Dec. 11, 1928. 1,694,617

C. A. BROWN

CHAIR

Filed Feb. 2, 1927 2 Sheets-Sheet 1

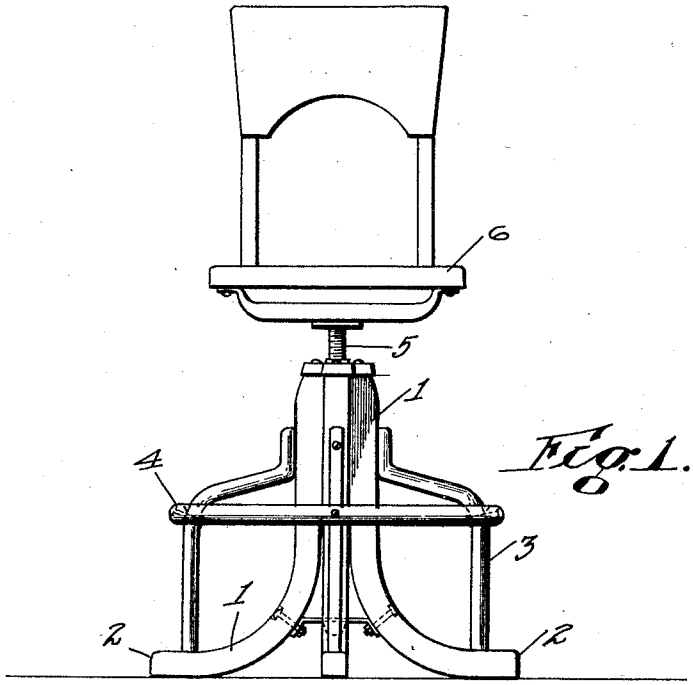


Fig. 1.

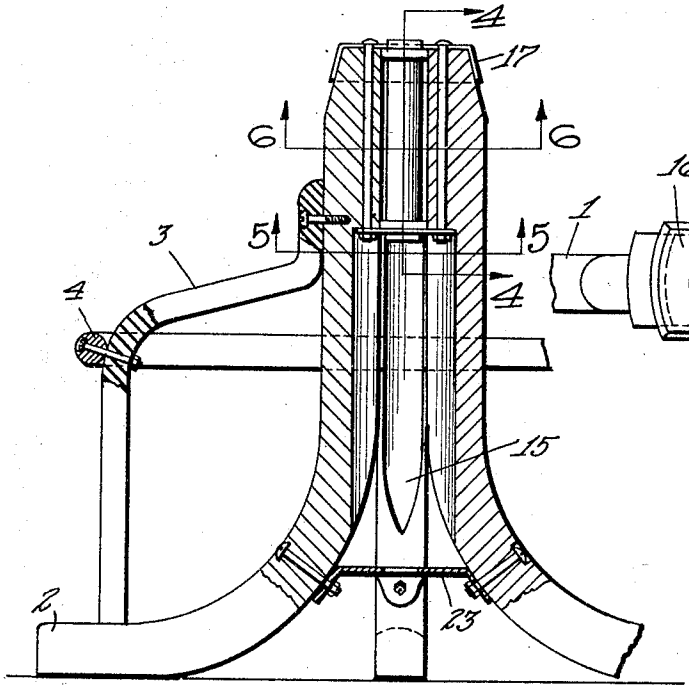


Fig. 2.

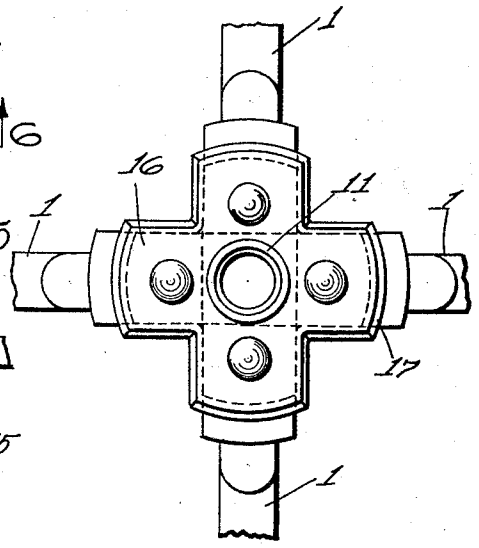


Fig. 3.

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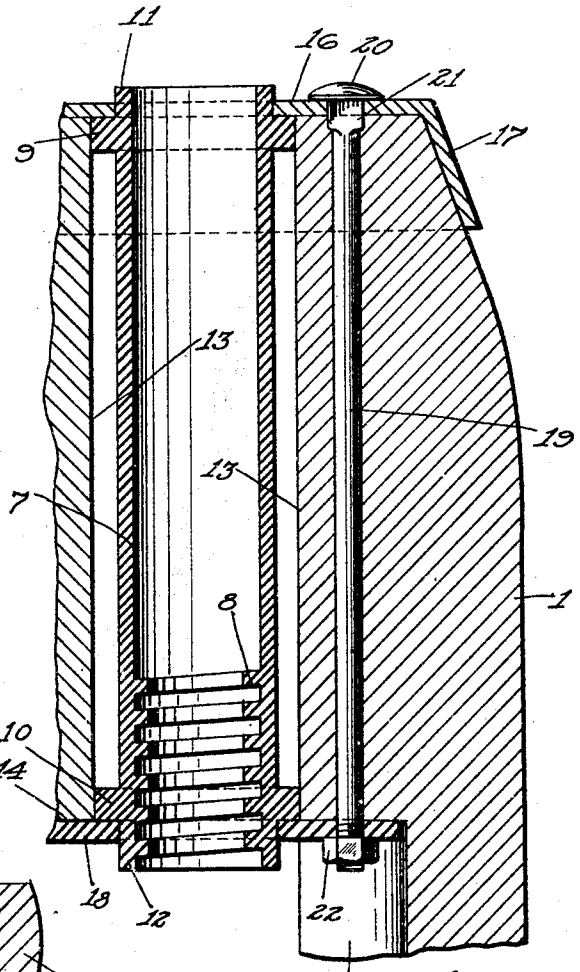


Fig. 4.

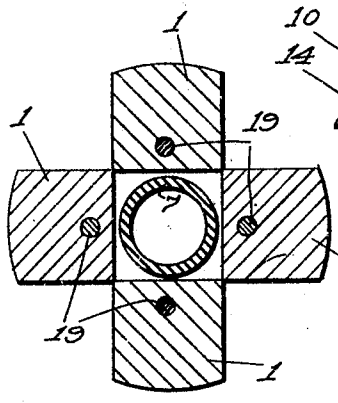


Fig. 6.

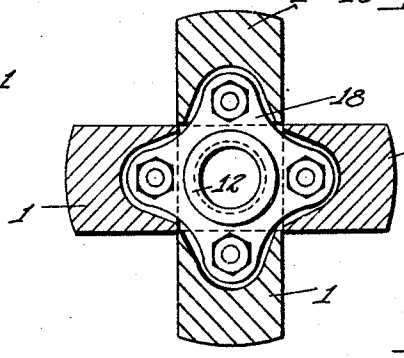


Fig. 5.

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Patented Dec. 11, 1928. 1,694,617

UNITED STATES PATENT OFFICE.

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CHAIR.

Application filed February 2, 1927. Serial No. 165,464.

The present invention relates to chairs of the adjustable type, wherein the seat unit of the chair has a screw threaded connection with the base or leg structure, to permit raising or lowering of the seat with reference to the supporting floor.

The invention resides in certain improvements in the construction and assemblage of the base or leg portion of such a chair, with particular reference to the retention therein of the internally threaded metal nut member which receives the screw that is attached to the seat,—the general object being to minimize the weight of this base structure, with no sacrifice of its strength and rigidity, all as more fully set forth hereinafter with reference to the accompanying drawings, in which—

Fig. 1 is a front elevation, showing an adjustable chair in which the improvements of the present invention are incorporated.

Fig. 2 is an enlarged sectional view of the base or leg structure.

Fig. 3 is an enlarged top plan view of the structure shown in Fig. 2.

Fig. 4 is an enlarged sectional view on line 4—4, Fig. 2, showing details of the assemblage of the internally threaded metallic nut member with the legs of the base.

Fig. 5 is an enlarged cross sectional view on the line 5—5 of Fig. 2.

Fig. 6 is a similar view, the section being taken on the line 6—6 of Fig. 2.

Like reference characters refer to like parts in the different figures.

As shown in the drawings, the base or leg structure of the chair is of a general type now in ordinary use, consisting essentially of four bent wood legs 1, 1, which are arranged equidistantly about a central axis and which diverge at their lower ends to form supporting feet 2, 2; in the manner common to bent wood structures of this character, the legs 1, 1 are braced by means of a corresponding number of bent wood members 3, 3, the latter preferably being encircled by a bent wood ring 4, adapted to serve as a foot rail for the user of the chair.

In bent wood base structures of this type heretofore used, the internally threaded metallic nut member to receive the screw 5, attached to and projecting downwardly from the seat unit 6, has been held by the upper portions of the legs 1, 1,—said internally threaded member usually taking the form of a heavy casting provided externally with longitudinal undercut grooves into which the corresponding longitudinal tongues on the inner faces of the legs 1, 1 were forced. In a construction such as just described, the internally threaded member must be extremely heavy; moreover, the forcing of the wooden leg tongues into the grooves of such a rough casting frequently results in breakage of the legs or of the casting in the assembling process; and the resulting structure is one that is liable to warpage or loosening, due to expansion or contraction of the wood in the absence of similar changes in the metal.

According to the present invention, the usual heavy metallic casting employed for the internally threaded screw-receiving member is replaced with a light steel tube 7, the construction of which is best shown in Fig. 4. Said tube 7, which dispenses entirely with the heretofore-used leg-receiving external grooves, can be made conveniently on a screw machine from a piece of steel of square section, since its essential features are the usual internal thread 8, (which, being of steel, resists wear by the steel screw 5) and externally, a pair of squared collars 9 and 10, each slightly removed from the opposite ends of the tube; beyond these collars are the short cylindrical tube sections 11 and 12, respectively, and between these collars the tube is preferably reduced to cylindrical section for the sake of lightness.

From its extreme upper end, adapted to lie flush with the upper surface of square collar 9, each bent wood leg 1 presents an internal plane surface 13, which extends downwardly to a point flush with the under surface of square collar 10,—the width of this plane surface 13 being coextensive with an edge of the square collars. The lower edge of each plane surface 13 is defined in each leg 1 by a shoulder 14, the latter being formed by removing the stock of the leg below said surface, as by means of a longitudinal cut or recess 15 in each leg. The four sides or edges of the square collars 9 and 10 thus constitute abutments against which are opposed the four legs 1, 1,—the assembly of the latter in a rigid structure around the tube 7 being accomplished in the following manner:—

A four-armed metallic spider 16, Fig. 3, is centrally apertured so as to be received upon

the upper tube section 11, and each arm of this spider overlies the upper end of one of the legs 1, 1,—the material of said spider preferably being flanged downwardly at the outer end and on the two sides of each arm, as shown at 17, to form a socket that snugly fits over the upper end of the corresponding leg 1. A plate 18, Fig. 5, is centrally apertured so as to be received upon the lower tube section 12, and the four corners of this plate thus bear against the four shoulders 14, 14 of the legs 1, 1. To bind together the spider 16 and plate 18, for the rigid retention of the leg portions therebetween, four elongated bolts 19, 19 are employed, each bolt preferably having adjacent its head 20 a squared section 21, that fits in a corresponding aperture of spider 16, to prevent said bolt from turning. An elongated longitudinal hole in each leg 1 serves for the passage of said bolt 19, whose lower end, projecting through a corresponding hole in the plate 18, is threaded to receive a retaining nut 22. These nuts 22 are accessible for tightening, as by means of a socket wrench, or the like, which is given sufficient space in which to work by the cuts or recesses 15, 15 of legs 1, 1,—it being understood that for this purpose a leg brace 23, if used, may be temporarily removed. Each bent wood leg 1 is firmly united by its bolt 19 to the central metal assembly, in a manner which eliminates any possibility of relative longitudinal motion, or lateral or radial play, and it will also be seen that expansion or contraction of the wood of the legs, which takes place across the grain and hence at right angles to the bolt 19, can in no way affect the rigidity with which the parts are held together.

I claim:

In a chair of the class described, a tubular member having an internally threaded bore, for the reception of a threaded seat spindle, said tubular member being formed near each end with a polygonal collar, and beyond each collar with a short tubular extension of circular cross section, chair legs radiating from the axis of said tubular member, and each having a plane inner surface for abutment against the corresponding sides of said polygonal collars, clamping devices to hold said legs against endwise and lateral movement relative to said tubular member, said clamping devices being centered on said short tubular sections of said member, and held in spaced relation thereon by said polygonal collars, and bolts connecting said clamping devices and extending longitudinally through the interposed portions of each leg.

CHARLES A. BROWN.