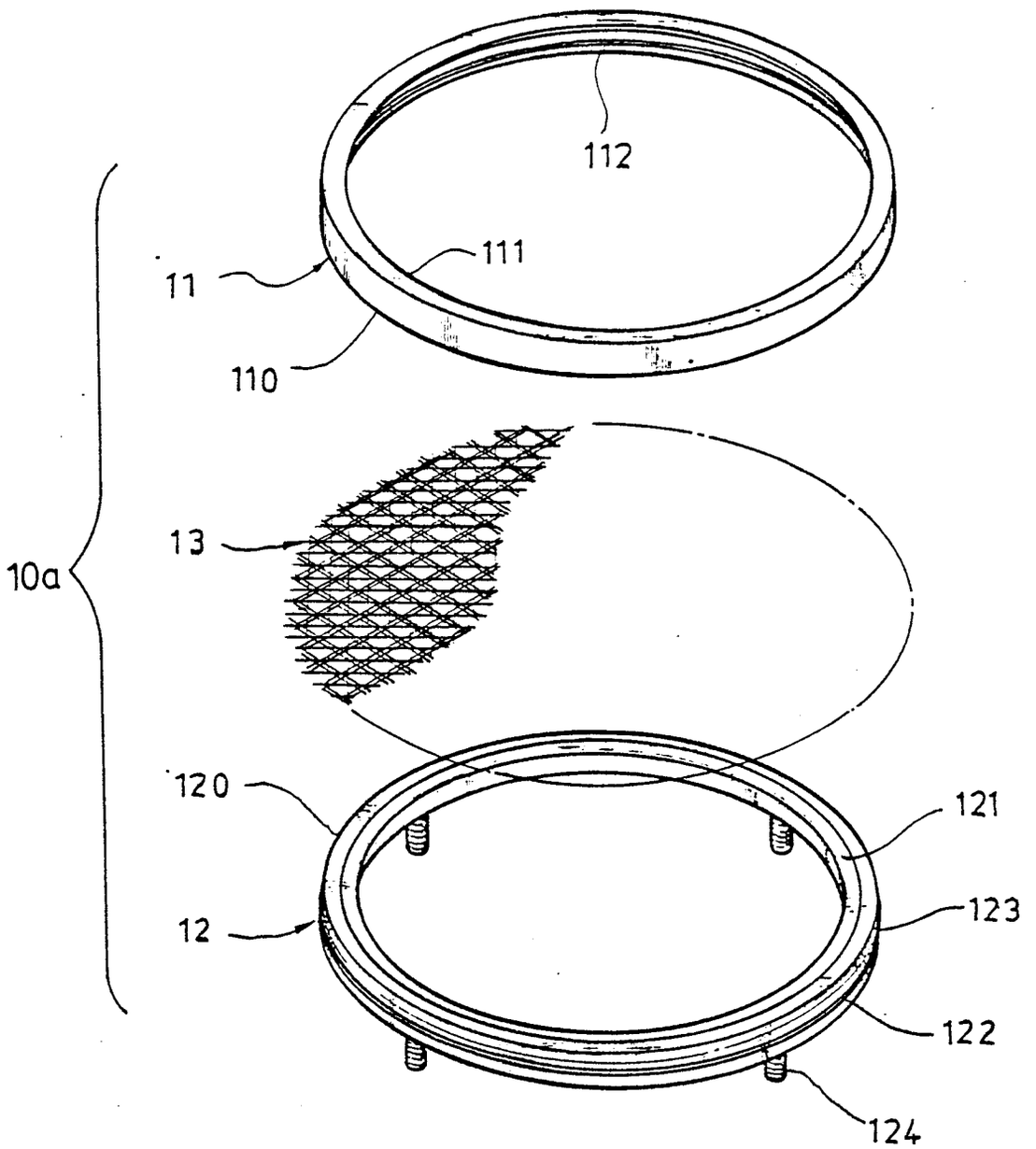


FIG.3

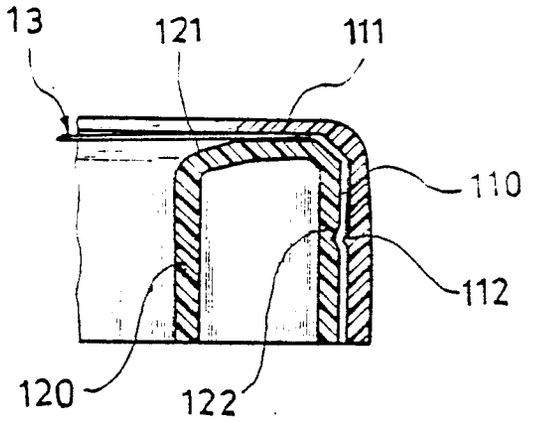


FIG.4a

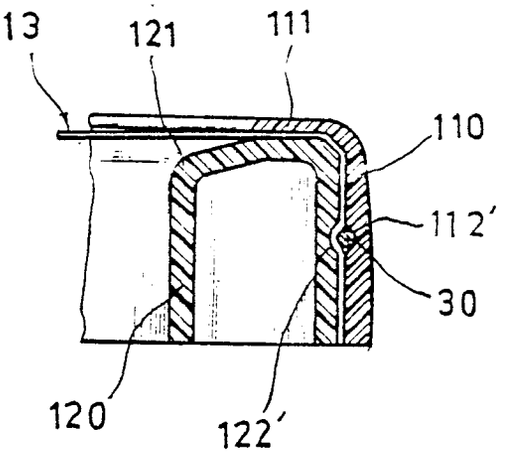


FIG.4b

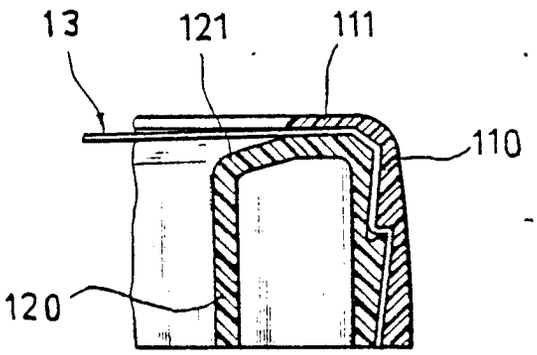


FIG.4c

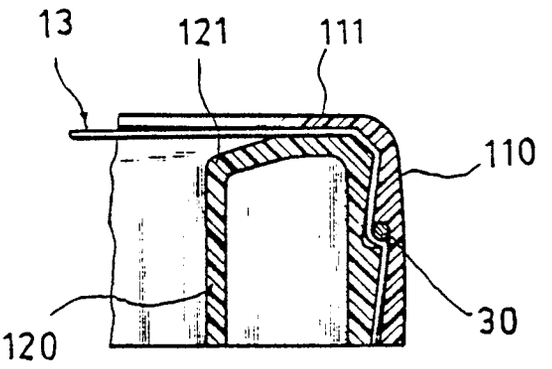


FIG.4d

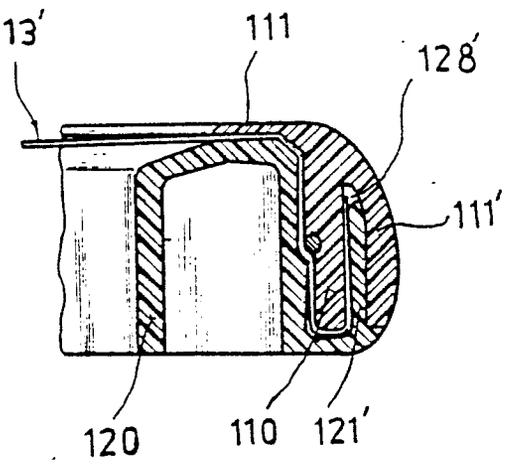


FIG.4e

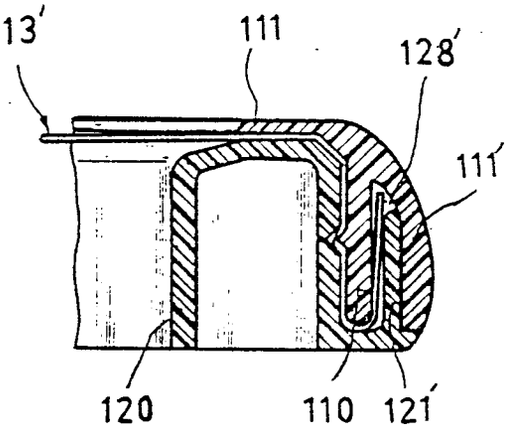


FIG.4f

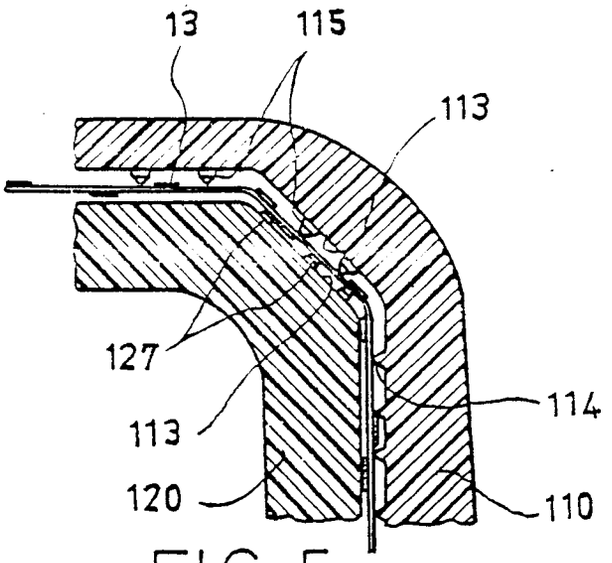


FIG.5

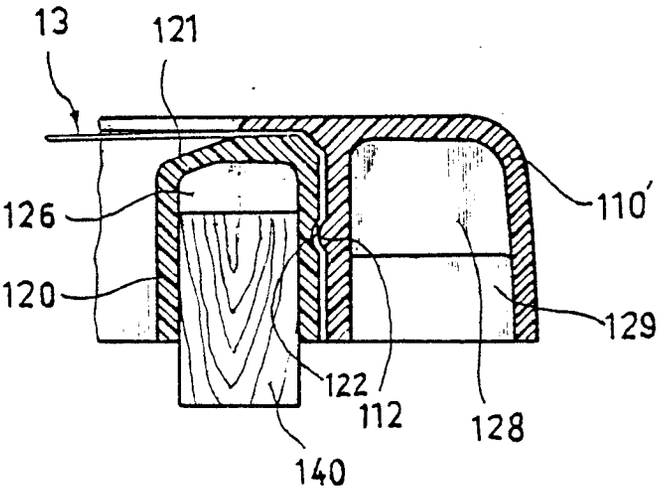


FIG.8a

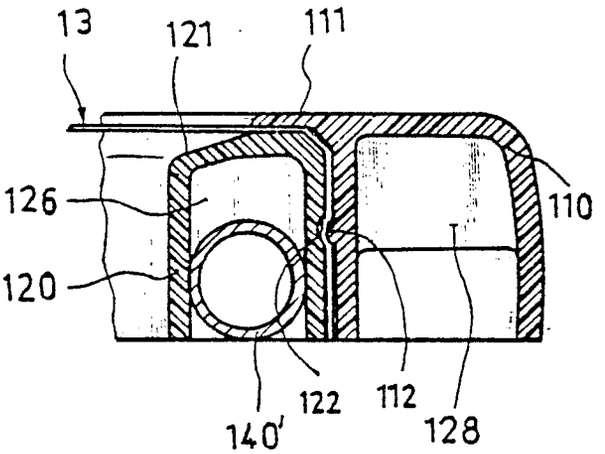


FIG.8b

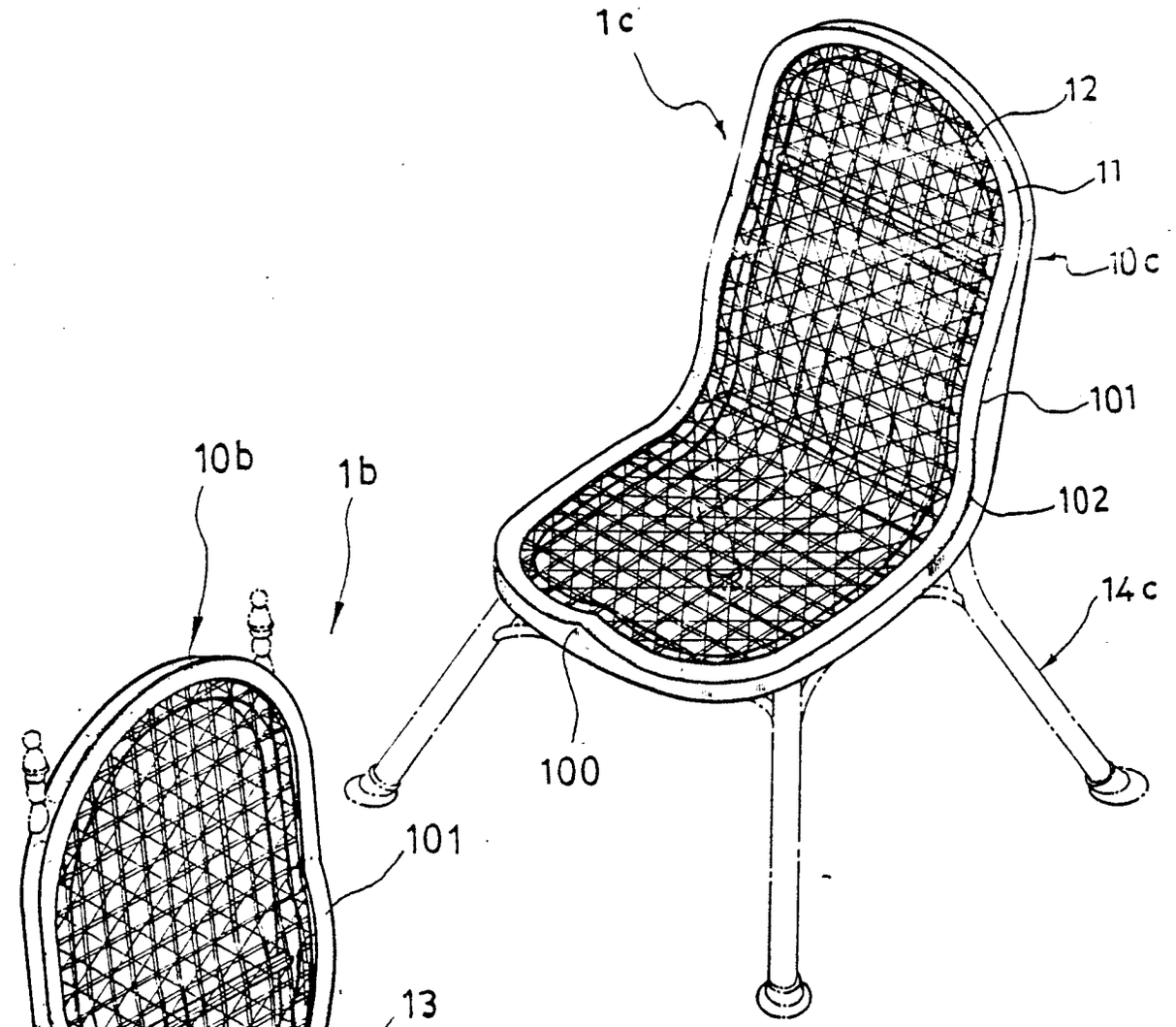


FIG.7

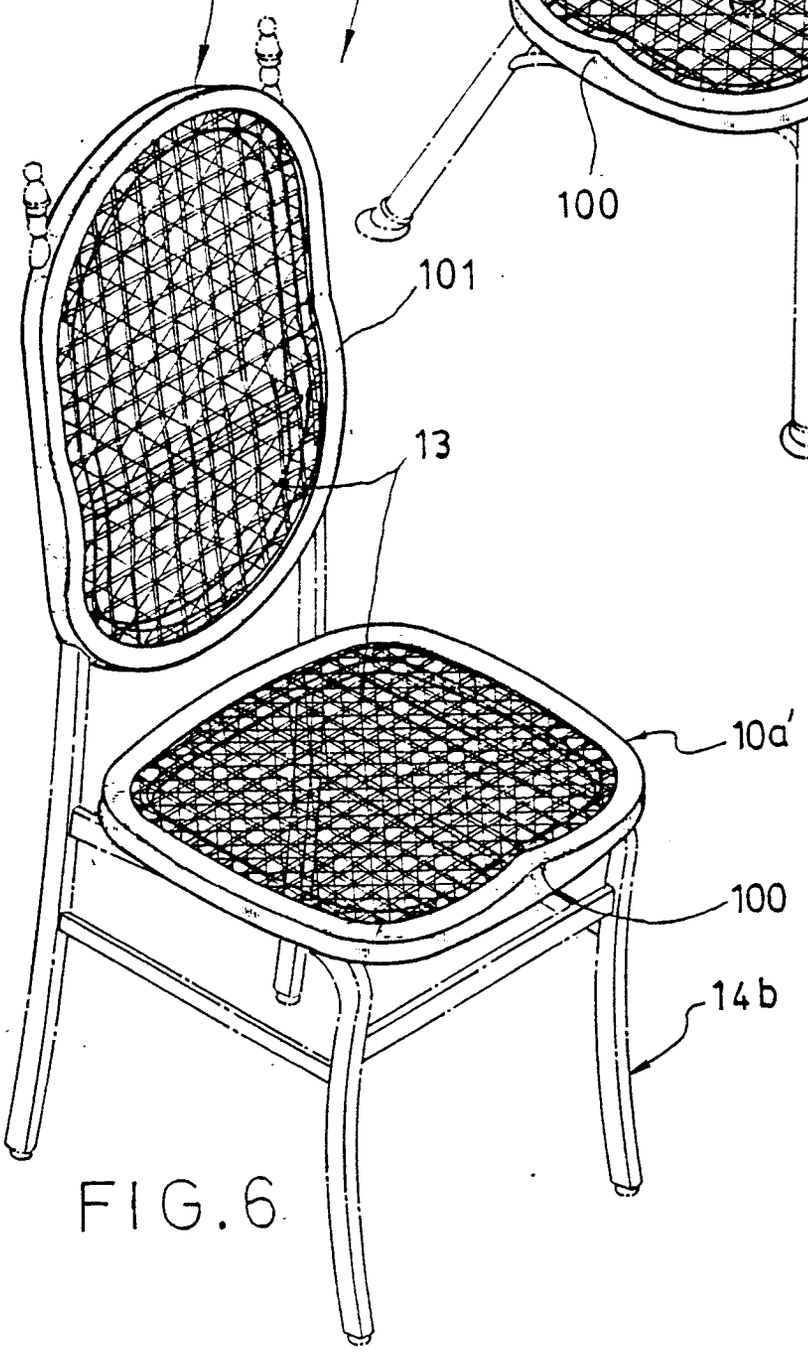


FIG.6

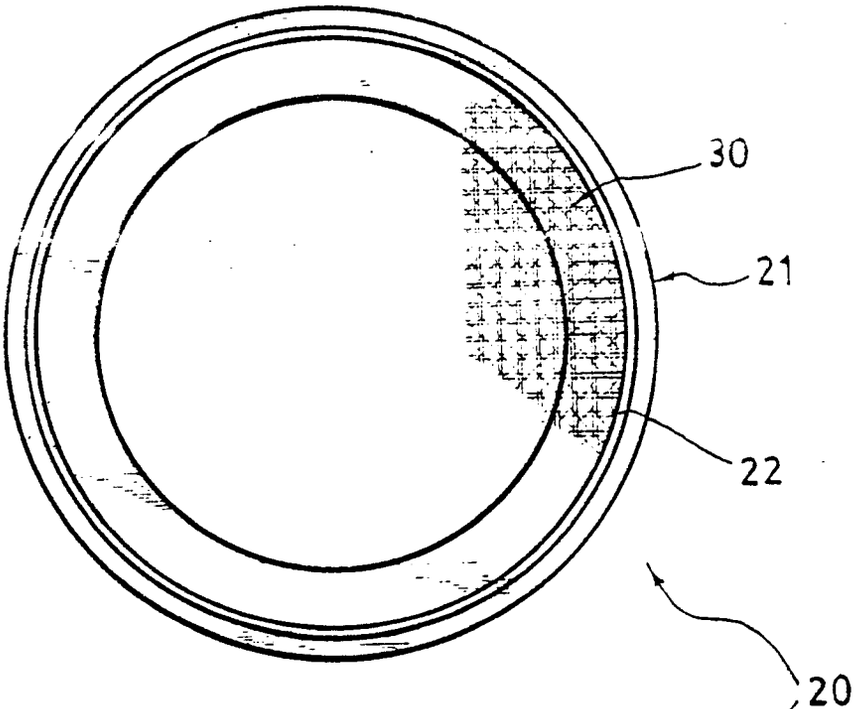


FIG.9 Prior Art

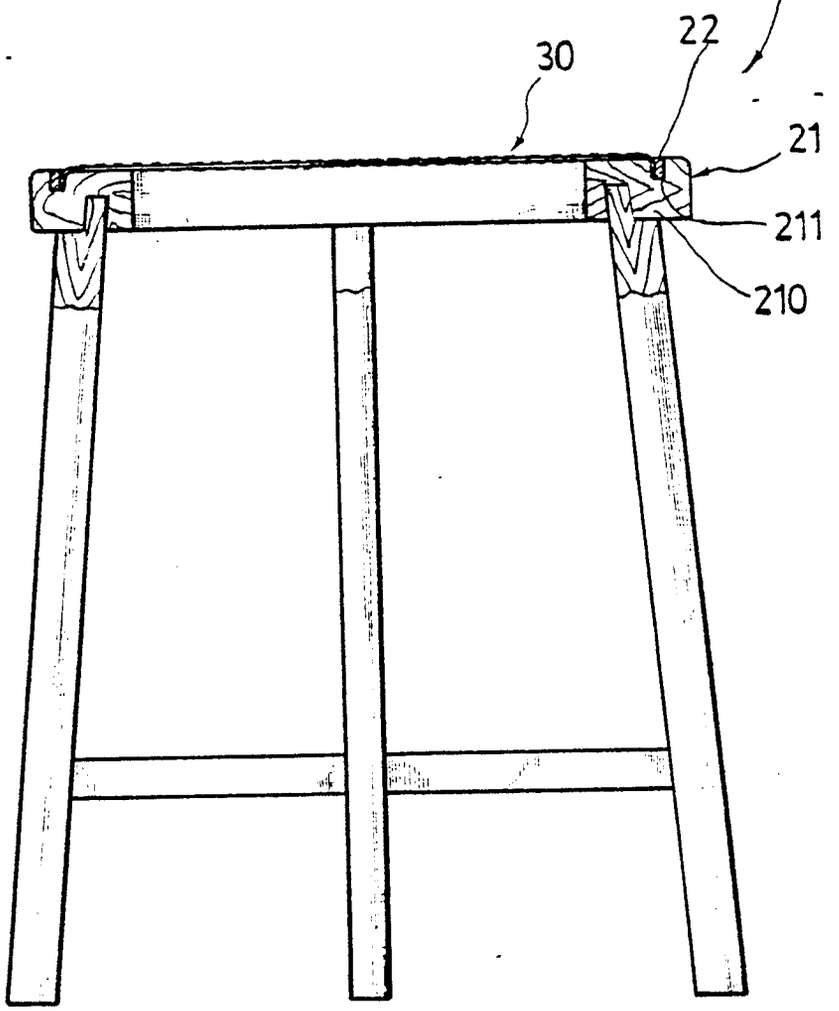


FIG.10 Prior Art