FOLDABLE AND FLEXIBLE LAMINATED MAT

Inventor: Darryl S. Gold, Chesterfield, MO (US)

Appl. No.: 12/931,944

Filed: Feb. 15, 2011

Related U.S. Application Data
Continuation-in-part of application No. 12/214,007, filed on Jun. 16, 2008, which is a continuation of application No. 10/905,827, filed on Jan. 21, 2005, now Pat. No. 7,402,536, Continuation-in-part of application No. 12/460,841, filed on Jul. 23, 2009, which is a continuation-in-part of application No. 11/468,290, filed on Aug. 29, 2006, now abandoned.

Provisional application No. 60/741,990, filed on Dec. 2, 2005.

Publication Classification
Int. Cl. D03D 9/00 (2006.01)
U.S. Cl. 442/1

ABSTRACT
A chair pad or a roll up mat that can be manufactured from medium density fiberboard with a laminate surface decorative layer applied thereon. The laminate is treated with various protective coatings, to add resistance to natural deleterious factors including water and dirt. The chair mat includes a series of planks, held together by tape, with an under layer of a mesh, all applied by resin together, and having a bottom layer of a felt or rubber to provide cushioning when the mat is applied upon a floor or surface, and to function as a living hinge, when it is rolled up or folded for storage or shipment.
FOLDABLE AND FLEXIBLE LAMINATED MAT

CROSS REFERENCE TO RELATED APPLICATION

[0001] This is a continuation-in-part of the patent application and claims priority to the provisional patent application having Ser. No. 12/214,007, filed on Jun. 16, 2008, which claims priority and is a continuation of the patent application having Ser. No. 10/905,827, filed on Jan. 21, 2005; this application also claims priority as a continuation-in-part of the application having the Ser. No. 12/460,841, filed on Jul. 23, 2009, which is a continuation-in-part of patent application having Ser. No. 11/468,290, filed on Aug. 29, 2006, which claims priority to the provisional patent application having Ser. No. 60/741,990, filed on Dec. 2, 2005.

FIELD OF THE INVENTION

[0002] This development relates to a laminated roll up or foldable mat that is manufactured from medium density fiberboard, and having a surface layer of a laminated decorative paper, or a wood veneer, with a protective coating applied thereon, to furnish a strengthened mat of slats that can be subjected to roll up, or folding, as when not in use.

BACKGROUND OF THE INVENTION

[0003] This invention primarily relates generally to chair mats, and more particularly, to medium density fiberboard laminated chair mats.

[0004] Chair mats have long been used as a protective covering for a floor area on which a chair rests or some other furniture item locates. The chair mat is utilized to protect the underlying floor, or even a rug, from damage due to wear and tear caused by the chair and its constant movement, and/or from the occupant of the chair moving about within the floor area on which the furniture rests. A typical chair mat is made of plastic, or other appropriate material, that is semi flexible, but resilient enough so that when the chair mat is placed on the floor area a semi ridged surface is provided by the chair mat. The semi ridged surface makes it easier to move around in the floor area, while occupying a chair with wheels.

[0005] Most chair mats are of a unitary one piece flattened body. Some chair mats as indicated are made of plastic. However, others are made of a hardwood material to provide a better aesthetic appeal. Hardwood chair mats, however, are not flexible, are very expensive, and do tend to crush down on any underlying rugs, due to their weight. Such chair mats, particularly the larger ones, are difficult to move about and very difficult to ship because of the special packaging required. Obviously, cost can be an excessive factor. Also, one alternative to a hardwood pad would be the subject matter of this invention, to utilize a medium density fiberboard (MDF) laminate, which can also be used for a chair mat if processed like hardwood.

[0006] Thus, the concept of the current invention is to provide a much lesser expensive woodlike material, of reduced weight, and more easier to work with, type of plank or slats of such MDF that can be applied in adjacency, and then affixed together in the manner as described in this invention, and in co-pending prior applications, into a roll up or foldable type of chair mat, yet one having the aesthetic appeal of a treated or stained hardwood pad as known in the prior art.

SUMMARY OF THE INVENTION

[0007] This invention contemplates the formation of a MDF/laminate chair mat formed from multiple elongated MDF/laminate planks that have been processed like hardwood flooring. The chair mat provides a substantially hard-wood ridged surface, but the mat can be rolled up like a chair mat for ease of transport, storage, or shipment. The fiberboard planks have sufficient thickness such that when they are bonded to a backing in an adjacent side by side manner, a substantially ridged surface is provided. The planks are not adjacent connected along their side edges, and therefore, the mat can be rolled for ease of transport and storage.

[0008] Medium density fiberboard is an engineered wood product formed by breaking down hardwood or softwood residuals into wood fibers, often in a defibrator, and combining it with a wax and a resin binder, forming panels by applying high temperature and pressure to compress them into a woodlike product of significant density. MDF is denser than plywood. It is made up of separate fibers, not wood veneers, but can be used as a building material similar in application to plywood. It is stronger and much denser than normal particle board. The name derives from the distinction and densities of fiberboard. Large scale production of medium density fiberboard began many decades ago, and such fiberboard has now been perfected where it can be used in the manufacture of furniture, such as the chair pad or mat of this invention.

[0009] There are various types of MDF/laminate flooring including tongue and groove type, and the type that needs to be butted together. The lacquered flooring panels are finished using wear resistant UV lacquer and the unaquered flooring panels need to be coated/waxed and polished after installation. The strength of MDF/laminate boards can be better than common wood boards due to the high pressure and high temperature of their manufacturing process.

[0010] Furthermore, wood is subject to deterioration, splitting, and cracking when subjected to too much drying, which the fiberboard of this invention avoids.

[0011] It has been found that the MDF/laminate material used in this invention is very durable for a chair mat application, however, the construction of many MDF/laminate mats are ridged, lacking the capability to flex or bend. A novel MDF/laminate chair mat construction is needed in the industry, and it is believed that this current invention may satisfy that requirement.

[0012] In the formation of the mat of this invention, the formed planks have a paper laminate applied over their surface, and such paper may have aesthetics related to that as providing a wood appearance, or it may have almost any appearance that may be desired for the chair mat when employed. Or, there is the potential that veneer may be applied upon the surface of the planks, to give a natural wood appearance.

[0013] The planks of this invention are then coated with UV coatings, which are applied onto the surface of the MDF/laminate planks. One embodiment of the invention can have up to seven coats of UV protection. The MDF/laminate can be arranged with a series of planks lying next to another, and then assembled into the chair mat. The chair mat can then be rolled or pressed thereby compressing all of the layers of the chair mat simultaneously.
During the assembly process, a mesh sheet is placed on the bottom side of the chair mat. The mesh sheet can be made of nylon fibers, or other polymers. A mastic layer is then placed over the nylon mesh sheet, thereby adhering it to the undersurface of the aligned planks, and then a final layer of high density felt or sisal can be applied under the mesh sheet. Such a high density layer can be preferably of about approximately 2 mm in thickness. The chair mats can then be cut to the desired dimensions. This bottom high density layer can be made of the matted felt, rubber, or polymer padding, bonding over and to the resin material layer, and this layer can function as a type of living hinge, for the aligned slats, when they are rolled up, or folded into closures when used as a chair pad, thereby eliminating the need for usage of any metal hardware, for hinge purposes, in the construction, manufacture, and usage of this current invention.

It is, therefore, the principal object of this invention to use medium density fiberboard planks in the construction of a chair pad or mat, and which may be laminated with a surface coating of paper, or veneer, to add to its attractiveness. A further object of this invention is to provide for the use of lower cost materials in the fabrication of a high strength chair mat or pad, when employed for those purposes. Another object of this invention is to provide a mat or pad that can be rolled up or folded, as during nonusage, or during shipment, during its usage. Another object of this invention is to provide a laminated structure for a pad or mat, one fabricated of fiberboard, but which in its final processing, after all of its laminated layers have been brought together, and may be subjected to pressure compressing to assure its integrity even after prolonged usage.

These and other objects may become more apparent to those skilled in the art upon review of the summary of the invention as provided herein, and upon undertaking a study of the description of its preferred embodiment, in view of the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention, reference may be made to the accompanying drawings, in which:

FIG. 1 is a perspective view of the foldable and flexible laminated mat or pad of this invention; and

FIG. 2 is a perspective partial cutaway view of the pad or mat of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

According to the present invention, various views of the foldable and flexible laminated mat or pad of this invention are shown in FIGS. 1 and 2. In the embodiment of the present invention, comprising medium density fiberboard laminated planks, these are laid in adjacency and a felt or sisal backing provides both the adherence of the planks in adjacency, and furnishes a backing for resting upon the floor, in addition to functioning as a living hinge when the mat or pad is to be rolled up, or folded, for storage or shipment. The details of the invention can be better understood by referring to FIG. 1. This is a perspective of the present pad or mat 100, and the pad is constructed including a plurality of elongated medium density fiberboard planks 102, arranged lengthwise in a side by side manner where the long side edge of each plank can be abutted against the adjacent long side edge of the adjacent planks. The abutting relationship between the planks can form a mat, as at 114. The adjacent long side edges of the planks can be unattached. The laminated chair pad as shown is cut into a typical chair pad pattern outline that is substantially rectangular in design, with adjacent corner sections cutaway. See the notched cutaway areas 104 and 108.

The certain MDF/laminate that can be used in the manufacture of the present chair mat is oxidize and gives it an extra step in making the MDF/Laminate more impermeable to water and dirt. Once the elongated planks have been processed, they can be laminated, with a paper overcoating, which may be to any design as desired. For example, it may have a wood grain finish, or some other appearance, depending upon the desires of any purchaser. Furthermore, once the planks have been processed, they are adjusted aligned lengthwise, and in a side-by-side relationship. A fibrous strip, or multiple threads and/or a fibrous tape material, as at 210, can be applied to the underside to connect the MDF/laminate planks. A fiber mesh sheet 206 can then be applied and bonded to the underside to hold these strips together. A resin material layer is then applied to the fiber mesh sheet 206, bonding the mesh sheet to the underside of the MDF/laminate layer portion of the planks, in addition to the tape material, to form a means for holding the adjacent planks together, in their assembly.

Applied to the bottom of the pad is a layer 212, which is adhered by the resin material layer to the undersurface of the mesh sheet, and the strips 210, and this particular layer for the mat is formed of a high density layer made of matted felt rubber, or polymer matting bonded by the resin layer and thereby functions not only as a cushion for the mat when applied upon the floor, but further functions as a living hinge for the slats when the mat is rolled up, or if formed as a chair pad, when the sections of the pad are folded over into closure. After application of the layer 212, the entire mat can then be pressed thereby compressing all of the layers of the chair mat into almost an integrated structure, may even have some heat applied, in order to provide for the bonding by the resin material into an integrated structure. The pressure rolling achieves a bonding of all of the components together, into the desired formation of the floor mat or chair pad of this invention.

From the aforementioned description, a foldable chair mat has been described. The foldable chair pad, or roll up mat, is uniquely capable of folding wooden panels into a light compact form for shipping and eventual placement at its final location. The foldable chair pad may be manufactured from many materials, including but not limited to wood, laminated wood, fiberboard, and other wood composites.

In addition, the resin layer of the formed mat may be of a mastic resin layer.

Furthermore, the laminated planks of the medium density fiberboard may be of higher or lower densities of fiberboard, depending upon their intended usage. The planks are made of a laminated surface, and have applied thereto by gluing decorative paper to the top of the plank for enhanced appearance. The planks will also have several layers of urethane coating applied thereon. As many as seven layers of coating have been applied, to attain the quality appearance for the mats, as marketed.

The fibrous tape strip that is used to hold the planks initially in adjacency may be made of a polymeric fiber. The fiber mesh sheet that is used to bond the entire planks, and
tape, together, in addition to holding the felt, rubber or polymer high density under layer may be a nylon fiber mesh sheet.

[0030] Obviously, the final peripheral shape of the chair pad may be substantially rectangular, and wherein adjacent corners may be notched away, for convenience of location, particularly when partially arranged under a desk.

[0031] Variations or modifications to the subject matter of this invention may occur to those skilled in the art upon review of the mat or pad as described herein. Such variations, if within the spirit of this invention, are intended to be encompassed within the scope of any claims to patent protection issuing hereon. The review of the preferred embodiment of the invention, and its depiction in the drawings, are

[0032] set forth for illustrative purposes only.

1. A mat or pad for use for supporting a chair, other item of furniture, or other equipment, and comprised of a plurality of elongated flat laminated planks arranged lengthwise in adjacency, with each plank being arranged contingously in a substantially abutting relationship with respect to the adjacent planks, each said plank comprising a length of fiberboard composite, each plank having a covering thereon, laminated onto the fiberboard to add to the aesthetics and appearance of each plank, said plurality of adjacentlly arranged planks having a series of fibrous tape strips connected orthogonally to the underside of said planks for forming a formed mat or pad, a fibrous mesh sheet applied on the underside of said laminated planks and said tape strips, a resin material layer applied to the fiber mesh sheet underside for bonding the mesh sheet to the underside of the laminated planks and the fibrous tape strips of the formed mat, and a high density layer made of one of matted felt, rubber and polymer matting bonded onto the resin layer material, for adhering the layer to the underside of the formed mat, and wherein said planks, tape, mesh sheet, and high density layer being subjected to pressure and rolled to enhanced the bonding of the laminated planks together.

2. The mat of claim 1 wherein the fiberboard comprises medium density fiberboard.

3. The mat of claim 1 wherein the resin layer is a mastic resin layer.

4. The mat of claim 3 wherein the laminated planks are formed of medium density fiberboard, and the laminated covering is applied by glue, said covering comprising decorative paper as applied to the top of the fiberboard planks during fabrication.

5. The mat of claim 4 wherein a plurality of layers of urethane coating are applied to the laminated paper covering of the planks.

6. The mat of claim 5 wherein the high density layer is made of sisal.

7. The mat of claim 6 wherein the fibrous tape strip is a polymeric fiber tape strip.

8. The mat of claim 7 wherein the fiber mesh sheet is a nylon mesh sheet.

9. The mat of claim 8 wherein the peripheral shape of the mat is substantially rectangular and having its front corners cutaway to provide for its accommodation during usage.

* * * * *