Jan. 20, 1942. J. P. KIESECKER 2,270,656

FURNITURE

Filed Jan. 23, 1939 3 Sheets-Sheet 1

FIG. 1.

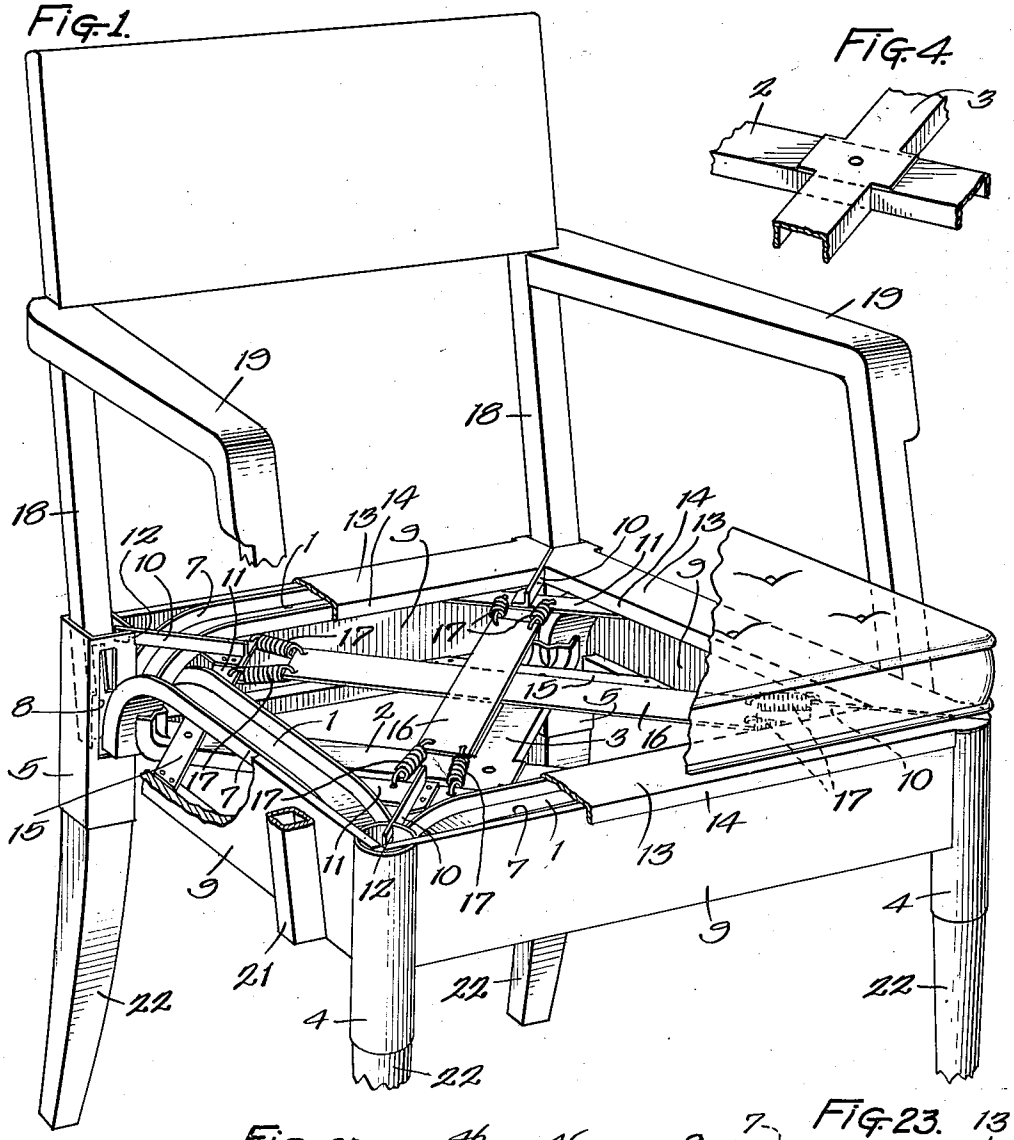


FIG. 4.

FIG. 22.

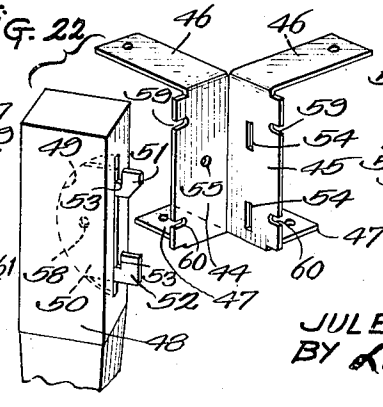


FIG. 21.

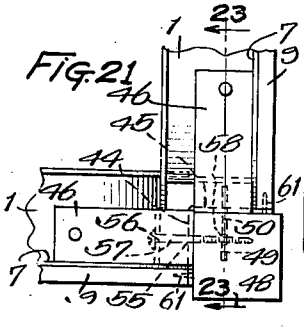
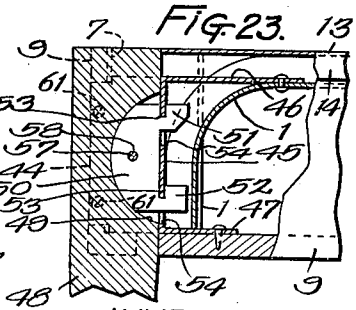


FIG. 23.



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FURNITURE

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Fig. 3.

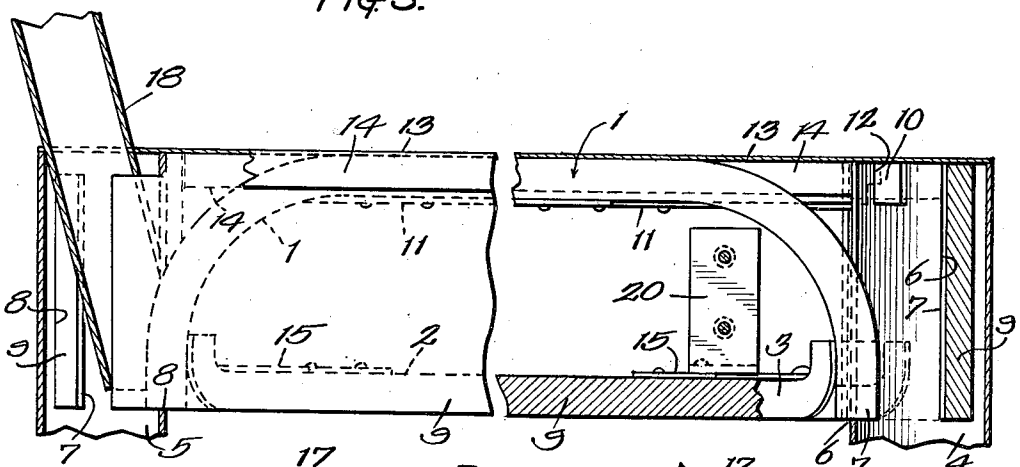


Fig. 2.

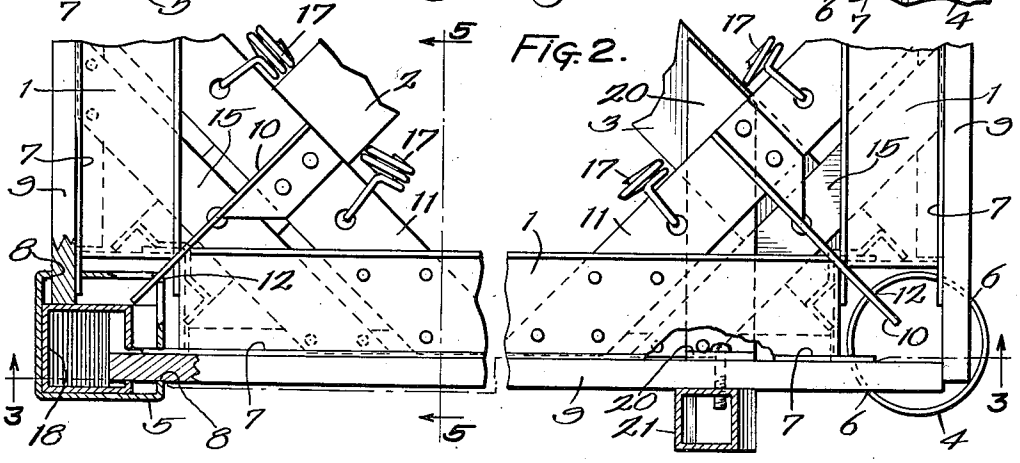


Fig. 5.

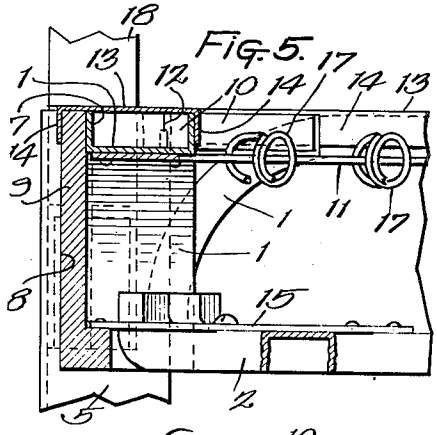


Fig. 6.

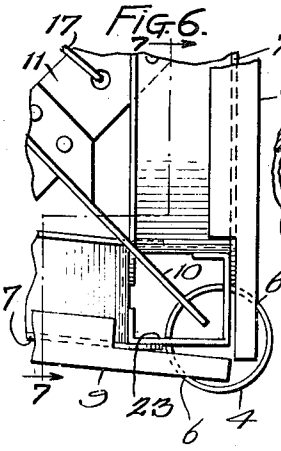


Fig. 7.

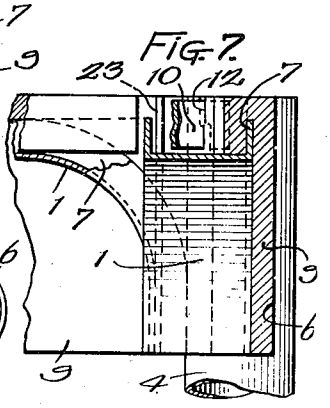
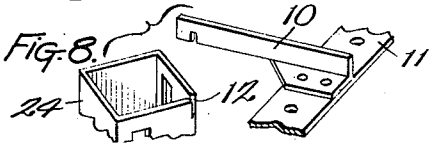


Fig. 8.



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FURNITURE

Filed Jan. 23, 1939 3 Sheets-Sheet 3

Fig. 9.

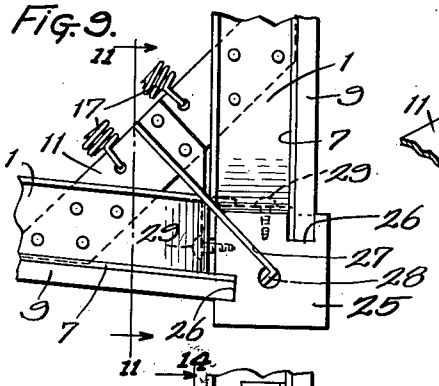


Fig. 10.

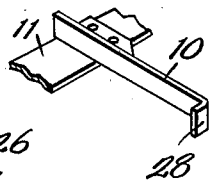


Fig. 11.

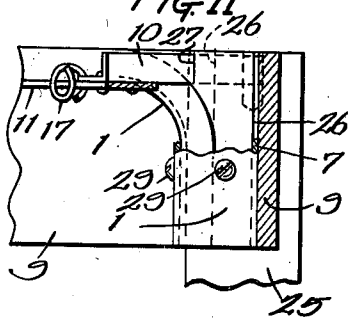


Fig. 12.

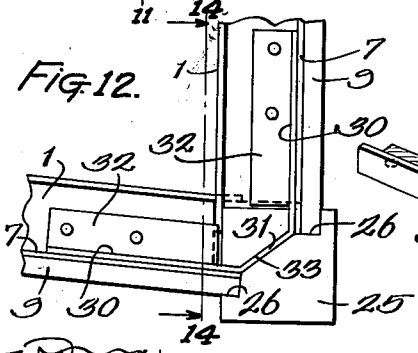


Fig. 13.

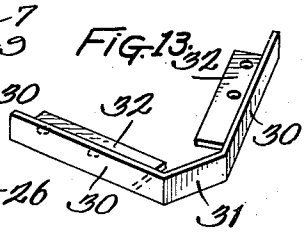


Fig. 14.

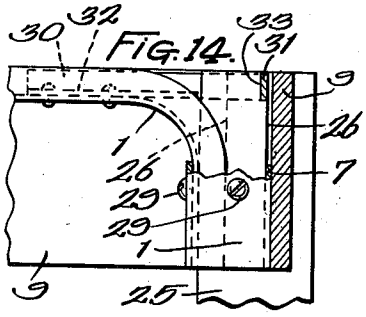


Fig. 15.

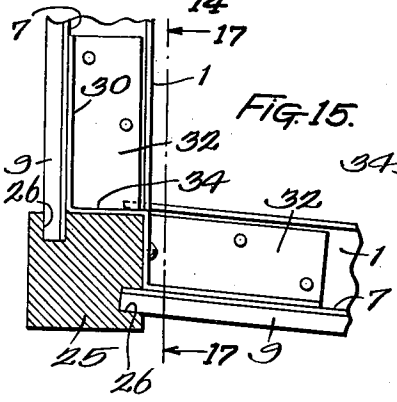


Fig. 16.

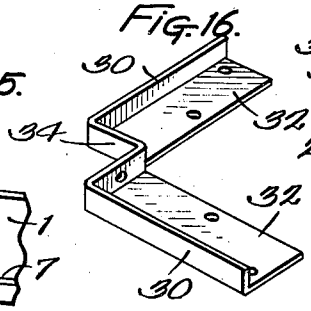


Fig. 17.

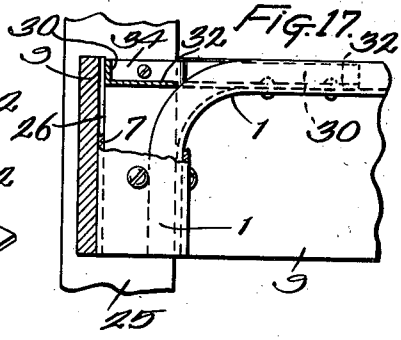


Fig. 18.

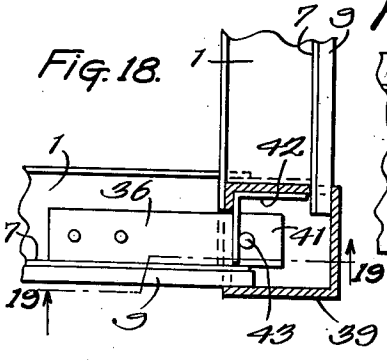


Fig. 19.

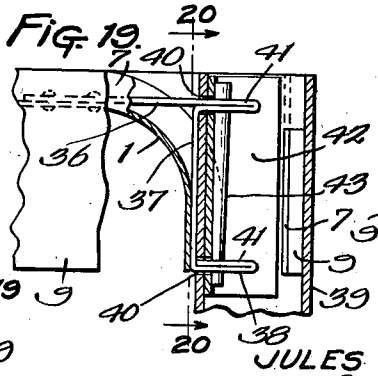
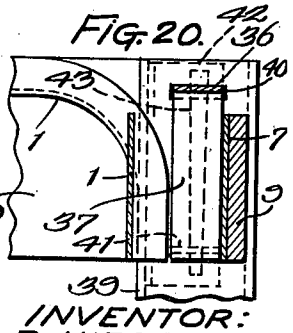


Fig. 20.



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Patented Jan. 20, 1942 2,270,656

UNITED STATES PATENT OFFICE

2,270,656

FURNITURE

Jules P. Kiesecker, New York, N. Y.

Application January 23, 1939, Serial No. 252,376

9 Claims. (Cl. 155—194)

This invention relates to improvements in furniture and more particularly to the construction of furniture employing a metal frame, and is a further improvement of the metal furniture disclosed in this applicant's prior Patent No. 1,934,195, granted November 7, 1933.

Said prior patent discloses a chair having a seat frame including a plurality of metal shapes bent in the form of flat arches with angular legs depending therefrom with the legs of the arches adjacent each other interlocked to form the respective legs of the chair. It is an object of this invention to employ a framework of this character in which the interlocking leg portions of the flat arches are terminated after the interlocking has been accomplished and in which the opposite or diagonal interlocked leg portions are connected to each other by structural metal shapes bent in the form of flat inverted arches with the leg portions thereof secured to the embracing leg portions of the seat frame. It is also an object of this invention to provide the corners of the seat frame with members which may be extended to form integral legs or which may be employed for attaching and securing legs of wood or other material to the corners of the seat frame.

It has been found in practice that a seat frame formed of a plurality of structural metal shapes bent in the form of flat arches with angular legs depending therefrom with the legs adjacent each other interlocked with the addition of transverse braces of structural metal shapes bent in the form of inverted flat arches not only stiffens the frame, but produces a very light-weight rigid structure. By providing the corner members, hereinafter described, the metal frame is readily adaptable to be supported on legs of metal, wood or other material which may be readily attached thereto and provides at the same time similar means for attaching either metal or wooden backs and arms to the seat frame.

With these and other objects in view, reference is made to the accompanying sheets of drawings, with the understanding that detail changes may be made without departing from the scope thereof.

In the drawings:

Figure 1 is a view in perspective of a chair constructed in accordance with this invention with parts removed and parts broken away to illustrate the detail construction thereof.

Figure 2 is a fragmentary plan view partly in section of the seat frame shown in Figure 1 with parts removed to illustrate the detail construction thereof.

Figure 3 is a view partly in section and partly in elevation taken on the line 3—3, Figure 2, looking in the direction of the arrows.

Figure 4 is a detail fragmentary view in perspective and partly in section illustrating the juncture of the diagonal braces of the chair frame.

Figure 5 is a view partly in section and partly in elevation taken on the line 5—5, Figure 2, looking in the direction of the arrows.

Figure 6 is a plan view of a modified form of front corner member of the seat frame.

Figure 7 is a view partly in section and partly in elevation taken on the line 7—7, Figure 6, looking in the direction of the arrows.

Figure 8 is an expanded view in perspective illustrating the means of attaching the rear corner members shown in Figure 2 to the seat frame.

Figure 9 is a top plan view illustrating a means of attaching a wooden leg to the front corner members of the seat frame.

Figure 10 is a fragmentary view in perspective of the attaching member.

Figure 11 is a view partly in section and partly in elevation taken on the line 11—11, Figure 9, looking in the direction of the arrows.

Figure 12 is a view similar to Figure 9 of another means of attaching a wooden leg to the corner of the seat frame.

Figure 13 is a view in perspective of the attaching means.

Figure 14 is a view partly in section and partly in elevation taken on the line 14—14, Figure 12, looking in the direction of the arrows.

Figures 15, 16 and 17 are views similar to Figures 12, 13 and 14 of another means for attaching a wooden leg to the corner members of the seat frame, Figure 17 being taken on the line 17—17, Figure 15.

Figure 18 is a top plan view illustrating the means for securing a hollow rectangular metal leg or sleeve for supporting a wooden leg to a front corner of the chair frame, illustrating the rectangular metal member in horizontal section.

Figure 19 is a view partly in section and partly in elevation taken on the line 19—19, Figure 18, looking in the direction of the arrows.

Figure 20 is a view partly in section and partly in elevation taken on the line 20—20, Figure 19, looking in the direction of the arrows.

Figure 21 is a top plan view of another means for securing a wooden leg to the front corners of the chair frame.

Figure 22 is an expanded detail view in perspective illustrating the means of attachment.

Figure 23 is a view partly in section and partly in elevation taken on the line 23—23, Figure 21.

The form of this invention as illustrated in Figure 1 shows a chair having a seat frame formed of four bent channels 1 each in the form of a flat arch having their flanges extending upwardly and outwardly and arranged so that the channels forming the sides of the frame will telescope the adjacent flanges of the channels forming the front and back of the frame and in the telescope position are secured to each other, preferably by spot welding or tack welding. The interlocking portions are terminated after one has been wholly received within the other, as shown in Figures 1 and 3.

Overlapping diagonal braces 2 and 3 formed of bent channels each in the form of a flat inverted arch having their flanges extending downwardly and outwardly are provided. The webs of the channels at their extremities are indented to receive the angular corners of the interlocked channels of the seat frame arches with the flanges of the channels of the indented web engaging the sides of said interlocked seat frame arches and are secured to the interlocked seat frame arches by tack welding, shown in Figures 1, 2 and 3. Where the diagonals 2 and 3 cross each other the flanges of the upper channel are cut and bent upwardly to receive the flanges and web of the lower channel, as shown in perspective in Figure 4, and are preferably secured to each other by tack welding.

To each corner of the seat frame corner members are attached. It is preferable that the corner members in the front be round and the corner members in the back be rectangular, although they may both be round or both be rectangular. The corner members may either be extended to form the legs of the chair or may be in the form of sleeves attached to the corners of the seat frame for receiving and supporting the legs of wood or other material.

In Figures 1, 2 and 3 the corner members for the front of the seat frame are cylindrical metallic sleeves 4, while the corner members for the back of the frame are rectangular metallic sleeves 5, as shown in Figures 2 and 3. The cylindrical sleeves 4 are provided with vertical slits 6 to receive the outer flanges 7 of the channels 1 and the rectangular sleeves 5 are provided with similar slots 8 for the same purpose. The sides of the seat frame are enclosed by skirts extending from the top of the flat arches 1 to the termination of the legs of said arches. These skirts 9 may be of metal, metal covered with a wood veneer, wood or may be of other material, as desired. The slits 6 and 8 in the corner members 4 and 5 are of sufficient width to firmly embrace both the flanges 7 and skirts 9. The corner members are held rigidly in place by notched locking members 10 mounted upon diagonal corner braces 11 which are secured upon the underside of the web of the channels 1. The locking members 10 are notched upon the underside to be engaged in notches 12 in the top of the corner members 4 and 5, as shown in Figures 1, 2 and 3. It is preferable to form the slit receiving the front and side skirts in the front corner members extending downwardly from the top of these members. If desired the rear corner members may be slotted instead of slit and the engaging portions of the skirts 9 may be shouldered, as shown in Figure 3. The skirts 9 are preferably held in engagement with the upper flat portions of the flanges 7 of the flat arches by caps 13 having depending front and back flanges 14 to embrace the outer surface of the skirts 9 and the inner surface of the channel members 1, as shown in detail in Figure 5. If the skirts 9 are wood they may be supported by diagonal corner braces 15 mounted on the webs of the inverted diagonal arches 2 and 3 with the free ends attached to an inwardly shouldered portion at the bottom of the skirts 9, as shown in Figure 5, and if the skirts are metal, a wooden strip may be attached thereto to form the shouldered portion.

Cushion supporting springs may be readily attached to the diagonal corner braces 11 which support the locking members 10 of the corner members, as shown in Figure 1. The springs are preferably in the form of diagonal strips 16 of metal, the opposite ends of which mount coil springs 17 which are hooked into the diagonal braces 11, as shown in Figures 2 and 5.

The posts 18 of the chair back are preferably rectangular in shape of sufficient size to be received within the rectangular corner members 5 of the back of the chair frame and are cut out at their lower ends to receive the side skirts 9 and that face is bevelled to engage the inner surface of the corner member to impart the correct angle. When the back posts are of metal, as shown in Figures 2 and 3, they may be tack welded or spot welded to the side of the member 5. It is to be noted that in Figure 2 the rear of skirt 9 engages the inside of the rear wall of the post when the opposite side is in engagement with the inner side of the member 5. When the posts are of wood they may be secured to the corner members 5 by screws. The chair shown in Figure 1 is provided with arms 19 which extend forward from the back posts 18 and then downwardly to pass over and terminate in line with the lower edge of the side skirts 9. The arms may be attached in any desired manner to the back posts and it is preferable to provide an angular brace 20 secured upon the diagonal flat arches 2 and 3 adjacent the front corner members with the horizontal portions secured on the upper side of the diagonal flat arches 2 and 3 adjacent the front corner members 4 and the vertical portions extending upwardly at the front of each side skirt 9, perforated to receive screws which may be passed therethrough and through the side skirts to engage the lower portions 21 of the arms 19, as shown in Figures 1, 2 and 3.

In Figure 1 legs 22 of wood or composition material are shown inserted in the lower ends of the socket-like corner members 4 and 5.

In many instances the seat frames of chairs are wider in front than they are at the back and it therefore may be desirable to employ a somewhat different form of connection for the front corner members than that shown in the first three figures. Figures 6 and 7 illustrate the use of an additional brace 23. In this form the brace 23 is in the form of a right angular structural shape having the free ends provided with right angular extending flanges which are adapted to bear against the vertical portions of the interlocking legs of the flat arches 1 so that when the securing member 10 is hooked into the notch in the upper portion of the cylindrical corner member 4 it will hold the corner member firmly against the flanges of the arches in engagement with the bracing member 23. Figures 6 and 7 also illustrate a modified means for supporting the skirts 9. The skirts 9 are approximately twice the thickness at the top and the underside of this portion is grooved to receive the outer

flange 7 of the flat arches 1, as shown in Figure 7, so that the skirts are hanging from the flange. The ends of the skirts are shouldered at the top, as shown in Figure 6, so that the thickened top portion will clear the re-enforcing member 23.

Figure 8 illustrates the means of connecting a rectangular metallic rear corner member. A sleeve 24 may be likewise connected when it is desired to substitute this form of sleeve for the cylindrical sleeves 4 forming the front corner members. The rectangular sleeve 24 is notched at one corner to be engaged by the notched locking member 10 supported upon the diagonal corner brace 11.

Figures 9 to 17 illustrate the application of wood or composition legs which may be substituted for the metallic sleeve type of corner members. In Figure 9 a wooden leg 25 rectangular in cross-section is shown having vertical grooves 26 to receive the side and front skirts 9 and outer flanges 7 of the flat arches 1. The top is provided with a diagonal groove 27 to receive the locking member 10 supported upon the diagonal corner brace 11. In this type it is preferable instead of notching the underside of the end of the locking member 10 to provide it with a right angular extension 28 and provide the center of the leg with a circular depression to receive the angular portion whereby the locking member will hold the upper portion of the leg firmly in place. It is also preferable to provide apertures in the webs of the interlocking flat arches 1 through which screws 29 may be inserted to engage the body of the wooden leg to secure the same to the corner of the chair frame, as shown in Figure 11.

Figures 12, 13 and 14 illustrate a means for securing a wooden leg to the corner of the chair frame when it is undesirable to use the diagonal corner brace. A bracket having side members 30 adapted to engage the inner sides of the outer flanges 7 of the channels 1 are joined by flat portion 31. The side members 30 are provided with inturned flanges 32 which are adapted to be secured to the flat portions of the upper side of the web of the channel members 1 and the wooden leg 25 is provided with side grooves 26 of sufficient width at the top to receive the ends of the skirts 9, outer flange 7 of the channel member 1 and the side members 30 of the bracket. These grooves are connected by another groove 33 in the top of the leg 25 to receive the flattened portion 31 of the bracket 30 whereby the top of the leg is held firmly in place in the corner of the frame. Screws 29 may be passed through apertures in the interlocking webs of the channel members 1 to hold the leg in place in the same manner as shown in Figure 11.

Figures 15, 16 and 17 illustrate a modified form of this bracket connection in which the sides 30 are joined by a re-entrant angle portion 34 which, as shown in Figure 15, embraces the corner of the wooden leg 25 and this re-entrant portion is secured by a screw passing through the body and into the leg 25. In this form the rectangular portion of the leg is held in engagement with the webs of the interlocking legs of the channel members 1 by screws in the same manner as shown in Figures 11 and 14.

When the legs or sleeves for supporting the legs are of hollow metal and are of rectangular shape in cross-section they may be readily secured to the corners of the seat frame, as shown in Figures 18, 19 and 20. This form of connection includes a bracket having a horizontal portion 36 which extends over the upper side of a web of one of the channeled flat arches 1 and is secured thereto. The horizontal portion is then bent back upon itself and then bent at right angles to form a vertical portion 37 to rest against the vertical portion of the web of the channel and the bracket then terminates in an angular horizontal extension 38 preferably of similar extent to the bent back section of the horizontal portion at the top and may be bent back upon itself in the same manner, as shown in Figure 19. The side of the rectangular hollow leg 39 is provided with apertures 40 through which the bent back portions 41 of the bracket may pass. It is preferable to provide an angular brace 42 bearing against the inner and adjacent sides of the hollow leg having similar perforations to receive the bent back portions 41 of the bracket. The sides of the hollow leg 39 are slotted to receive the outer flanges 7 of the interlocked flat arched channels forming the seat frame and the skirts 9, as shown in Figure 18. When the leg has been assembled a tapered drift pin 43 is inserted through apertures provided therefor in the bent back portions 41 of the bracket to allow the pin to tightly draw a side of the hollow leg against a vertical portion of the angular brace 42 to hold the upper portion of the leg in rigid engagement with the vertical portion 37 of the bracket.

A rectangular wooden or composition leg may be readily attached to the corner of the seat frame without recessing the leg to receive the outer flanges 7 and skirts 9, as shown in Figures 21, 22 and 23. In this form of connection a clip having integral right angular portions 44 and 45, with each portion provided with upper and lower right angular extensions 46 and 47 is employed. The extensions are of such dimensions that the upper right angular portions 46 will extend over the upper side of the flat portions of the webs of the interlocked flat arches of the channel members 1 to be secured thereto with the portions 44 and 45 of the clip held in vertical position to engage the edges of the vertical portions of the outer flanges 7 of these members and extend therebeyond on each side to form an anchor for the ends of the skirts 9. The bottom extensions 47 are formed to pass over the terminations of the vertical portions of the seat frame and act as a support for the bottom of the skirts 9. One side of the rectangular wooden leg 48 is provided with an arcuate cut out recess 49 adapted to receive a metallic key 50 which is provided with upper and lower outwardly extending lugs 51 and 52, each of which is provided with recesses 53 upon the upper sides thereof in line with the outer surface of the leg 48, as shown in Figures 22 and 23. The portion 45 is provided with two slots 54 through which the lugs 51 and 52 may be inserted and when the surface of the leg 48 is in engagement with the adjacent surface of the section 45 the leg 48 may be forced upwardly to engage the body of the portion 45 in each of the notches 53 in the lugs. To secure the leg in this position the portion 44 is provided with an aperture 55 in line with a similar aperture 56 in the web of the vertical portion of the flat arch 1 which is parallel to the key 50 so that a screw 57 inserted through the apertures 56 and 55 may be screwed into the body of the leg and engage an aligned aperture 58 in the key 50 which will not only hold the key in place against the clip 45, but will also draw the leg against the clip 44. The outer edges of

the portions 44 and 45 are each provided with slots 59 and 60 which are adapted to receive the heads of screws 61 screwed into the ends of the skirts 9 to support the ends of the skirts 9. As shown in Figure 23, the lower edge of the skirts 9 are provided with a shouldered portion which extends under the bottom extensions 47 and may be attached thereto by a screw, as shown. An obvious modification of this type of support is to form the key 50 integral with the right angular portion 45 by striking the key upward from the outer free edge at right angles to the portion 45.

This invention also contemplates the omission of the chair back and arms to form a footstool or a hassock as well as to increase the dimensions of the seat frame to form couches and also to attach head and footboards to the couch frame corner members in the same manner as the above described chair back to form studio couches and beds. It is obvious that when desired the corner members at the back may be extended in an upward direction to form the side posts of the back of a chair or may act as sockets to receive back posts of wood or other material, without departing from the scope of this invention. Likewise, the front corner posts may be extended upwardly to form the front support for the arms of a back or may act as a socket for receiving and supporting such front supports of wood or other material, without departing from the scope of this invention.

What I claim is:

1. An article of furniture including a frame having sides formed of a plurality of structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending upwardly rom the respective webs and with the opposite terminations of the said arches extended into depending parallel legs, with the legs of the arches adjacent each other interlocked in engagement with each other to form the corners of the frame, and a plurality of diagonally arranged members of similar structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending downwardly from the respective webs and with the opposite terminations of said arches extended into ascending parallel legs secured to the diagonally opposite interlocked depending legs of the first said flat arches and wherein the ascending legs of the inverted arches are secured to the inner portions of the interlocking depending legs of the flat arches and the outer portions of the interlocking legs forming the corners are provided with means to mount the legs of the article, and skirts are mounted upon each side of the frame extending from the top of the flat arches to the bottom of the flat portions of the inverted flat diagonal arches, and the means to mount the legs of the article are provided with means to receive and support the ends of the adjacent skirts.

2. An article of furniture including a frame having sides formed of a plurality of structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending upwardly from the respective webs and with the opposite terminations of the said arches extended into depending parallel legs, with the legs of the arches adjacent each other interlocked in engagement with each other to form the corners of the frame, and a plurality of diagonally arranged members of similar structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending downwardly from the respective webs and with the opposite terminations of said arches extended into ascending parallel legs secured to the diagonally opposite interlocked depending legs of the first said flat arches and wherein the ascending legs of the inverted arches are secured to the inner portions of the interlocking depending legs of the flat arches and the outer portions of the interlocking legs forming the corners are provided with means to mount the legs of the article, and skirts are mounted upon each side of the frame extending from the top of the flat arches to the bottom of the flat portions of the inverted flat diagonal arches, and the means to mount the legs of the article are provided with means to receive and support the ends of the adjacent skirts, and wherein means are mounted upon the flat portions of the diagonal inverted arches adjacent the ends thereof to engage and support the skirts.

3. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat horizontal arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, and hollow corner members including the legs of the article having slots to receive the outer flanges of the channels depending from the flat arches positioned in each corner in combination with means supported upon the flat horizontal portion of a web of a flat arch engaged with the corner member to secure and hold the corner member in engagement with the vertical portion of said web.

4. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat horizontal arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, corner members forming the legs of the article, provided with recesses to receive the outer flanges of the channels of the legs of the flat arches, positioned in each corner, and means secured to the flat portions of the interlocking corners of the flat arches having means to engage and secure the corner members thereto, said means securing the corner members to the vertical portions of the webs of the interlocking legs.

5. An article of furniture including a frame having sides formed of a plurality of structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending upwardly from the respective webs and with the opposite terminations of the said arches extended into depending parallel legs, with the legs of the arches adjacent each other interlocked in engagement with each other to form the corners of the frame, and a plurality of diagonally arranged members of similar structural flanged metal shapes or channel irons bent in the form of flat arches with the flanges thereof extending downwardly from the respective webs and with the opposite terminations of said arches extended into ascending parallel legs secured to the diagonally opposite interlocked depending legs of the first said flat arches and wherein the webs of the ascending legs of the diagonal flat arches are indented to receive a flange and adjacent web of the interlocked depending leg of the flat arch to which it is secured.

6. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, and a plurality of metal channels bent in the form of inverted flat arches with angular legs ascending therefrom, said channels having their parallel flanges extending downwardly and outwardly, with the diagonally opposite interlocked depending legs of the flat arches secured to the opposite ascending legs of the inverted flat arches, and wherein the webs of the channels of the inverted arches are struck out at the ascending legs to embrace the adjacent corners of the interlocked depending legs of the flat arches with the edges of the flanges of the ascending legs in engagement with the sides of the interlocked depending legs.

7. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, and a plurality of metal channels bent in the form of inverted flat arches with angular legs ascending therefrom, said channels having their parallel flanges extending downwardly and outwardly, with the diagonally opposite interlocked depending legs of the flat arches secured to the opposite ascending legs of the inverted flat arches, and wherein corner members forming the legs of the article, provided with recesses to receive the outer flanges of the channels of the legs of the flat arches, are positioned in each corner and wherein means is provided to secure each corner member to said channel members.

8. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, and a plurality of metal channels bent in the form of inverted flat arches with angular legs ascending therefrom, said channels having their parallel flanges extending downwardly and outwardly, with the diagonally opposite interlocked depending legs of the flat arches secured to the opposite ascending legs of the inverted flat arches, and wherein corner members forming the legs of the article, provided with recesses to receive the outer flanges of the channels of the legs of the flat arches, are positioned in each corner, and wherein means is provided to secure each corner member to said channel members, including diagonal corner braces adjacent each corner, locking members mounted at one end on said corner braces extending over the curved ends of the flat arches and provided at the other end with means to engage the respective corner members.

9. An article of furniture including a frame having sides formed of a plurality of metal channels bent in the form of flat arches with angular legs depending therefrom, said channels having their parallel flanges extending upwardly and outwardly with the legs adjacent each other interlocked to form the corners of the frame, and a plurality of metal channels bent in the form of inverted flat arches with angular legs ascending therefrom, said channels having their parallel flanges extending downwardly and outwardly, with the diagonally opposite interlocked depending legs of the flat arches secured to the opposite ascending legs of the inverted flat arches, and wherein corner members forming the legs of the article, provided with recesses to receive the outer flanges of the channels of the legs of the flat arches, are positioned in each corner, and wherein means is provided to secure each corner member to said channel members, and wherein skirts extending from the top of the flat arches to the bottom of the depending interlocking legs are arranged upon each side and said flange receiving recesses of the corner members are also adapted to receive and support the ends of the said skirts.

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