

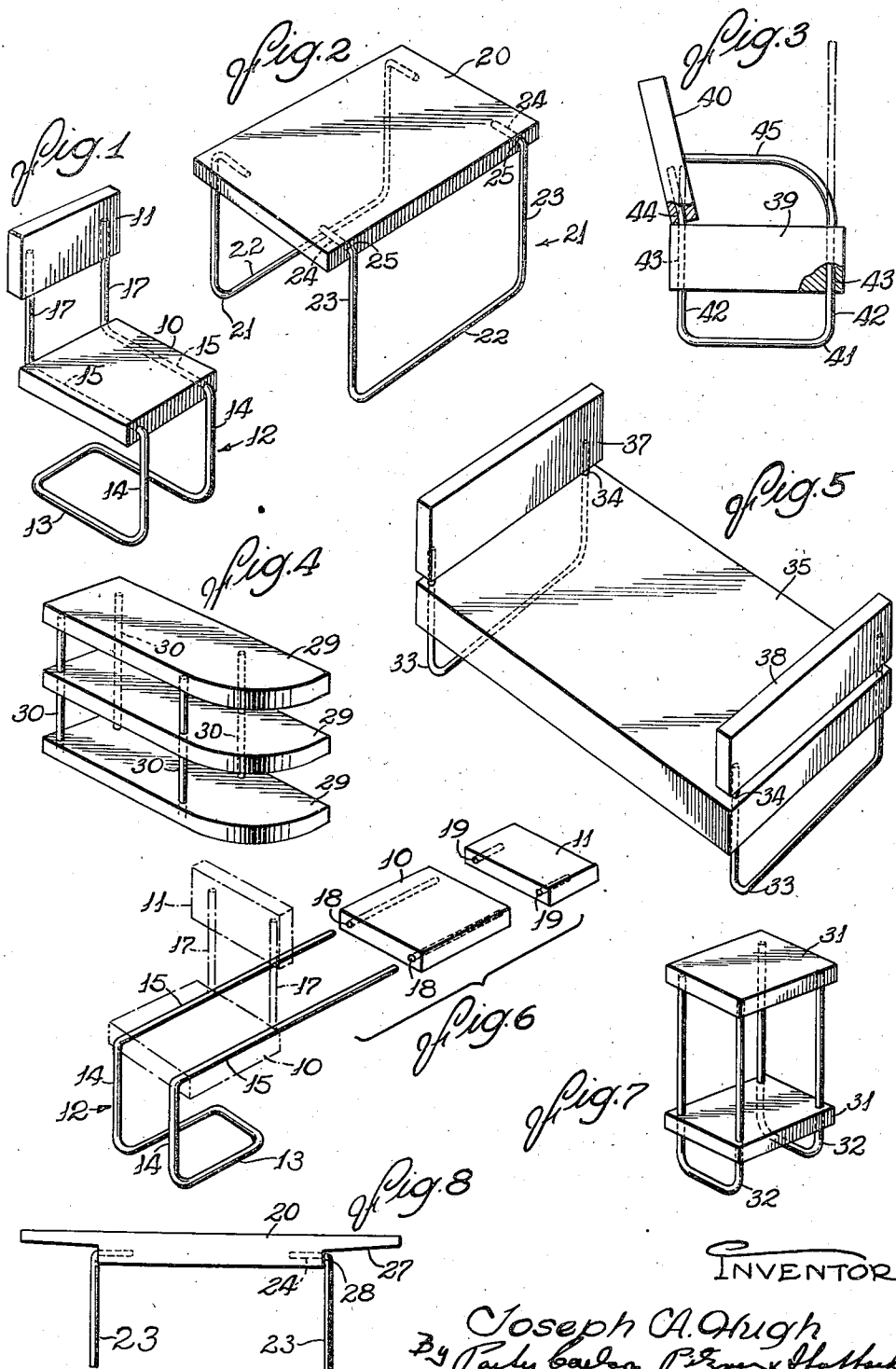
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J. A. HUGH

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MINIATURE FURNITURE AND METHOD OF MAKING SAME

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INVENTOR

Joseph A. Hugh
By Paul, Carlson, P. & H. H. H. H.
ATTORNEYS

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MINIATURE FURNITURE AND METHOD OF MAKING SAME

Joseph A. Hugh, Chicago, Ill., assignor, by mesne assignments, to Peter P. Race, Chicago, Ill.

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This invention relates to miniature furniture and a method of making same and more particularly concerns the construction of articles of miniature or toy furniture which will generally simulate the highly popular tubular frame type of full size furniture.

A general object of the invention is to provide highly attractive and appealing miniature furniture of this type which is simple and economical to manufacture and which is adapted for use in educational displays such as miniature rooms to demonstrate proper furniture selection and placement as for advertising or domestic science educational purposes, or may be utilized as children's toys for doll houses and the like.

Another object of the invention is to provide miniature furniture including body structure comprising appropriately dimensioned apertured blocks assembled with wire supporting frame structure which generally simulates the tubular supporting frame structure of full size pieces of furniture.

Still another object of the invention is to provide a method of constructing miniature furniture which comprises assembling body blocks with wire supporting frame structures including elements projecting longitudinally into the body blocks within apertures lying on spaced parallel axes whereby the blocks and the supporting frame members can be fully assembled with great speed by relative unidirectional rectilinear movements without the necessity of springing the frame members apart or relying upon the resiliency of the frame members to retain the same in place after assembly.

A further object of the invention is to provide articles of miniature furniture comprising body blocks and wire supporting frame structures in which the assembled relationship of the parts is maintained by their frictional interengagement.

Yet another object of the invention is to provide articles of miniature furniture assembled from a plurality of body blocks and wire frame structure in which the frame structure passes frictionally entirely through certain of the blocks to project endwise therebeyond and other blocks are frictionally engaged upon and held in assembly by the projecting ends of the frame structure.

Other objects and advantages will become apparent in the following description and from the accompanying drawing in which:

Figure 1 is a perspective view of a miniature chair embodying the invention.

Fig. 2 is a perspective view of a miniature table matching the chair.

Fig. 3 is an end elevational view of a miniature sofa or of a chair to match.

Fig. 4 is a perspective view of a miniature end table.

Fig. 5 is a perspective view of a miniature bed construction.

Fig. 6 is an exploded assembly view illustrative of a method of assembling the miniature chair shown in Fig. 1.

Fig. 7 is a perspective view of a miniature stand or night table construction.

Fig. 8 is a fragmentary end elevational view of a slightly modified form of the miniature table shown in Fig. 2.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawing and will herein describe in detail certain exemplary embodiments, but it is to be understood that I do not thereby intend to limit the invention to the specific forms disclosed, but intend to cover all modifications and alternative or variant constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In general, all of the miniature articles of furniture made according to the present invention, whatever their particular finished form, are similarly constructed, having a body structure of one or more properly dimensioned blocks formed of suitable material such as wood assembled with a framework or supporting structure comprising one or more wire strands of suitable dimensions and shape. The wire selected for this purpose is preferably brightly tinned or otherwise finished to have a shiny and non-corrosive surface and is of a diameter proportionate in size to the article to effect as accurate as possible a simulation of the chromium plated tubular steel framework or supporting structure of the full size furniture of this type which has been growing in popularity.

Although the full size tubular frame furniture has been in vogue for a number of years, miniature furniture in simulation thereof has not been generally available on the market perhaps because no inexpensive method of construction has heretofore been devised which would permit production of the miniatures on a competitive basis with conventional forms. Obviously, the methods used in construction of the full size frames, employing screws, brackets, clips, braces and the like, for attaching the tubular framework to the body structure, cannot for practical reasons be utilized in diminutive miniatures.

However, by the present invention it is possible,

in a novel manner which would hardly be practical for full size furniture, to produce diminutive scale miniatures which remarkably approximate the style and form of the full size articles and which have an appealing charm and individuality of their own. Thus, the wire frame structure for the miniatures is preferably assembled with the body structure by inserting the wire frictionally into the body structure, and due to the small size of the parts the assembled relationship will be maintained firmly and relatively permanently even in the face of substantial abuse of the article in use. Slight disalignment of the parts or bending of the wire frame that may occur from time to time due to rough handling can be readily corrected manually.

Among the miniature articles of furniture shown in the drawing there are embodied several variations of the basic constructional idea by the use of any appropriate one or more of which can be made any article of this type to be found in a complete set of furniture. It should be understood therefore that these forms, whatever the specific article may represent, are intended to be exemplary and not restrictive.

Referring now to Figs. 1 and 6 of the drawing which show a form of kitchen or dining room chair, it will be noted that a body structure including a seat member 10 and a back member 11 is supported by a wire stand or frame structure 12. The seat and back members 10 and 11 may be in the form of separate, appropriately dimensioned blocks of wood or other preferred material and the frame structure 12 may be formed of a single strand of wire bent into the proper shape. As shown, the frame structure 12 comprises a rearwardly closed base loop 13 adapted to rest upon a supporting surface and having front upright elements 14. The upper end portions of the uprights 14 are angularly bent to provide parallel, substantially horizontal rearwardly extending sections 15 and upwardly extending rear sections 17.

In assembling the chair (Fig. 6), the base loop 13 is initially formed in the wire strand constituting the frame structure 12 and the seat and back members 10 and 11 are then associated therewith before or after the uprights 14 have been bent to form the horizontal sections 15. Preferably, the seat member 10 and the back member 11 are suitably apertured to receive the wire frame in assembly, the seat member being provided with a pair of perforations 18, formed in any preferred manner as by drilling or punching, extending in a front to rear direction therethrough on spaced parallel axes so that the frame member 12 can be assembled therewith by inserting the end portions of the frame endwise through the perforations by relatively moving the parts toward one another until the seat member has assumed the desired position upon the frame member. Where, before assembly, the end portions of the uprights 14 are bent rearwardly as suggested in Fig. 6, the preferred position of the seat member will be determined, as shown in dot and dash outline, upon engagement of the seat member with the lower front portions of the uprights. If desired, of course, the uprights may be left straight until the assembly is completed and then bent into angular shape. After the rear frame sections 17 have been bent into position the seat member 10 will be held permanently against removal from the supporting frame.

Sockets 19 opening through the lower edge of

the back member 11, preferably matching the spacing and axial relationship of the perforations 18 in the seat member 10, are adapted to receive the extremities of the rear upright sections 17 of the framework after the seat member has been assembled upon the frame. The back member 11 may by choice be assembled upon the frame either before or after the rear frame sections 17 of the frame have been bent into position.

An important feature to be noted in the foregoing and adaptable to the assembly of the other illustrated forms of the invention and variant forms that may be based thereon resides, it will be apparent, in the speedy unidirectional rectilinear assembly movement in bringing the body structure and frame structure together. This is effected by the unidirectional axial relationship of the block-receiving elements of the frame structure and the coaxial relation thereto of the apertures in the body blocks, thereby making possible a "one shot" or single motion assembly of any block with its supporting frame.

Another important feature consists in utilizing frictional interengagement between the supporting frame structure and the body block structure to hold the parts together. For this purpose the diameter of the apertures in the blocks, as for instance the sockets 19 in the chair back member 11, and the diameter of the supporting frame wire are so proportioned that the wire after insertion into the block will be gripped frictionally with sufficient force to resist ordinary pressures tending to effect separation or disalignment of the parts in handling or buffeting the article about in use. Yet, due to the solely frictional connection of the parts, a certain amount of relative movement thereof is permitted tending to relieve damaging strains upon the body structure without causing any looseness between the parts. In this the normal tendency of the wood or other suitable compressible material of the body structure to yield resiliently to pressure exerted thereagainst by a relatively unyielding object such as herein the pressure of the wire frame elements within the apertures in the body blocks is, of course, of substantial value not only in avoiding accidental breakage but also in assuring continuance of the wire-gripping relationship of the blocks upon the frame structure to hold the parts in assembled relationship.

It may be pointed out that in the chair of Fig. 1, the seat member 10 need not necessarily be perforated as shown to have the frame sections 15 run therethrough. If preferred, the seat member 10 may be attached to the frame sections 15 in any other suitable manner as by stapling these frame sections to the under face of the seat member. Where such a construction is employed it may be desirable to leave the loop portion 13 of the framework 12 in a straight plane with the uprights 14 to provide adequate clearance for the stapling machine, whereafter the loop portion can be bent into position by a simple forming operation.

A miniature dining room or kitchen table to match the chair just described, may be constructed as shown in Fig. 2, with a body structure comprising a top member 20 and a supporting frame including similarly constructed base or leg members 21. These leg members 21 are preferably looped into substantially U-shape with the closed portion of the loop serving as a base element 22 of the framework. Upright elements 23 projecting from the base element 22 are angu-

larly bent near their extremities to provide substantially right angular projections 24 extending to one side of the loop on spaced parallel axes. In assembling each of the frame members 21 with the table top member 20, the projections 24 are driven by a single unidirectional movement frictionally into appropriate sockets 25 in a selected one of the respective opposite edges of the top member. Thus, the table top 20 will be adequately and firmly supported and due to the particular relationship of parts accidental separation thereof or wobbliness will be avoided.

If desired, the table top member 20 may be modified as shown in Fig. 8 to have its opposite frame-receiving edges rabbeted as indicated at 27 to provide undercut shoulders 28 into which the engaging projections 24 of the frame members may be inserted with a frictional fit.

A miniature end table may be constructed substantially as shown in Fig. 4. In this form of table the body structure comprises a plurality of similarly dimensioned blocks 29 which may be supported in spaced, parallel superimposition by means of a framework comprising a plurality of separate vertical wire frame elements or posts 30, each consisting of a single straight piece of wire. The posts 30 may be located on spaced parallel axes in a substantially quadrangular relationship with their lower ends embedded frictionally in the lowermost of the body blocks 29 which serves as a base for the structure. Intermediate their length, the wire posts 30 extend in frictional engagement through the intermediate body block 29 which may be suitably perforated for this purpose. At their upper extremities the posts 30 are received frictionally within the lower face of the top body block 29 which may be appropriately apertured with sockets to facilitate assembly. Each of the blocks 29, it will be observed, can be assembled with the posts 30 by a single straight line relative assembly movement. Note also, that the intermediate body or shelf block 29 has a reinforcing effect upon the structure in that it will counteract any tendency of the frame elements 30 toward side sway or wobbling and thereby loosening from the top and base block members 29.

In another form of miniature table or stand, as shown in Fig. 7, a plurality of separate body blocks 31, herein two in number, may be connected together in spaced parallel superimposed relation by a framework comprising a pair of looped, substantially U-shaped frame members 32. The legs of the latter project upwardly, in preferably parallel relation frictionally through the lower of the blocks 31 to project substantially beyond the upper face of this block to be firmly socketed frictionally in the lower face of the uppermost of the blocks 31 which serves as the top of the stand. The lower or closed portion of the U-shaped frame members 32 may extend substantially below the lower or shelf block 31 to form the legs of the article. Because of the reinforcement afforded by the lower block 31, the frame members 32 will not spread apart or tend to loosen from their sockets in the top block 31. Here again the ease of unidirectional, single motion assembly of the parts will be appreciated.

To construct a miniature bed, substantially as shown in Fig. 5, U-shaped supporting frame members 33 may serve as corner posts by having the upstanding leg elements thereof respectively projecting in relatively fixed frictional relationship through suitable perforations 34 adjacent to

the four corners of a horizontally disposed rectangular block 35 which constitutes the body of the bed. Frictionally fixed upon the upwardly projecting extremities of the leg elements of the frame members 33 at the opposite ends of the body block 35 are a head-board block 37 and a foot-board block 38, respectively, to complete the bed structure.

It will be readily apparent that the representative type of U-shaped supporting frame structures 32 and 33 shown in Figs. 5 and 7 is also readily adaptable for use in various other forms of single or multiple-block body miniature articles, as for example cabinet structures such as buffets, dressers, chiffoniers, stoves, and the like. Examples of these have not been shown because no substantially different structural assembly problem is involved than in the illustrated forms referred to. Thus, consider the entire body structure of the bed of Fig. 5 or that of the stand of Fig. 7 as constituting a single solid block of equal dimensions, then the supporting frame members would merely have the upright elements thereof shorter, perhaps, and fitting frictionally within appropriate sockets in the under part of the body block.

A miniature sofa or bench and chairs to match may be constructed substantially as shown in Fig. 3, wherein the body structure may include a seat block 39 and a back block 40 supported by end frame members 41, one at each end or side. As shown, each end frame member 41 may be of generally upright form with the lower portion of U-shape to provide front and rear uprights 42 that project frictionally through suitable perforations 43 adjacent to the front and rear edges, respectively, in the seat block 39 and extend upwardly substantially beyond the upper face of the latter. The upwardly extending extremity of the rear upright 42 preferably extends at a rearwardly slanting angle upwardly frictionally into a suitable socket 44 in the lower edge of the back member 40 to support the latter at a rearwardly slanting angle relative to the seat block 39. The upwardly projecting portion of the front upright 42 may be of sufficient length to be bent after assembly into endwise engagement with the back block 40 to provide an arm rest 45. This serves also to place the free end of the front upright 42 into a relatively unexposed position where it cannot be harmful to the user, and from which it will not be dislodged in view of the stiffness or resistance of the wire except by deliberate or accidental force of damaging intensity. It should be noted that in the assembly of the elements of the miniature construction shown in Fig. 3, the uprights 42 of the frame member may be initially straight as indicated in dot-dash outline so as to permit assembly with the seat member 39 by a single, unidirectional assembly movement and can thereafter be bent to the requisite shape.

If desired, of course, the body structure of the article shown in Fig. 3 may be formed from a single suitably dimensioned block having integral seat and back portions. In such event the rear frame upright 42 may be shortened and merely extend into a suitable friction socket formed adjacent to the rear edge of the seat portion.

From the foregoing it will be apparent that the present invention provides unique articles of miniature furniture of simple and sturdy construction which will stand up well under relatively hard usage. The articles provide highly

attractive general simulations of full size pieces of furniture of the popular, modern tubular-frame style, and their attractiveness can be increased by finishing in bright, arresting colors to emphasize the contrast between the body structure and the metallic frame structure as well as to give harmonious individuality.

Assembly of the articles is accomplished simply by bringing the parts of the body structure and of the framework structure together by single-motion, unidirectional action, thus avoiding complexities which would tend to reduce the speed of assembly and increase the cost of production. By way of emphasizing the speed with which all of the articles can be made, a typical complete production method involves only shaping, drilling or punching and finishing the body blocks, cutting and where necessary forming the wire frame members, and pushing the frame members into the apertures in the blocks. Grooving, gluing or springing of parts are entirely avoided. Nothing is required to hold the parts of the articles together aside from the frictional interengagement of the body structure and the frame structure so that once the parts have been assembled, the articles are ready for use without any further operations. As a result, the articles can be manufactured very economically.

The frictional interrelationship of the parts is also advantageous in that although the parts are held firmly and substantially permanently interrelated, yet a slight amount of relative movement will be permitted to relieve unusual strains imposed thereon in use; and should there be any accidental disalignment of parts they can be easily and quickly, manually realigned by the user. The relatively stiff but resilient wire frame elements will take substantial abuse without damage and if accidentally bent out of shape can be readily reshaped. Of advantage, also, is the fact that in every instance all extremities of the wire frame structures of the articles are embedded within the body structure or are at least in unexposed positions so that a person handling any article cannot be harmed by any sharp edges or burrs on such ends that may arise when the wire pieces are cut to length.

I claim as my invention:

1. An article of miniature furniture comprising, in combination, a body block adapted in use to lie with its major plane substantially horizontal, a second block with its major plane at an angle to said body block, and a wire frame structure for supporting the article above a carrying surface having elements extending through said body block and into engagement with said second block.

2. As an article of manufacture a miniature chair having, in combination, a wire frame comprising a base loop with front uprights projecting therefrom and terminating in angular end portions each having a section extending rearwardly substantially horizontally and another section extending upwardly from the last named section, a seat block supported by the horizontal sections, and a back block supported by and having the extremities of the upwardly extending sections projecting into and embedded therein.

3. An article of miniature furniture comprising, in combination, a wire supporting frame structure adapted to rest upon a supporting surface and having elements thereof extending generally upwardly, and a body block having perforations therein of a diameter to engage said frame elements frictionally, said frame elements

extending through said perforations and having projecting parts extending at an angle to the parts which are within said perforations, whereby separation of the block and the frame structure will be restrained.

4. As an article of miniature furniture a chair or bench construction having a seat block and a back block, wire chair-leg means extending through the seat block and projecting substantially beyond the seat face of and adjacent to the front edge of the latter, the extremities of the projecting portions of said chair-leg means being directed rearwardly toward the back block.

5. The method of making an article of miniature furniture which comprises the steps of forming a pair of apertures on spaced parallel axes in a block of predetermined dimensions, bending into a block-supporting loop a piece of wire of a diameter to fit snugly within said apertures, forcing the opposite end portions of said wire frictionally into said apertures to effect a substantially fixed relationship of said block and said supporting loop, and thereafter bending the wire end portions relative to the loop to provide a predetermined angular relationship between the block and the loop.

6. In the manufacture of miniature furniture, the steps including bending a length of relatively resistant wire into a loop adapted to rest upon a supporting surface but leaving the opposite end portions of the wire substantially straight, forcing said end portions into projecting relation through respective perforations of a diameter to engage the wire frictionally in a body block until the block and loop are in a relationship wherein the loop will serve as a base to sustain the block above the supporting surface, and bending said end portions, whereby separation of the block and the supporting loop will be restrained.

7. The manufacture of miniature furniture which includes the steps of forcing the opposite ends of wire supporting means endwise through spaced frictionally engageable apertures in a body block until the ends protrude therefrom, forcing the protruding ends into appropriate friction sockets in another block, and bending said protruding ends at an angle to the body block.

8. The steps in the manufacture of a miniature chair or bench having a seat and a back which include forcing the end portions of wire chair-leg means through the seat to project beyond the seat-face of the latter, and bending the end portions to locate the extremities adjacent to the back.

9. As an article of manufacture, a miniature chair having, in combination, a frame fashioned from a small diameter strand of material comprising a base loop having front uprights projecting therefrom, said uprights terminating in angular end portions each having a section extending rearwardly of the loop and another section extending upwardly from the last named section, a seat block having the rearwardly extending sections of the uprights projecting there-through, and a back block in angular spaced relation to said seat block supported by and having the extremities of the upwardly extending sections projecting endwise into and imbedded therein.

10. As an article of manufacture a miniature chair or bench construction comprising, in combination, a seat member and a back member disposed in angular relation, and supporting frame means providing legs for the seat member comprising similar substantially U-shaped elements

at the respective opposite ends of the article each including a base portion substantially spaced from the lower face of the seat member and front and rear uprights in engagement with the seat member, the front upright extending through the seat member adjacent to the front edge of the latter and having the extremity thereof directed rearwardly toward the back member.

11. In combination in an item of doll house furniture, a plurality of separate relatively thick blocks, and a frame structure in support of said blocks and formed of a single strand of wire bent to shape and including a base portion and a pair of spaced parallel block engaging members, said members extending entirely through one of said blocks and being embedded endwise to a substantial extent within the other of said blocks, the thickness of the material of said blocks in proportion to the size of the article being such as to present a relatively large area into gripping relation to said members at the sections of the members that are embraced by the blocks, the gripping action of the material of the blocks being the sole force holding the blocks in predetermined assembled relation to said frame structure.

12. In combination in an item of doll house furniture, a pair of wooden body blocks of substantial thickness, one of said blocks having a plurality of apertures of predetermined small diameter extending entirely therethrough on spaced parallel axes, the other of said blocks having a plurality of sockets of substantial depth in one face thereof matching said apertures, and a polished wire frame structure for connecting said

blocks together including elongated engagement members, said members being of substantially the same diameter as said apertures and said sockets and extending entirely through said apertures and projecting endwise deep into said sockets, said members being held in said apertures and sockets solely by the frictional gripping action of the wood at the walls of said apertures and sockets, whereby the apertured block is maintained frictionally in a predetermined assembled relation at an intermediate point on said members and the frictional gripping action of the socket walls on the end portions of the members holds the socketed block on the members without the need for other connection.

13. The method of constructing an item of doll house furniture which includes drilling spaced parallel apertures of predetermined diameter entirely through one of a pair of wooden body blocks, drilling for a limited distance into the other of said blocks relatively deep parallel sockets of the same diameter and spacing as said apertures, and simultaneously driving the elongated spaced parallel engagement members of a wire supporting frame, having substantially the same wire diameter as the diameter of said apertures and sockets so as to be gripped by the walls of the apertures and sockets, endwise entirely through said apertures and into said sockets against the resistance of the aperture and socket walls for frictionally connecting the supporting frame and the blocks together and solely by the frictional interengagement holding the blocks in a predetermined relationship to said frame.

JOSEPH A. HUGH.