May 25, 1926.

1,586,166

C. J. TRAVERS

CHAIR IRON

Filed May 17, 1924

Fig. 1

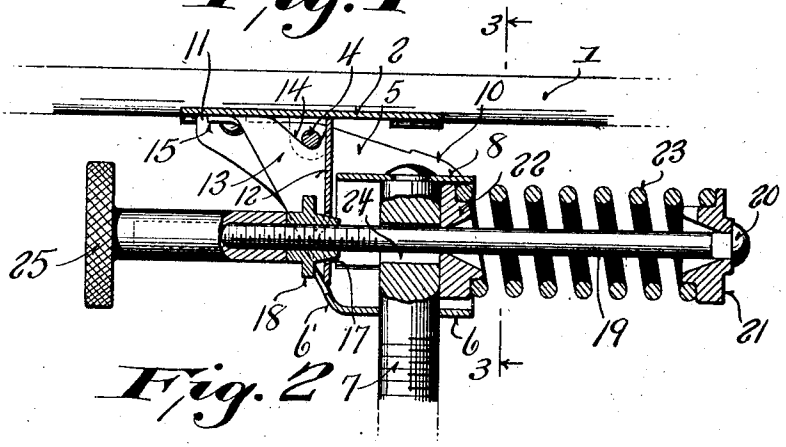
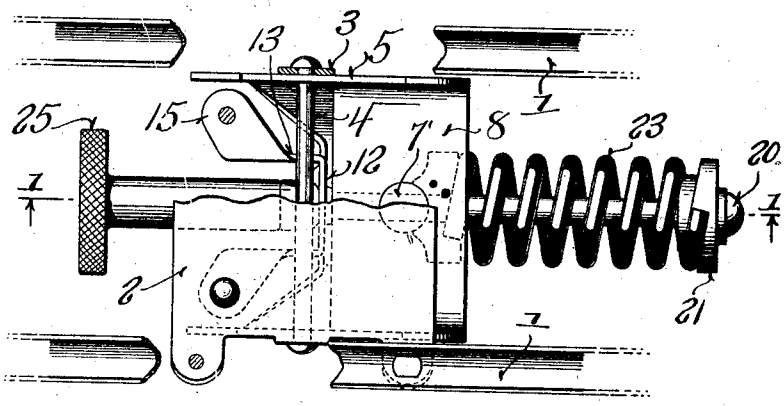


Fig. 2



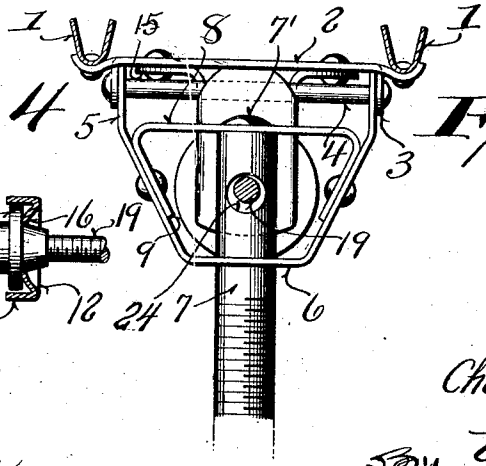


Fig. 4

Fig. 3

Witness:
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UNITED STATES PATENT OFFICE.

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CHAIR IRON.

Application filed May 17, 1924. Serial No. 714,036.

This invention relates to chair irons.

Objects of this invention are to provide a chair iron which is of extremely compact construction, which permits the extension of the spindle upwardly beyond the tension screw, and which permits the construction of a chair without requiring an excessive height or space between the supporting legs and the chair seat.

Further objects are to provide a chair iron which may be formed primarily from stamped sheet material, which is of a very strong and rigid construction, which is devoid of fragile parts, and which may be readily produced by ordinary machine shop methods.

An embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view through the chair iron, such view corresponding to a section on the line 1—1 of Figure 2.

Figure 2 is a plan view partly broken away of the structure shown in Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 1 with the spring and the inner bearing washer removed.

Figure 4 is a detail of a tension screw and adjusting nut detached from the rest of the apparatus.

The chair iron comprises the pair of supporting channel members 1 adapted for attachment to the chair seat. These channel members are riveted to projecting ears of a saddle piece 2, the ears of such saddle piece being slightly concaved, as shown in Figure 3, to receive the channel supports 1 of the chair seat. This saddle member is provided with downwardly turned lugs 3 through which the pintle rod 4 passes, such pintle rod being received in the upwardly extending side walls 5 of the lower brace member.

The brace includes the lower brace member previously mentioned which is provided with a transverse bottom portion 6 apertured to receive the threaded supporting spindle 7 and also comprising an upper brace member 8 which is apertured, and receives the upper end 7′ of the spindle, such upper end being riveted to the transverse upper brace member 8. This upper brace member is provided with downwardly extending ears 9 and it is to be noted from Figure 3 that these ears and the corresponding walls of the lower brace member are angularly arranged and are securely riveted together. It is to be noted in this connection that the brace engages the spindle 7 at widely spaced points and thus provides the maximum security of attachment between the upper portion of the structure and the spindle, and prevents twisting or breaking of such portion from the spindle. In connection with the lower brace member, it is to be noted from reference to Figure 1 that such lower brace member is provided with a forward upturned portion 6′, (see Figure 1) which acts as a strengthening reenforcing flange for such member and increases the rigidity and strength of the structure.

The upwardly extending walls of the lower brace member are provided with raised portions 10 which form rear stops against which the saddle 2 is adapted to strike, and are further provided with raised forward ends 11 against which the saddle bears when in normal position, as shown in Figure 1, thus constituting rear and forward stops, respectively.

A downwardly extending arm 12 of channel shape is carried by the saddle member 2, and is preferably provided with a rear wall contacting with such saddle member, as shown in Figure 1, and with side walls 13 which are notched, as indicated at 14, to receive the pintle pin 4. These side walls continue upwardly and forwardly and are of substantially triangular formation. They are provided with outwardly turned ears 15 which are secured by rivets or suitable means to the saddle 2, as shown in Figure 2. The rear wall of the arm 12 is provided with outwardly pressed protuberances or ridges 16, as shown in dotted lines in Figure 1, and, as shown in section in Figure 4, and such arm is apertured, as indicated at 17 in Figure 1, to receive the tapered portions of the flanged bearing washer 18, such ridges 16 bearing against the flange of the washer 18 and forming in effect line contacts with such washer. The tapered portion of the washer cooperates with the aperture 17 in the arm 12 and aids in centering such washer with reference to the aperture.

A tension bolt 19 is provided with a head 20 at its rear end which receives the spring washer or bearing member 21. A second bearing washer 22 is provided and is positioned in contact with the spindle 7, as shown

in Figure 1. Between these washers a compression spring 23 is positioned. In order to accommodate the tension bolt 19 and also to secure compactness of the device, an aperture 24 is formed in the upper portion of the spindle 7, such aperture being materially larger than the tension bolt 19 to permit ready tilting of the device without binding of the bolt within the aperture. The outer end of the tension bolt 19 is threaded and receives the knurled adjusting nut 25, the inner end of such nut directly contacting with the bearing washer 18 of the tension bolt.

It is to be particularly noted that it has heretofore been the practice to provide bearing washers in place of the member 18 which were provided with projections adapted to contact with an arm extending downwardly from the saddle in order to permit proper working relative movement. It frequently happened that these washers were incorrectly positioned with binding or defective functioning. However, by providing the ridges 16 (see Figures 1 and 4 in the arm 12), and by providing the bearing washer with a flat flange, as indicated at 18, this defect is overcome and a construction is provided which will always function correctly irrespective of the setting of the washer flange 18. In other words, this flat flange may be turned about the axis of the bolt into any position without affecting its cooperative functioning with the wavy or ridge portion 16. Also the portion 17 of the bearing washer aids in correctly centering such bearing washer.

It is to be noted that the widely spaced points of bearing of the brace which supports the entire load from the seat is secured without unnecessarily elongating the structure, and it is to be particularly noted that the tension bolt and spring and the associated parts are positioned between the upper and lower portions of the brace, and that the tension bolt passes directly through the spindle. This construction has the highly practical and desirable effect of providing a very strong connection between the bracing member and the spindle and of providing the long sought for compactness of construction.

It will thus be seen that a chair iron has been provided which is of strong formation, which is very compact and which may be simply and cheaply manufactured.

Although the invention has been described in considerable detail, it is to be understood that the invention may be variously embodied and is, therefore, to be limited only as claimed.

I claim:

1. A chair iron comprising a saddle adapted to support a seat, a brace pivotally secured to said saddle, a main supporting spindle, said brace engaging said spindle at widely spaced points, an arm secured to said saddle and extending downwardly in front of said spindle, a tension bolt held by said arm and passing through said spindle, and a spring urging said tension bolt rearwardly.

2. A chair iron comprising a saddle adapted to support a seat, a brace pivotally secured to said saddle, a main supporting spindle, said brace engaging said spindle at widely spaced points, an arm secured to said saddle and extending downwardly in front of said spindle, a tension bolt carried by said arm and passing through said spindle and through said brace, and a spring mounted rearwardly of said spindle and urging said tension bolt rearwardly.

3. A chair iron comprising a seat supporting saddle, a main spindle having an aperture adjacent its upper end, a brace pivotally supporting said saddle, and engaging said spindle at spaced points above and below said aperture, a tension bolt operatively connected to said saddle and passing through said aperture, and a spring associated with said bolt and having a bearing portion engaging the rear side of said main spindle.

4. A chair iron comprising a saddle, a main spindle, a brace pivotally supporting said saddle and engaging said spindle at spaced points, a channel shaped sheet metal arm projecting downwardly from said saddle and having an aperture and a pair of outwardly pressed ridges adjacent said aperture, a tension bolt passing through said spindle, a spring mounted rearwardly of said spindle and connected to the rear portion of said bolt, and means adjustably carried by the forward portion of said bolt and engaging said ridges.

5. A chair iron comprising a pair of channel supporting members, a saddle secured to said members, a brace pivotally attached to said saddle, a spindle engaging said brace at widely spaced points and having an aperture extending through such spindle intermediate such points, a channel shaped arm attached to said saddle and extending downwardly in front of said spindle, a tension bolt having adjustable means bearing against said arm and passing through the aperture in said spindle, a spring surrounding the rear portion of said bolt, and bearing members for said spring carried by said bolt, one of said bearing members engaging the outer end of said bolt and the other of said bearing members contacting directly with said spindle.

6. A chair iron comprising a saddle, a main spindle, a brace pivotally supporting said saddle and engaging said spindle at spaced points, a sheet metal arm secured to said saddle and extending downwardly in front of said spindle, said sheet metal arm

having a pair of outwardly pressed ridges and an aperture therebetween, a spring urged tension bolt passing through said aperture, and a bearing washer carried by said bolt and having a flat flange contacting with said ridges, whereby free pivotal relative motion between said flange and said arm is permitted irrespective of the position of said flange.

7. A chair iron comprising a saddle, a main spindle, a brace pivotally supporting said saddle and engaging said spindle at spaced points, an arm secured to said saddle and extending downwardly and provided with spaced ridges and an aperture therebetween, a spring urged tension bolt passing through said aperture, and a bearing washer carried by said bolt and having a flat flange contacting with said ridges, whereby free pivotal relative motion between said flange and said arm is permitted irrespective of the position of said flange.

8. A chair iron comprising a pair of channel supporting members, a saddle secured to said members, a brace pivotally attached to said saddle and having an upper plate and a bottom plate, a spindle having its upper end secured to said upper plate and having an intermediate portion passing through said lower plate, said spindle having an aperture between said plates, a channel shaped arm attached to said saddle and extending downwardly in front of said spindle, a tension bolt having adjustable means bearing against said arm and passing through the aperture in said spindle, and a spring surrounding the rear portion of said bolt and bearing against said spindle.

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.

CHARLES J. TRAVERS.