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Witt et al.

[11] **3,902,293**

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[54] **DIMENSIONALLY-STABLE, RESILIENT FLOOR TILE**

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[52] **U.S. Cl.** **52/392;** 52/388; 428/77; 428/192; 428/201; 428/292; 428/304; 428/909

[51] **Int. Cl.²** **E04F 15/16**

[58] **Field of Search** 161/151, 156, 162, 159, 161/38, 37, 44; 52/388

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Attorney, Agent, or Firm—John R. Ewbank

[57] **ABSTRACT**

A multilayer floor tile is so dimensionally stable that large gymnasiums can be floored with it while achieving sufficient resilience to be suitable as a basketball floor. The bottom layer imparts durable resiliency because it is a sheet molded from a tangled network of thermoplastic fibers containing cells of gas at superatmospheric pressure. Wafer board provides the principal thickness of the floor tile and there can be one or two strata of wafer board. The top wear-resistant layer is relatively thin, and may comprise hardwood parquet, chip board, particle board, or other type of wood-derived structure having attrition resistance because of the in situ polymerization subsequent to impregnation with the combination of fire retardant and a monomer rich precursor for a polymerized plastic such as methyl methacrylate. The top layer has about the same rectangular dimensions as the contiguous strata of waferboard, but is secured thereto in a staggered arrangement providing overhanging portions, so that a major portion of a subflooring area may be laid by adhering each of two overhanging edge portions of a first tile to the boundary portions of two tiles adjacent to such first tile. Thus, the tiles are simply laid because at least a portion of the vertical edges of wafer board layers are in abutting relationship with each other, but the overhanging portions help to lock the tiles together. Gymnasium floors or other large areas can be quickly laid with hardwood parquet because of such simplicity of positioning and locking the tiles together.

6 Claims, 10 Drawing Figures

Fig.1.

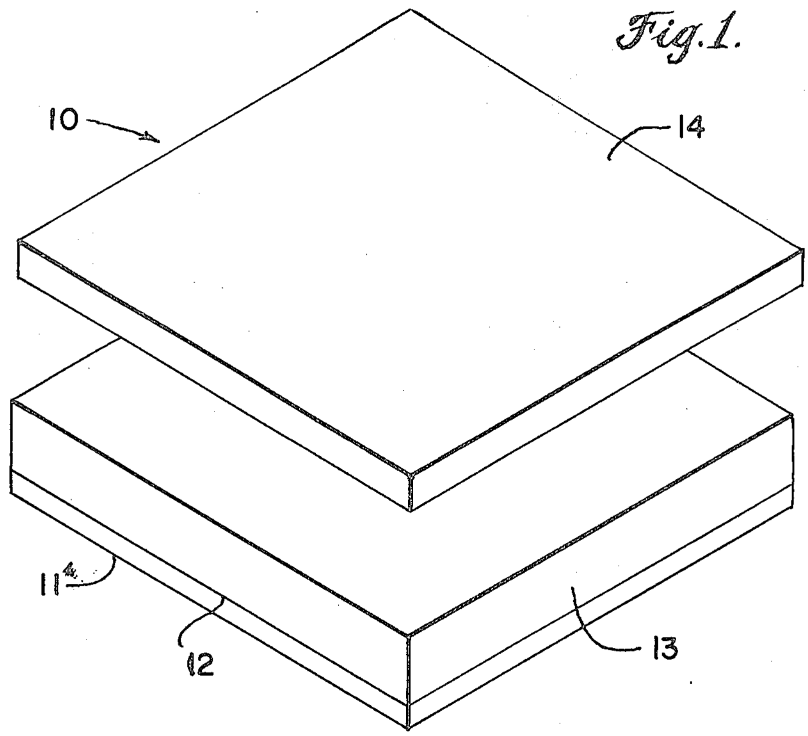


Fig.2.

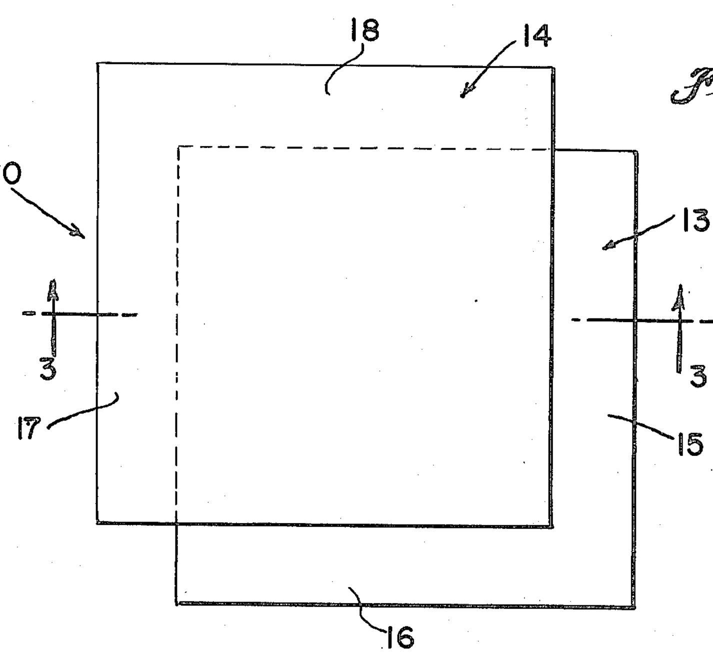


Fig.3.

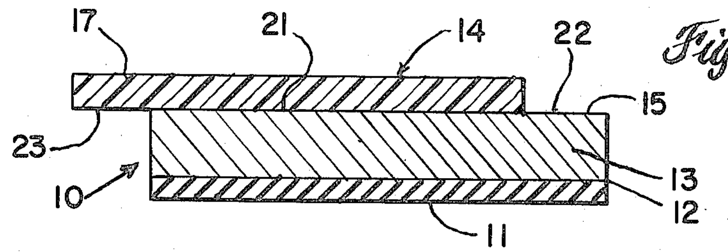


Fig. 4.

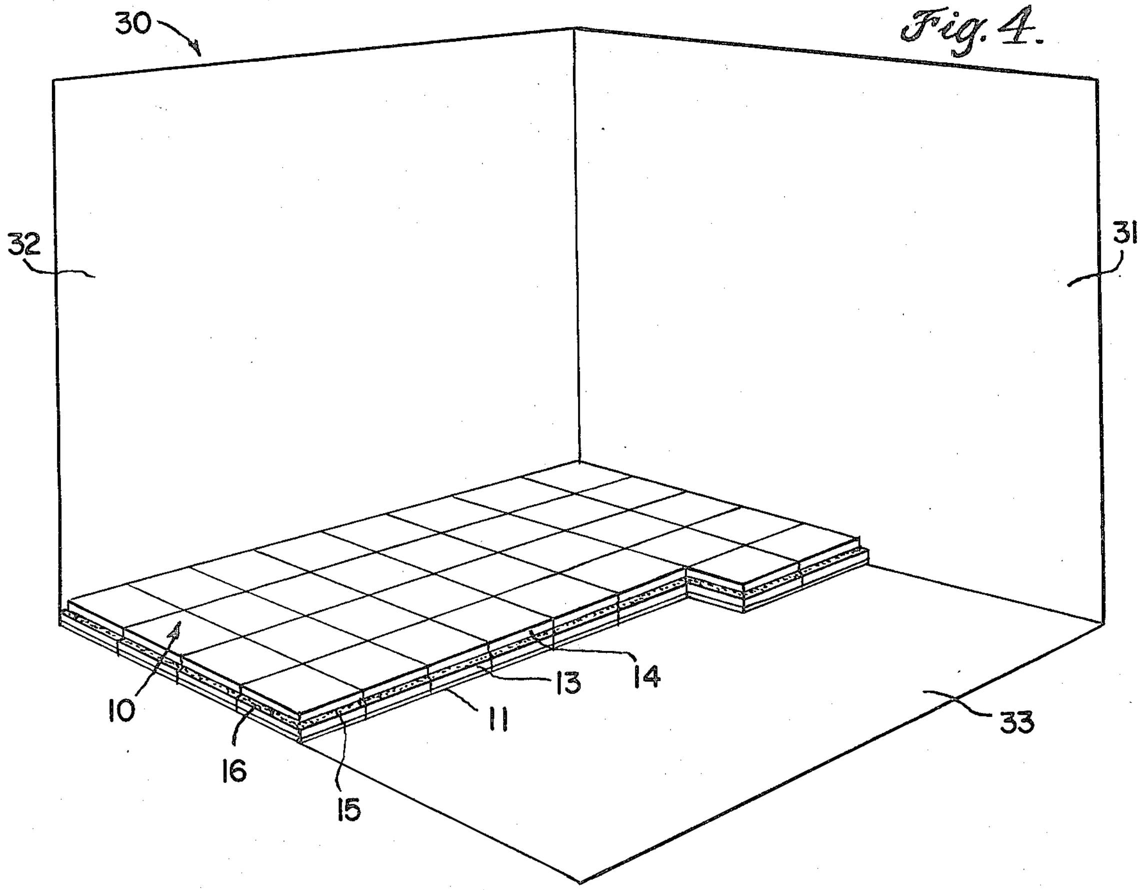


Fig. 5.

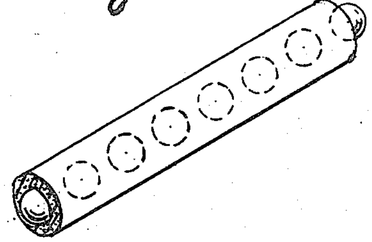


Fig. 6.

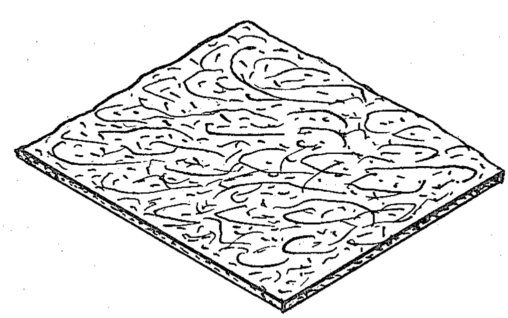


Fig. 7.

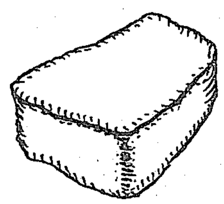


Fig. 8.

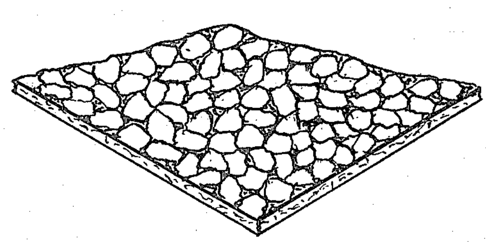


Fig. 9.

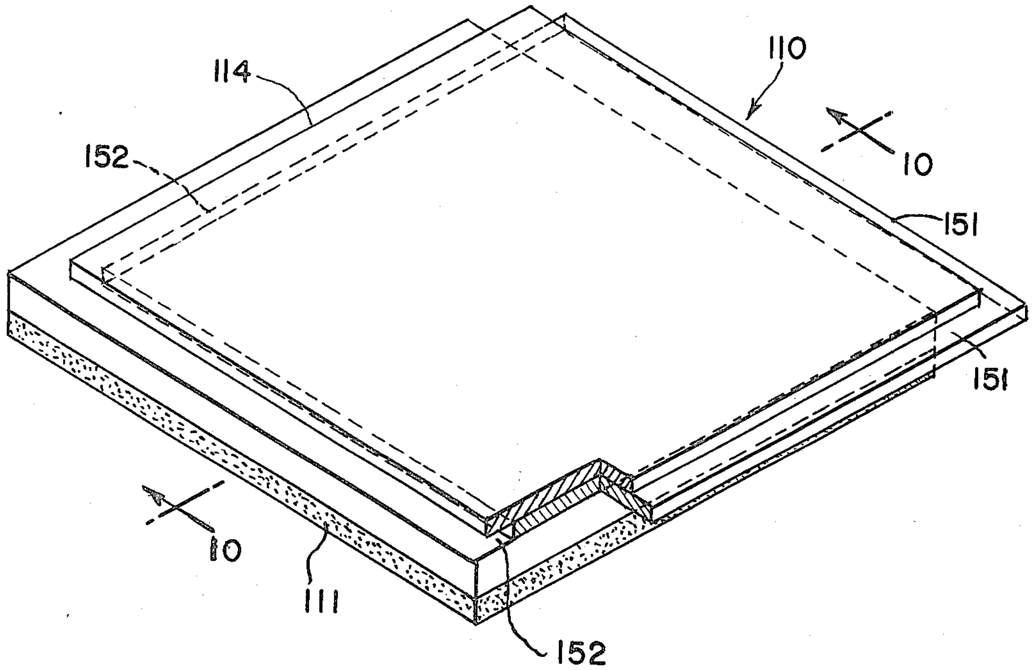
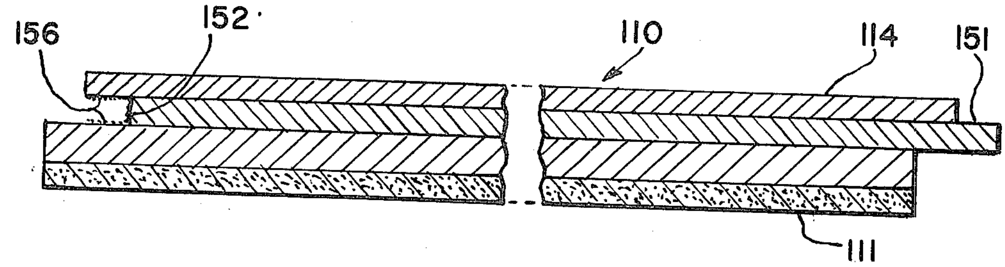


Fig. 10.



DIMENSIONALLY-STABLE, RESILIENT FLOOR TILE

FIELD OF THE INVENTION

This invention relates to gymnasium floor systems having the type of resiliency satisfying basketball players, to floor tiles suitable for creating such floor systems, or other floor systems where resiliency is important, and to methods for laying resilient floors by adhering tiles to adjacent floor tiles.

BACKGROUND OF THE INVENTION

Numerous problems have plagued both the design and maintenance of gymnasium floors. Hardwood has had many advantages, but maintenance thereof has sometimes been costly. For some hardwood floor situations such as in foyers, requiring no resiliency, the use of hardwood impregnated with a suitable plastic monomer and the in situ polymerization thereof has provided an impregnated structure having sufficient durability to reduce maintenance costs significantly. The plastic impregnated wood is not completely free from troublesome amounts of dimensional change attributable to changes of humidity. The humidity-induced expansion of plastic-impregnated hardwood of the prior art has not been as troublesome in small areas as in gymnasiums or other large areas covered with a flooring involving wood products. Gymnasium floors have sometimes buckled because large forces are generated by the humidity-induced expansion of unmodified hardwood.

Plywood has less humidity induced expansion than wooden strips. Various combinations of wooden strips, resilient pads, plywood subflooring, and hardwood floor have sometimes been employed for seeking to achieve a combination of dimensional stability and limited resilience for the total floor structure. Basketball players do not like to play on a concrete or other floor completely lacking resiliency. Basketball players can recognize the presence or absence of the desired degree of resiliency in a gymnasium floor. A resilient floor is significantly more valuable than an unyielding floor because its resiliency can be recognized by some. Gymnasium floors have been constructed with steel channels anchored to the concrete subflooring, with the hardwood securely anchored at a sufficient number of points to the steel channels to bring about compression and stretching of the hardwood instead of dimensional changes, as described in Robbins U.S. Pat. No. **3,271,916.** Attempts have been made to provide air conditioning systems sufficiently reliable and perfect to minimize humidity changes for overcoming the problems of dimensional change in hardwood floors, but costly buckling has sometimes occurred at gymnasiums equipped with air conditioning.

Because all of the hardwood systems have involved so much maintenance and installation expense, a variety of alternatives, including polyurethane flooring and other plastic flooring have been employed in gymnasiums. Although hundreds have struggled with the problem, architects have long been frustrated by the conspicuous absence of any moderately priced system for building a resilient basketball floor using a low-cost field application and permitting long-term low-cost maintenance, notwithstanding the long-standing demand for such moderately priced basketball floors.

SUMMARY OF THE INVENTION

In accordance with the present invention, a floor system is provided having the combination of wear resistant top surface, long-lasting resiliency, simplicity of field application, low maintenance requirements and dimensional stability throughout all of the plausible changes of humidity. Such floor system is achieved by the use of a floor tile having a plurality of layers bonded to each other at the factory. The bottom layer is a sheet of molded tangle of thermoplastic fibers containing a multiplicity of spheroidal cells of compressed gas within the fiber. Thus, the resiliency of each fiber has been attributable primarily to the closed cells of gas at superatmospheric pressure in the fibers. Such resiliency is analogous to the resiliency of a tennis ball, as distinguished from the resiliency of a sponge rubber ball in which the gas in the cells is at about ambient pressure instead of superatmospheric pressure.

A major portion of the tile thickness consists of a wafer board composition, thereby achieving outstanding dimensional stability. Such major thickness of the tile, with the wafer board edges of adjacent tiles being in abutting relationship permits ease of laying the floor tiles. There can be one or two or more lamina of such wafer board in such major thickness of the tile.

A relatively thin top layer provides toughness and a wear-resistant surface. Such top layer requires minimized maintenance attributable to the impregnation and in situ polymerization of methyl methacrylate or other appropriate monomer or impregnated plastics. A flame retardant is also impregnated into the top layer and sealed therein by the in situ polymerization of the monomer. A variety of synergistic advantages are attributable to such combination of wood, flame retardant, and in situ polymerized plastic. The wear resistant layer is bonded to most of the area of its underneath wafer board member but has an overhanging portion adapted for contact with boundary portions of two adjacent wafer board members. Factory applied pressure sensitive adhesive may, if desired, be employed so that at the time of field application, the floor tiles are laid so that each tile is bonded to four adjacent tiles. If there is only a single lamina of wafer board, then somewhat wider overhanging relationships may be advantageous. If there are two lamina of wafer board, whereby tongue and groove associations of the overhanging portions of adjacent tiles are feasible, then the depth of groove (corresponding to length of tongue) can be only a small fraction of the tile dimension. Pressure sensitive adhesive factory applied in the groove is protected by its remote location until the laying of the tile, thus increasing the convenience of the tile to the contractor laying the floor. No anchoring to the sub-floor (e.g., a concrete floor) is necessary or desirable throughout most of the central area. At the periphery, if desired, and particularly in zones in which tile trimming is needed, the tiles can be suitably anchored to the sub-floor. Much of the central area of the floor can be adequately bonded together because of the pressure sensitive adhesion of the overhanging portions of adjacent tiles or because of the tongue and groove.

DESCRIPTION OF THE DRAWINGS

In the drawings, FIG. **1** is a schematic, exploded view of some of the components of the embodiment of FIGS. **2–8**, the staggered relationship of the layers not being shown.

FIG. **2** is a top view of an embodiment of an assembled tile of one embodiment.

FIG. **3** is a cross section of a portion of a tile, taken on **3—3** of FIG. **2.**

FIG. **4** is a schematic view of a portion of an area in which the tiles of FIG. **2** are laid.

FIG. **5** is a schematic view of a thermoplastic filament having spheroidal cells of gas at superatmospheric pressure.

FIG. **6** is a schematic view of a sheet molded from a tangled web of filaments of FIG. **5.**

FIG. **7** is a schematic view of an irregularly shaped wafer of wood chipped from a log.

FIG. **8** is a schematic view of a wafer board resulting from coating a plurality of irregularly-shaped chips of FIG. **7** with a precursor, arranging such chips with random distributions of grain in a mold, and pressure curing the chips into a wafer board.

FIG. **9** is an isometric view of a modification with a corner portion shown in section to better show the groove and tongue.

FIG. **10** is a cross section on the line **10—10** of FIG. **9.**

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Concrete floors sometimes contain amounts of water or moisture which vary from time to time, attributable to such factors as recent pouring of the concrete, pouring as a slab on the ground and/or other factors. It is important that the moisture content of a concrete subfloor be allowed to equilibriate with atmospheric moisture. The present invention features a plurality of floor tiles laid in such a manner that at each zone where four tiles meet, as well as at some edge zones between two tiles, vent paths are provided between the zone of the subflooring and the atmosphere. At the subflooring zone, there is an abundance of generally horizontal paths for moisture diffusion because the resilient layer is a molded tangled web of fibers (schematically shown in FIG. **6**) through which gas streams readily flow. Such molded sheet of resilient material, thus aids the equilibriation between the atmosphere and any moisture in the subflooring by promoting vertical diffusion at the joints between the tiles rather than through the tile.

Many types of resilient material are seriously damaged if a load is applied for a period of weeks to significantly compress the resilient material. An important feature of the present invention is the utilization of a molded sheet of a network of fibers comprising spheroidal chambers or cells of gas at superatmospheric pressure. FIG. **5** is a schematic showing of fibers featuring spheroidal chambers or cells containing compressed gas at a pressure above atmospheric. The fibers with compressed gas cells are adapted to be restored to excellent resiliency even after prolonged significant compression.

Some conventional sponge rubber balls, when kept under a heavy load, undergo "compression set" to develop a distorted non-spherical shape after the load is removed. However, the ideal tennis ball featuring compressed gas in an impermeable spheroidal chamber, can withstand a heavy load for months and retain original resiliency. Thus the ideal tennis ball has zero compression set and its resiliency can accordingly be distinguished from the resiliency of the previously described conventional sponge rubber ball. Similarly, the sheets of networks of hollow (an abbreviated requirement for containing compressed gas cells) fibers have substantially no permanent compression set when the loads are less than would burst any of the compressed gas chambers.

It can be noted that the sheets of a molded network of fibers containing compressed gas have been designed primarily as underlay for carpets. The concept that such sheets have ability for imparting resiliency for gymnasium floors had never been demonstrated prior to the present invention.

Heretofore floors have been laid by positioning tiles of appropriate shape adjacent to each other. It is most convenient to describe each laying of floor tiles which are square. It should be recognized that the shape of the floor tile is suitable for floor tile usage, and although square tiles have been popular, the present invention embraces any and all other established floor tile shapes such as rectangular, hexagonal, or the like.

Each of the several layers of a square tile **10** has substantially the same horizontal dimensions as indicated schematically in FIG. **1.** The resilient sheet **11** of tangled, hollow fibers is bonded to the bottom of the next higher strata of a wafer board layer **12.** The wafer board layer is thick enough to permit convenient laying of the tiles with some vertical walls of wafer board layers of adjacent tiles in abutting relationship. No adhesive is provided between the principal abutting walls between the floor tiles, inasmuch as this is a gas permeation zone allowing the concrete floor to gain and lose moisture. Such absence of adhesive between the walls of the bottommost strata of the wafer board layer also helps to make possible a limited amount of resilient movement between the abutting edges of adjacent tiles.

FIG. **7** is a schematic view of a wafer. FIG. **8** is a schematic view of a strata of wafer board. A variety of sizes of wafers of wood are oriented with sufficient variation of grain orientation that, after the molding of the wafer board, the variations in dimensions in any chips attributable to changes in humidity, are compensated for internally within the wafer board, whereby the molded wafer board retains reliable dimensional stability throughout the entire humidity range. Wafer board has been marketed with emphasis upon its price and aesthetic decorativeness, and the present invention represents a breakthrough in utilizing wafer board for floor tiles to achieve dimensional stability throughout a wide humidity range.

The top wear resistant layer is characterized by having a suitable wood structure but is characterized primarily by being impregnated with the combination of a fire retardant and a plastic which has been polymerized within the wood after impregnation of the liquid precursor mixture. Such chronology of impregnation of a liquid precursor mixture followed by polymerization to an attrition resistant plastic product is described herein as in situ polymerization.

Most varieties of plastic impregnated wood, once the combustion has started, tend to burn with even greater intensity than is possible in ordinary wood. Monomers such as vinylidene fluoride or vinyl chloride, which might impart flame retardancy have had engineering disadvantages prompting selection of methyl methacrylate and other flammable monomers for in situ polymerization of plastic. By the combination of suitable fire retardants and the plastic, the combination of wear resistance and safety from excessive fire hazard is achieved. The wooden structure may be a hardwood parquet tile or it may be a thin layer of wafer board or it may be a particle board or any other type of wooden structure suitable for floor usage.

Particular attention is called to the staggered positioning of the top layer with respect to underlying layers. Only a portion of the wear resistant layer is bonded at the factory to the next underlying strata of unimpregnated wafer board. A small unbonded boundary zone along two edges of such waferboard strata is thus exposed. Moreover, the top layer overhangs the next underlying strata to provide an overhanging projection along the opposite two edges. The combination of the boundary zones of wafer board and the overhanging projection of the top layer permits each tile to have overlapping relationships with four adjacent tiles in a floor laying technique which can proceed rapidly. Pressure sensitive adhesive (with or without protective peelable strips) can be applied at the factory to at least segments of the boundary portions of the wafer borad face and/or to the under portion of the overhanging projection of the wear resistant layer. Alternatively, instead of applying adhesive at the factory, the adhesive could be applied at the site while still providing a more rapid installation of a gymnasium floor than has been conventional. The overlapping relationships of the tiles overcomes problems attributable to floor laying procedures requiring either adhesion of abutting vertical walls of adjacent tiles or adhesion of central area tiles to the subflooring.

Referring now to the drawings, FIG. 1 shows a modified exploded view of the several components of the floor tile. A bottom layer **11** consists of a molded sheet of a network of compressed gas-containing fibers or filaments. FIG. 5 is a schematic showing of a series of pressurized gas chambers along the axis of a filament employed in manufacturing bottom layer **11**. The network of such filaments is molded into a sheet schematically shown in FIG. **6**. One brand of molded sheet of fibers having cells of compressed gas is marketed as Pneumacel underlay for carpets. The molded fiber network provides a resilient sheet which, so long as the pressurized gas remains within the chambers in the fiber, retains its initial resiliency even after prolonged periods of supporting heavy weights. Thus, the substantially zero propensity to set when compressed distinguished such resilient sheet from the several conventional varieties of cellular plastic. In some sponge rubber, relatively large gas cells are distributed in a random manner inconsistent with the nature of the resilient fibers of layer **11**. In some cellular plastics, the porosity of the walls of the gas cells permits gas to diffuse from and into such cells, such cellular plastic tending to set when subjected to prolonged compression.

A thin layer of adhesive **12** serves to bond the resilient sheet **11** to the next higher strata consisting of wafer board. In the embodiment of FIGS. **1–8**, there is only a single strata of waferboard in a middle layer **13** of the tile. Such wafer board layer **13** constitutes a major portion of the thickness of the floor tile. Wood chips or wafers such as shown schematically in FIG. 7 are coated with a plastic, and assembled with the grains of the wafers appropriately oriented, and with appropriate cavities between wafers and with wafers bonding to each other at appropriate points, as distinguished from a complete filling of the space with the wood product. Thereafter, the wood wafers are pressure molded to provide a structure schematically shown in FIG. **8**. The wafers are bonded to each other at certain zones so that there are cavities throughout the panel and so that each wafer can undergo small dimensional changes without weakening the inter-wafer bonding. Because there is internal compensation within the panel, and a balancing of the humidity-induced dimensional changes within each wafer, the panel of wafer board has substantially no dimensional changes attributable to variations in the moisture content of the atmosphere. Humidity changes can bring about small dimensional changes within each wafer. The nature of the inter-chip bonding, and the variations in grain orientation are such that the wafer board retains its originally intended dimensions throughout the entire range of humidity changes. One brand of wafer board is marketed as Aspenite panels as decorative competitor for plywood. The absence of dimensional change while still utilizing a wood product is a very important characteristic of the middle layer **13**, inasmuch as the edges of portions of middle layers of adjoining tiles are abutting, whereby buckling of the floor would readily occur if there were moisture-induced expansion of the wood structure in tiles merely placed upon (not adhered to) the subflooring.

In order to focus attention upon the fact that an attrition resistant layer **14** embraces substantially the same floor area as the wafer board **13**, FIG. **1** shows such two layers vertically displaced without staggering. The attrition resistant layer **14** is a wood structure, such as a wire stapled assembly of hardwood strips suitable as a hardwood tile for parquet flooring. Alternatively, the layer **14** might be a particle board, plywood, or other wooden structure. Whatever type of wooden structure is employed, the attrition resistance is obtained by reason of the impregnation of the wooden structure with a precursor characterized by a mixture of plastic monomer and fire retardant. Of particular importance, the wooden structure of the attrition resistant layer **14**, after impregnation with the combination of flame retardant and monomer, is polymerized in situ. Certain advantages accrue from promoting such polymerization predominantly by radiation (i.e., generally noncatalytic, but comprising the thermal polymerization attributable to the restricted cooling of the radiant polymerization) from radioactive cobalt. The substantial absence of catalysts in the in situ polymerized plastic imparts outstanding attrition resistance to the top layer. The attrition resistance of the hardwood or other wooden structure is enhanced by the combination with the in situ polymerized plastic.

Because of the outstanding attrition resistance of the top layer **14**, the problem of preserving an attractive appearance for the top layer is greatly simplified, thus providing a maintenance advantage for the plastic-wood structure.

The floor tile of FIGS. **1–8** features a staggered mounting of the attrition resistant layer **14**, as shown in the top view of FIG. **2**. Thus, the principle portion of the area of the attrition resistant layer **14** is aligned with a principle area of the wafer board **13**, but the staggering exposes two boundary zones 15 and 16 which meet at a corner of the tile. At the diagonally opposite corners of the tile, there are overhanging lips 17 and 18 of the attrition resistant layer 14.

The schematic sectional view of FIG. 3 shows that the tile 10 includes the resilient sheet 11, bonded by adhesive 12 to the bottom of the single strata of wafer board 13, above which is positioned an attrition resistant layer 14 having an overhanging lip 17 which exposes boundary zones 15 of the wafer board 13.

At the factory, an adhesive 21 secures the attrition resistant layer 14 to the wafer board 13. It is sometimes desirable to provide factory application of pressure sensitive adhesive 22 to the top of boundary zone 15 and/or underneath the surface of lip 17 of attrition resistant layer 14. Alternatively, adhesive can be applied to one or both of such zones as a part of the laying of the floor tiles. By either chronology, the floor tiles are locked together by the adhesion between adjacent tiles at such overhanging portions.

As shown in FIG. 4, a room 30 has walls 31, 32, and a subflooring 33. A plurality of floor tiles 10, corresponding generally to the floor tile previously described, are laid so that the attrition resistant layers of the tiles 10 are staggered with respect to the wafer board layers. Particular attention is directed to the case of laying tiles 10 throughout the floor of a room. As a new tile is laid down, its thickness of wafer board 13 can be positioned adjacent one or more already laid tiles, and the overlapping lip 17 of the tile pressed against the boundary portions 15 of adjacent tiles. In this manner, each tile is adhered to four adjacent tiles. At the periphery of the room, where tile-trimming is ordinarily required, the resilient layers can be adhered to the subflooring, thus providing at least a partial anchoring of the entire floor system to the subflooring while still permitting most of the floor tiles to retain a controlled amount of independent vertical resiliency of a type not readily achieved when each floor tile is adhered to the subflooring.

An alternate embodiment of a rectangular floor tile is shown in FIGS. 9 and 10. A floor tile 110 comprises a resilient layer 111 and a top attrition resistant layer 114 corresponding essentially to that of the previously described tile 10. A principal thickness of the tile 110 is designated as a wafer board layer 113 comprising two strata, 151 and 152. As shown in FIG. 9, the staggering relationships amongst the attrition resistant layer 114 with respect to the upper wafer board strata 151 and lower wafer board 152 are such that tongue and groove fittings between adjacent tiles are feasible, the overhanging portion of strata 151 constituting a tongue 153 adapted to fit within a groove 154 formed between the bottom of the attrition resistant layer 114 and the top of the lower strata 152 of the wafer board layer 113. In order to achieve a convenient insertion of the tongue in the groove at the time of laying the floor, the depth of the groove 154 is less than the magnitude of the overhang of tile 10. The fact that the bottom layer 111 had adequate resiliency aids in the insertion of each of the two tongues in their respective grooves as a tile is pushed into engagement with two adjacent tiles. As shown in FIG. 10, pressure sensitive adhesive can be distributed as a film 156 along at least portions of the groove 154, whereby the tile may be shipped from the factory with the pressure sensitive adhesive factory applied, but without any protective paper thereover. It is only at the time when the floor is being laid, and the tongue is inserted in the groove that the pressure sensitive adhesive encounters a surface to which it can bond. The remote location of the pressure sensitive adhesive permits convenient handling of the tiles prior to the laying of a floor while still providing adequate bonding between adjacent tiles in the central area of the laid floor.

Various other modifications for bonding a floor tile to two boundary portions of adjacent tiles by reason of overhanging portions are possible, and the overhanging lip of tile 10 or the tongue 153 and groove 154 arrangement of tile 110 are illustrative of methods for securing the floor tiles together without relying upon the bonding between subflooring and tile or between the vertical walls of abutting tiles.

Various modifications of the invention are possible without departing from the scope of the appended claims.

We claim:

1. A floor tile consisting essentially of:

at least one strata of a wafer board panel forming a wafer board layer in which a variety of sizes of wafers of wood are oriented with sufficient variation of grain orientation to internally compensate for humidity-induced dimensional changes subsequent to the molding of the wafer board, the wafer board layer imparting dimensional stability throughout all humidity variations to which a floor is subjected, said wafer board layer constituting a major portion of the thickness of the tile, the vertical walls of the wafer board comprising significant unbonded zones whereby the contact zone between adjacent tile serves as a vent for promoting moisture equilibria between the subflooring and atmosphere and whereby floor laying is expedited by placement of such vertical walls of adjacent tiles in abutting relationship;

an attrition resistant top layer consisting of wood structure impregnated with a mixture of a fire retardant and a monomer rich precursor and in situ polymerized, said top layer being bonded to the wafer board layer throughout only most of the area of the top layer in a staggered manner to provide overhanging portions adapted for horizontal engagement with matching portions of adjacent tiles; and

a bottom layer of a molded sheet of a network of synthetic organic resinous thermoplastic filaments containing spheroidal cells of gas at superatmospheric pressure, said sheet imparting to the tile a controlled resiliency with substantially no compression set in normal usage, said sheet being bonded to the lowermost strata of the wafer board layer.

2. A rectangular floor tile consisting essentially of:

a bottom layer of a molded sheet of network of synthetic organic thermoplastic polymerized resin filaments containing cells of gas at superatmospheric pressure, said sheet imparting resiliency to the tile;

at least one layer of plastic bonded wafer board, whereby wafer board constitutes the principal thickness of the tile, said molded sheet of network of filaments being bonded to the bottom portion of the wafer board; and

a layer of wood structure impregnated with both a fire retardant and in situ polymerized polyalkylmethacrylate resin as a wear-resistant surface, said layer having substantially the same dimensions as the wafer board layer, and said wear-resistant layer overhanging two corner-meeting edges of the next lower strata of wafer board, a principal area of said wear-resistant layer being bonded to a staggered principal area of said wafer board layer.

3. In a flooring system for areas having at least one dimension of sufficient length that variations in moisture content cause troublesome dimensional changes in wooden floors, the improvement which consists of:

a plurality of interfitting tiles, each tile comprising the combination of a bottom layer consisting of a thin resilient sheet of a molded network of compressed gas cell-containing synthetic organic thermoplastic polymerized filaments, such sheet being designed for placement on a subflooring;

at least one layer of weight-supporting molded wafer board whereby wafer board constitutes the principal thickness of the tile, said layer of network of gas-filled fibers being bonded to the bottom portion of the wafer board; and

a layer of in situ polymerized impregnated wooden structure as a wear-resistant top layer, a major portion of the area of said wear-resistant layer being permanently adhered to the major portion of the area of the underlying strata of wafer board in a staggered manner whereby boundary face portions of a strata of the wafer board are exposed along two edges which meet at a corner, whereby a central tile may have overhanging-underfitting contact with four adjacent tiles.

4. A tile in accordance with claim **2** in which there are two strata of waferboard, the upper wafer board strata being staggered with respect to both the polymethacrylate-impregnated layer and the lower wafer board strata, whereby grooves are formed along two corner-meeting edges and whereby overhanging tongues are formed along the other two corner-meeting edges.

5. A tile in accordance with claim **2** in which adhesive is provided adjacent two corner-meeting edges, such adhesive being adapted to bond with overhanging portions of two adjacent tiles.

6. A tile in accordance with claim **2** in which a single strata of wafer board constitutes the principal thickness of the tile.

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