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FURNITURE PEDESTAL CONSTRUCTION

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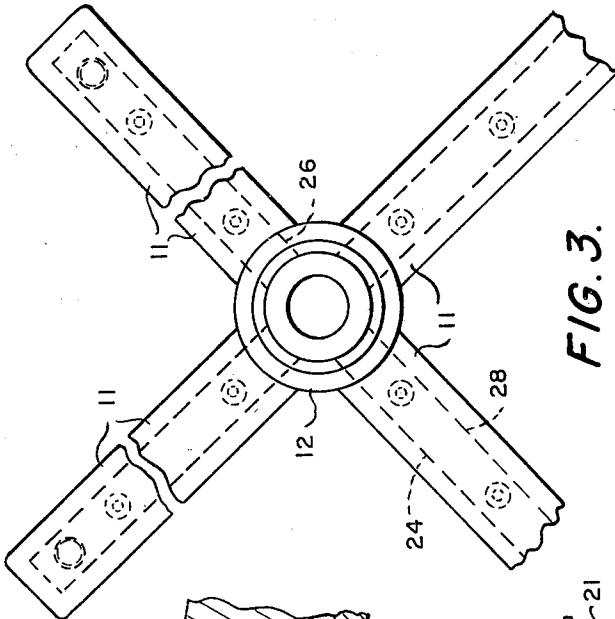


FIG. 3.

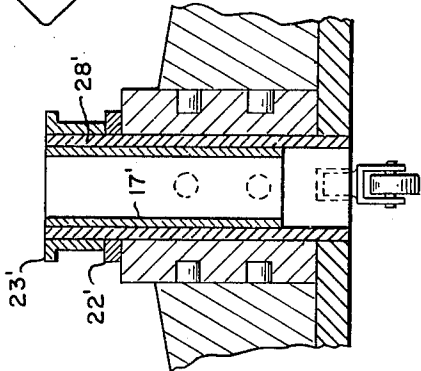


FIG. 4.

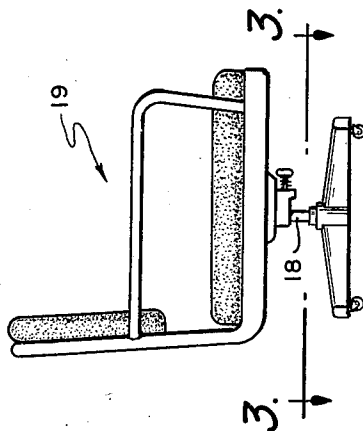


FIG. 1.

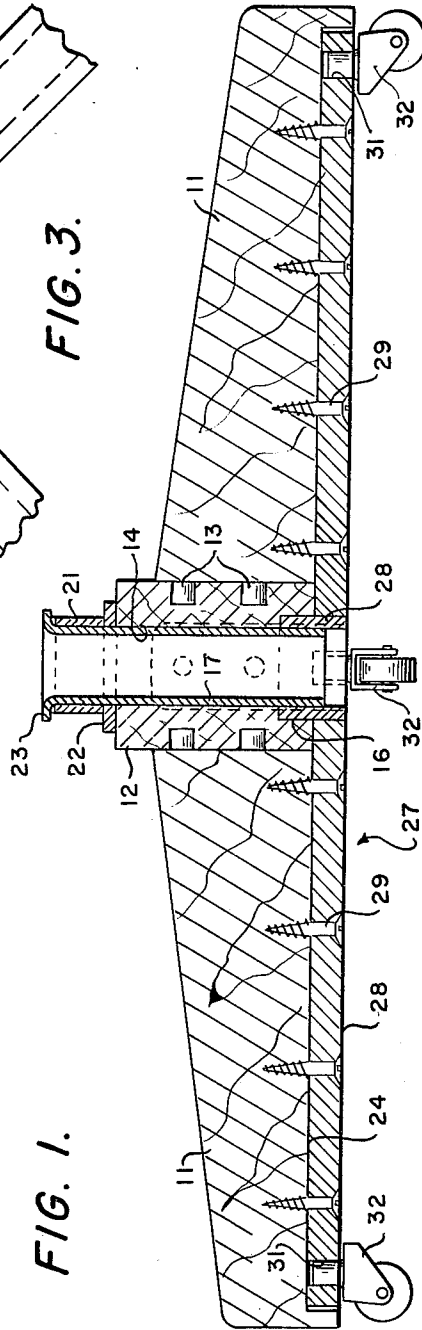


FIG. 2.

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FURNITURE PEDESTAL CONSTRUCTION

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9 Claims

ABSTRACT OF THE DISCLOSURE

A wooden horizontal leg-vertical column pedestal construction for chairs, tables and furniture providing the compression strength of wood and the tensile strength of steel or other metal and including a plurality of horizontal wooden legs attached to a wooden hub. A metal hub affixed within the wooden hub receives a vertical load supporting columns. Both the horizontal legs and the wooden hub are recessed and receive a metal frame having a corresponding number of stressed metal legs extending substantially the length of the horizontal wooden legs and is rigidly mounted on the metal hub. The recesses are formed and positioned within the horizontal wooden legs and wooden hub to conceal the metal frame and hub giving the appearance of an all wood pedestal construction which, due to the reinforcing strength of the metal frame permits the use of smaller, lighter weight wooden members to achieve a thin line construction of increased strength. The metal legs of the frame may be tapped to threadably receive casters, glides, or other floor connecting devices.

BACKGROUND

There is a growing demand for furniture made of walnut and other costly woods while the supply of such material has decreased sharply, raising the cost of wooden furniture such as desks, tables and other pieces utilizing a pedestal construction including horizontal legs and a vertical load bearing column.

Conventional pedestals for wood furniture such as desks, chairs, tables and other pieces require heavy wooden members to obtain the required support strength. The wooden members are connected by glue and dowels or tenons or by visible steel reinforcements which detract from the appearance of the furniture. The use of heavy wood members restricts the design and lines of the furniture as well as increases the amount of wood required and the cost of manufacture.

An object of this invention is to provide a furniture pedestal construction including a plurality of horizontally extending legs and a vertical load bearing column having the compressive strength of wood and the tensile strength of metal reinforcement which is concealed within the wooden members.

Another object of this invention is to provide a furniture pedestal construction of the horizontal leg-vertical load bearing column construction wherein a metal reinforcing spider is concealed within the horizontal extending legs and rigidly affixed to the vertical extending load bearing column.

Yet another object of this invention is to provide a furniture pedestal construction including a plurality of horizontal extending wooden legs and a vertical load bearing column reinforced by a steel spider concealed within said wooden legs and said vertical column, the legs of said spider being provided with tapped holes for threadable receiving casters, glides or other floor connecting devices.

These and many other objects and advantages of this invention are achieved by a pedestal construction in accordance with the principles of this invention which in

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general may include a plurality of horizontally extending legs formed of wood. The legs are secured by means of dowels and glue or tenons and glue to a central hub also formed of wood.

The wooden hub is provided with a central passage counter bored at the base and receives a metal sleeve which carries the shaft or vertical load bearing column of the piece of furniture. A steel hub is pressfit or welded on the sleeve and is received in the counter bore of the wooden hub. A metal spider of steel or the like and provided with a corresponding number of stressed legs are welded to the steel hub and concealed within grooves or recesses formed in the base of the horizontally extending wooden legs and the wooden hub. The legs of the spider extend substantially the length of the wooden legs and are attached thereto by means of wood screws or other suitable fasteners. Tapped holes are provided near the end of each leg of the metal spider to threadably receive the shaft of a caster. For desk chair pedestal construction, four horizontal wooden legs may be provided and the metal spider is generally formed in an X configuration.

These and many other objects and advantages of the invention will become apparent from the following detailed description when read in view of the appended drawings wherein:

FIGURE 1 is a side elevational view of a conventional desk chair illustrating the pedestal construction in accordance with the principles of this invention;

FIGURE 2 is a cross sectional view of the pedestal construction of FIGURE 1 illustrating a hub and spider construction in accordance with this invention;

FIGURE 3 is a sectional view along the line 3—3 of FIGURE 1 illustrating a plan view of the pedestal construction in accordance with the principles of this invention; and

FIGURE 4 is an alternative embodiment of a pedestal construction in accordance with this invention wherein the spider includes a metal hub extending throughout an exterior wooden hub.

Although a preferred embodiment of a furniture pedestal construction in accordance with the principles of this invention is shown for use in a desk chair (FIGURE 1), this pedestal construction may be used in any furniture application requiring a horizontal leg-vertical load bearing column.

Referring to FIGURES 2 and 3, the pedestal construction in general may include four horizontal extending legs formed of wood, plastic or other material rigidly attached to a central exterior hub 12 formed of wood or similar material by means of glue and dowels 13. The hub 12 includes a vertical longitudinally extending passage 14 counter bored at the base 16 and receives a metal sleeve 17 of steel or the like which carries a vertical load bearing shaft 18 (FIGURE 1) of the desk chair mechanism 19. The load received by the chair 19 and the shaft 18 is transferred to the sleeve 17 and a lock hub 21 which rests on a steel washer 22 to prevent the lock hub 21 from pressing into the wooden hub column 12. The lock hub 21 is confined by means of a flange or shoulder 23 formed on the sleeve.

As shown in FIGURE 2 each of the wooden legs 11 is grooved in the base, each groove 24 extending substantially the entire length of the leg and opening into corresponding grooves 26 formed in the hub 12 and counter bore 16. This construction provides an X type slotted groove running from the tip of one leg to the tip of the other leg and cutting through the central wooden hub 12 or column. A metal spider 27 formed of steel or the like is inserted into the X groove. The steel spider 27 includes a steel hub 28 formed of metal tubing received within the counter bore and pressfit or otherwise attached on the sleeve 17. Four legs 28 formed of pre-

stressed steel are welded to the outer sides of the hub at a ninety degree angle to form an X configuration corresponding to the X configuration of the grooves in the wooden legs. The steel legs are of the same dimensions as the grooves 24 and 26 and completely received or recessed within the grooves and rigidly affixed to the wooden legs by means of screws 29, glue or other suitable fasteners. Each of the metal legs 28 are provided with a tapped hole 31 for threadably receiving the shaft of a caster 32, glide or other floor connecting device.

The steel legs 28 of the spider are stressed in tension and tend to bend upward at the tip and transmit this force through the wooden legs 11 and back to the hub where the stress is transmitted to the dowels 13 in the leg. This causes the wooden legs 11 to jam against the hub 12 and thus reduces the sheer load on the dowels. This construction combines both the tensile strength of the legs of the steel spider and the compressive strength of the wooden legs permitting a great reduction in size of the wooden members.

For instance, in order to obtain a support strength of five hundred pounds or more, in conventional furniture having four horizontal wooden legs supported at the tip by casters and connected to a central wooden load bearing column, the wooden leg must be one and a half inches to one and three quarters inches thick and four to five inches wide in order to obtain sufficient strength where it joins the wooden hub or vertical column. In addition the wooden hub must be approximately three inches or more in diameter in order to obtain sufficient joint strength and support the load. By utilizing the principles of this invention a horizontal leg-vertical column pedestal may be provided for supporting a five hundred pound load utilizing a wooden hub of 2¼ inches in diameter and horizontal wooden leg members 1 inch thick and 2½ inches wide. This great reduction in size requirement of the wooden members to achieve the desired load bearing capacity not only greatly reduces the amount of wood required, but achieves more graceful design in what appears to be all wood furniture. In addition, this construction reduces the weight and permits greater flexibility in the design of thin line furniture pieces. Plastics and other materials may also be used in place of wood.

An alternative embodiment of the invention is illustrated in FIGURE 4. In this arrangement horizontal wooden legs 11' are secured to a central wooden hub 12' which are grooved as in FIGURES 2 and 3 to receive the steel reinforcing legs of a spider 27'. Hub 28' of the spider 27' extends through the exterior hub 12'. Collar 23' which rests on a washer 22', is pressfit or threaded on to the hub 28'. As in FIGURES 2 and 3 the steel hub 28' is pressfit on an inner steel sleeve 12' which receives and supports a vertical load bearing column.

Although a preferred embodiment of the invention has been described in detail, numerous changes and modifications may be made within the principles thereof, the scope of which is intended to be limited only by the appended claims.

What is claimed is:

1. A pedestal for furniture construction comprising: A central exterior non metallic, and vertically extending hub; a plurality of horizontally extending legs rigidly attached to said hub; a longitudinal groove formed in the base of each of said horizontal legs, and extending substantially the length thereof; a corresponding number of grooves formed in the base of said exterior hub coinciding with said grooves in said legs and continuous therewith; a metallic sleeve mounted in said hub for receiving a vertical load bearing column of a furniture construction; a unitary metallic reinforcing frame which comprises a plurality of stressed metallic legs corresponding in num-

ber with said plurality of horizontally extending non-metallic legs, and of the same dimensions as said grooves in said nonmetallic legs and said exterior hub, said frame recessed in said grooves in said legs and said hub and rigidly attached to said legs, exterior hub and said metallic sleeve; and a metallic hub rigidly affixed to said metallic sleeve and mounted within said exterior hub, said metallic legs being attached to said metallic hub.

2. Apparatus as defined in claim 1 wherein said horizontal legs are secured to said exterior hub by means of dowels.

3. Apparatus as defined in claim 1 wherein said metallic reinforcing frame includes tapped holes for threadably receiving supports.

4. Apparatus as defined in claim 1 wherein the metallic parts are formed of steel.

5. Apparatus as defined in claim 4 wherein said steel hub extends through said exterior hub and a washer; and a collar threadably received on said steel hub resting on said washer.

6. Apparatus as defined in claim 4 wherein said steel sleeve is flanged at the upper end; a metallic washer positioned around said sleeve and on said exterior hub; and a locking hub positioned around said sleeve and between said flange on said sleeve and said washer.

7. Apparatus as defined in claim 1 wherein said horizontally extending legs and said exterior hub are formed of wood.

8. Apparatus as defined in claim 1 wherein said horizontally extending legs and said exterior hub are formed of plastic.

9. A pedestal for a desk chair having a single vertical load bearing column comprising:

a wooden hub; a longitudinal bore extending through said wooden hub; a counter bore in the base of said wooden hub; a steel sleeve fixed within said counter bore for receiving and supporting said vertical load bearing column; four horizontal wooden legs attached to said wooden hub and extending radially therefrom to form an X configuration; a groove formed in the base of said wooden legs and extending substantially the length thereof; corresponding and coinciding grooves formed in the base of said wooden hub and opening into said counter bore, said grooves in said wooden legs and said wooden hub extending from substantially the tip of one wooden leg to the tips of the remaining wooden legs to form a groove having an X configuration; and a steel reinforcing frame including a steel hub rigidly fixed to said steel sleeve and received in said counter bore, and four stressed steel legs recessed within said grooves in said wooden legs and said wooden hub and rigidly affixed to said steel hub.

References Cited

UNITED STATES PATENTS

437,188	9/1890	Franklin	248—406
1,272,365	7/1918	Bolens	248—188.7
1,717,142	6/1929	Bump	248—188.7
2,311,810	2/1943	Bauer	248—188.7
2,347,753	5/1944	Sengpiel	248—188.7
2,464,300	3/1949	Fox	248—188.1
2,992,803	7/1961	Good	248—188.7
3,188,033	6/1965	Groves	248—188.7
3,405,897	10/1968	Bond	248—188.7

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