March 26, 1929. T. H. WITTLIFF 1,706,431

FURNITURE BRACE

Filed March 16, 1923

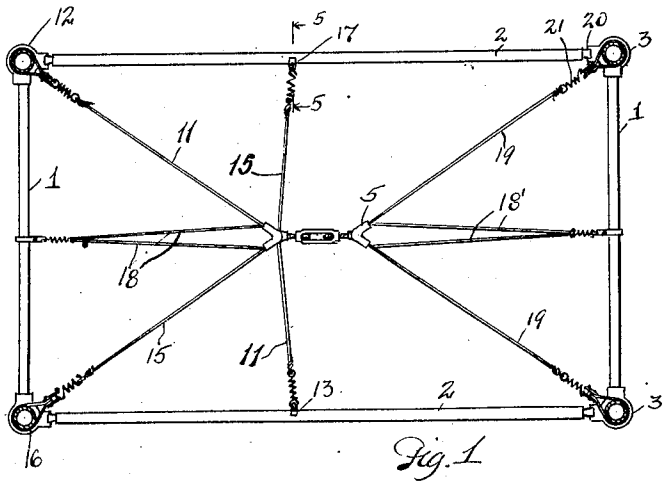


Fig. 1

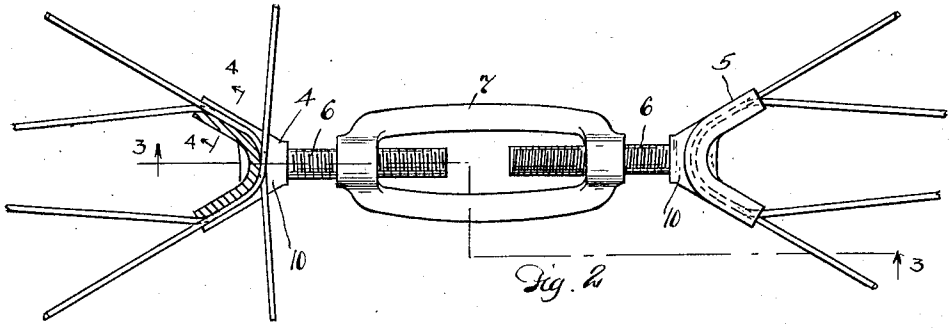


Fig. 2

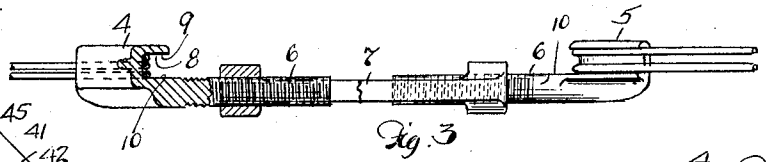


Fig. 3

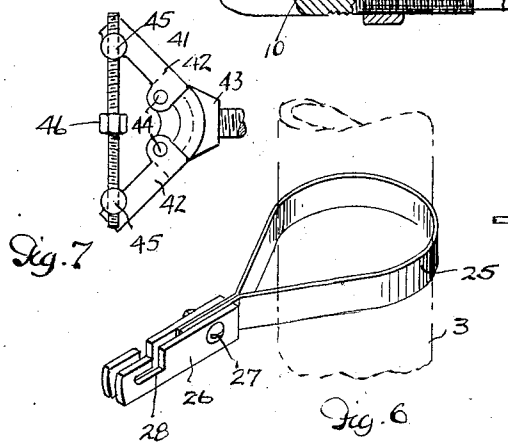


Fig. 7

Fig. 6

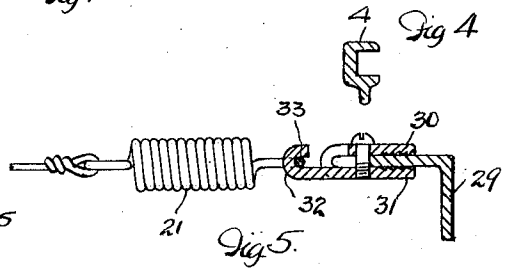


Fig 4

Fig 5.

INVENTOR.
Theodore H. Wittliff.
BY
Fay Oberlin & Fay
ATTORNEYS

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UNITED STATES PATENT OFFICE.

THEODORE H. WITTLIFF, OF CLEVELAND, OHIO.

FURNITURE BRACE.

Application filed March 16, 1923. Serial No. 625,515.

The present invention, relating, as indicated, to a furniture brace, is more particularly directed to an improved type of yoke member to be used in furniture braces of the type employing spaced yoke members connected by a turn-buckle and also of an improved bracing system for beds, tables, and the like. One of the principal objects of the invention is the provision of an improved and simplified type of yoke member and the provision of a bracing system employing such yoke member which may be applicable to various pieces of furniture, including different types of beds, without interference with the functions of the furniture, as will be more particularly described hereinafter. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a plan view of a metal bed to which the present bracing system is applied; Fig. 2 is an enlarged plan view of the yoke members and connecting turnbuckle; Fig. 3 is a central vertical section on the line 3—3 in Fig. 2; Fig. 4 is a section on the line 4—4, in Fig. 2; Fig. 5 is a section on the line 5—5 in Fig. 1; and Fig. 6 is a perspective view showing the method of attachment of the bracing wires to the corner post of the bed shown in Fig. 1; and Fig. 7 is a plan view of a modified form of yoke member.

In Fig. 1 there is shown the frame of a bed consisting of end members 1, side rails 2 and posts 3. It will be understood that the particular type of bed here shown is merely to illustrate the application of my improved bracing system and that the same may equally well be supplied to other types of beds, either metal or wooden, or to tables, chairs or similar articles of furniture.

The present bracing system consists of a series of cords or wires extending between various points of the bed frame and all passing around one of two yoke members 4 and 5, which are provided with threaded shanks 6 and are connected by a turnbuckle 7 for pulling the two yokes together, and in this way tightening the wires extending over them. Each of the yokes 4 and 5 is provided with a V-shaped wire-receiving groove 8, shown in Figs. 3 and 4, in which the wires lie and in which they are retained between an upper flange 9 and the lower body portion 10 of the yoke. It will be evident from Fig. 2 that the wires are in engagement with the yoke member for a considerable distance, which tends to prevent movement of the wires over the surface of the engaged portion, which is extremely desirable for reasons to be explained hereinafter.

The braces consist of a wire 11 which is connected to the post 12 and then leads about the yoke 4 and over to the more distant side rail 2 at the point 13. There is a second brace consisting of a wire 15 leading from the post 16 over the yoke 4 and to the opposite side rail 2 at the point 17. Another wire 18 is secured to the end 1 of the bed frame and extends around the yoke 4. The other end of the bed is braced by means of a wire 19 leading from the other two posts of the bed and around the yoke 5. A wire 18′ leads from the other end rail 1 around the yoke 5 in the same manner as the brace 18 already described. After the bracing wires have been attached and secured around the yokes 4 and 5 they may be tensioned by adjustment of the turnbuckle 7, as will be readily understood, and the entire frame can in this way be very securely braced and made rigid, and any play, which is almost always at the joints 20 between the posts 3 and the side rails 2 can be taken up in this manner. It is particularly important to eliminate this play in the joints in beds. Whenever a bed is moved it is pulled or pushed either at the head or foot, and if there is any play between that portion of the bed or side rails and the other end, the casters on the other end will catch on the carpet and will often cut the carpet before the lost motion in the connections is taken up and that portion of the bed moves with the rest.

In certain types of metal beds the springs are so close to the plane of the side rails 2 of the bed that the bracing system is necessarily so located that the depression of the springs will sometimes bring them into contact with the yokes and turnbuckle. In order to allow full play for the bed springs I have illustrated a desirable type of mounting for the present bracing system for such beds. This mounting consists in the use of

coil springs 21 at the ends of each of the wires 11, 15, 19, 18 and 18′ between the ends of the wires and the attachment to the frame or posts of the bed. These springs are of sufficient strength to permit of the rigid bracing of the bed 1 to allow for a sufficient yielding of the entire bracing system if a vertical load is placed upon the yokes and turnbuckle as would be the case if the bed springs were depressed sufficiently to come into contact with these members.

The method of attachment of the bracing wires to the corner posts is illustrated in Fig. 6. I provide a bendable metal loop 25, which is formed to fit snugly against the post 3 and may be made in different shapes to correspond to round, square and other forms of posts. The two ends of the strip 25 are placed between plates 26 and are secured thereto by means of a screw or bolt 27 passing through suitable registering apertures in the plates and in the strip 25. The two plates 26 are provided with L-shaped slots 28, into which the eyelets on the springs 21, or, if springs 21 are not used, then loops on the ends of the wires, may be secured.

The bracing wires which lead to the side and end rails are secured in the manner shown in Fig. 5. The end and side rails of the bed are usually in the form of angles 29 and clamped to the horizontal portion of these angles are serrated strips 30 and 31, one of which (31) is provided with a turned-up end or hook 32, which receives the eyelet 33 on the spring 21.

The yokes shown in Figs. 2 and 3 are of a spread suitable for the application of the device longitudinally of the bed, as is shown in Fig. 1. However, it may be found desirable to dispose the turn-buckle and its associated elements transversely of the bed, in which event it would be found that the V-shaped wire-receiving grooves of the yokes would not be of the proper angle to engage the wires and hold them in non-slipping relation. Through the medium of the modified yoke 41, the angle of the V-shaped portions may be adjusted as desired. In this form of the device the side members 42 of the yoke are connected to the base member 43 by pivot pins 44. Adjacent the outer ends of the side members rotatable studs are mounted within which transversely extending screw-threaded apertures are provided to receive the oppositely threaded sections of an adjusting screw 46. Thus the spread of the V-shaped yokes can be adapted for use in either a longitudinal or transverse position with respect to the article to which it is applied, and suitable supporting contact with the wires may be maintained whether the terminals of said wires are disposed at closely adjacent or widely spaced points.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a bracing system for furniture, the combination of an article of furniture provided with four spaced supports and connecting members therebetween, a cable adjusting means, a cable extending from one support over said adjusting means to a point intermediate the ends of one oppositely disposed connecting member, a second cable extending from a second adjacent support over said adjusting means to a point intermediate the ends of a second connecting member oppositely disposed with respect to said second support, a third cable extending between the other two of said four supports and over said adjusting means, and a cable connecting each end of said adjusting means with the adjacent end connecting members of said article of furniture.

2. In a bracing system for furniture the combination of a plurality of supports and connecting frame members with a plurality of connecting cables for applying tension thereto, of a tensioning member having a central member and a pair of yokes, said yokes being formed with a body portion terminating in a screw-threaded shank at one end and forming a base for a flanged V-shaped cable engaging portion having pivoted side members, at its opposite end to provide an offset diverging groove for said cables, and means for adjusting the angular position of said members.

Signed by me, this 7th day of March, 1923.

THEODORE H. WITTLIFF.