Feb. 28, 1950 H. A. GELMAN 2,498,837

SEAT CONSTRUCTION FOR STOOLS AND THE LIKE

Filed Oct. 5, 1946 2 Sheets-Sheet 1

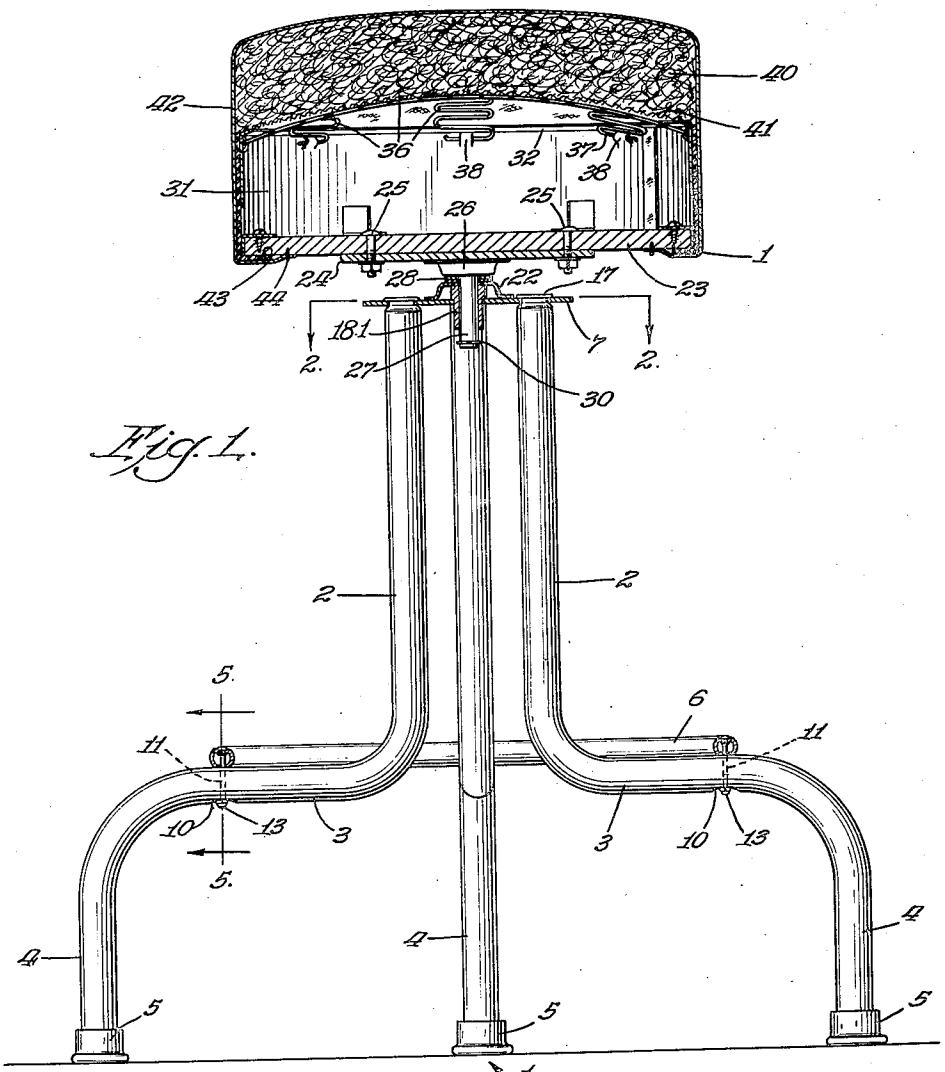


Fig. 1.

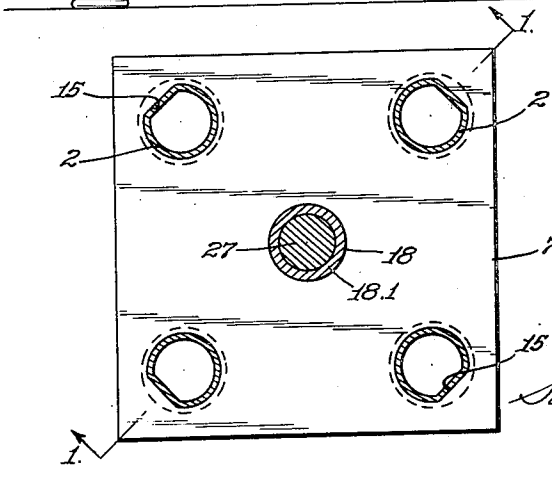


Fig. 2.

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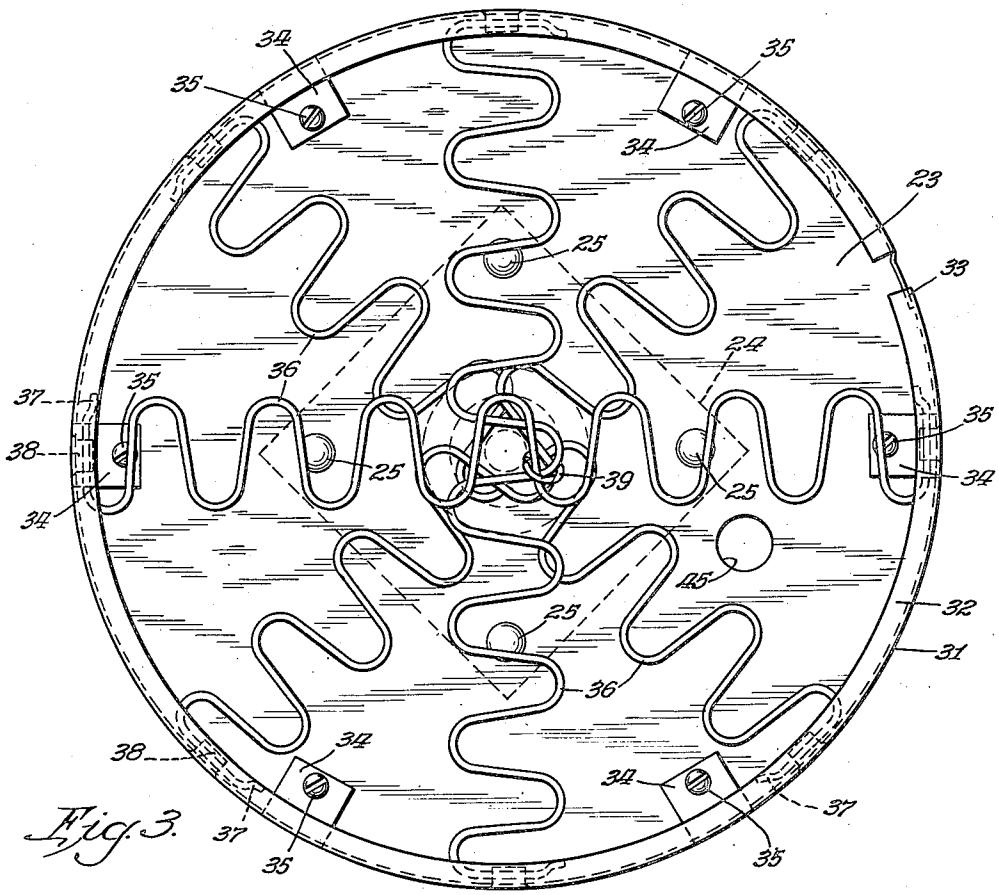


Fig. 3.

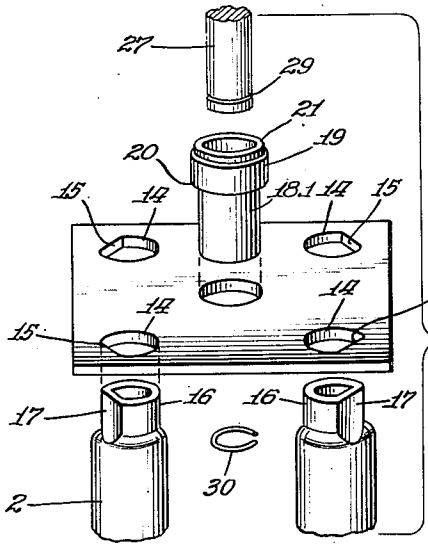


Fig. 4.

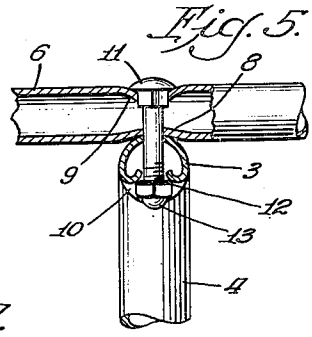


Fig. 5.

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UNITED STATES PATENT OFFICE

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SEAT CONSTRUCTION FOR STOOLS AND THE LIKE

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Application October 5, 1946, Serial No. 701,465

6 Claims. (Cl. 155—184)

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My invention relates to furniture and includes among its objects and advantages a furniture product, principally but not necessarily entirely of metal, particularly adapted to withstand rough handling. In taverns and various recreation places where the patrons are boisterous the furniture is likely to be overturned or thrown around a good deal and the types of construction best suited for ordinary service fail to stand up under such conditions of use.

In the accompanying drawings,

Figure 1 is a view as in section on line 1—1 of Figure 2 except that the legs on the plane of the section are shown in elevation;

Figure 2 is a section on line 2—2 of Figure 1;

Figure 3 is a plan view of the seat member with the upholstery removed;

Figure 4 is a perspective of the head plate and parts immediately associated therewith, indicating the manner of assembly.

Figure 5 is a fragmentary detail section on line 5—5 of Figure 1.

The embodiment of the invention selected for illustration is a bar stool. Conventionally, this type of stool includes a swiveled seat member 1 and a frame extending down to terminate in four feet engaging the floor at the corners of a square. It is also usual to have the feet extend out further than the seat to increase the stability of the stool. I have illustrated four duplicate legs, each comprising a riser 2, a reach 3 extending radially outward, and a relatively short leg and foot column 4 carrying a conventional rubber foot 5. These four legs are united into an integral riveted structure by a bracing ring 6, which also performs the functions of a foot rail, and by the head plate 7, engaging the extreme upper ends of the legs. The ring 6 is of slightly larger diameter than the seat 1 and is firmly fastened to the outer ends of the reaches 3.

The fastening involves an indentation of the ring 6 where it engages and fits the reach 3, as indicated at 8 in Figure 5. I have also illustrated an indentation 9 on the upper side of the ring 6 and an indentation 10 on the lower side of the reach 3 to provide additional bearing for firm seating of the head of the bolt 11 and of the washers 12 held in place by the nut 13.

The tight fastening and the slight indentation at 8 produces a structure in which considerable resistance is offered by the joint to relative rotation of the parts around the axis of the bolt 11.

The head plate 7 is provided with four sockets 14 at its corners, each socket having a circular contour materially flattened at 15. The riser 2 of each leg is reduced in diameter at 16 and the portion of reduced diameter is flattened at 17 so that the reduced section is a tight drive fit in the hole 14. After the end sections of the legs are driven home in the head plate 7, they project above the upper surface thereof and are

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then deformed into annular rivet flanges clearly indicated at 17 in Figure 1 by a conventional procedure such as swaging.

The combined action of the fastening at 8 and the strong keying of the head plate joints against relative rotation results in a unitary assembly with high structural strength, particularly against warping or weaving of the frame. While ordinary use of such a structure generates practically no tendency to cause such warping or weaving, the forces generated by rough or careless handling of such furniture do include such forces, and the ability of the frame disclosed to withstand large forces of this sort contributes in an outstanding way to its life in service.

The seat member also is of a construction particularly adapted to withstand rough handling. The plate 7 receives a central socket 18.1 in the nature of a short vertical tube, integrally assembled, as by making it a drive fit in the central opening 18. The sleeve includes an upper portion 19 of maximum diameter, defining the downwardly facing shoulder 20 for engagement with the plate, and an upwardly and outwardly facing rabbet 21 fitting in the central opening of the lower anti-friction dome 22. The seat member 1 includes the central wooden floor 23 firmly fastened to the central metal reinforcing plate 24 by four bolts 25 with large heads to secure a firm grip on the wood. At the center of the plate 24 I position the upper anti-friction dome 26, and the pivot stud 27 projects axially downward through the dome 26. The plate 24, dome 26, and stud 27 are all firmly and permanently united into a single rigid unitary mass of metal as by spot welding the lip of the dome to the plate and welding the upper end of the stud into the body of the plate. Between the anti-friction domes 22 and 26 I position one or more intermediate washers 28 to improve the anti-friction and wear-resistant properties of the supporting connection. Near the bottom of the stud 27 I provide an annular groove 29 adapted to receive a split wire ring 30 of sufficient size so that the shear strength of the parts when the ring 30 engages the lower end of the sleeve, is ample when the entire stool is picked up by grasping the said member. Removal of the ring 30 can be done quickly with one's fingers so that a damaged seat member or a damaged supporting frame may be quickly separated from the rest of the stool for repair or replacement of the damaged member.

The floor 23 constitutes the bottom of a shallow barrel defined by a sheet metal ring or drum having a cylindrical wall 31 reinforced and strengthened by an inwardly turned top flange 32. The ends of the wall 31 are lapped over and spot welded at 33. The wall 31 extends down to engage the periphery of the floor 23 and is also provided with a firm bearing on the upper

surface of the floor by means of six large lugs **34** turned inward out of the body of the wall and fastened to the floor by wood screws **35**.

The arrangement of the springs **36**, per se, forms no part of the present invention. Briefly, there are four sinusoidal springs **36**, each extending all the way across the head of the barrel and in undistorted form bowed upwardly as clearly indicated in Figure 1. The end reaches of each spring terminate in a reversely bent hook portion **37** to facilitate insertion of the last reach in a socket formed by deforming a portion of the metal constituting the wall **31** to form an inwardly extending loop **38** still integral with the wall **31** at both ends, through which the reach of the spring may be slipped into place. At the center where all four springs cross close to each other, they are tied together so that they move up and down in unison, as by means of a simple wire ring **39**.

The seat member may be covered with conventional upholstery such as the padding **40** provided with the burlap cover **41** and the ornamental exterior cover **42**, which extends down around the wall **31** and may be drawn in under the bottom of the floor **23** and tacked in place. As illustrated, the burlap **41** is separately tacked with tacks **43** and then the outer cover **42** extends a little further in and is tacked with tacks **44** so that in case of serious tearing or soiling of the outer cover only, it may be removed and replaced without disturbing the fastening for the burlap **41**. To avoid a bellows action, when the seat is in use, I provide at least one vent hole **45** in the floor **23**, so that air displaced by vertical movement of the upholstery can move in and out freely.

Others may readily adapt the invention for use under various conditions of service by employing one or more of the novel features involved or equivalents thereof. As at present advised with respect to the present scope of my invention, I desire to claim the following subject matter.

I claim:

1. A seat comprising: a floor of wood; a sheet metal drum or barrel encircling the peripheral edge of said floor and extending upwardly above said floor; an inwardly turned stiffening flange along the upper edge of said sheet metal member; one end of said sheet metal being lapped inside the other and spot welded thereto; means for transmitting vertical load from said seat member to said floor, comprising six uniformly spaced lugs turned in from the body of said sheet metal member and overlying the upper surface of said floor; a wood screw fastening each lug to said floor; a spring head carried by said sheet metal drum, said head being dome-shaped with the center higher than the edges; said head comprising a plurality of four sinusoidal wire spring members; said sheet metal drum having integral sockets formed by bending in a strap out of the body of said sheet metal member which is below said inturned flange; said springs, where they overlie each other at the center of the dome, being tied together to move in unison.

2. A seat comprising: a floor of wood; a sheet metal drum or barrel member encircling the peripheral edge of said floor and extending upwardly above said floor; an inwardly turned stiffening flange along the upper edge of said sheet metal member; one end of said sheet metal being lapped inside the other and fastened thereto; means for transmitting vertical load from said seat member to said floor, comprising a plurality of uniformly spaced lugs turned in from the body of said sheet metal member and overlying the upper surface of said floor; means fastening each lug to said floor; a spring head carried by said sheet metal member, said head being dome-shaped with center higher than the edges; said sheet metal member having integral sockets formed by bending in a strap out of the body of said sheet metal member which is below said inturned flange; said spring head including terminal portions shaped to enter said integral sockets.

3. A seat comprising: a floor; a sheet metal drum or barrel member; means for transmitting vertical load from said member to said floor, comprising a plurality of uniformly spaced lugs overlying the upper surface of said floor; and means fastening each lug to said floor.

4. A seat comprising: a floor; a drum or barrel member encircling the peripheral edge of said floor and extending upwardly above said floor; an inwardly turned stiffening flange along the upper edge of said member; means for transmitting vertical load from said member to said floor, comprising a plurality of uniformly spaced lugs turned in from the body of said member and overlying the upper surface of said floor; and means fastening at least some of said lugs to said floor.

5. A seat comprising: a floor; a sheet metal drum member encircling the peripheral edge of said floor and extending upwardly above said floor; means for transmitting vertical load from said seat member to said floor, comprising a plurality of uniformly spaced lugs turned in from the body of said sheet metal member and overlying the upper surface of said floor; means fastening each lug to said floor; a spring head carried by said sheet metal member; said sheet metal member having integral sockets formed by bending in a strap out of the body of said sheet metal member; said spring head including terminal portions shaped to enter said integral sockets; and a cushion pad supported on said spring head.

6. A circular seat comprising, a floor, a sheet metal barrel encircling said floor to form a vertical wall extending above the plane of said floor, a transversely-disposed integral reinforcing flange formed around the upper perimeter of said vertical wall, said barrel having sockets formed thereon by bending straps struck out therefrom, and a plurality of sinusoidal springs diametrically arranged with their outer ends seated in said sockets and overlapping each other at the axis of said barrel and floor above the plane of the upper perimeter of said vertical wall.

HARRY A. GELMAN.

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