The invention relates to a brace for tying together the legs of furniture, such as chairs and tables, and the invention relates to that type of chair braces wherein a pair of U or V-shaped tension wires connect the legs together in pairs and a turnbuckle acts between the wires to draw them together and thus interlock the legs in an X or H-shaped brace.

It has been found in practice that even though the turnbuckle may be rotated to place the requisite tension on the leg-connecting wires, the subsequent use of the chair after several years loosens the initially tight position of the turnbuckle and this occurs even though the pitch of the thread on the turnbuckle screw is low. It is required that braces of this character be cheaply constructed and from an economic standpoint it is not possible to provide a turnbuckle screw with the threads of such low pitch as to avoid or minimize this tendency towards subsequent loosening of the turnbuckle and resulting loss of tension in the wires.

The primary object of the invention is to provide a form of furniture brace of the type above outlined which will be maintained in its initially set position and be thus free of automatic loosening characterizing similar devices not shown.

In certain forms of chairs, tables, and other forms of furniture provided with legs, it is desirable not only to tie the legs together in a horizontal or substantially horizontal plane but such braces act best when the pull on the legs is not only in an inward direction but in an upwardly inclined direction towards the center of the seat of the chair or underside of the table.

Accordingly, another object of the invention is to provide a simplified construction utilizing the advantage of the turnbuckle form of connector between the leg engaging tension wires and at the same time to provide a simplified means for displacing the turnbuckle and associated parts as a whole upwardly so as to give the requisite direction as well as the required tension on the several wires leading to the legs.

Both of these objectives are obtained in a single construction by the utilization of a threaded lock rod which can be secured to the underside of the table top or seat and by passing the lock rod loosely through an eye in the turnbuckle screw rod, the turnbuckle as a whole may be elevated any desired distance and at the same time the engagement of the lock rod in its intrusion through the screw rod will defeat any tendency of this rod to turn out of its initially set position.

Various other objects and advantages of the invention will be part obvious from an inspection of the accompanying drawing and in part will be more fully set forth in the following particular description of one form of brace embodying the invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a view in side elevation showing a conventional form of chair equipped with a preferred embodiment of the invention with certain parts shown in section; and

Fig. 2 is a horizontal sectional view taken on the line 2—2 of Fig. 1 looking downwardly on the brace indicated by the arrows and showing one of the nuts in horizontal section.

The chair 10 is provided with a seat 11 and four legs 12, 13, 14 and 15, and associated rungs 16 connecting the legs, each leg engaging both the seat and rungs by socket connections 17.

The brace 18 is formed of two U-shaped tension wires 19 and 20 provided at opposite ends with screws 21 by means of which the brace may be readily attached to the legs and in the illustrative showing wire 19 connects together legs 12 and 15, and wire 20 similarly connects the pair of legs 13 and 14. The wires 19 and 20 are connected at their crotch portion by means of a turnbuckle 22 which includes a screw rod 23 having a flat, disc like portion 24 at its midpoint and provided on opposite sides thereof with threads in relatively reversed direction. Mounted on opposite ends of the screw rod 23 are nuts 24 and 25, each provided with an upwardly projecting portion 26. Each portion is provided on its inner face with a curved groove 27 in which are slidably mounted respectively the tension wires 19 and 20.

The construction of the nut has the effect of raising the inner, crotch end of the tension wire high above the horizontal plane containing the screw rod 23 thus producing an upward tilt of the wires as shown in Fig. 1. This arrangement tends to minimize binding of the nuts on the screw rod and the more inclined the wires are from the horizontal, the less will be the binding of the nuts on the screw rod. On the other hand when the distance between the wires is shortened and they extend from the slot 27 in a more horizontal direction the nuts become more canted on the screw rod and thus the binding of the nuts on the screw rod becomes positive. Differently expressed, the tension wires hold the nuts from...
rotating on the screw rod but the offset pull of the wires tends to rotate the nuts about a self-contained axis perpendicular to the length of the rod and thus tends to resist rotary movement of the rod about this axis. The offset pull of the wires and the rotated nuts act to rotate the lock rod about the self-contained axis and to extend a cross arm at any joint or crack in the seat in those cases where the seat may be cracked or broken. In the drawing it may be assumed that the strap 30 extends across a blind crack in the seat with the two screws 31 positioned on opposite sides of the crack and engaging the two parts of the seat on one side of the crack. It is further suggested that the lock rod be omitted and dependence placed upon the binding of the nuts in their angled engagement with the screw rod to secure the rod against accidental rotation.

I claim:
1. In a device of the class described, the combination of a chair including a seat and four legs, a brazing device beneath the seat for tying the legs together so that the secured two of including two tension wires, each connecting a pair of adjacent legs and a turnbuckle including a screw rod provided with an eye extending through the eye, one for each wire and each provided with a groove for receiving its associated wire adjacent the midlength of the latter and a lock rod secured to the underside of the seat, depending therefrom and extending into the eye to prevent accidental rotation of the turnbuckle rod out of its set position placing tension on the wires through the nuts.
2. In combination with an article of furniture comprising a top piece and a plurality of legs, a brazing device for tying the legs to each other and to the top piece, said brace including a pair of tension wires secured to the legs and extending in a generally horizontal direction, a turnbuckle for placing tension on the wires, said turnbuckle including a horizontally extending screw rod provided with an eye and engaging means hooking the wires on opposite sides of the eye, a vertically extending lock rod secured to and depending from the top piece and extending through the eye, the screw from rotating, the extended part of the lock rod being threaded and a nut engaging the threaded lower end of the lock rod, bearing against the underside of the screw rod and in tendon to press the screw rod upwardly acting to give the tension rods an inwardly and upwardly directed pull on the legs.
3. In combination with a chair having a seat and four legs, a brazing device for tying the legs together and to the center of the seat, said device including two U-shaped tension wires each having its opposite ends secured to two of the legs below the seat, a turnbuckle engaging between means on the tension wires in a tendency to draw the legs together horizontally and lifting means acting on the turnbuckle in a tendency to elevate the same and thus impose an upwardly and inwardly directed tension on the part of each wire which extends between the turnbuckle and its associated leg.
4. A brazing device for connecting together the legs of a piece of furniture, including a pair of U-shaped tension wires provided at their ends with means for securing them to the legs, a turnbuckle engaging means in the center of the turnbuckle, and tension wires and tending to draw them towards each other in one plane and tension means act-
ing on the turnbuckle at a point between the crotch portion of the wires and tending to draw the turnbuckle laterally out of said plane whereby the tension wires are subjected to two forces acting at right angles to each other.

5. As an article of manufacture, a bracing device for connecting the legs of furniture including a turnbuckle comprising a screw rod having an eye extending therethrough and which eye is adapted to receive a tool for rotating the screw rod, a pair of nuts in opposite threaded engagement with the ends of the rod, a pair of tension wires provided with means at opposite ends for engaging a pair of the furniture legs, each nut engaging one of the tension wires at its midlength, and a lock rod provided with means for securing it to the furniture and extended into the eye to prevent rotation of the turnbuckle screw rod after the brace has been installed in place.

6. A bracing device for use in tying together the legs of a piece of furniture including tension wires for connecting together the legs in pairs, a turnbuckle comprising a screw rod having an eye extending therethrough and oppositely threaded on opposite sides of the eye, nuts in threaded engagement with opposite ends of the screw rod and provided with means for engaging the tension wires to draw the same together when the screw rod is rotated in one direction, a lock rod having a threaded end extending through the eye and a nut on the threaded end of the lock rod for engaging the screw rod to shift the same transversely of its length in one direction along the lock rod.

7. A turnbuckle including a screw rod provided midlength with an eye extending therethrough, nuts oppositely threaded on the rod on opposite sides of the eye and provided with means for engaging tension wires, a lock rod provided with a threaded end extending through the eye and a nut on the threaded end engaging the portion of the screw rod outlining the eye to shift the turnbuckle and associated nuts bodily in the direction of the lock rod.

8. A bracing device for tying together the legs of a piece of furniture, comprising a pair of U-shaped tension wires for connecting the legs in pairs, screw means connecting the wires adjacent their midlengths for drawing the wires horizontally towards each other in one direction and other screw means acting upwardly at right angles to the first named screw means and cooperating therewith to cause the wires to assume a position resulting from the drawing action of said two means.

9. A device for tying together the legs of a chair and for tying together two parts of the seat, comprising a pair of U-shaped tension wires, a turnbuckle engaging means for drawing the wires together and provided with an eye, an L-shaped rod having one part threaded and extended into the eye and having another part constituting a strap adapted to extend across the joint between the two parts of the seat to secure the parts together and a nut engaging the threaded part of the rod and acting to elevate the turnbuckle to place tension on the tension wires.

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