Aug. 15, 1967 J. P. GIACOMINI 3,335,990

FURNITURE SUPPORTING MEANS

Filed Sept. 22, 1965

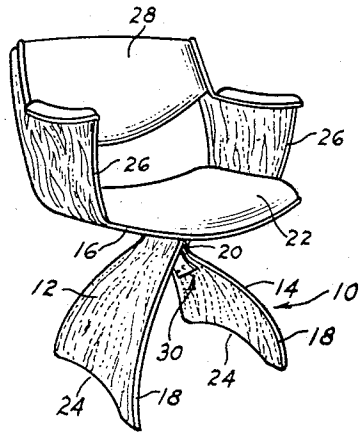


Fig. 1

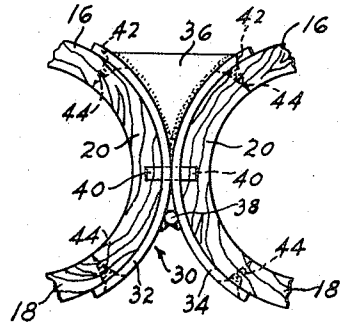


Fig. 2

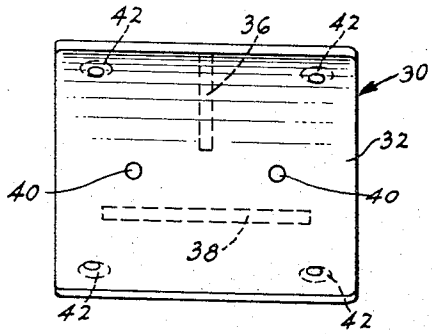


Fig. 3

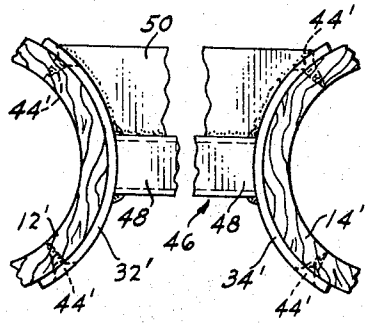


Fig. 4

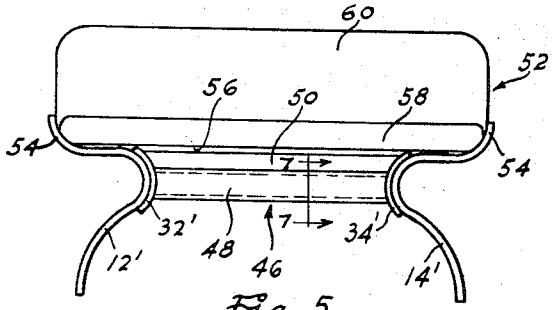


Fig. 5

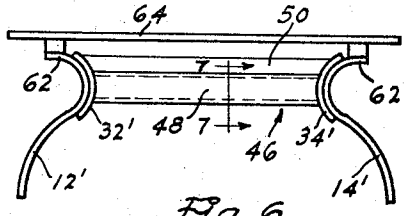


Fig. 6

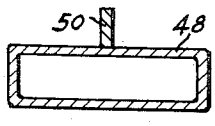


Fig. 7

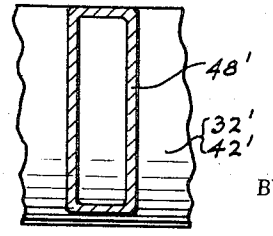


Fig. 8

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FURNITURE SUPPORTING MEANS

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ABSTRACT OF THE DISCLOSURE

Furniture supporting means comprising a pair of bent plywood leg means of substantial width having inwardly curved portions adjacent each other and connected by a fixture securely positioning the leg means in fixed relationship.

This invention pertains to furniture supporting means and, more particularly, leg-like supporting means suitable for use in conjunction with chair or settee-type furniture to support the seats thereof; table-type furniture particularly of the class comprising coffee tables, lamp tables, end tables and also suitable for certain larger type tables as well; and other types of furniture in which supporting means are to be employed for purposes of extending downward from a substantially horizontal type load-receiving member for engagement with a supporting surface such as a floor.

The basic concepts of the present invention find substantial utility particularly in the manufacturing of plywood or bent-ply type furniture articles but it is to be understood that the invention is applicable with equal facility to furniture formed from material other than wood, such as synthetic resin or plastics, certain types of metal, and the like.

Various types of furniture items, particularly individual chairs, settees, stools and small tables have been manufactured from plywood or bent-ply material but, in the main, such prior constructions primarily have consisted of U-shaped members of very limited width, such as of the order of 2 or 3 inches, the same being suitably connected together and/or to seat members or small table tops to form supporting means therefor. In this type of furniture article referred to, the leg structures are of an individual nature and somewhat resemble conventional legs on similar articles of furniture.

Legs of this type are relatively rigid and afford little flexibility, especially when employed in conjunction with chairs and other seat-like articles of furniture except where, in general, backs have been attached to the seats by curved plywood members of such nature as to form a limited amount of flexbility at least for purposes of supporting the backs relative to the seats. Such limited flexibility also has been present in regard to certain arm arrangements provided on chairs of the type referred to above. In general however, there has been substantially no flexibility between the seat portions of such chairs and the legs connected thereto.

It is the principal object of the present invention to provide furniture supporting means which primarily are adapted to extend downward from a substantially horizontal load-receiving member such as the seat of a chair or settee, the top of a table of one form or another, and the like, said supporting means extending downward therefrom for engagement with a supporting surface such as a floor. Preferably, said supporting means is of a curved configuration arranged to afford a reasonable amount of flexibility between the upper and lower portions of said supporting means whereby, especially when the invention is applied to chair or seat-type articles of furniture, there is a very comfortable and enjoyable amount of limited resilience and flexibility in such supporting means so as to enable the user of the furniture to be more comfortable

when seated or otherwise using the furniture article embodying the invention.

Another object of the invention is to utilized structural features which permit the introduction of relatively novel and aesthetic design features not previously utilized in supporting means for the class of furniture articles referred to above and the basic principles of the invention are such that a substantial number of variations in aesthetic designs may be achieved without departing from or impairing the benefits of the basic mechanical features of the invention.

A further object of the invention is to provide furniture supporting means formed preferably from a panel of material substantially of uniform thickness and preferably comprising a pair of members each comprising an upper portion arranged to be connected to a load-receiving member and a lower supporting portion, said portions of each member being connected by a reversely curved intermediate portion, and connecting means having opposed portions complementary to and engaging said curved intermediate portions of the supporting members are firmly connected thereto to secure said supporting members together as a unit in such manner that the lower supporting portions are of appreciable width in a front to back direction but are quite substantially spaced apart in a side-to-side direction from the connected intermediate portions of said supporting members and thereby provide stable support with limited flexibilty referred to above in said supporting members.

Still another object of the invention is to provide relatively unique connecting means for securing said reversely curved intermediate portions of the supporting members together, said connecting means being of a simple but durable and rigid nature well suited to secure the supporting members permanently in operative position while permitting desired flexibility of the supporting means.

A still further object of the invention is to provide connecting means for said supporting members which may be connected effectively and expeditiously to said supporting members by the use of minimum and simple tools, jigs, and the like, thereby minimizing manufacturing costs.

Details of the foregoing objects and of the invention, as well as other objects thereof, are set forth in the following specification and illustrated in the drawing comprising a part thereof.

In the drawing:

FIG. 1 is a perspective view of an exemplary chair selected to illustrate one practical application of improved supporting means to an article of furniture in accordance with the principles of the present invention.

FIG. 2 is a fragmentary, enlarged, vertical elevation showing the connecting means employed in the structure shown in FIG. 1 for securing the supporting means of the article of furniture together and illustrating the preferred means for assembling all elements which are interconnected in accordance with the invention.

FIG. 3 is a side view of the embodiment of connecting means illustrated in FIGS. 1 and 2.

FIG. 4 is a foreshortened vertical elevation showing another embodiment of connecting means employing certain features of the connecting means shown in FIGS. 1–3 but especially provided for purposes of comprising supporting articles of furniture having an elongated load-receiving member which is to be supported by said supporting means.

FIG. 5 is an exemplary elongated article of furniture comprising a settee employing the supporting members and connecting means of the type illustrated in FIG. 4.

FIG. 6 is a view similar to FIG. 5 but illustrating the embodiment of supporting means illustrated in FIGS. 4

and 5 employed in conjunction with a table-type article of furniture.

FIG. 7 is a vertical sectional view of the connecting means as seen on the lines 7—7 shown in FIGS. 4–6.

FIG. 8 is a fregmentary vertical sectional view of a further embodiment of transverse connecting means.

In the exemplary embodiment of article of furniture comprising a chair illustrated in FIG. 1, it will be seen that, in accordance with the principles of the present invention, the supporting means **10** comprises a pair of complementary supporting members **12** and **14** which preferably are of substantial width in a front to back direction. In effect, these supporting members might be referred to, for convenience, as leg members but they are not to be regarded as leg members in the conventional sense in that the shape which has been imparted to the supporting members permits limited flexibility not normally inherent in conventional leg members of chairs, tables, and the like, even when formed from conventional plywood or bent-ply material. Essentially, the supporting means of the present invention might be considered somewhat as a pedestal having limited flexibility.

It also should be understood that while the present invention is particularly applicable to the formation of supporting members from plywood and especially of a bent-ply wooden material, said members also may be formed from appropriate panel stock of other suitable material such as synthetic resin of appropriate composition, or plastics as such material frequently is referred to; certain types of metal and especially light-weight metals such as suitable alloys of aluminum; and otherwise.

Further in accordance with the principles of the invention, the supporting members **12** and **14** are provided with upper portions **16** and lower portions **18** which are connected to reversely curved or bent intermediate portions **20**. The upper portions **16** are arranged to be connected to preferably substantially horizontal load-receiving members such as a chair seat **22** which may be upholstered or otherwise, as desired. The lower portions **18** are preferably of substantial width in a front to back direction and the lower edges thereof may be formed with relieved portions **24**, if desired, whereby the opposite ends of the lower edges readily are adapted to engage a suitable supporting surface such as a floor. If desired, the intermediate portions **20** of the supporting members **12** and **14** may be of less width in front to back direction than either the upper portions **16** or the lower portions **18**. Particularly where such intermediate portions are of appreciably less width than said upper and lower portions, increased flexibility is provided as compared with an arrangement in which the intermediate portion **20** is of a width approximately that of said upper and lower portions.

If desired, the upper portions **16** may be extended upwardly to provide sides **26**, the upper edges of which may be used to serve as suitable arm rests. Further, the chair may also be provided with a suitable back **28** which is connected either to the guides **26** or the seat **22** in any one of a number of ways not specifically comprising part of the present invention. The application of these basic principles of the supporting member to other types of furniture articles than chairs is described hereinafter.

One of the highly important and essential features of the supporting means comprising the present invention is the connecting means **30**, one embodiment of which is illustrated in detail in FIGS. 1–3. In its preferred construction, this embodiment of connecting means is formed from sheet metal of suitable gauge but it is to be understood that connecting means embodying the principles of the one illustrated in detail may be formed by other means and from other material such as, for example, by casting the same from appropriate metal, molding the same from suitable synthetic resin or plastic materials, or otherwise.

Referring to the specific embodiment of connecting means illustrated in detail in FIGS. 1–3, two similar, curved metal plates **32** and **34** are arranged so as to have the concave faces thereof extend outwardly in opposite directions from each other, while the convex surfaces thereof, intermediately of the upper and lower edges thereof, are disposed in abutting relationship as clearly shown in FIG. 2. A bracing web **36**, formed, for example, from sheet metal similar to that used to make the plates **32** and **34**, is shaped to extend transversely between the upper portions of the inner curved surfaces of the plates **32** and **34**, the edges of the web **36** being complementary to such curved surfaces and said edges are welded thereto as clearly illustrated in FIG. 2.

The connection and bracing afforded the plates **32** and **34** by the web **36** is further augmented by additional bracing means specifically illustrated in the form of a simple metal bar **38** of substantial length which is disposed between the lower portions of the plates **32** and **34**, immediately below the abutting intermediate portions thereof, said bar being firmly connected to the convex surfaces of the plates by any suitable means such as continuous or interrupted weldments illustrated diagrammatically in FIG. 2.

Still further rigidifying means are provided which not only add rigidity to the connecting means but also afford positioning means engageable with the supporting members **12** and **14**. Such additional rigidifying means comprises a plurality of relatively short and preferably metallic bars or plugs **40** which not only extend through suitable holes formed in the abutting portions of plates **32** and **34** but preferably are secured within said holes suitably such as by press-fitting or otherwise. As readily can be seen from FIG. 2, the oppositely projecting ends of the plugs **40** extend outwardly from the concave surfaces of the plates **32** and **34** a distance preferably less than the thickness of the supporting members **12** and **14**, which members are provided with recesses or holes of limited depth and complementary in diameter to the plugs **40** so as to receive the same snugly. The location of such holes in the supporting members **12** and **14** may be determined by suitable drill jigs or the like.

For purposes of further effectively securing the connecting means **30** to the supporting members **12** and **14**, the plates **32** and **34** are provided with a plurality of screw holes **42**, which preferably are counter-sunk so as to receive the heads of wood screws **44** of suitable size which are firmly threaded into the supporting members **12** and **14** to complete the connection of the supporting members to each other in a firm manner which also provides a limited and pleasing amount of flexibility. The connection is also of a highly durable nature capable of existing without attention for long periods of time. Also, it is quite obvious from FIGS. 1 and 2 that by disposing the connecting means adjacent the convex surfaces of the supporting members **12** and **14**, said connecting means essentially is quite hidden from ready view, whereby the utilitarian nature thereof is substantially undetectable, notwithstanding the fact that in the preferred construction of said connecting means, the length thereof in a front to back direction is only slightly less than the width of the intermediate portions **20** of the supporting members **12** and **14** to which said connecting means is attached.

Especially for use in articles of furniture of a more elongated nature than a so-called single seat type chair, such as a settee, table, or the like, the present invention contemplates and provides another embodiment of connecting means which is illustrated in detail in FIGS. 4–7. Said embodiment possesses the same basic principles as the embodiment shown in detail in FIGS. 1–3 in that it has, at the opposite ends thereof, concave surfaces similar to the concave surfaces of plates **32** and **34** of said foregoing embodiment but said further embodiment employs transversely extending spacing means to permit the supporting members **12'** and **14'** to be disposed in hori-

zontal spaced apart position as distinguished from the closely abutting position of the embodiment shown in FIGS. 1–3.

Referring to such additional embodiment as illustrated in FIGS. 4–7, it will be seen that the connecting means **46** embodies curved metal plates **32'** and **34'** which, if desired, may be of the same size and curvature as the corresponding plates **32** and **34** of the embodiment of FIGS. 1–3. Also, the plates **32'** and **34'** preferably are formed from metal but, as in regard to the above-described embodiment, also may be formed from other suitable material such as by being cast from metal rather than being fabricated by weldments, or by being molded from suitable synthetic resin or plastics material. In the preferred construction however, metal is the most desirable.

The curved plates **32'** and **34'** of connecting means **46** are secured in desired horizontally spaced relationship by a connecting member **48**. The preferred construction of the member **48** comprises a somewhat flattened metal tube which, in cross-section, is illustrated in FIG. 7 in its preferred configuration. Essentially, the tubular connecting member is seen to be rectangular in cross-section but limited variations from this are possible within the purview of the present invention. Preferably, the tubular member **48** is formed from metal of suitable gauge and the opposite ends thereof are shaped to be complementary to the convex surfaces of the curved plates **32'** and **34'** and are secured to said convex surfaces preferably by welding. In view of the preferably tubular cross-sectional configuration of connecting member **48** and the fact that it is rigidly connected to the curved plates **32'** and **34'** by welding, the assembled connecting means **46** is highly capable of withstanding twisting and skewing, especially when placed in use between the supporting members **12** and **14** to which said connecting means is firmly secured by appropriate means such as screws **44'** which extend through appropriate screw holes in the curved plates **32'** and **34'**.

Further rigidity is imparted to the connecting means **46** in the form of an elongated bracing web **50** which is coextensive in length with the connecting member **48** and preferably is located intermediately between the opposite vertical surfaces of connecting member **48**. The web **50** also preferably is secured to the uppermost surface of connecting member **48** either by continuous or intermittent weldments.

Referring particularly to FIGS. 5 and 6, it will be seen that by utilizing the connecting member **48**, when formed of appropriate length in accordance with the requirements of the horizontal, elongated, load-receiving member which it is to support, articles of furniture such as the love-eat or settee **52** may be fabricated through the appropriate configuration of the upper portions **54** of the supporting members **12** and **14** so as to accommodate a suitable cushion-supporting panel **56** therebetween, the same being connected to the upper portions **54** in any suitable manner. Not only may the supporting panel **56** accommodate a cushion **58** but an appropriate back **60** likewise may suitably be connected either to the panel **56** or the upper portions **54** of the supporting members.

Referring to FIG. 6, it will be seen that the upper portion **62** of the supporting members **12'** and **14'** illustrated therein, which are connected in transversely spaced relationship by the connecting means **46** otherwise illustrated in FIGS. 4 and 5, an appropriate table top **64** of desired length and width may be affixed to the upper portion **62** in any suitable manner.

The present invention also contemplates a further embodiment of connecting member between the curved plates **32'** and **34'** of the embodiment of connecting means **46** shown in FIGS. 4–6 and also in vertical cross-section in FIG. 7. Referring o FIG. 8, a vertical sectional view of this further embodiment of horizontal connecting member **48'** is shown. While the same is generally rectangular in cross-section and is formed from tubular stock and material similar to that from which member **48** of said preceding embodiment is formed, it will be seen that the widest dimension of member **48'** extends vertically, rather than horizontally, as in regard to member **48**. Hence, with respect to member **48'** of FIG. 8, there is no need to use a reinforcing web **50** as is at least preferred in regard to member **48**.

Such vertical arrangement of the widest dimension of member **48'** provides very substantial resistance to vertical deflection whereby, if desired, a cushion-supporting panel, such as panel **56** of the preceding embodiment, may be disposed directly against the upper surface of member **48'** for suitable support thereby against downward deflection. It will be understood that the opposite ends of member **48'** are contoured to be complementary to the convex surfaces of plates **32'** and **34'** and are firmly secured thereto such as by welding.

From the foregoing, it will be seen that the present invention provides highly useful, aesthetic, and yet relatively simple furniture supporting means which are readily connectable to horizontal load-receiving members of a substantial number of different types and styles of seat-type furniture articles as well as table-type furniture articles and otherwise. Said supporting means preferably comprises a pair of supporting members having intermediate portions complementary to oppositely directed members of connecting means which are firmly engageable with and connectable to the supporting members expeditiously and with a minimum of manufacturing costs while furnishing durable and highly effective supporting means which preferably possess a limited amount of flexibility of a desirable nature.

While the invention has been described and illustrated in its several preferred embodiments, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways falling within the scope of the invention as claimed.

I claim:

1. Furniture supporting means arranged for connection to a substantially horizontal load-receiving member of the class comprising a seat, table top, and the like in a manner to extend downwardly therefrom for engagement with a supporting surface, said supporting means comprising a pair of substantially complementary supporting members of similar width and formed from a panel of material substantially of uniform thickness, said supporting members each comprising an upper portion arranged to be connected to a load-receiving member and a lower supporting portion, said portions of each member being connected by a reversely curved intermediate portion comprising substantially a segment of a cylinder and from which said upper and lower portions of said members respectively extend in diverging directions, connecting means having opposed portions complementary to and at least partially coextensive in length with said curved intermediate portions of said supporting members, and means affixing said connecting means to said curved intermediate portions of said members to secure the same together as a unit.

2. The furniture supporting means according to claim **1** in which said connecting means is formed from sheet material and said opposed portions are fixedly connected along the convex surfaces thereof and intermediately of the opposite edges thereof.

3. The furniture supporting means according to claim **1** in which said connecting means comprises a pair of similar curved plates comprising substantially segments of a cylinder, the concave surfaces of said plates extending outwardly in opposite directions, and bracing means extending between the convex surfaces of said plates and securely connected thereto to form a rigid connecting unit.

4. The furniture supporting means according to claim 3 further including screw-like means extending through said curved plates and into said supporting members to secure the same firmly to said connecting unit.

5. The furniture supporting means according to claim 1 in which said concave surfaces are formed respectively in similar elements arranged in back-to-back relationship, and bracing means between and securely fastened to said elements to provide a rigid connecting unit.

6. The furniture supporting means according to claim 5 further including positioning means projecting outwardly from said concave surfaces and received within openings in said supporting members to prevent skewing of said members relative to said connecting means.

7. The furniture supporting means according to claim 3 in which said bracing means extending between and connected to said curved plates are elongated and comprise spacing means for said curved plates and thereby permit said supporting means to receive and support an elongated load-receiving member.

8. The furniture supporting means according to claim 7 in which said elongated bracing means is a hollow tubular member having the opposite ends thereof complementary to said convex surfaces of said curved plates and securely fastened thereto.

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