Sept. 27, 1927. 1,643,694

S. M. BUMP

CHAIR HUB

Filed May 10, 1923

Fig. 11

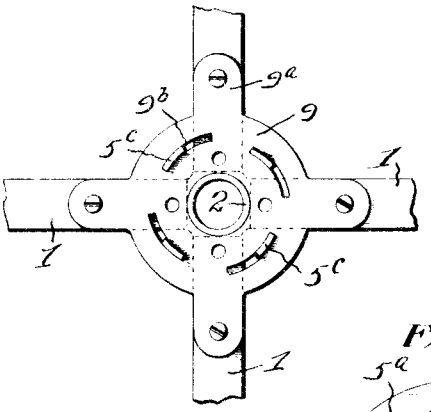


Fig. 1

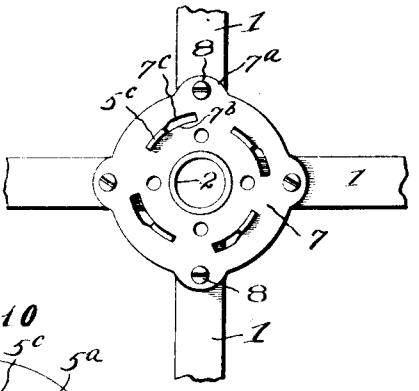


Fig. 10

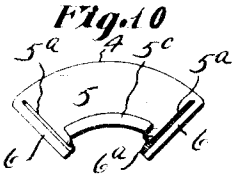


Fig. 2.

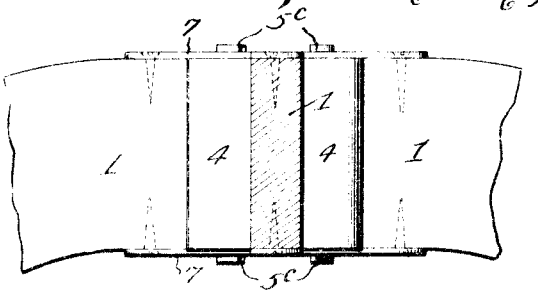


Fig. 3

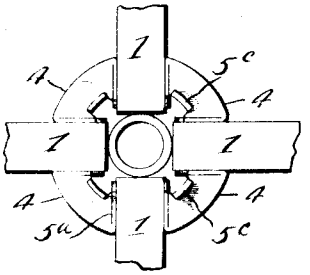


Fig. 7

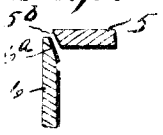


Fig. 4

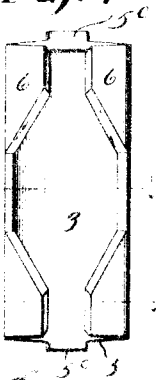


Fig. 5

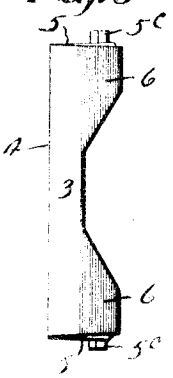


Fig. 6

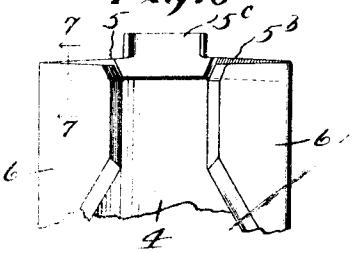


Fig. 7a.

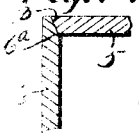


Fig. 8



Fig. 9



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UNITED STATES PATENT OFFICE.

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CHAIR HUB.

Application filed May 10, 1926. Serial No. 107,593.

This invention relates to revolving chairs, and has for its general object to provide an improved construction and arrangement of the hub by means of which the inner ends of the legs are assembled and the standard tube is supported. Further and more limited objects of the invention are to provide a hub assembly, comprising a plurality of hub segments which are adapted to clamp the inner ends of the legs, wherein means are provided for conveniently and efficiently constructing, or drawing inwardly the segments toward a common center and for simultaneously clamping the segments against the inner ends of the legs. A further and more limited object of the invention is to provide a hub assembly which is light, which is cheap of production, and which is particularly well adapted for the incidents of use.

I accomplish the foregoing objects in and through the construction and arrangement of parts shown in the drawings forming part hereof, wherein Fig. 1 represents a detail in plan of the hub portion of a chair and of the adjacent ends of the legs, showing one embodiment of my invention; Fig. 2 a sectional side elevation of the part shown in Fig. 1; Fig. 3 a view similar to Fig. 1, with the top clamping plate removed; Fig. 4 a view in elevation of one of the segmental hub members; Fig. 5 a view similar to and taken at right angles to Fig. 4, Fig. 6 an enlarged detail in elevation of one end of the member shown in Fig. 4; Figs. 7 and 7ª sectional details corresponding to the line 7—7 of Fig. 6 and showing the top and side walls of a clamping member in different adjusted positions; Figs. 8 and 9, details in section corresponding to the lines 8—8 and 9—9 of Fig. 4, respectively; Fig. 10 a detail in plan of one of the hub segments; and Fig. 11 a view similar to Fig. 1, showing a modification of the clamping plate.

Describing the parts by reference characters, 1 denotes the four legs of a chair and 2 the central tube or sleeve within which the standard (not shown) extends.

For the purpose of clamping the inner ends of the chair legs and forming a hub for the tube, standard and legs, I provide four pressed-metal hub-segments, each having sides adapted to bear against the adjacent sides of adjacent chair legs, with a cooperating construction of such segments and of the top and bottom plates as well enable the segments, not only to be assembled into a hub, but to be drawn inwardly or toward the axis of the tube 2 by virtue of the assembling operation, causing the legs to be very firmly and securely secured to and between the hub segments.

3 denotes generally one of the said hub segments. Each segment is made from a metal blank which is given the proper shape by means of suitable dies. When the shaping operation is completed, each blank will have been formed into a segment having an outer cylindrical wall 4, with top and bottom walls 5 projecting inwardly therefrom and radially extending side walls 6, each of the last walls having its central portion removed for lightness and cheapness of construction as well as to enable the side walls remaining after this operation to be expanded (in a manner to be explained hereinafter) against the sides of the adjacent chair legs. The top and bottom edge of each wall 6 is beveled outwardly from the inner face thereof, as indicated at 6ª. The top and bottom walls 5 project inwardly from the top and bottom of the cylindrical wall 4, with their side edges 5ª parallel with the corresponding edges of the sides 6, the edges 5ª being also beveled, as shown at 5ª. Before assembling, the top and bottom walls 5 of each segment make a slightly obtuse angle with their respective cylindrical walls 4, so that their inner ends are above and below the upper and lower ends of the side walls 6, respectively. The parts are so proportioned that, when these top and bottom walls are moved downwardly and upwardly, respectively, by the plates 7, during the assembling operation, their beveled surfaces 5ª will contact with the beveled surfaces 6ª of the side walls (see Figs. 7 and 8) and thus tend to spread the side walls laterally into gripping engagement with the sides of the chair legs adjacent thereto. This spreading of the sides is facilitated by cutting away the central portions thereof, as shown more particularly in Figs. 4-6. Each of the walls 5 is provided with an arcuate lug 5ᵇ, preferably eccentric with the axis of the tube 2 and projecting at substantially right angles from such wall.

For the purpose of supporting the tube 2 and for assembling the hub segments and legs, I employ top and bottom plates which are preferably identical in construction. Each plate is indicated generally at 7 and

is preferably approximately circular in outline, having radial projections 7^a between the circular segments for attachment to the chair legs. Each plate is provided with slots 7^b. The inner wall of each slot is nearly concentric with the axis of the tube 2 and of the hub, but it, as well as each lug 5^c, is formed on a spiral which, if developed sufficiently, would intersect the said axis. In the drawing, the right-hand end of the inner wall of the slot is further distant from the axis of the tube 2 than is the left-hand end. The left-hand end of the slot is of just sufficient width to receive between the inner and outer walls thereof a lug 5^c; the right-hand end of each slot is widened, as shown at 7^c, to facilitate the insertion of the cooperating lugs thereinto.

With the parts constructed and arranged as described, the legs, tube and hub will be assembled as follows:—The legs are positioned about the tube 2 substantially as indicated in Fig. 3. The hub segments are then inserted between the legs and the top and bottom plates are then applied, with the lugs 5^c in the right-hand ends of the slots 7^b. These plates and the hub assembly generally are then held in a suitable jig and the plates are pressed toward each other and rotated in the appropriate direction to cause the lugs 5^c to be moved radially inwardly by engagement with the slots. When the plates have been rotated a sufficient distance and the segments are gripping the legs firmly, the plates are secured to the legs by means of the screws 8.

Because of the detailed construction of the top, bottom and side plates of each hub segment, the forcing of the top and bottom clamping plates toward each other during the assembling operation will cause the beveled surfaces 5^b of the top and bottom plates to engage the beveled surfaces 6^a and thus increase the clamping action of the segment against the legs by forcing the side walls of the segments outwardly. In practice, the slots 7^b will be of such length and the pitch of the spiral on which they are formed will be such that the plates may be adjusted from time to time, the lugs 5^c in Fig. 1 being shown in their extreme inwardly adjusted positions.

In Fig. 11 there is shown a modification of my invention wherein the clamping plates 9 are provided with longer attaching arms 9^a and the slots 9^b are not provided with the enlargements such as shown at 7^c. In all other respects, the top and bottom plates of the hub will be substantially identical with those shown in the preceding views.

By reason of the construction and arrangement of parts set forth herein, I am enabled to provide a hub assembly for the legs of chairs and for similar purposes the component members of which assembly may be produced economically and which, when assembled, will produce a very efficient hub construction and one which will permit of the adjusting inwardly of the segments from time to time, as occasion may require, to compensate for wear or shrinkage of material.

Having thus described my invention, what I claim is:

1. A securing device for chair legs including a central upright member, a plurality of hub segments each segment having surfaces adapted to engage the adjacent faces of chair legs, said segments being movable radially with respect to said central member to grip the chair legs, means independent of said central member for drawing said segments inwardly toward said central member, said means comprising a clamping plate and cooperating means carried by the adjacent ends of said hub segments and by said clamping plate for moving the ends of the segments inwardly through the rotation of said plate and additional means for holding the said plate in clamping position.

2. A securing device for chair legs including a central upright member, a plurality of hub segments each having surfaces adapted to engage the surfaces of adjacent chair legs, means independent of said central member for securing the corresponding ends of said hub segments in place and a clamping plate cooperating with the opposite ends of said hub segments for moving the same radially inwardly, the said clamping plate having inclined slots, and lugs projecting from the ends of said hub segments and engaging in said slots and means for securing said clamping plate in clamping position, said clamping plate being entirely independent of said central member.

3. The combination, with a pair of angularly disposed chair legs, of a segmental hub member having lateral surfaces adapted to engage the surfaces of the chair legs adjacent thereto, respectively, means for securing one end of said member in place, means for adjustably securing the opposite end of the said member in place, the last mentioned means comprising a rotatable clamping member, and an inclined slot carried by one of said members and a lug carried by the other member and adapted to enter said slot whereby the rotation of the clamping member in the appropriate direction will move the adjacent end of the hub member radially inwardly, and means for securing the clamping member in place.

4. A hub construction of the character described comprising a plurality of segmental hub members each having opposed lateral surfaces adapted to engage the adjacent surfaces of chair legs, means for

securing the said members in place and for moving them radially inwardly, said means comprising a top and a bottom clamping member and cooperating lugs and inclined slots carried by the hub members and the clamping members whereby the rotation of the clamping members in the appropriate direction will move the hub members radially inwardly, and means for securing the said clamping members in clamping position.

5. A hub construction of the character described comprising a plurality of segmental hub members each having opposed lateral surfaces to engage the adjacent surfaces of chair legs, means for securing the said members in place and for moving them radially inwardly, said means comprising a top and a bottom clamping member having inclined slots and lugs on the hub members adapted to enter said slots whereby the rotation of the clamping members in the appropriate direction will move the hub members radially inwardly, and means for securing the said clamping members in clamping position.

6. A hub construction comprising a plurality of hub segments each having radial side walls to engage the adjacent surfaces of chair legs, the side walls having their central portions removed and each side wall having its ends beveled outwardly from the inner face thereof, each segment having top and bottom walls each having its radial edges beveled complementarily to the adjacent ends of the side walls, and means for clamping the said segments together, the clamping means serving to force the beveled surfaces of the end walls into engagement with the beveled surfaces of the side walls thereby to force the side walls away from each other and against the chair legs.

7. A hub construction comprising a plurality of hub segments each having radial side walls to engage the adjacent surfaces of chair legs, each side wall having its ends beveled outwardly from the inner face thereof, each segment having top and bottom walls each having its radial edges beveled complementarily to the adjacent ends of the side walls, and means for clamping the said segments together, the clamping means serving to force the beveled surfaces of the end walls into engagement with the beveled surfaces of the side walls thereby to force the side walls away from each other and against the chair legs.

8. A hub construction comprising a plurality of hub segments each having an outer wall and radial side walls to engage the adjacent surfaces of chair legs, the side walls having their central portions removed and each side wall having its ends beveled outwardly from the inner face thereof, each segment having top and bottom walls projecting inwardly from the outer wall and each having its radial edges beveled complementarily to the adjacent ends of the side walls, means for clamping the said segments together, the clamping means serving to force the beveled surface of the end walls into engagement with the beveled surfaces of the side walls thereby to force the side walls away from each other and against the chair legs, and means operative by the rotation of the clamping means for drawing the said hub segments radially inwardly.

9. A hub construction comprising a plurality of hub segments each having an outer wall and radial side walls each having an end beveled outwardly from the inner face thereof, each segment having an end wall having its radial edges overhanging and beveled complementarily to the beveled ends of the side walls, and means for clamping the said segments together, the clamping means serving to force the beveled surfaces of the end wall into engagement with the beveled surfaces of the side walls thereby to force the side walls away from each other and against the chair legs.

10. A securing device for chair legs including a plurality of hub segments each having an outer wall and radially extending side walls, each having its opposite edges outwardly beveled, each segment having top and bottom walls overhanging the side walls and each having its radial edges outwardly beveled to cooperate with the beveled edges of the adjacent side walls thereby to force the side walls away from each other and against the chair legs.

11. A hub comprising a plurality of segments each having an outer wall and radially extending side walls adapted to fit between adjacent sides of the legs of a chair, each segment having a wall overhanging ends of the side walls and adapted to be forced between such ends thereby to force the side walls away from each other and against the chair legs.

12. A hub comprising a plurality of segments each having an outer wall, and radially extending side walls adapted to fit between adjacent sides of the legs of a chair, each segment having top and bottom walls overhanging the side walls and adapted to be forced between such side walls and each said top and bottom walls each having edges adapted to engage the edges of the side walls when so forced, thereby to force the side walls away from each other and against the chair legs.

13. A hub comprising a plurality of segments each having an outer wall and radially extending side walls adapted to fit between adjacent sides of the legs of a chair and top and bottom walls overhanging the ends of the side walls, and means for holding the said segments in assembled relation, such

means cooperating with the top and bottom walls to force the latter toward each other thereby to force the side walls away from each other and against the chair legs and to draw the segments radially inwardly.

14. A hub comprising a plurality of segments each having an outer wall and radially extending side walls adapted to fit between the adjacent sides of the legs of a chair and end walls overhanging the ends of the side walls, and means for holding the said segments in assembled relation, said means cooperating with one of said end walls to force the latter between the side walls and force the side walls away from each other and against the chair legs.

In testimony whereof, I hereunto affix my signature.

SPENCER M. BUMP.