Nov. 13, 1928. 1,691,604

F. B. HARMAN

FLEXIBLE PANEL

Filed July 26, 1923 2 Sheets-Sheet 1

Fig. 1.

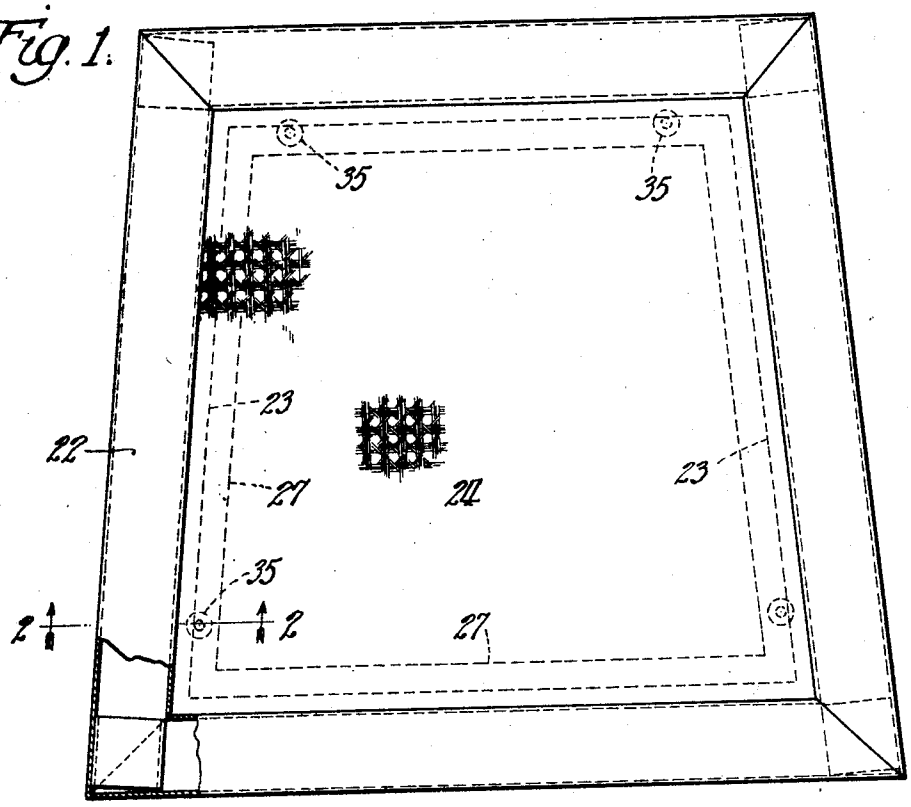


Fig. 2.

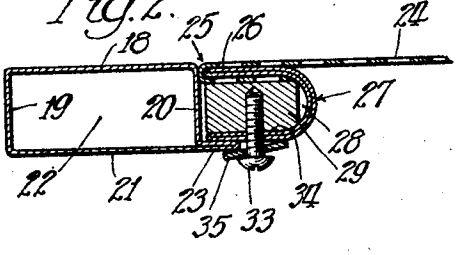
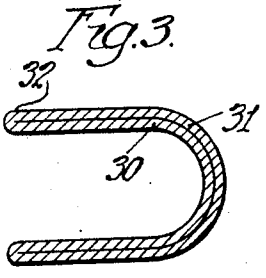


Fig. 3.



Inventor:
Frank B. Harman.
Fisher Towle Clapp & Soans
Attys.

Nov. 13, 1928. 1,691,604

F. B. HARMAN

FLEXIBLE PANEL

Filed July 26, 1923 2 Sheets-Sheet 2

Fig. 4.

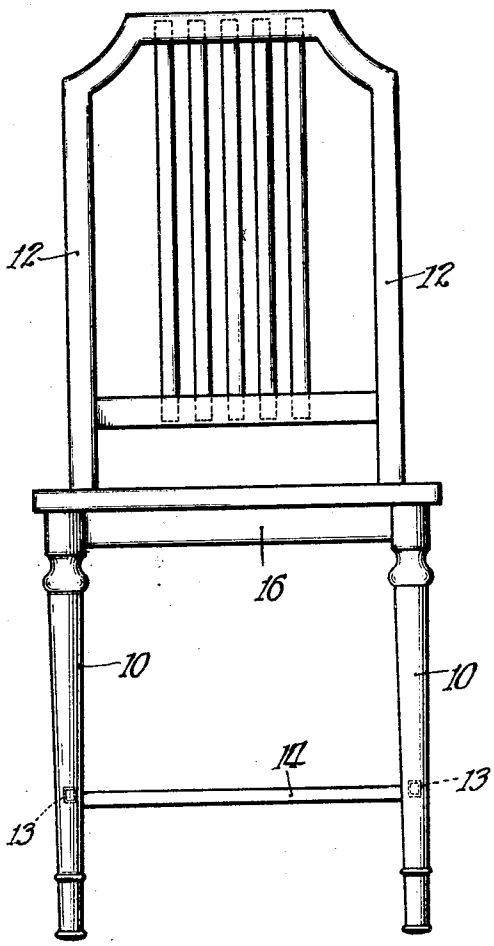
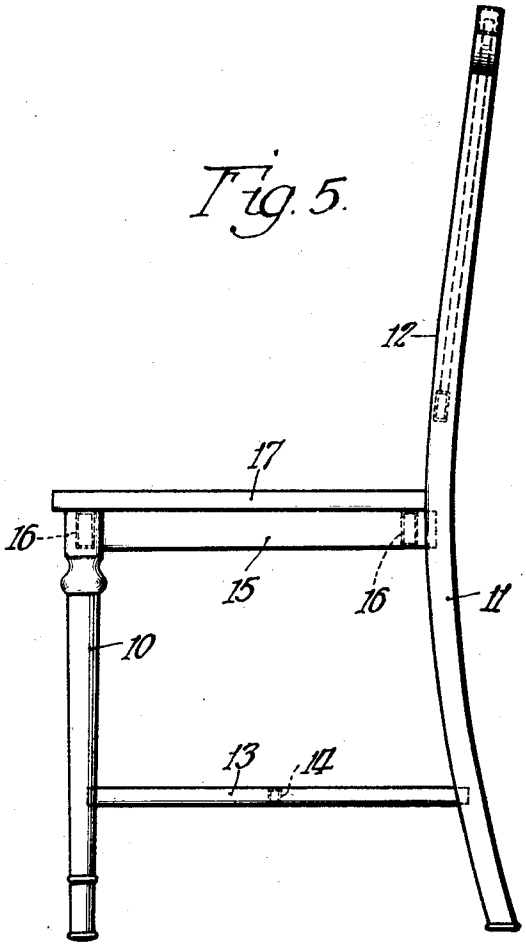


Fig. 5.



Inventor.
Frank B. Harman.
Fisher Towle Clapp & Somers Attys

Patented Nov. 13, 1928. 1,691,604

UNITED STATES PATENT OFFICE.

FRANK B. HARMAN, OF KENOSHA, WISCONSIN, ASSIGNOR TO SIMMONS COMPANY, OF KENOSHA, WISCONSIN, A CORPORATION OF DELAWARE.

FLEXIBLE PANEL.

Application filed July 26, 1923. Serial No. 653,843.

My invention relates to improvements in flexible panels, and, although capable of general application, is of particular value in those cases where the panel sheet is woven from narrow strips of cane or analogous material.

The principal objects of the invention are to provide a panel which may be conveniently assembled in or removed from an outer enclosing or supporting skeleton frame; to provide a construction wherein the flexible panel-forming material or sheet may be quickly and economically secured in position or removed in the event of defects or deterioration due to long continued wear or other causes; to provide a panel construction of the class described in which the pressure imposed upon the surface of the panel sheet, for example, in the case of a chair seat, is supported upon portions of the outer enclosing framework without having to depend upon screws or other adjustable securing devices; to provide a construction which shall be simple and economical to manufacture, while being neat in appearance and rugged and efficient in service and in general to provide an improved flexible panel construction of the character referred to.

In the drawings which describe my invention as applied to the seat of a small chair,

Fig. 1 is a plan view of the seat assembly.

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlargement of a portion of Fig. 2.

Fig 4 is a front elevation of the chair equipped with the seat assembly shown in Fig. 1, and

Fig. 5 is a side elevation of said chair.

Referring to the drawings, 10, 10 indicate the front legs of the chair and 11, 11, the back legs which are continued upwardly forming extensions 12 constituting side frame members for the chair back. Each front leg 10 is connected to the corresponding back leg 11 near the floor by means of tie bars as at 13, and said tie bars 13 are connected at their middle points by means of a transverse cross bar 14.

At their upper ends the four legs 10, 10 and 11, 11 are connected together by a pair of rectangular side members 15 and a pair of similarly shaped cross members 16. All of the above described frame members are constructed of tubular metal, preferably of the continuous wall type, for example, electrically butt-welded light steel tubing. The chair seat assembly, designated as a whole 17, is secured directly to the supporting framework composed of legs, 10, 10, 11, 11 and connecting members 15, 15 and 16, 16, by means of welding, brazing or by any other convenient method. The said panel assembly, to which my invention particularly relates, will now be described in detail.

The outer frame of the seat, as shown best in Fig. 2, is made of metallic tubing which is so shaped in cross section as to provide an upper horizontal wall 18, an outer vertical end wall 19, an inner vertical end wall 20 and a lower horizontal wall 21, said four walls constituting in effect the rectangular portion of the tubing. In order to form an inwardly extending horizontal flange at the lower inner edge of said hollow frame member, designated as a whole 22, the inner margin of the lower wall 21 is extended inwardly and the lower margin of wall 20 is bent outwardly so as to overlie the extended portion of wall 21 and constitute therewith a two-ply extension. Recent developments in the tube-making art have made it possible to produce such a two-ply integral flange extending along the side of a metal tube of the continuous wall type. The corners of said outer frame are suitably mitered and welded or brazed together so as to constitute in effect a continuous rectangular or quadrilateral skeleton framework into which the panel member may be inserted from above. The weight thereof is sustained upon the inwardly extending two-ply flange 23.

In the present instance the flexible panel sheet material comprises a sheet 24, woven from narrow strips of split cane in the usual manner. The outer margin of said sheet of cane 24 is folded as indicated at 25 around the upper edge 26 of a skeleton enclosure or frame 27, said enclosure having in cross section the shape of a U so as to form an outwardly facing groove 28 for receiving the filler 29 which serves to hold the cane in place. Said filler or wedge 29 comprises a strip of somewhat elastic or flexible material such as soft spruce wood and I insert it into the groove or channel of the member 27 after the margin 25 of the cane has been folded over the upper flange 26 of the channel.

The channel member 27 is continuous and extends entirely around the panel sheet 24,

the corners being mitered together and united by a suitable means such as brazing or welding. The construction of said frame 27 constitutes a rather important feature of my invention. By inspection of Fig. 3 it will be observed that said channel 27, although having the shape of an open U shaped trough, is actually formed from a length of continuous wall tubing which has been caved in to form a two-ply channel, the inner fold or ply 30 of the channel being substantially in contact with the outer ply 31. Such construction is quite rigid in addition to which there is provided a round corner 32 over which the margin of the cane sheet may be bent, thereby preventing damage to the strands of the cane by cutting.

The inner panel comprising the panel sheet 24, is enclosed and secured in the channel-shaped frame member 27 by wedges 29 and is inserted into the outer frame 22 from above and rests directly upon the inwardly extending and supporting two-ply flange 23. In order to prevent upward displacement of the panel from its supporting frame, I prefer to employ securing means which, in the present example, take the form of a plurality of round head machine screws 33 threaded into the bottom flange 34 of the channel 27 and also into the wood wedges 29. Circular washers 35, interposed between the heads of screws 33 and the underside of flange 23 render said screws effective to prevent such upward movement of the panel relative to the flange 23.

The described details of construction being merely illustrative of a single phase of my invention, the scope of same should be determined by reference to the appended claim, said claim being construed as broadly as possible, consistent with the state of the art.

I claim as my invention:

In an article of the class described, the combination of a supporting frame having an inwardly projecting seat flange adjacent its lower edge, and a panel removably seated on said flange and surrounded by said supporting frame, and having its outer edge concealed by said surrounding frame, said panel comprising a marginal frame having side members which are U-shaped in cross section and which are arranged so as to face outwardly with their side walls disposed in substantially horizontal planes one above the other, a flexible panel sheet stretched over said frame and between opposite side portions thereof and having a marginal portion folded downwardly over the outer edge and inwardly under the bottom face of the top wall portion, and a filler strip inserted between said side walls for wedgingly holding said panel sheet in place.

FRANK B. HARMAN.