Near 22, 2013. can be provided over a panel core, or can be provided in the form of tiles used to cover a panel core.

Related U.S. Application Data

(60) Provisional application No. 61/798,896, filed on Mar. 15, 2013.
TACKABLE ACOUSTIC WALL PANEL SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS


FIELD AND BACKGROUND OF THE INVENTION

[0002] The present invention relates to room divider panels. Such panels are used in the office furniture industry to delineate worked spaces and created cubicles. Such panels are sometimes provided with tackable surfaces over a portion of the panel area, usually the area just above the workspace, because of their limited durability. Add on tackable surface forming tiles for room divider panel systems are sometimes provided.

SUMMARY OF THE INVENTION

[0003] In the present invention, room divider panels are provided with a layer of porous fibrous tackable and acoustic sheet material which is sufficiently durable to serve as a non-tackable layer, yet which is sufficiently porous that it can be used as a tackable and acoustic absorption surface. This layer can be provided over a panel core, or can be provided in the form of tiles used to cover a panel core.

[0004] The tackable/acoustic surfaces provided by the present invention are more durable than prior art non-woven fibrous tackable surfaces. Thus they can be used over the entire surface area of the panel, since they are able to withstand limited impact, as for example from the feet of workers. Further, said tackable/acoustic surfaces are receptive to multiple penetrations by the same tack in the same hole, giving said surfaces a longer useful life. The tackable/acoustic surface provided is sufficiently durable that it can be machined to any shape and size desired.

[0005] These and other objects, features and advantages of the invention will be more fully understood and appreciated by reference to the description of the preferred embodiments and the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a perspective view of an office cubicle system;

[0007] FIG. 2 is a cut-away view of the panel embodiment of the present invention;

[0008] FIG. 3 is a cross-sectional view of one panel embodiment of the present invention;

[0009] FIG. 4 is a cross-sectional view of one panel embodiment of the present invention;

[0010] FIG. 5 is an exploded view of a panel covered with tiles made in accordance with a preferred embodiment of the invention; and

[0011] FIG. 6 is a cross-sectional view of the tile embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0012] The panels 10 of the preferred embodiment can be arranged to form a variety of configurations, such as that shown in FIG. 1. Panels 10 comprise a series of layers which make said panels tackable, stiff, and acoustically dampened.

[0013] In embodiment shown in FIGS. 2 and 3, the innermost panel core 12, is comprised of a honeycomb configuration of kraft cardboard or like material. The outer dimensions of the panel are defined by a particle board frame 11. Attached to each side of the frame 11 is a tackable/acoustic layer comprised of sheet of porous fibrous material 13. Attachment is preferably made on the outside edge of frame 11. Porous fibrous material 13 is optionally laminated to a scrim layer 14. The entire surface of the panel is covered with upholstery or other decorative material 15. FIG. 4 shows an alternative panel 10a, which differs from panel 10 in that it employs a particle board core 12a.

[0014] There core 12 or 12a is 0.25 to 3 inches thick, preferably 0.5 to 2.5 inches thick, and most preferably between 1 and 2 inches thick. The tackable/acoustic porous fibrous layer 13 is between 1 and 4 mm thick, most preferably between 2 and 3 mm.

[0015] The porous fibrous sheets 13 preferably comprise a non-woven, consolidated fibrous material containing at least two types of fibers, most preferably polypropylene and natural or glass fibers. Their porosity gives them an irregular non-smooth surface. One of the fibers must have a melting point greater than the other, such that the application of heat and pressure will melt one fiber and not the other, consolidating a non-woven batt into a sheet. Said porous fibrous sheets preferably have a consolidated density between 200 and 400 kg/m³, most preferably between 250 and 350 kg/m³. Said porous fibrous sheet preferably have a basis weight of between 500 and 1,500 g/m², and preferably between 600 and 1,000 g/m². A thin, e.g. 0.5 mil (0.127 mm), non-porous vinyl or polymeric film scrim 14 may be, in certain applications, adhered to one side of each porous fibrous sheet 13. The porous fibrous sheet 13 is preferably free of formaldehyde.

[0016] The non-woven fibrous sheet 13, with or without optional scrim 14, can be easily handled during panel manufacture, as for example by using a vacuum table. It provides a tackable/acoustic surface in which holes formed by tacks tend to re-seal, such that they hold subsequently inserted tacks even when they are inserted into previously occupied tack holes. Finally its porosity and resulting surface roughness provides an acoustic dampening surface. The fact that it is secured to frame 11, rather than being laminated to panel core 12 or 12a, also contributes to its sound deadening acoustic properties. A preferable way of securing porous fibrous sheet to frame 11 is to staple it to the outside edge of frame 11.

[0017] Alternative embodiment panel 10b (FIG. 5) comprises a frame 11 to which a plurality of tackable/acoustic tiles 20 are attached. Each tile 20 comprises a front tackable/acoustic laminate layer 21 and back tackable/acoustic laminate layer 22 which are adhered to an inner tackable/acoustic core of stiffening material, most preferably corrugated cardboard or other stiffening materials, 23. Each tackable/acoustic layer comprises porous fibrous sheet 13 as described above. The laminated thus formed is stiff, durable and can be machined. It can easily be cut into the desired size and shape for making tiles 20.

[0018] The outward facing surface of each tile 20 is covered with upholstery 24. Attachment members 25, are attached to
10. The room divider panel of claim 1, wherein said porous fibrous sheet is made of at least two different types of fibers of differing melting points, the lower melting point fiber acting as an adhesive to consolidate said fibers into said fibrous mass.

11. A tackable/acoustic tile for use on room divider panels comprising: a first porous fibrous panel having sufficient porosity to afford tackability and sound absorption, laminated to a first side of a core panel, and a second porous fibrous panel laminated to the opposite side of said core panel.

12. A room divider panel comprising a structural support frame and a plurality of composite laminated tackable/acoustic tiles secured to said frame, each said tackable/acoustic tile comprising a first porous fibrous panel having sufficient porosity to afford tackability and sound absorption, laminated to the outward facing side of a core panel.

13. The room divider panel of claim 12 having a basis weight of from 500 to 1000 grams per square meter.

14. The room divider panel of claim 13 wherein said porous fibrous sheets are from 2 to 5 mm thick.

15. The room divider panel of claim 14 wherein said porous fibrous sheet is free of formaldehyde.

16. The room divider panel of claim 15 wherein said porous fibrous sheet has a density of from 250 kg/m³ to 350 kg/m³.

17. The room divider panel of claim 16 wherein said porous fibrous sheet is adhered to said structural support frame.

18. The room divider panel of claim 17 wherein there is a layer of decorative material over said outwardly facing porous fibrous panel of each said tile.

19. The room divider panel claim 12, wherein said porous fibrous sheet is made of at least two different types of fibers of differing melting points, the lower melting point fiber acting as an adhesive to consolidate said fibers into said fibrous mass.

20. The room divider panel of claim 12, wherein a second porous fibrous panel is laminated to the inwardly facing side of said core panel.