Feb. 2, 1937. W. R. McGOWEN 2,069,456

CHAIR

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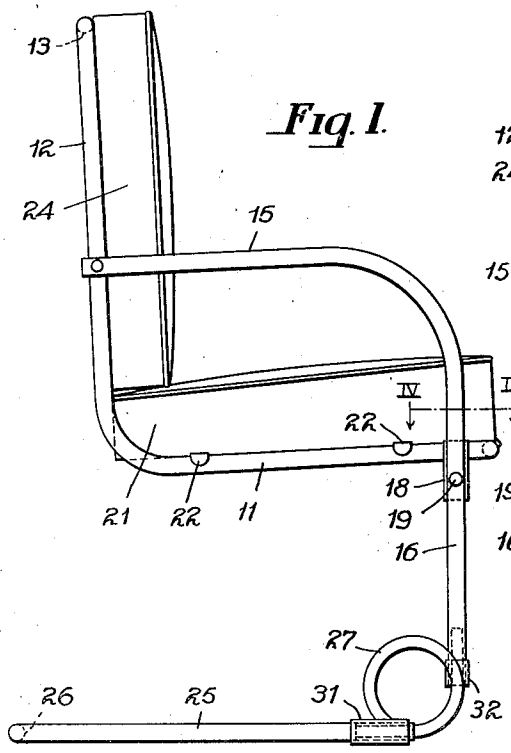


Fig. 1.

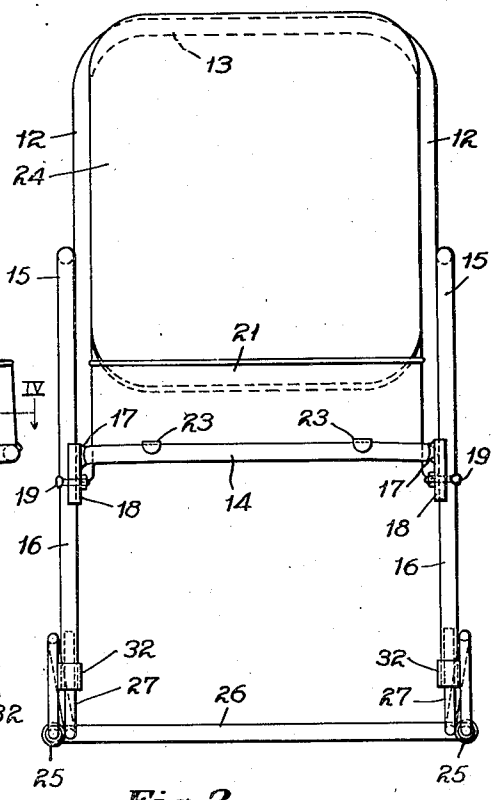


Fig. 2.

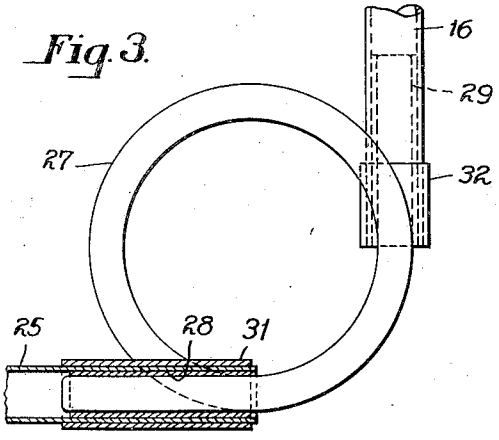


Fig. 3.

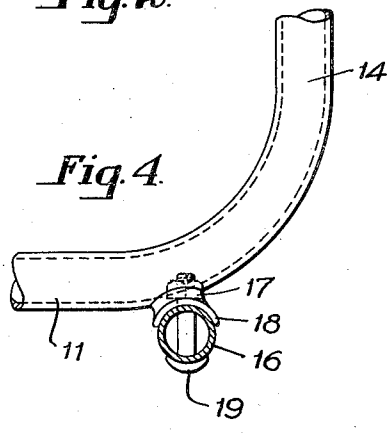


Fig. 4.

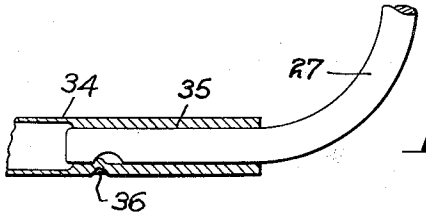


Fig. 5.

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CHAIR

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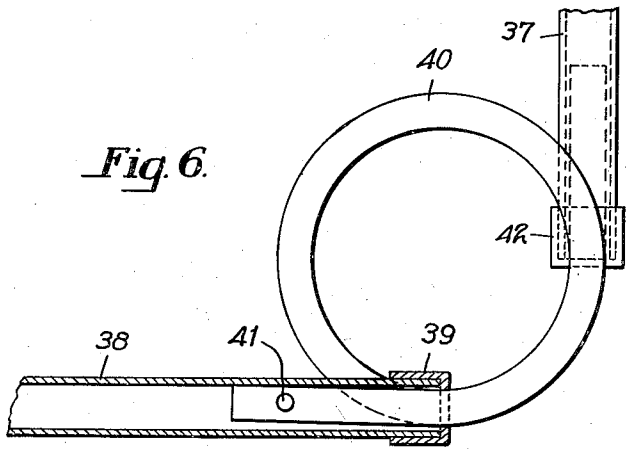


Fig. 6.

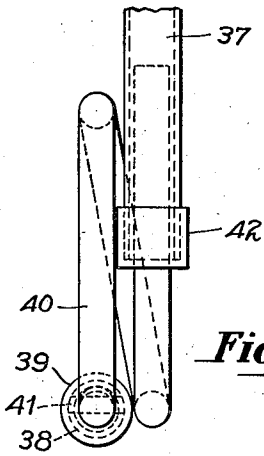


Fig. 7.

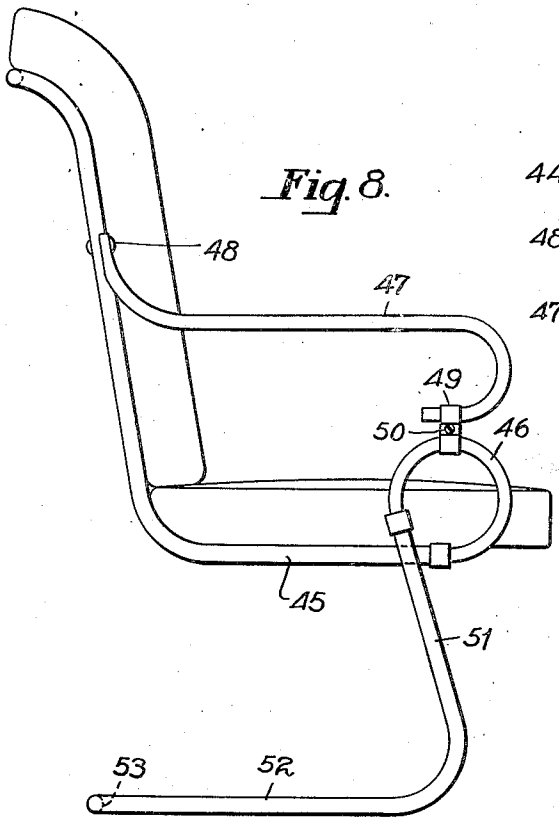


Fig. 8.

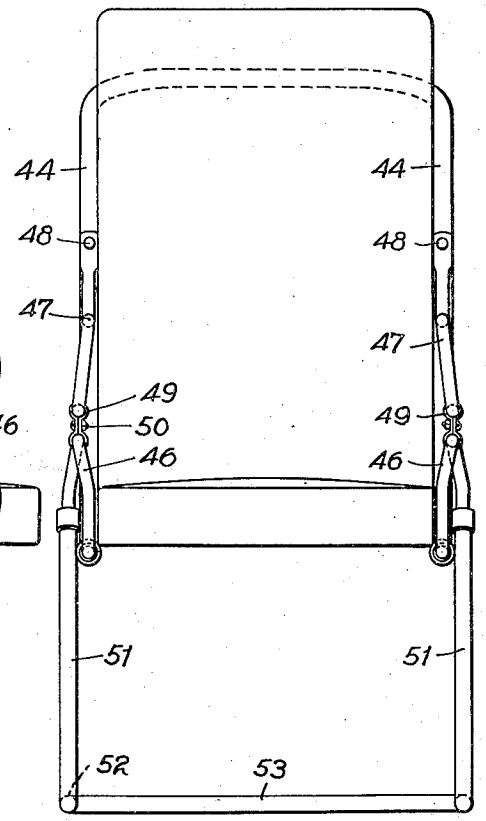


Fig. 9.

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UNITED STATES PATENT OFFICE

2,069,456

CHAIR

William R. McGowen, Pittsburgh, Pa., assignor to The McKay Company, Pittsburgh, Pa., a corporation of Pennsylvania

Application January 5, 1935, Serial No. 564

2 Claims. (Cl. 155—50)

My invention relates to chairs and other seating structures, and is hereinafter described more particularly as in the class of metal furniture.

One object of my invention is to provide a seat frame of metal having separately-formed spring elements incorporated therein.

Another object of my invention is to provide a seat frame mainly comprising tubular members in conjunction with spring elements interposed between and detachably connected to certain of said members.

Another object of my invention is to provide an improved manner for connecting the ends of helically-turned springs to tubular frame members.

Still another object of my invention is to provide an improved form of connecting device between certain of the frame members of a seating structure.

Various forms which my invention may take are shown in the accompanying drawings wherein Figure 1 is a side elevational view of a chair; Fig. 2 is a front view thereof; Fig. 3 is a sectional view, on an enlarged scale, of a portion of the structure of Fig. 1; Fig. 4 is a view taken on the line IV—IV of Fig. 1, on an enlarged scale; Fig. 5 is a modification of the structure of Fig. 3; Fig. 6 shows still another modification thereof; Fig. 7 is a front view of the structure of Fig. 6; Fig. 8 is a view showing a modification of the structure of Fig. 1, and Fig. 9 is a face view thereof.

Referring first to Figs. 1 to 4, I show a chair having a framework comprising a bar preferably of tubular metal and bent to loop form to provide seat frame portions 11, and back frame portions 12, the portions 12 having integrally-formed therewith a transverse portion 13 and a transverse portion 14 integrally connecting the portions 11.

Side bars also preferably of tubular form are bent to form arm rests 15 and legs 16, the rear ends of the arms 15 being detachably bolted to the back members 12. The seat members 11 are connected to the legs 16 by means of bracket members 17 that are welded to the members 11, and have elongated arcuate portions 18 that partially embrace the legs 16 and are secured thereto by means of bolts 19. The joints thus formed are quite rigid, but nevertheless can be readily disconnected.

A box cushion 21 carries hooks 22—23 by which it can be connected to the seat bars 11 and 14. A back cushion 24 of any suitable form may be provided. It will be understood that various other types of cushions or seat strips can be employed instead of the cushions 21 and 24.

The legs 16 are supported upon floor bars 25 that are integrally connected at their rear ends by a looped portion 26, although the portion 26 may be dispensed with, if desired. Helically bent springs 27 which may suitably be formed of bar steel serve to connect the legs 16 to the floor bars 25. The ends of the coils 27 could have direct engagement with the tubular members 16 and 25, but in order to permit the making of said tubes of light gauge, and to avoid tearing or splitting the same by the springs, I incorporate bushings 28 and 29 in the floor bars 25 and the legs 16.

These bushings may have simply a press fit with the members 16 and 25. Reinforcing sleeves 31 and 32 are employed on the floor bars and the legs to further strengthen the joints at those points.

In assembling the parts, the ends of the springs 27 may simply be pushed into the tubes 16 and 25, and will be frictionally held therein even during oscillation of the seat, since weight imposed upon the seat will tend to cause binding of the ends of the springs in the tubes. The springs, however, can be readily removed to facilitate handling and storage.

Another important advantage incident to my invention is that flexibility or yieldability of the seat structure is had without material bending of the tubular member in use, thus avoiding an objection common in the tubular furniture art, which objection arises from the fact that bending of the tubes frequently causes the plating or enamel to crack and peel off, and furthermore, there is danger of permanent deformation of the tubes if they are made of sufficiently light gauge material to produce a desired yieldability.

Referring now to Fig. 5, I show a structure wherein a tube 34, which may correspond to the tubes 25 and 16, is reinforced by upsetting the same somewhat to thicken its wall as shown at 35, so as to prevent the end of the spring from splitting the tube during flexing of the springs. The spring is releasably held in the tube 34 by indenting the tube at 36, into a depression or notch in the opening.

In Figs. 6 and 7, still another form of connection is shown, the tubes 37 and 38 forming the legs and floor bars, respectively, and corresponding to the tubes 16 and 25. In this structure, a collar or cap 39 is snugly secured over the end of each floor bar 38 and has an opening through its end into which the lower end of spring 40 is

inserted. The spring is fastened therein by a pin 41. The upper end of each spring is inserted into a collar 42 fastened by press-fit or welded to one of the legs 37, and the weight of the sitter will tend to hold the springs 40 and the tubes 37 in assembled relation. Collars 39 and 42 with end openings of various sizes may be provided to fit springs of various thicknesses. The collars serve to reinforce the ends of the tubes, so that the tubes will not be split through flexing of the springs.

Referring now to Figs. 8 and 9, I show a structure wherein a bar or tube is bent to form a back frame 44 and seat bars 45, the seat bars 45 receiving the ends of springs 46 that may be formed similarly to the springs 27, and connected to the bars 45 in a manner similar to one of the connections shown in Figs. 1 to 7. Arm rests 47 are detachably bolted at 48 to the back bars 44 as are the bars 15 in Fig. 1, except that the bars 47 are connected against the front faces of the bars 44 instead of to the sides thereof. The forward ends of the arm rests 47 are bent and are connected by clips or clamps 49 to the springs 46. The clips 49 may suitably consist of plates bent to generally semi-circular form at their ends and held in clamping engagement with the members 46 and 47, by means of screws 50.

Leg portions 51 have connection with the springs 46, by joints of any suitable form, such as those heretofore described in connection with the springs 27, and are formed integrally with floor bars 52 that may be formed integrally with a rear portion 53.

In the structure of Figs. 8 and 9, as in the case of the other figures, the bending stresses are localized within the springs 46 and the parts may be readily assembled and disassembled.

I claim as my invention:—

1. Seat structure comprising floor bars, members extending upwardly and rearwardly to form legs and arm rests, flexible spring elements connecting the legs to the floor bars, seat bars extending rearwardly from the legs, a bracket member rigidly secured to each seat bar, each bracket member extending vertically at the inner side of a leg member and partially embracing said member, and means for connecting each bracket member to its associated leg.

2. Seat structure comprising floor bars, leg members of tubular form, spring members flexibly connecting the leg members at their lower ends to the front ends of the floor bars, a seat frame having side bars extending forwardly to the leg members, arcuate bracket members rigidly secured to the said side bars and extending parallel to and partially embracing the leg members, and a connecting element extending through each leg and one of the bracket members.

WILLIAM R. McGOWEN.