Jan. 29, 1957 E. G. FREEMAN 2,779,390

STOOLS OR LIKE ARTICLES

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FIG. 1.

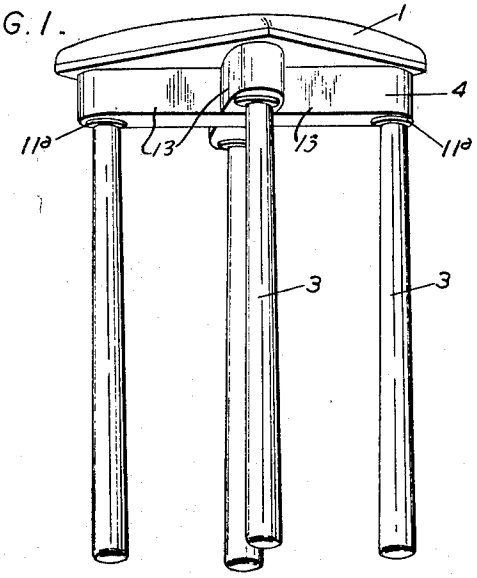
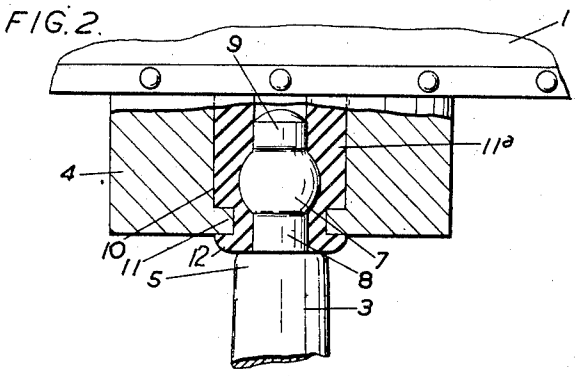


FIG. 2.



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FIG. 3.

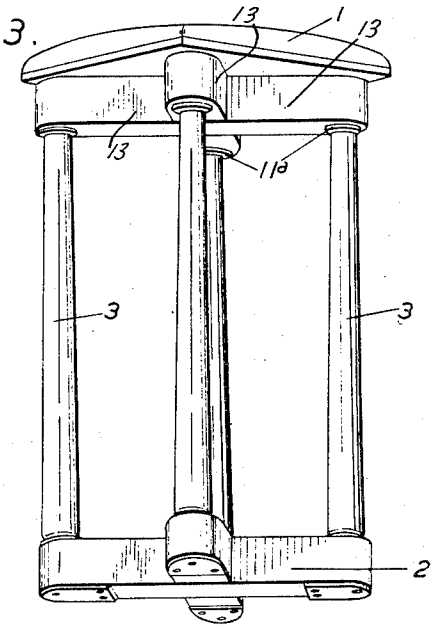
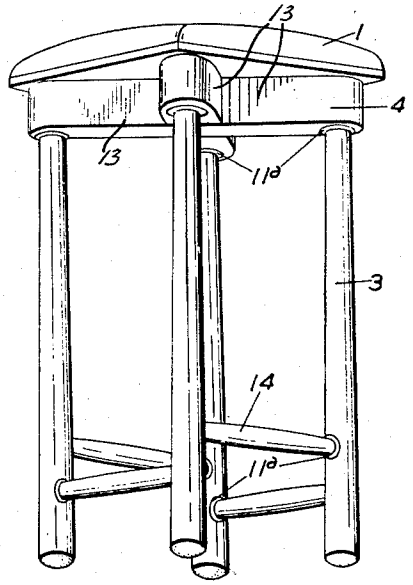


FIG. 4.



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FIG. 5.

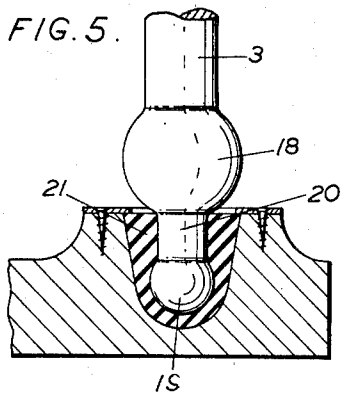


FIG. 6.

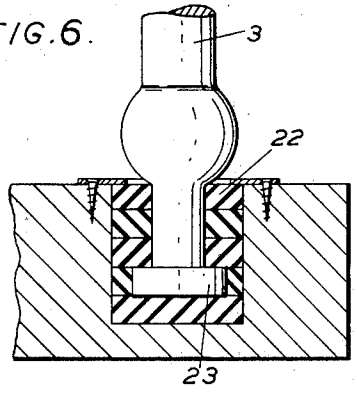
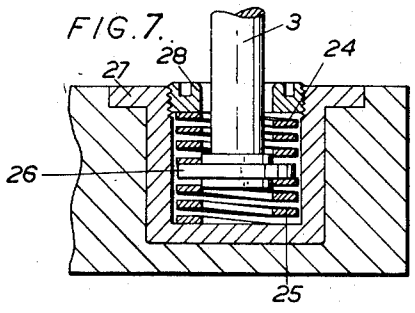


FIG. 7.



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STOOLS OR LIKE ARTICLES

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Application February 23, 1954, Serial No. 412,012

4 Claims. (Cl. 155—50)

The present invention relates to stools, seats or the like articles of furniture and has for its chief object to provide an improved stool, seat or the like article of furniture in which the seat portion is capable of rotary and/or bodily movements with respect to the vertical axis of the stool or the like.

According to the present invention there is provided a stool, seat, or like article of furniture comprising a seat portion, a plurality of legs for supporting the seat portion, and resilient means interposed between each of said legs and said seat portion, whereby the seat portion can be displaced with respect to the legs and is returned to a mean position after displacement.

The legs may in some cases be associated with a base portion, and the resilient means may comprise bushings of suitable resilient material, e. g., natural or synthetic rubber, or a spring or springs appropriately disposed between each leg and the seat portion, and if desired, the base portion.

In order that the present invention may be more clearly understood and readily carried into effect reference may now be had to the accompanying drawings illustrating the same by way of example, and in which:

Fig. 1 is a perspective view of one form of stool according to the present invention.

Fig. 2 is an enlarged sectional view showing one form of joint between each leg and the seat portion of the stool shown in Fig. 1.

Fig. 3 is a perspective view of a modified form of stool according to the present invention.

Fig. 4 is a perspective view of a modified form of stool according to the present invention, and

Figs. 5, 6 and 7 are sectional views of modified forms of joints which may be employed.

In the drawings the present invention is shown as applied to a seat or stool which may be used, for example, as a piano stool, a bar stool or by operators in telephone exchanges, machine shops and like places.

As shown in Figs. 1 and 2 the stool comprises a seat portion 1, and four legs 3 connected to the seat portion 1. The seat portion 1 has a frame 4 of cruciform shape in which the respective ends 5 of the leg 3 are housed, the ends of the legs being each provided with a more or less spherically shaped part 7 connected with the leg proper by a reduced portion 8 and each part 7 has an extension 9 of about the same cross-sectional dimensions as the reduced portion 8 on the side thereof opposite to the portion 8. The free ends of the legs are adapted to rest on the floor or other surface upon which the stool or seat is supported and are preferably of slightly convex form.

Each arm 13 of the frame 4 is provided with a hole or recess 10, formed to provide an overhanging neck portion 11, to receive the corresponding end of the leg 3 and a bushing 11*a* of resilient material, such as rubber. As can be seen from Fig. 1 the four holes 10 lie at the four corners of a square. Each bushing 11*a* before insertion in its hole or recess 10 is of substantially cylindrical shape

but is provided with an external groove defined between the main part 11*a* of the bushing and a lip 12. The groove serves to receive the neck portion 11 and is of such size that when each leg is assembled with the leg portion 7 as shown in Fig. 2 the resilient material is under compression and tends to maintain the leg in a vertical position. With such a construction, the seat portion 1 can be rotated about a vertical axis, or displaced, with respect to, and substantially parallel with, the supporting surface and in so doing the bushings 11*a* are stressed so that when the force causing the rotation or displacement is removed, the seat portion 1 will return to its normal position with respect to the supporting surface.

The modified form of the invention shown in Fig. 3 is similar to that shown in Fig. 1 except that the lower ends of the legs 3 are housed in a cruciform base portion 2, the manner of mounting the lower end of each leg 3 in the base portion 2 being similar to that already described with reference to the form of the invention shown in Figs. 1 and 2 for mounting the upper end of each leg in the frame 4.

In the further modified form of the invention shown in Fig. 4 the seat or stool is of similar construction to that shown in Fig. 1 but additionally the legs 3 are braced by means of bracing members 14 extending between the legs 3. In this case the opposite ends of each bracing member 14 are mounted in adjacent legs 3 in a similar manner to that in which the ends of the legs are mounted in the enlargement 4 of the seat 1 and as hereinbefore described with reference to Fig. 2.

In Figs. 5, 6 and 7 there are shown by way of example various alternative ways in which the ends of the legs 3 may be connected with the seat portion 1 and the base portion 2 where provided, or in which the bracing members 14 may be connected with the legs 3. As shown in Fig. 5 the end of the leg 3 is provided with two more or less spherical enlargements 18, 19, one of which may be of greater diameter than the other, connected by a cylindrical part 20, and the lowermost enlargement 19 and the cylindrical part 20 are encased in a resilient bushing 21 housed in a recess in the corresponding part, e. g. the seat portion 1, the base portion 2 or a leg 3, a plate being provided for retaining the resilient bushing 21 in position. The arrangement shown in Fig. 6 is similar to that shown in Fig. 5 except that the bushing is in the form of a series of rings 22 and the flat plate-like enlargement 23 is provided at the end of the leg instead of the spherical enlargement shown in Fig. 5. In the arrangement shown in Fig. 7 a pair of helical springs 24, 25 mounted on either side of a plate-like enlargement 26 on the end of the leg 3 are provided instead of a resilient rubber bushing as shown in Fig. 6. In this case a metal lining 27 is provided for the recess in the corresponding part and the tension of the springs 24, 25 can be varied by means of member 28 screwed into the lining 27 which also acts to retain the springs in position.

If desired the seat portion 1 of any of the forms of the invention described may be provided with a support for the back or arms or both the back and the arms of the user of the stool.

In the use of a stool, seat or the like article according to the present invention the user can, by an effortless bodily movement and without bending his back, displace the seat portion either rotationally or bodily with respect to the floor or the base, and substantially parallel thereto, thereby lessening fatigue such as would be occasioned without the use of the stool.

I claim:

1. An article of furniture comprising a seat portion, a plurality of legs of substantial length for supporting said seat portion, a frame attached to the underside of the

seat portion, said frame having a plurality of spaced recesses therein, said recesses each being provided with a neck portion of reduced diameter, resilient bushings located in said recesses and fitting against the sides thereof, said bushings each being provided with an external groove engaging with said neck portions to restrain the bushings against movement longitudinally of said recesses and being apertured centrally and receiving the top ends of the legs, each leg engaging firmly against the side of the aperture in the corresponding bushing and being provided with means for preventing movement of said leg upwardly through said corresponding bushing to permit transference of load from the seat portion to the legs through the bushings.

2. An article of furniture comprising a seat portion, a plurality of legs of substantial length supporting said seat portion, a frame attached to the underside of the seat portion, said frame having a plurality of spaced recesses therein, resilient bushings located in said recesses and fitting against the sides thereof, each of said bushings being provided with an external lip at its bottom end engaged against the undersurface of said frame restraining said bushings against upward movement through said frame, said bushings being apertured centrally and receiving the top ends of the legs, said top ends of the legs being proportioned to fit tightly against the sides of said apertures in said bushings, said legs each having a peripheral shoulder below their top ends engaging against the bottom end surface of the corresponding bushings restraining movement of said legs upwardly through said bushings and to permit load transference from said seat portion to said legs through said bushings.

3. An article of furniture according to claim 2 further including a lower frame proximate the bottom end of said legs, said lower frame connecting said legs, resilient joints being interposed between said legs and said lower frame permitting angular movement of said legs relative thereto.

4. An article of furniture comprising a seat portion, four legs of substantial length for supporting said seat portion, a square frame attached to the underside of said seat portion, said frame having four recesses arranged therein at the corners thereof, resilient bushings located in said recesses and fitting against the sides thereof, each of said bushings being provided with an external lip at its bottom end engaged against the undersurface of said frame restraining said bushings against upward movement through said frame, said bushings being apertured centrally and receiving the top ends of the legs, said top ends of the legs being proportioned to fit tightly against the sides of said apertures in said bushings and being provided with means for preventing movement of said legs upwardly through said bushings to permit transference of load from the seat portion to the legs through the bushings and a lower frame connecting said legs at points remote from their top ends, resilient joints being interposed between said legs and said lower frame to permit angular movement of said legs relative thereto.

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