

May 27, 1952

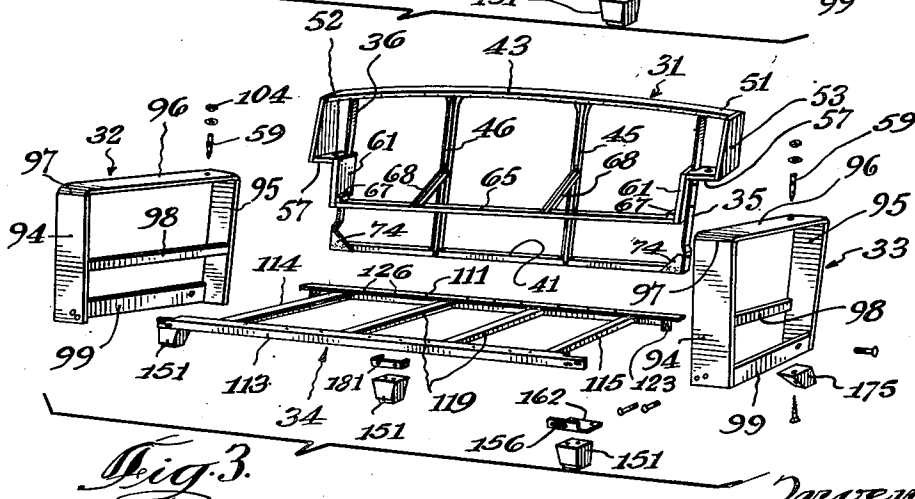
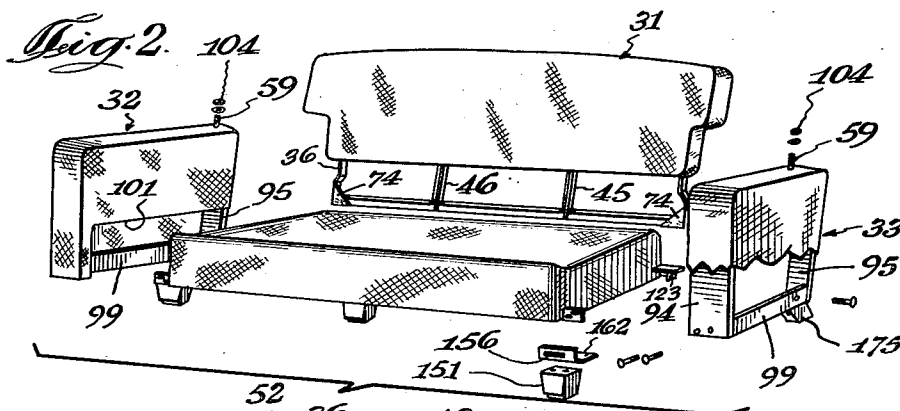
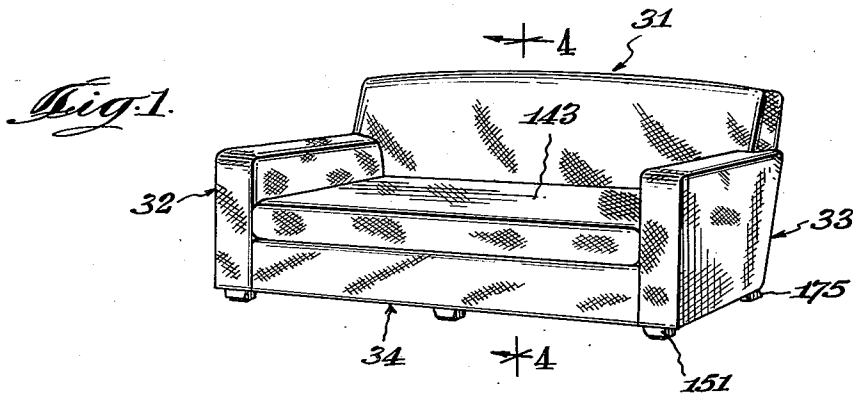
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2,597,860

STEEL AND WOOD FURNITURE FRAME CONSTRUCTION

Filed Feb. 4, 1950

8 Sheets-Sheet 1



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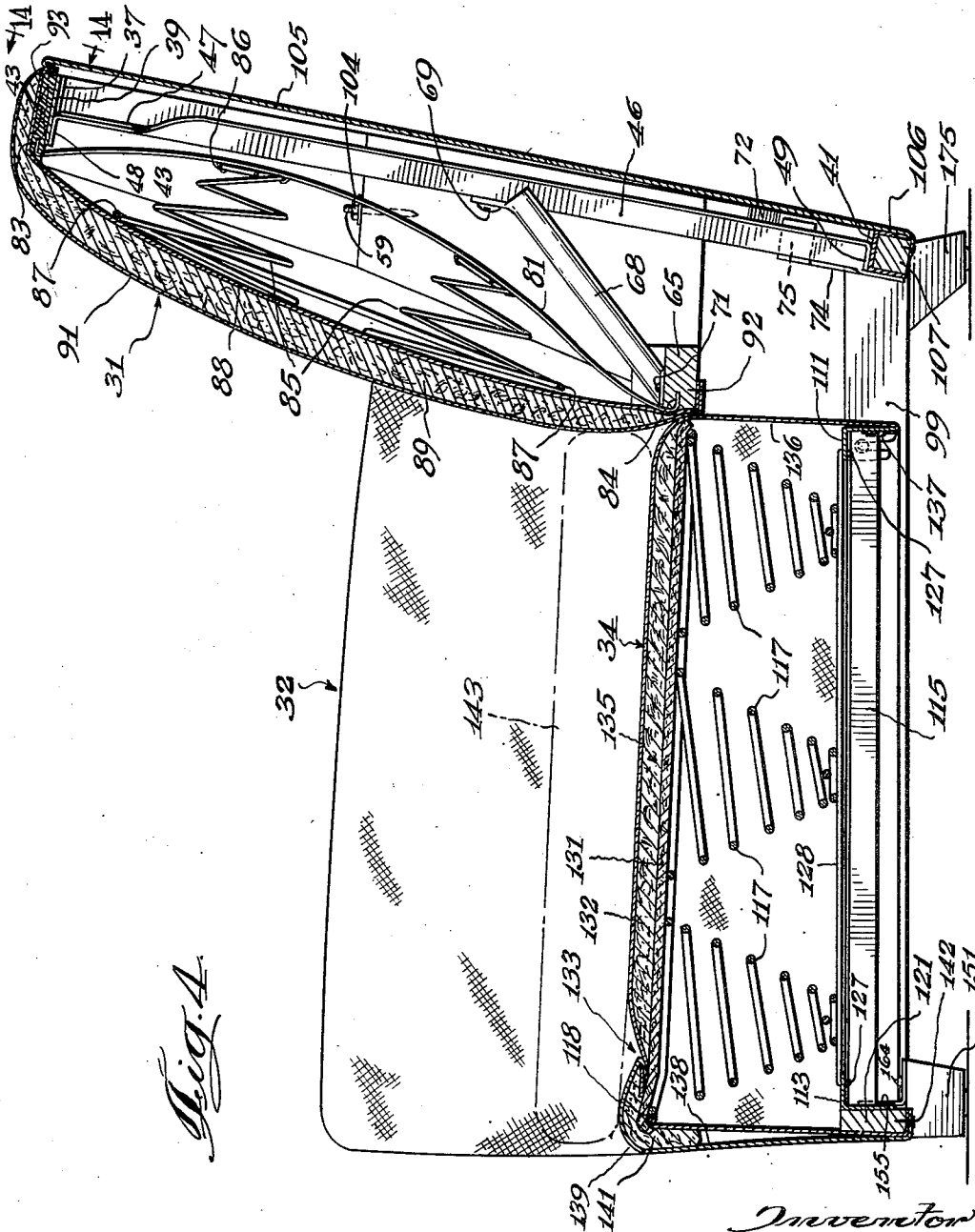
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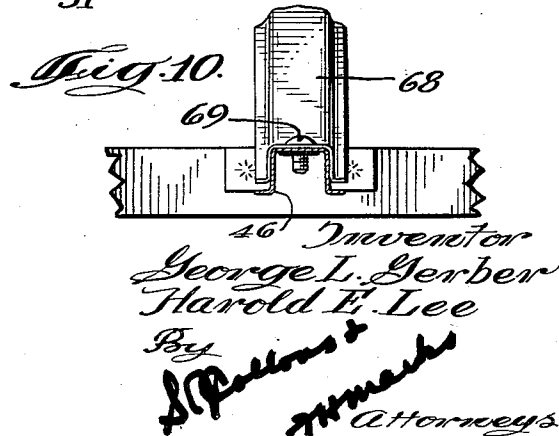
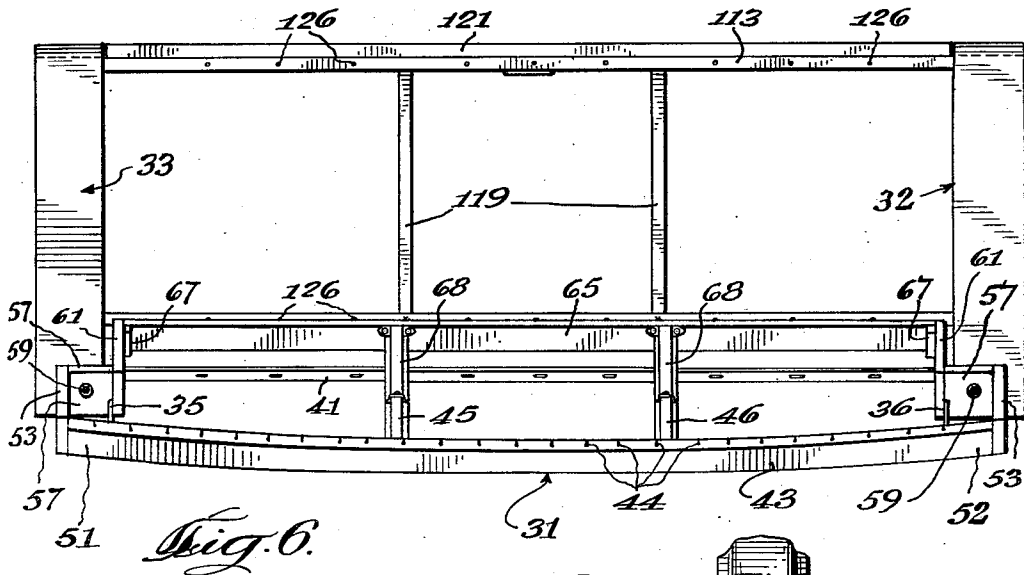
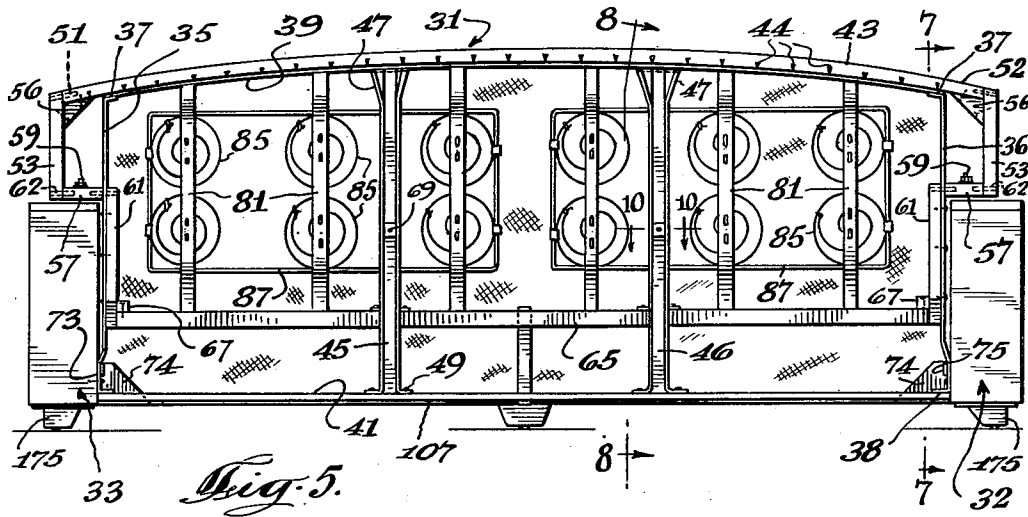
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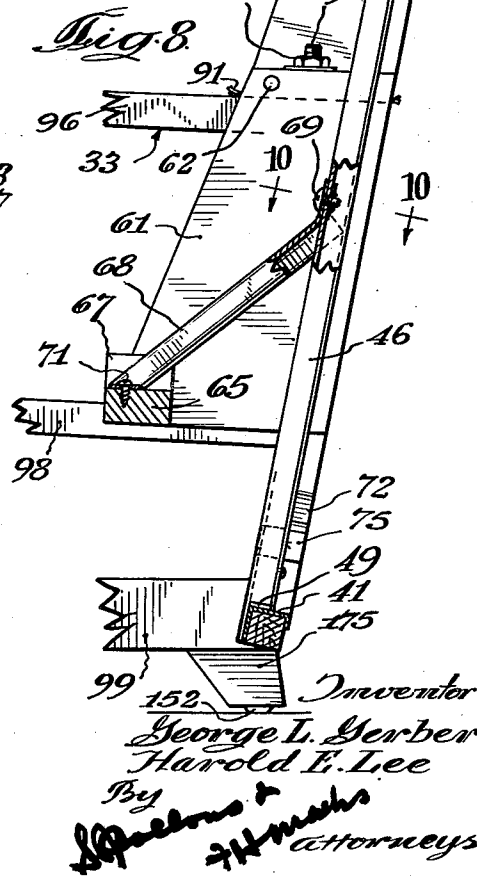
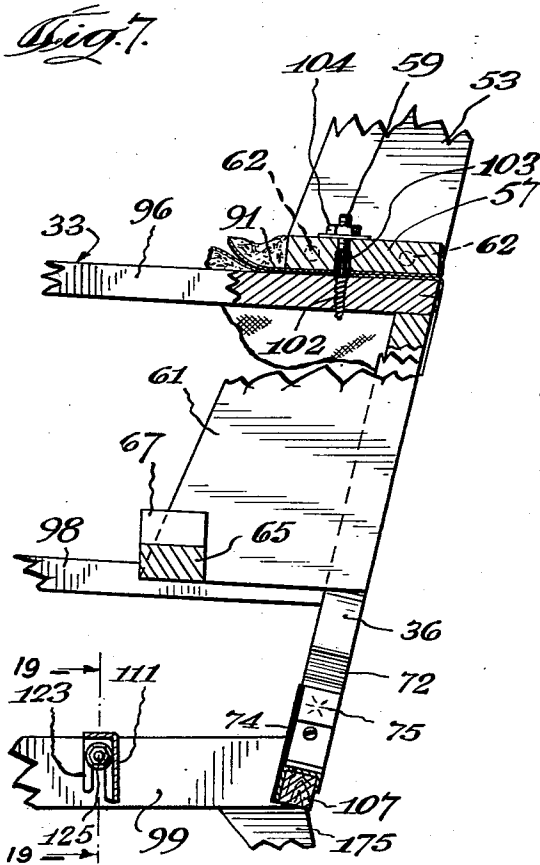
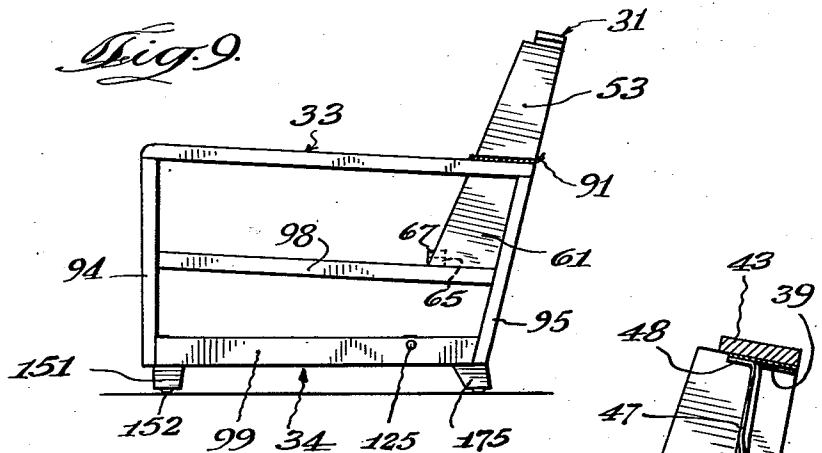
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STEEL AND WOOD FURNITURE FRAME CONSTRUCTION

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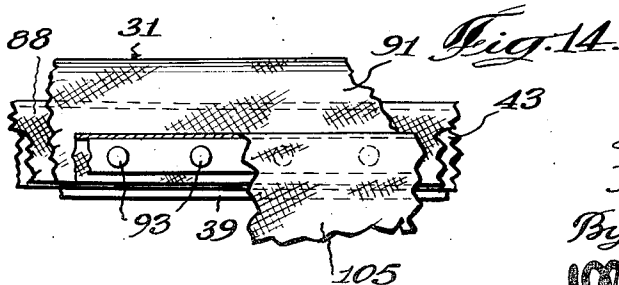
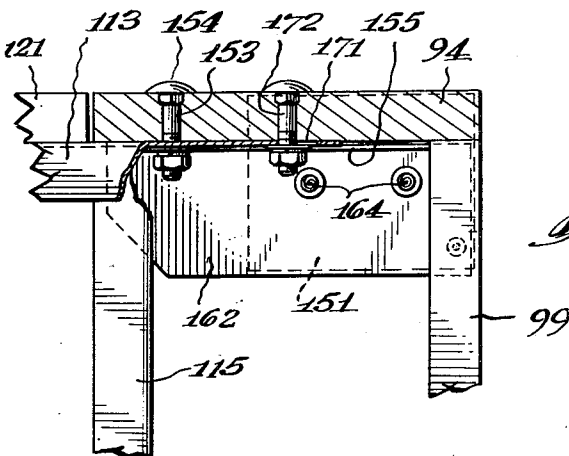
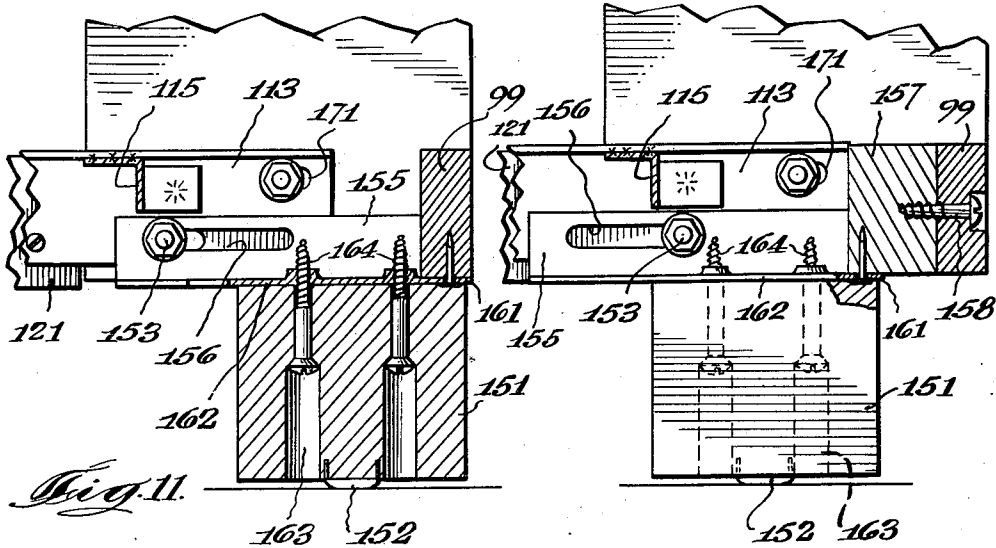
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STEEL AND WOOD FURNITURE FRAME CONSTRUCTION

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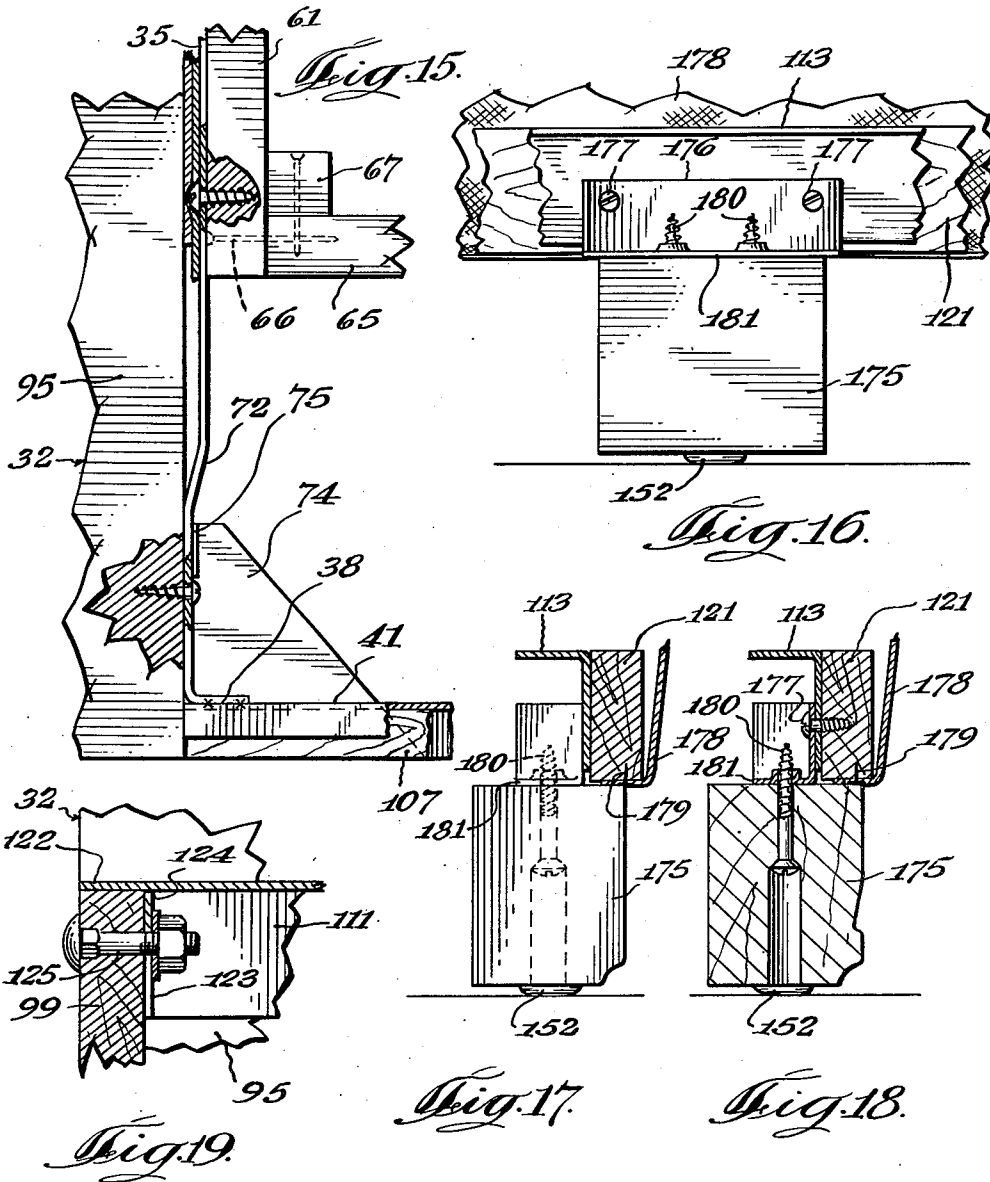
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STEEL AND WOOD FURNITURE FRAME CONSTRUCTION

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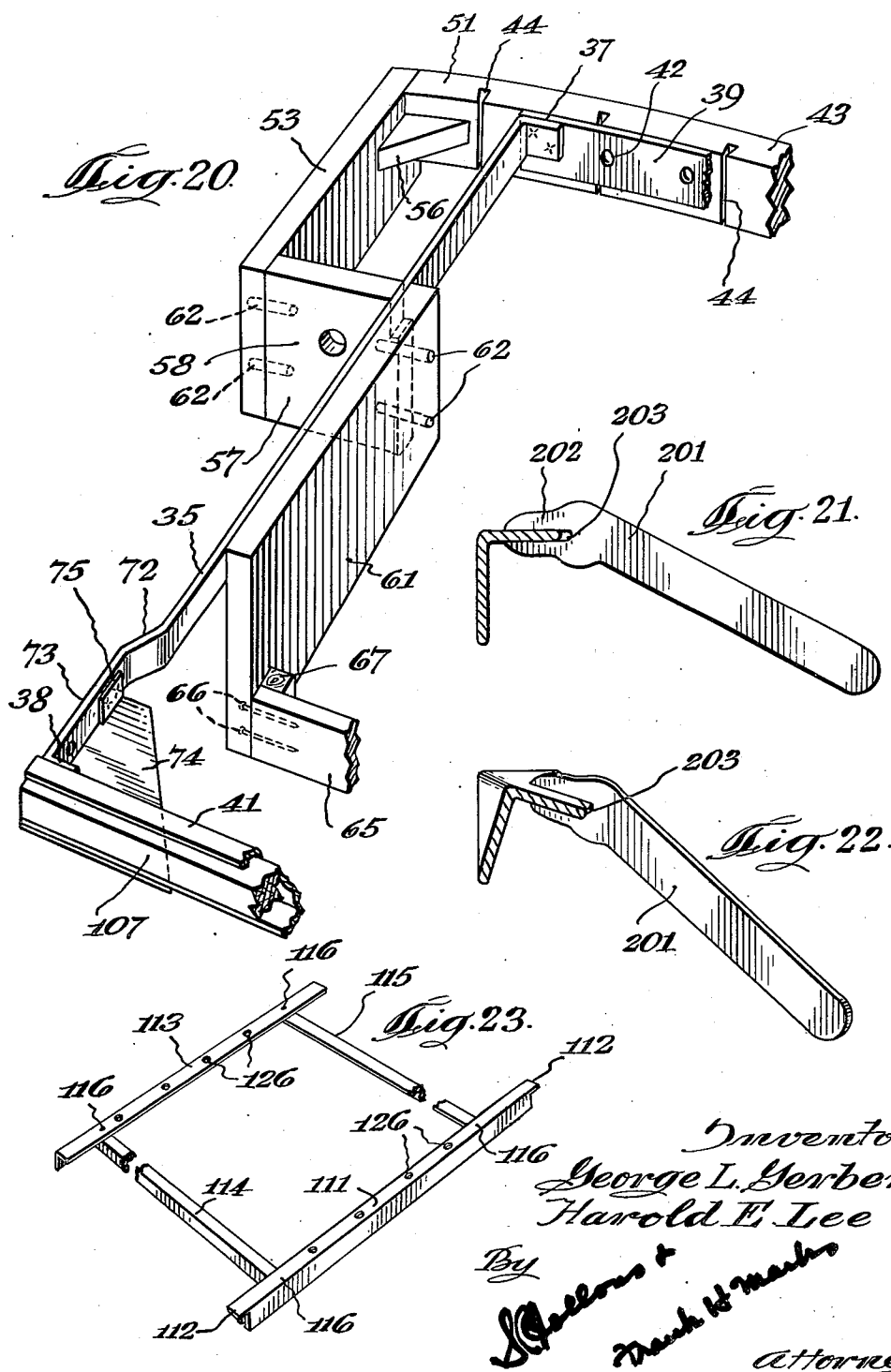
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STEEL AND WOOD FURNITURE FRAME CONSTRUCTION

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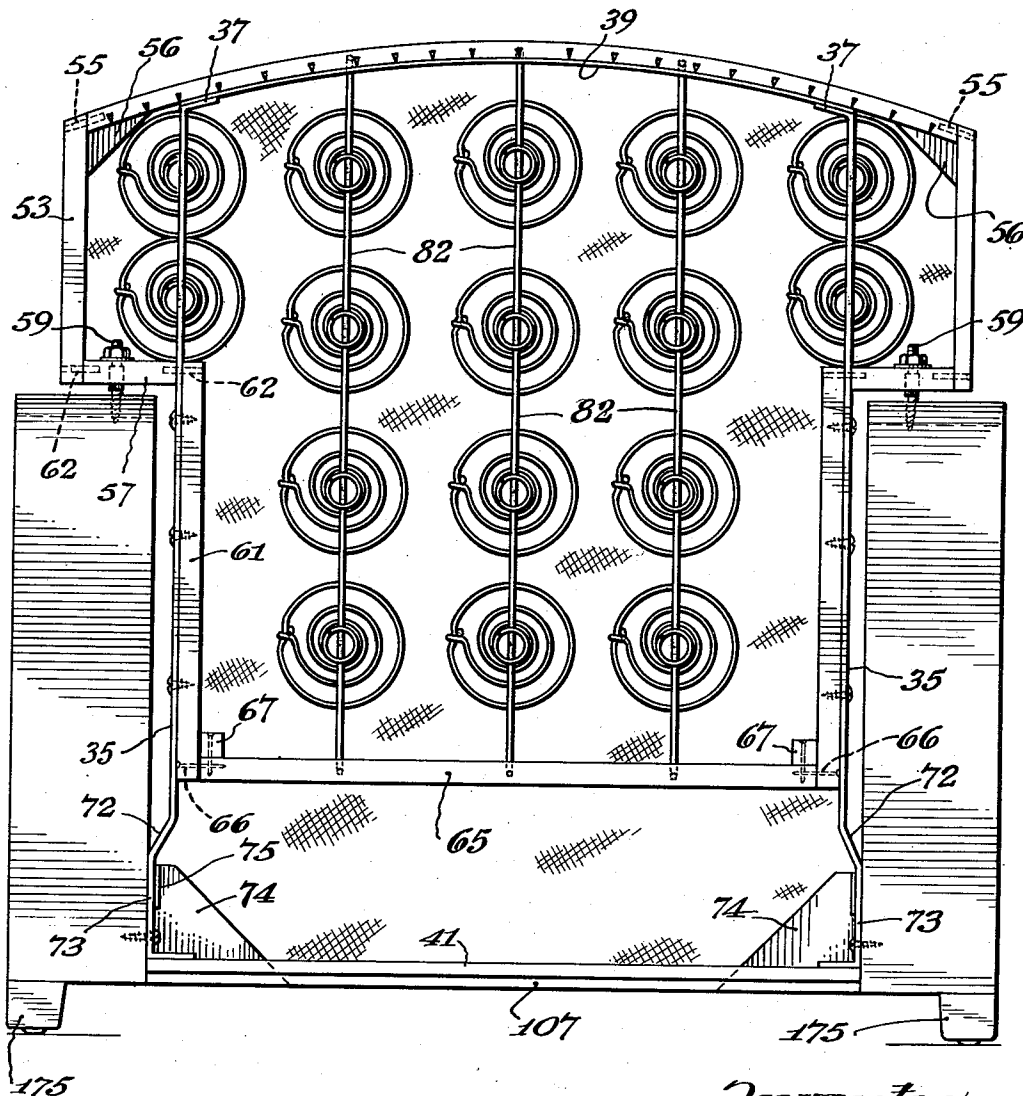
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Fig. 24.



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UNITED STATES PATENT OFFICE

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STEEL AND WOOD FURNITURE FRAME
CONSTRUCTION

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Application February 4, 1950, Serial No. 142,368

7 Claims. (Cl. 155—184)

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The present invention relates to framework construction for upholstered furniture and concerns itself with the incorporation of metal and wood components in a characteristic and unique manner and in manufacturing and assembly methods in respect thereto.

Essentially, wood constitutes a practical and important raw material from which are made nearly all frame and supporting structures of upholstered furniture articles as divans, couches and chairs. Certain classes of wood are chosen for lightness of weight and others for rigidity, tensile strength or appearance characteristics. Cost and scarcity of wood are influences which are making themselves felt throughout the furniture manufacturing industry to an extent that practical substitutions are desperately sought for. So long as fabric coverings are utilized in styling and adornment of parlor furniture, it will continue to be essential to provide in furniture framework certain basic wood or fiber composition elements to serve as nailing strips and to form curvatures and profiles in addition to those portions which require to be exposed.

Accordingly, in order to combine certain structural parts, which require to be made of wood, with other parts from which there is expected to be contributed strength and rigidity factors, there must be overcome various problems of coordination for the purpose of achieving efficiency, lightness of weight and simplicity of assembly. One of the considerations which dominates this development is the efficient combining of wood and steel. It is also important that the mass or quantity of these materials be maintained at a minimum whereby to yield adequate constructional advantages without significant accumulations of weight.

Parlor furniture framework is ordinarily subjected to certain strains or loads in respect to definite directions which requires them to be constructed with adequate strength to enable withstanding such loads. The efficient use of steel in framework construction of this class requires that only so much of the metal be used as is necessary to achieve the required strength and that it be shaped and disposed to give maximum beam dimensions where needed and minimum cross section for sake of lightness. In addition to these considerations, there are various and sundry materials cost and manufacturing methods factors which reflect the ultimate price at which the furniture products may be marketed.

While the basic considerations which concern

metal and wood as framing material in furniture manufacture are principally economic and secondarily aesthetic, there are to be recognized that withal, the measure of successful product achievement in this field of enterprise is the fulfillment of graceful style characteristics which will possess the necessary eye appeal, while permitting generously of variations of shapes and trimming. The cost of incorporating such variations to the metal components is manifestly prohibitive and for this reason principally, it is proposed to teach a method of metal framework construction around which the quality of style characteristics and variations may be superimposed by the overlaying of wood trim and profile elements which will furnish the essential foundation skeleton while at the same time contribute rigidity to the tensile strength in which the metal core of the framework abounds.

A principal object of this invention, therefore, is one of achieving a metal and wood combination structure for furniture framework in which an integrated steel core is made to receive a variable overlay of wood so that a lightweight frame is achieved whose strength and over-all weight is comparable to the heretofore known structures made entirely of wood.

A further object of the present invention is to devise a system of metal and wood combination in furniture framework construction whereby the framework may be completed in subassembly sections consisting essentially of side, back, and seat cushion elements united and separable at their junctions by simple bolt and screw threading operations.

A still further object of the present invention is to provide an all metal core framework upon which wooden trimming and nailing supplements may be applied to constitute each side or cushion component of an article of parlor furniture and whereby adjustment of the welded steel framework may be accomplished by local metal distortion for the purpose of achieving alignment.

Other objects of this invention are such as will become evident during the course of the following detailed description and such as will be understood from a reading of the hereunto appended claims when taken in conjunction with the illustrations in the accompanying drawings in which like reference characters designate corresponding parts throughout and in which:

Fig. 1 is a perspective view of a parlor sofa representing a conventional pattern covered so as to conceal its posterior structure but in the construction of which there may be employed

various principles which constitute the present invention;

Fig. 2 is an exploded perspective view of the same article of furniture illustrated in Fig. 1 showing its sectional components and indicating, in accordance with a particular design, a preferred manner of assembly;

Fig. 3 is an exploded perspective view of a combined metal and wood framework construction which may be employed in a furniture product such as that illustrated in Figs. 1 and 2;

Fig. 4 is an enlarged transverse sectional view taken approximately on line 4—4 of Fig. 1;

Fig. 5 is a rear elevational view of a sofa constructed in accordance with the design featured in Figs. 1 and 2 in which certain articles of covering fabric have been removed whereby to expose posterior details;

Fig. 6 is a plan view of the furniture framework illustrated in Fig. 5 in which the upholstery springs have been omitted for the sake of clearness;

Fig. 7 is an enlarged transverse sectional view and is taken approximately on line 7—7 of Fig. 5;

Fig. 8 is an enlarged transverse sectional view and is taken approximately on line 8—8 of Fig. 5;

Fig. 9 is a side elevational view on somewhat reduced scale showing the side arm components uncovered in order to expose assembly details;

Fig. 10 is a fragmentary detailed structural view taken approximately on line 10—10 of Fig. 5 or 8;

Fig. 11 is an enlarged fragmentary cross sectional view through one of the frontal leg blocks;

Fig. 12 is a view similar to Fig. 11 taken on a displaced section line therefrom indicating an adjustable position which may be achieved in contrast from that illustrated in Fig. 11;

Fig. 13 is a fragmentary transverse sectional view taken approximately on line 13—13 of Fig. 5;

Fig. 14 is an enlarged fragmentary detailed view with portions broken away, indicating a manner of securing the ornamental covering fabric and concealment back cloth along the upper back frame elements;

Fig. 15 is an enlarged detailed sectional view of a corner construction adjacent the lower right-hand extremity of the back cushion framework;

Fig. 16 is an enlarged detailed view of a front center leg block and its mounting bracket;

Figs. 17 and 18 are transverse sectional views on different section lines illustrating a further significance of the center leg block featured in Fig. 16;

Fig. 19 is an enlarged detailed sectional view taken approximately on line 19—19 of Fig. 7;

Fig. 20 is a fragmentary perspective view of the back cushion framework construction showing various significant details of securement apparatus whereby the metal and wood components are utilized efficiently;

Fig. 21 is a fragmentary sectional view through an angle metal portion of the base framework showing how the torque tool may be applied thereto to adjust for planar alignment;

Fig. 22 is a companion view to Fig. 21 showing in somewhat exaggerated degree the technique of adjusting by means of the wrench or torque tool;

Fig. 23 is a perspective view of the base member framework assembly which may be adjusted in accordance with the above practices for the attainment of alignment; and

Fig. 24 is a rear elevational view of a chair

article of parlor furniture having embodied therein various features of the present invention.

In order to contemplate the divers differences and variations which are characteristic of various styles of parlor furniture, the present invention will be explained in connection with a parlor divan or davenport, with supplementary explanations in connection with the arm chair featured in Fig. 24.

The reference numeral 31 designates the back cushion assembly, the references 32 and 33 the side cushions and the reference 34 the base frame. According to a preferred practice with which the features of the present invention are intended to be incorporated, the aforescribed sectional components 31, 32, 33 and 34 are fully assembled even to the extent of having permanently implanted thereon the ornamental or covering fabrics at central manufacturing points. These sections may thus be more closely packed in vans, cars or other conveyances and when delivery at remote destination points, these members may be properly associated and secured together by the placement of threaded bolt and nut elements at points provided therefor as will be more explicitly revealed hereinafter, whereupon the finished product is established in the condition illustrated in Fig. 1. The variety and points of bolt securement of the separate sections are generally indicated in Figs. 2 and 3. In this connection, it is to be noted that the feature of final assembly of the sectional components resolves itself into a minimum task such as can be performed by unskilled labor and such as requires the use of but simple wrenches and a trim cloth tack hammer.

Attention will first be given to the back frame and back cushion features. A pair of steel straps 35 and 36 symmetrical and oppositely shaped after the manner best illustrated in Fig. 20 are spot welded as at 37 and 38 respectively, to the steel bowed framing strip 39 and steel channel member 41.

The framing strip 39 is advantageously provided with a series of circular openings 42 through which there may be inserted wood screws for entry into the nailing strip 43 or into a carved head board where the design dictates are in this respect different from the illustration of the particular design. Where the nailing strip 43 is intended to have longitudinal curvature as after the manner shown in Figs. 5 and 20, its inner surface may be slashed by spaced saw cuts 44 of a depth so as to extend part way through the width of the nailing strip 43. This practice affords adequate resiliency to permit the strip to be formed or curved cold in this manner giving to the final assembly secure rigidity without having to treat the wood fiber specially as by steaming, etc.

In the case of divans or other wide span constructions, there may be provided intermediate the steel assembly core channel ribs 45 and 46 of suitable number and spacing shaped after the manner best illustrated in Figs. 3, 5 and 8. It will be seen that near their upper ends, channel ribs 45 and 46 are substantially flattened and flared as at 47, thence bent over as at 48 to afford a wide welding area where the bent over portion is presented in surface abutment with the bow strap 39. The lower ends of the ribs 45 and 46 are similarly bent over as at 49 and thereat, spot welded to the channel 41. In this way, the steel framework of the back cushion will be observed to constitute a transversely rigid integral assembly,

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having ample beam rigidity throughout by reason of the center channel formations in the ribs 45 and 46 as well as the side strap members 35 and 36. The bowed member 39 obtains additional and transverse re-enforcement from the adjacent wood framing as will now be described.

The head board and nailing strip 43 has already been generally and structurally described and it is to be observed from the illustrations in Figs. 4 and 20 that this member is of substantial width and that notwithstanding the slashings 44 which are made on the under surface part way through its narrowest dimension, a stout and vigorous nailing member is thereby afforded, having the overhang portions as at 51 and 52 which help to form the side wing or ear projections that overlie the side frame members 32 and 33. In the case of overhang 51 which is better illustrated in Fig. 20, it will be observed that the end of this member is butted against the short length of form board 53 and thereat secured and made rigid by appropriate dowling 55 and re-enforced with corner fills of glue blocks 56.

The lower ends of the form boards 53 are met by transverse spacer boards 57 apertured as at 58 wherethrough these boards receive the ends of the final assembly securing bolts 59; see particularly Figs. 5, 7 and 24. The spacer boards 57 are made fast to the form boards 53 as well as to the continuation form boards 61 by means of gluing and dowling as indicated at 62, Figs. 7 and 24. From the continuation of taper in boards 53 and 61 which is discernible in Figs. 7, 8 and 9, there is imparted to the forward face of the back frame assembly a slope or angularity consistent with the desired disposition of the cushion curvature as best indicated in Fig. 4. Since this cushion member is ultimately to be finished with contained cushion springs and upholstery packing as will later be more fully revealed, there is provided a forwardly disposed nailing strip 55 that extends across the full width of the inside portion of the cushion and is anchored to the continuation board 61 by the dowl pins 66 and nailing blocks 67.

In order to give intermediate re-enforcement to the nailing strip 65, each of the channel ribs 45 and 46 is provided with an angularly disposed channel strut 68 screw-fastened as at 69 to the rib 45 or 46 and as at 71 to the nailing strip 65. From the foregoing, it is to be observed that the wood framing including the members 53, 57 and 61 which are disposed on both sides of the steel frame straps 35 and 36 give to the latter members an abundance of transverse rigidity such as is comparable to solid wood structure, permitting the members 35 and 36 to be made of narrow strap material as will be seen in the drawings and in this way, constituting the steel re-enforcing portion of the frames of minimum weight characteristics, yet obtaining from these members generous beam strength such as is afforded by their considerable transverse width in the direction in which they are subjected to strains during service of the furniture article.

Attention is now again directed to certain significances in the other parts of the steel framework, portions of which have already been described. More particularly, it will be observed from Fig. 20 that side strap 35 (and this is also true of its counterpart side strap 36) is substantially straight except for a slight offset as at 72, rendering the lower extremity 73 to be disposed in close proximity to the side member 33 as best seen in Fig. 5. The spacing which is thereby afforded

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between the upper portion of member 35 and the remainder of the side member 33 is adequate to permit the several thicknesses of burlap fabric and finish cloths which cover the back cushion and side members to be received thereat in compact juxtaposition.

Additional significant rigidity is contributed to the steel assembly by the provision at each of the lower corners of a triangular gusset plate 74 made of sheet steel and provided with perpendicularly extending weld tabs 75 for securement by spot welding to the strap section 73 as illustrated in Fig. 20. These gusset members are integrated with the channel 41 by welding along the lower horizontal area which coincides with the adjacent channel surface, see particularly Fig. 15.

When the constituents of the framework of back cushion member 31 are assembled and made fast to one another as explained in the foregoing, the structure is in readiness for application thereto of the upholstery springs padding and ornamentation fabric. In the practice which has been illustrated in Fig. 5, there is contemplated a more centralized arrangement of large upholstery springs contrasting with those shown in the chair embodiment in Fig. 24. In order to serve as an anchor for the converging convolutions of each spring in the vertical alignments, there is placed at the center of its row a flexible tie member 81 which may be made of flat spring stock as contemplated in Figs. 4 and 5 or of round wire as indicated at 82 in Fig. 24. The ends of the tie members are preferably secured by being bent over and embedded as at 83 in the crown strip 43 and as at 84 in the lower nailing strip 65.

The small diameter convolutions of the several upholstery springs 85 are made fast to the tie member 81 by stapling as at 86 or in any other of several well known upholstery shop practices and in this manner, the spring units are located with resilient security, giving to the spirally increasing outermost convolutions of each of them a floating buoyancy which is restricted in a general sense only by the perimeter framing wires 87 which encompass tangentially the largest convolutions and maintain them relatively in planar alignment.

The metallic spring system just described is covered by a stout under fabric 89 of burlap, duck or similar backing after which a thickness of padding material 89 is distributed so as to impart roundness and softness to the covering material which may consist of one or more layers of cover fabric, outermost of which is an ornamental cloth 91, frequently velure, frizze, velvet, etc. Both sets of fabrics between which the padding 89 is located are customarily made secure at their edges by tacking as at 92 to the strip 65 and as at 93 to the crown board 43. The sides or ends of the fabric are similarly treated and tacked to the form members 53 and 61. When finally completed, the back member assembly 31 has the appearance which is indicated for it in Fig. 2 of the accompanying drawings.

Side members 32 and 33 require to be able to sustain primarily vertical thrust forces and for this reason, it is proposed to construct these members in symmetrically opposite fashion with wood front and rear stud strips 94 and 95 of which the back ones 95 are angled to correspond with the inclination of the steel portion of the back cushion member 31 while the front stud surfaces 94 are essentially perpendicular. Aesthetic curvature is given to the wooden underframe by rounding the top horizontal board member 96

as at 97. The adjacent ends of the side member assemblies are held together by a horizontal wood beam 98 and their outermost ends by the horizontal wood beams 99.

When the side arm components 32 and 33 are thereafter covered, first by a stiff fibrous lining material and thereafter by padding and ornamentation to correspond with the other details of construction of the furniture article, there is given to the side arms a more firm or stable padding condition than is characteristic throughout the various cushion elements such as the back and seat, the latter of which is yet to be described. In practice, the outermost coverings of the side arms 32 and 33 while being coextensive with the full outline thereof on the extreme surfaces as can be observed in Fig. 1 are preferably finished on their interior surfaces to the level 101 which coincides with the re-enforcing beams 98 that may thereby serve as nailing strips after the manner already explained above.

The side arms 32 and 33 are provided with devices for making them secure to the back cushion 31 as well as to the frame or base 34 when the sections are finally assembled. For the former purpose, each of the horizontal boards 96 is drilled to receive a bolt member 59 having a wood screw threaded end at 102, a fluted central shank 103 and a machine screw threaded upper end for receiving the final assembly nut 104, see in particular Fig. 7.

The provision of the aforescribed type of final assembly coupling affords the advantage of permitting the bolt to be located in the arm board 96 after the upholstery covering has been applied by the application of a torque wrench or pliers to the fluted section 103 after which the placement of the back cushion assembly 31 is aligned so that the hole 58, Fig. 21, of the space board 57 comes into registration with the bolt 59. In this manner the two members may be accurately located and thereafter, securely integrated. Access to the bolt 59 for permitting the application of a lock washer and nut 104 thereto in performing the just described function of final assembly is afforded through the rear opening of the cushion member 31 before it is covered by the muslin back sheet 105, Fig. 4. In accordance with recognized shop practice, this covering sheet 105 is preferably included in the assembly of fabrics which are tacked as at 93 to the crown board 43 and the final closing of the rear access aperture is accomplished when the lower end of the strip 105 is tacked as at 106 to a nailing board 107 nested within the channel member 41. As with the other coverings, the sides of the fabric 105 are preferably doubled over and tacked at their edges to the sectional end boards 53 and 61.

The base structure of an article of furniture of this general category is usually comprised of a box-like enclosure which houses a distribution of upholstery springs that afford seating compression and resiliency. As with the case of back cushion member 31, base 34 has, in accordance with the present invention, been evolved about the novel unitary steel framework principle, Fig. 23, being made of angle metal components. A rear transverse member is designated 111 and is flanked at the ends by overhang flanges 112 while the foremost angle beam 113 is somewhat shorter and faces beam 111, the two being transversely integrated by a pair of spaced connecting beams 114 and 115, also of angle metal.

By welding the cross members 114 and 115 to the transverse beams 111 and 113 at points 116, Fig. 23, the assembly is integrated into a rigid rectangular unit on which may be supported a conventional assembly of seat springs 117 arranged in coordinate rows. The uppermost convolutions of the outermost springs in such assembly are perimetrically circumscribed by a wire frame 118, Fig. 4. In the lounge or davenport variation of the steel base frame, Fig. 3, additional transverse re-enforcement may be obtained by interposing further cross members 119 of suitable number and spacing consistent with the span to be encompassed. The foremost angle member 113 presents its vertical flange flush against an inner surface of a nailing strip 121 which extends the full width of member 113 and butts at its ends against adjacent edges of vertical stud strips 94 which comprise part of the principal framework of side members 32 and 33.

The rear channel 111 is purposefully longer than front member 113 and at its ends is constructed after the manner indicated in Fig. 19 whereby to include opposed overhanging portions 122 of its horizontal flanges as well as opposed transverse butt plates 123, welded as at 124, to the top and side flanges of angle member 111, see also Fig. 7. The butt plates 123 may be open slotted and by passing through these slots and through holes in the horizontal beams 99, the carriage bolts 125 or other suitable securement, the steel frame assembly is rigidly integrated with the side frame members in a manner involving a minimum of locating operations.

The horizontal flanges of members 111 and 113 are provided with predeterminedly spaced apertures 126 through which protrude the perpendicularly bent extremities 127 of spaced support wires or strips 128, Fig. 4, and on the surface of these strips there rest the converging convolutions of the springs 118 whereat they may be appropriately lashed in any of several well known conventional manners of anchoring.

Thus, there is firmly yet yieldably located the seat spring assembly under the steel framework, Figs. 3 and 23, in a manner which utilizes the transverse strength and rigidity of the angle iron frame components in keeping with the dominant objective of minimum weight characteristics. The seat assembly is covered with a thickness of primary padding material 131 which may be a single web lamination made up of stout penetration resisting fabric or composition, usually burlap. On the surface of this primary overlay there is distributed a substantial thickness of springy cushion padding 132 such as cotton-batt, excelsior or any suitable curly-hair fabric. The overlay is then encased from approximately the point 133 towards and including the rear by a covering fabric 135 which extends around, thence downwardly as at 136 being drawn taut over the edge of the vertical flange of angle member 111 and impaled on a series of prong projections 137 that may be struck from or superimposed upon the inner surface of this flange.

From the point 133 forward there extends the ornamental outer covering fabric 138 rising sharply to form a ridge or knoll referred to in the industry as a seat roll 139. By having disposed in this region an edge padding 141 of significant thickness so as to maintain its prom-

inence securely, a shoulder is provided which will confine the removable seat cushions 143 against creeping forward. The ornamental fabric 138 extends downwardly from the point of the seat roll and is tacked as at 142 to the nailing strip 121. Formation of the aforedescribed seat roll ridge effect is a well recognized practice in the construction of parlor sets in which the removable cushions 143 may be single or multiple. The lip or seat roll formation also inhibits forward tumbling and misalignment such as results from incremental advancements that are incident to flexing of the short nap of certain cushion fabrics or such as may be consequent of repeated seating and rising by occupants.

In parlor furniture of this class which is intended to repose very close to the floor surface, leg support is usually and preferably achieved by the provision of several short stature leg blocks, foremost ones of which 151, see also Figs. 11 and 12, are substantially vertically sided and provided with friction reducing glide buttons as at 152. In keeping with the constructional practices proposed for the improved steel and wood furniture framework described in the foregoing, structural adaptations are now to be described for making the application of leg blocks conveniently adjustable and expediently mountable after the base member has been assembled.

Towards this end the flange 113 is provided at significant locations with apertures for receiving the adjustment bolts 153. The bolts 153 which are threaded internally and headed as at 154 at the exposure surfaces, pass through vertical flanges 155 of angle metal brackets in which elongated slots 156 are provided. Before the bolt nuts are tightened the bracket flange 155 is predeterminedly positioned either after the manner indicated in Fig. 11 with its remote end resting beneath the front extremities of the transverse beams 99 or after the manner indicated in Fig. 12 in which case a supporting block 157 integrated as at 158 to the beam 99 affords a support for the remote end of said brackets. To assure against drifting or misalignment, slots or apertures may be formed in the horizontal flanges of these leg brackets as at 161 in which case a locating tack may be driven through said slots or openings before the nuts on bolts 153 are drawn tight.

The horizontal flanges 162 are provided with embossed or flange encircled openings at predetermined locations in correspondence with countersunk holes 163 drilled in the leg blocks 151. Thread cutting wood screws 164 are then passed through the openings 163 and by pressure and rotation, made to secure themselves in the formed openings of the flanges 162. The frame elements are further integrated by providing apertures in the stud strips 94 and in correspondence with such apertures, elongated holes 171 in the vertical flanges of the foremost angle members 113. Anchor bolts 172 are then passed through these alignments of openings and made fast by bolts and lock washers.

In Figs. 16 through 18 there are shown alternative types of leg block mountings such as are more appropriate and suitable for the rear leg blocks 175. Form brackets 176 may be screwed as at 177 into the arm beams 99, an operation usually performed after the covering fabric 178 has been secured by tacking as at 179 to the beam 99 functioning as a nailing strip. As with the front leg block, securement is established with

the horizontal flange 181 by means of self-threading countersunk wood screws 182.

While the assembling and final processing operations of furniture articles in accordance with various well known practices which are prevalent under production methods seek to exercise to the utmost of practical limits high degrees of manufacturing accuracies and firm dimensional tolerance conditions, there must be recognized that due to various natural factors which produce distortion such as warpage and shrinkage there may develop occasionally serious conditions of misalignment. Sometimes these misalignments are induced by metallic strains and are of sufficient degree to prevent the furniture article from resting squarely on its leg block supports. The steel-integrated base member framework just described has proved itself under such conditions to be generously yielding so as to adjust by marginal torsion for all practical ranges of misalignment. As a consequence, it has been established that furniture constructed in accordance with the herein taught methods will adjust itself so as to rest fully on all of its points of support, allowing in instances for corrections which are the result of misalignment of the floor level on which they are expected to repose.

When, after a steel frame has been welded together and the wood adjunct elements applied thereto, pronounced degrees of misalignment are observed, specific and local leveling adjustments may be achieved in the field by means of a simple torsion tool 201, Figs. 21 and 22, which consists of an alligator jaw portion 202 slotted as at 203 to receive the web of metal such as one of flanges of the frame angle members 113, 115, or 111. By exerting a torsion force after the manner indicated in Fig. 2 locally upon one of the aforedescribed frame members, which operation may be performed more expeditiously after inverting the assembled furniture article, a correction can be achieved instantly for leveling off misaligned floor block conditions.

While the present invention has been explained and described with reference to a particular system of construction, having in mind the specifically disclosed structural embodiments, it will be understood, nevertheless, that numerous modifications and variations may be incorporated without departing from the essential spirit or scope thereof. It is accordingly not intended to be limited, in an understanding of the invention, to the particular language employed in the foregoing specification nor to the illustrations selected for disclosure in the accompanying drawings except as indicated in the hereunto appended claims.

The invention claimed is:

1. An article of parlor furniture comprising, back, seat, and side components in which said back component is constituted of a steel core comprising an integral rectangular planar assembly of which a lower longitudinal element is of plural sided cross section and of which an upper longitudinal element is a flat strip disposed so that its width dimension is substantially perpendicular to the principal plane of said assembly, end strips transverse to said lower and upper longitudinal elements and also disposed with their width dimensions substantially perpendicular to the principal plane of said assembly, said end strips deformed in symmetrical and opposite manner to each other with marginal offset and extending portions apertured for bolting to cooperating portions on said furniture side

components and being welded at their extremities to the extremities of said lower and upper longitudinal elements, corner gussets for re-enforcing and providing triangular bracing welded to said end strips and to at least one or the other of said longitudinal elements, and supplement framework superimposed upon said steel core comprising overlay pieces of wood formed and butt-jointed to each other to provide an ornamental profile to the back component outline of said furniture article, to provide nailing area for upholstery covering and to stiffen said upper longitudinal element and end strips in the direction of their respective thickness dimensions.

2. The combination set forth in claim 1 in which said steel core includes intermediate brace elements of ribbed cross section welded at their ends to intermediate points along the length of said lower and upper longitudinal elements.

3. The combination set forth in claim 1 in which said upper longitudinal element is bowed and in which the wood overlay piece of said supplemental framework which is superimposed upon said upper longitudinal element, is shaped to conform to the bowed condition by being slashed at closely spaced interval part way of the thickness of said piece on the surface which abuts said bowed element.

4. The combination set forth in claim 1 in which said lower longitudinal element is of channel cross section and in which the channel hollow is filled with a wood inlay strip to serve as a back component lower edge upholstery nailing area.

5. An article of parlor furniture manufactured in subassembly components consisting of a back, two sides, and a base in which said base is comprised of a steel core framework made into a rectangular assembly of angle-section metallic elements of which the angle elements are welded to each other at junctions of perpendicularity, a system of seat cushion springs supported on said steel core framework, the rear one of said angle

elements of said steel core framework extending longitudinally and being bolt secured to said component sides, the front one of said angle elements also extending longitudinally and being bolt secured to a frontal wood nailing strip of said base component, and a set of leg blocks comprising short stature solid members carrying angle metal sections in at least some of which are formed elongated holes whereby is afforded lateral adjustment of said blocks for bolt securement to said front angle element longitudinal extensions.

6. The combination set forth in claim 5 in which said steel core framework is comprised of angle section metallic elements arranged in rectangulation whereby the horizontal flanges of each element extend inwardly of the rectangulation and in which the vertical flanges thereof are peripheral to the rectangulation.

7. A method of assembling parlor furniture components in which the base component consists of an integrally welded angle-metal rectangulation, which comprises the steps of securing leg blocks to the corner extremities of the rectangulation, testing the floor resting surfaces of the leg blocks for planar alignment, and correcting for out-of-planar alignment by torque bending the angle-metal rectangulation at any of its corners which are singularly out of planar alignment by imposing a twist force thereto around an axis longitudinal to an angle-metal element of said rectangulation.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,543,858	Ludwinks	June 30, 1925
2,147,611	Reed	Feb. 14, 1939