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1,459,138

H. W. BOLENS

CHAIR IRON

Filed March 14, 1922

Fig. 1.

Fig. 2.

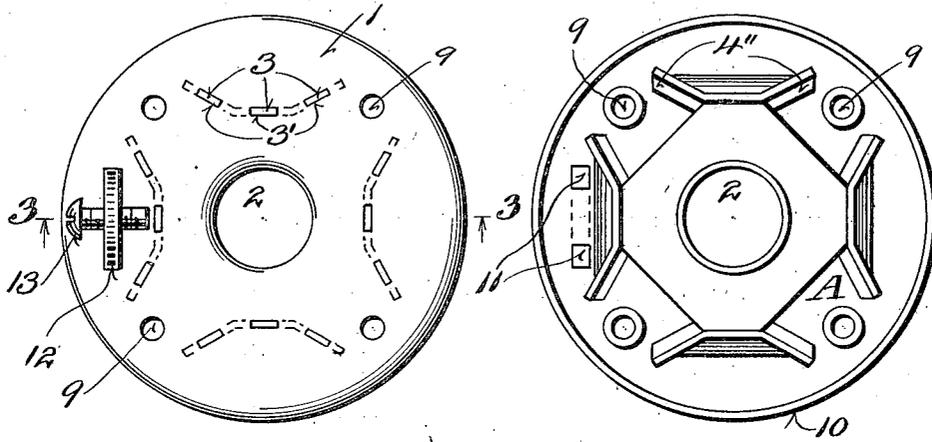
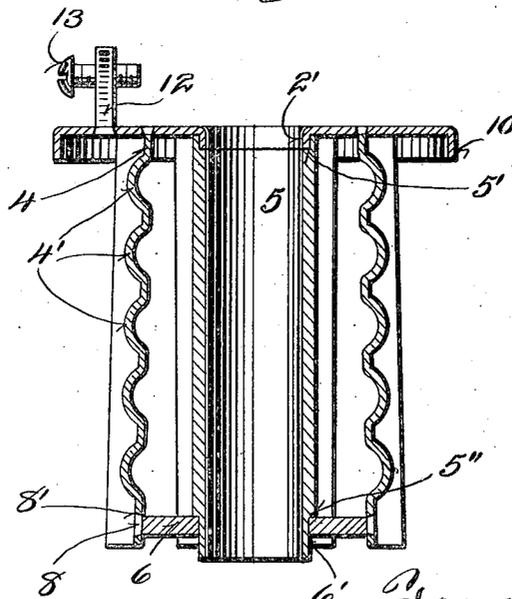


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY W. BOLENS, OF PORT WASHINGTON, WISCONSIN.

CHAIR IRON.

Application filed March 14, 1922. Serial No. 543,626.

To all whom it may concern:

Be it known that I, HARRY W. BOLENS, a citizen of the United States, and resident of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented certain new and useful Improvements in Chair Irons; and I do hereby declare that the following is a full, clear, and exact description thereof.

The invention relates to revolving chairs and has for an object the provision of means for connecting the legs of such a chair. It pertains more particularly to improvements in the invention on which Patent No. 1,204,736 was granted to applicant on Nov. 14, 1916.

Among the diverse novel features of improvement, is the combined top plate and spindle barrel structure. The top plate is made of comparatively thin metal and has a central opening from which a flange is downwardly directed. An exterior peripheral flange is also provided and a standard is secured to the plate by means of tongues extending thru eyes therein. The standard has threaded relationship with a screw. The central flange is received within the spindle barrel which is recessed angularly adjacent its top edge.

An object of this structure is strength and durability. It is able to withstand deforming stresses exerted in any direction. Tendency for the chair structure to create a lateral distortion is combated by the top plate structure which bears directly against the screw. The arrangement of the flange in the recess prevents upward movement of the spindle barrel with respect to the top plate, prevents downward bending of the top plate and precludes all possibility of angling, that is, of varying the angle of the plane of the top plate with respect to the spindle barrel. The central flange on the plate has the effect of a reinforcing rib, and cooperates with other features to eliminate any tendency of the plate to yield or be deformed immediately adjacent the central opening.

This structure in addition to the advantage of strength, is easy to manufacture, the flanges being readily made. The parts are simple and may be assembled readily and the character of the various structural fea-

tures is such that in addition to being durable, they make it possible to form the parts of comparatively thin and light material. The standard is conveniently secured to the plate and the resulting structure is strong. The peripheral flange prevents possibility of distortion of the plate by means of force exerted on the standard.

An improved feature is the channel strip structure. These strips are provided with a series of transverse deformations, which are made in the metal. This prevents tendency to collapse on vertical lines and avoids possibility of twisting action longitudinally. This feature is especially advantageous, in view of the strain exerted transversely of the chair legs received therebetween.

Another important feature of the invention is the manner of cooperation of the bottom plate with the spindle barrel. The spindle barrel is cut away angularly adjacent its lower edge, thus forming a shoulder, and the bottom plate, which is cut away centrally, bears against this shoulder.

An object in the construction, like that of the top plate, is especial strength and durability. Tendency towards distortion of the spindle barrel laterally is combated by the reinforcing action of the bottom plate, and upward movement of the plate with respect to the spindle barrel is prevented by the shoulder structure. Angling of the plate with respect to the spindle barrel is effectively prevented by the plate abutting against the wall of the barrel. In order for one end of the plate to move upwardly, it would be necessary that the entire spindle barrel should collapse adjacent its lower edge.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated one complete example of the physical embodiment of the present invention con-

constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a plan view of the invention.

Figure 2 is a bottom plan, and

Figure 3 is a central vertical section on the line 3—3 of Figure 1.

1 represents a cap or top plate preferably circular in form and provided with a central barrel receiving aperture 2, the said plate being depressed about the aperture to form a flange 2'. The plate is also provided with four groups of socket apertures 3 for the reception of tongues 3', which tongues project from the upper edges of a series of channel strips 4, to be hereinafter more fully described. The top plate aperture 2 is provided for the reception of one end of a spindle barrel 5, the upper edge of which barrel is cut away to form an interior annular recess receiving flange 2' against a shoulder 5', the structure being such that the inner surface of the flange is continuous with the inner surface of the spindle barrel 5. The lower end of the barrel 5 carries a bottom plate 6 which is provided with a central aperture 6' for the reception of the lower end of the barrel, the said end being extended thru the plate aperture. The spindle barrel 5 is cut away to provide an exterior annular recess, terminated at what is substantially an annular shoulder 5'' against which bottom plate 6 abuts.

It is thus apparent that the bottom plate partakes of some of the advantages of structure of the top plate. Both of the plates and the spindle barrel are readily and conveniently assembled, and are simple. A chair screw is received within the spindle barrel and any tendency thereof to move laterally is prevented by the spindle barrel and the plates.

It is apparent that the plates which lie in planes substantially at right angles to the axis of the screw, exert a powerful force effectively preventing any tendency of the screw to cause any deformations as the result of lateral movement. There can be no movement downwardly of the top plate 1 with respect to spindle barrel 5, and flange 2' cannot be bent upwardly in any part thereof as it operates as a depending strengthening rib. Neither the top nor the bottom plate may angle with respect to the spindle barrel.

Leg members are fixed in position relative to the channel strips that form the side walls of leg sockets A. The bottom plate is substantially rectangular, but the corners are cut away to form tongues 8 that engage central sockets 8' that are formed adjacent to the lower ends of the channel strip 4. These strips have central portions in which a plurality of ribs 4' are formed, extending transversely and terminating in wings 4'' which are integral with the central portion

of the strips. The wings are outwardly directed at an obtuse angle with respect to the central portion of the strips. The ribs 4' may be of any desired shape or number, but are formed in the metal itself and operate to prevent deformation by forces exerted in transverse lines, no collapsing of the strips on vertical lines being possible and all tendency towards twisting being eliminated.

From the foregoing, it will be seen that the channel strips which are spaced apart at regular intervals about the hub barrel, are confined by their tongue and socket connections with the top and bottom plates, and it is understood that these tongues, which project thru the sockets, may be upset, riveted or spot welded, whereby a permanent union is effected.

As is apparent in Figure 3, the radial distance from the spindle barrel to the channel strips is greater at the bottom than at the top. It is apparent, therefore, that after the several members have been assembled and secured, the spaced strips form leg sockets which are slightly contracted at their upper ends, whereby the legs, when driven into place, will be rigidly confined.

As shown in Figures 1 and 2, the cap or top plate may be provided with suitable apertures 9 for the reception of anchor screws, not shown, which are arranged to engage the leg members in the usual manner.

The top plate 1 is provided with an exterior depending flange 10, and is apertured to receive tongues 11 of standard 12, with which screw 13 has threaded relation. It is apparent that force exerted on standard 12 and tending to distort plate 1 will be resisted somewhat by flange 10, which operates to reinforce the plate.

It will be noted that spindle barrel 5 terminates slightly below bottom plate 6. If it were flush with a bottom face of this plate, possibility of the plate moving downwardly and free from the spindle barrel would result.

I claim:

1. In a chair base hub, the combination of a spindle barrel having an annular recess adjacent its top edge, whereby a shoulder is formed on said barrel, a top plate having a central depending flange received in said recess and abutting against said shoulder, said top plate having a plurality of openings therein, a plurality of channel strips having angularly directed wings thereon and transversely extending ribs terminating in said wings, tongues on said strips secured in said openings and means at the bottom of said strips for securing said strips to said spindle barrel.

2. In a chair base hub, a channel strip having a central portion, wings outwardly extending therefrom and at a slight angle thereto, said central portion having trans-

verse deformations therein, said wings being free from deformations throughout an entire longitudinal portion of each of said wings, said portion being immediately adjacent the side edges of said wings.

3. In a device of the class described, the combination of a spindle barrel, a top plate secured thereto, a bottom plate secured to said spindle barrel, and a plurality of channel strips secured at their upper ends to said top plate and at their lower ends to said bottom plate, the upper ends of said channel strips being nearer to said spindle barrel than the lower ends are.

4. In a device of the class described the combination of a spindle barrel, a top plate secured thereto, a bottom plate secured to said spindle barrel and a plurality of channel strips secured at their upper ends to said top plate and at their lower ends to said bottom plate, said channel strips having wings angularly and outwardly directed there-

from, and a central portion lying between said wings, the central portion being nearer to said spindle barrel at the upper ends of the channel strips than at the lower ends.

5. A chair iron comprising a top plate and a bottom plate, a spindle rigid with said plates, a plurality of channel strips each rigid at one end with the top plate and at the other end with the bottom plate and having transverse corrugated ribs, said channel strips being spaced apart to form slots for the reception of legs, the said ribs imparting transverse strength to the channel strips whereby a strong and rigid grip is maintained between the channel strips and the legs which are fitted within the slots.

In testimony that I claim the foregoing I have hereunto set my hand at Port Washington, in the county of Ozaukee and State of Wisconsin.

HARRY W. BOLENS.