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A. ELMENDORF

2,045,382

FLEXIBLE WOOD FLOORING

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Fig. 1.

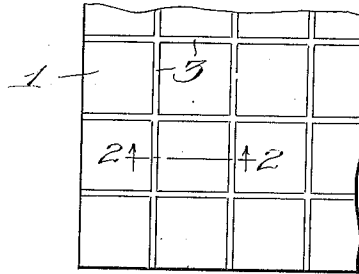


Fig. 2.

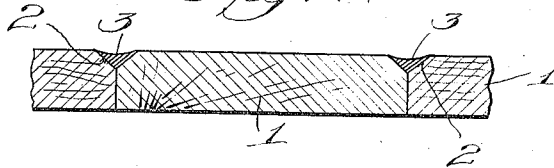


Fig. 3.

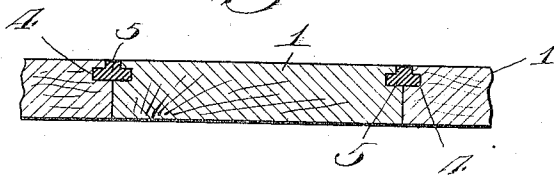


Fig. 4.

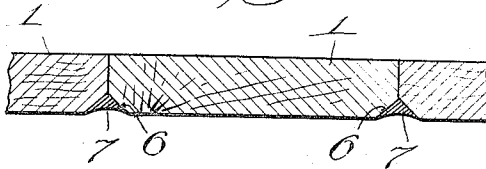
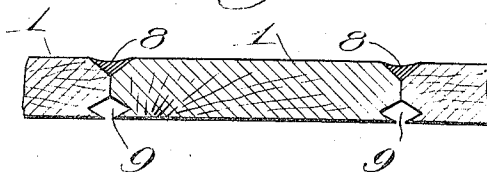


Fig. 5.



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UNITED STATES PATENT OFFICE

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FLEXIBLE WOOD FLOORING

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5 Claims. (Cl. 20—6)

The present invention relates to sheet flooring material, composed mainly of wood, which may be laid with the same ease and facility as flexible floor coverings of the linoleum type, which will conform itself to the surface contour of the underlying floor or subfloor, and which will permit expansion and contraction of the wood without the creation of bulges or the opening of objectionable cracks.

In my prior Patent No. 2,018,711, there is disclosed and claimed such a flooring, and the present invention may be said to have for its object to improve upon the flooring disclosed in that patent.

The principle on which the invention of the aforesaid patent is based is that small wooden tiles are set in a grill composed of a flexible and elastic compound which bonds itself to the wood and ties the whole together into a flexible sheet.

The tiles are separated from each other for appreciable distances, whereby the elastic compound constitutes a filling extending through the entire thickness of the sheet from one face to the other. This construction causes the sheet to be rather stiff and, although it may be rolled up for transportation, it cannot be bent or folded sharply. Furthermore, because the elastic compound extends from the upper to the lower face of the sheet, considerable care must be taken in the filling of the joints between the tiles; it being expedient first to secure the tiles to a temporary backing so as to hold them in proper spaced relation to each other while the filling operation is being performed.

The object of the present invention is to produce an improved flooring material of the type just described, which will be free from the objections above noted; which can be more easily manufactured; and which will be much more flexible so far as the capacity to bend or fold is concerned.

In order to attain my aforesaid objects, I employ a grill which is quite thin compared to the thickness of the flooring sheet or panel, and place this grill adjacent to one of the broad faces of the flooring. The elements of the grill thus serve as flexible hinge members located close to the plane of corresponding broad faces of adjacent tiles, and permit the material to be folded back upon itself or be rolled up on a small radius without injury to the grill. Since the grill is, in effect, simply set or sunk into one face of the sheet or panel, the tiles need only be so shaped that when they are placed in edge contact with each other a system of interconnected grooves is produced in

one face of the flooring. Then, by holding an assembly of tiles in edge contact with each other, with the grooved face of the assembly up, the plastic compound can be applied by simply depositing it on top of the assembly and scraping off the excess after the grooves have been filled.

The thin grill structure may be either in the upper or lower face of the sheet. One advantage of having the grill in the upper face is that with this arrangement the joints between the tiles are sealed against the entry of foreign matter from above; and another advantage is that the meeting edges of the tiles adjacent to the bottom face of the flooring may be shaped to provide a second system of interconnected grooves into which may enter plastic material serving to bond the flooring to a subfloor, and whereby additional holding means is provided to prevent individual tiles from being displaced upwardly out of the plane of the remainder of the flooring.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a top plan view of a fragment of a flooring sheet or panel embodying the present invention; Fig. 2 is a section on a larger scale on line 2—2 of Fig. 1; Fig. 3 is a view similar to Fig. 2, showing a modification; Fig. 4 is a view similar to Fig. 2, in which the grill is set in the underface of the flooring instead of in the upper or wearing face as in Figs. 1—3; and Fig. 5 is a view similar to Figs. 2—4, showing the grill in the upper face of the flooring, and a system of grooves in the underface for receiving material to key the flooring to a subfloor.

Referring to Figs. 1 and 2 of the drawing, 1, 1 represent tiles of wood, of any desired sizes and shapes, placed edge to edge in contact with each other. The tiles are, however, preferably from a quarter of an inch to three-eighths of an inch thick, and preferably have edge lengths of from one inch up to several inches, depending upon the kind of wood and the thickness of the tiles. In the arrangement shown, each tile is square and has all four of its edges, adjacent to the upper face, bevelled as indicated at 2. Thus, when numerous tiles are placed edge to edge, in transverse and longitudinal rows, a system of connected V-shaped grooves or channels appears in the upper face of the assembly. By filling 55

these grooves or channels with a suitable plastic material, a grill 3 is formed that holds all of the tiles together. This grill must be of a material which, when set, is elastic and is bonded to the wood. Plastic compounds, such as asphalt, which gradually yield under stress, and compounds that become hard and non-elastic do not meet the requirements of a compound suitable for the grill. Materials suitable for the grills are some of the rubber latex compounds which produce grills that are adequately bonded to the tiles, are sufficiently elastic to permit the flooring to be flexed, and are strong and tough enough to prevent the tiles from being displaced relatively to each other out of their common plane when not otherwise held. I prefer to employ rubber latex compounds containing ingredients that give to the compounds the property of being self-vulcanizing.

The grooves in the construction just described are triangular or V-shaped in cross section, their width being considerably greater than their depth. In setting, the latex compound shrinks. Therefore, if the grooves are simply filled with the plastic compound and the compound be then allowed to set, the bars of the grill have concave or trough-shaped upper faces which, at the longitudinal centers thereof, are depressed considerably below the upper surface of the flooring. In this way I am able to obtain what are in effect relatively wide, thin, connecting strips between adjacent tiles which, however, are bonded to each tile over a large area, constituting an entire side of the corresponding V-groove. Also, while the thickness of each strip at the longitudinal center is sufficient to hold the adjacent tiles against relative upward or downward displacement, each strip is thin and flexible enough to serve as an efficient hinge that will permit one tile to be swung back and laid down on top of the adjacent tile. The considerable width of each strip or bar affords the further advantage of permitting considerable stretching in the plane of the flooring; so that, in the laying of the flooring, if adjacent strips or sheets fail to meet the small points, one or both may easily be stretched to close the gap.

It will of course be understood that although in the drawing I have illustrated only square tiles, the tiles may be of any desired shape or shapes. However, when the shapes of the tiles and their dispositions are such that the grill contains parallel bars extending entirely across one dimension, the width, for example, of a sheet or panel, the sheet or panel may be rolled up into a compact cylinder for transportation and handling; and, also, where the grill includes bars that extend parallel with each other and with one edge of the sheet or panel entirely across the latter, the sheet or panel is in effect composed of numerous sections hinged together for free swinging movements relatively to each other.

The flooring may be laid directly on a subfloor of wood, concrete or other material although usually a layer of felt or the like is interposed between the flooring and the underlying subfloor.

Whereas, in Fig. 2 the grooves, and consequently the bars of the grill are triangular in cross section, in Fig. 3 the grooves 4 in the edges of the tiles produce T-shaped grooves and T-shaped grill bars 5 in the assembly. These bars are stiffer and do not afford quite as free hinge action as do the bars in Fig. 2.

In Fig. 4 the construction is like that of Fig. 2 except that the grooves 6 are at the bottom faces of the tiles, so that the grill 7 is concealed by the tiles after the flooring has been laid.

In Fig. 5 there is a grill 8 in the upper side of the flooring and, in the underside of the assembly are grooves 9 of a more or less diamond shape; these latter grooves being adapted to receive and hold a plastic material which, when set, keys the flooring to the underlying subfloor 10 or other support. In laying this form of flooring, any suitable plastic material which will take a set and adhere to the underlying supporting surface may be introduced into the grooves 9. Then, upon laying the flooring down, some of this compound oozes out of the grooves and adheres to the support. When this plastic material becomes set, the flooring is held down thereby and assistance is given to the elastic grill in holding the individual tiles against relative displacement in the vertical direction.

While I have illustrated and described with particularity only a single preferred form of my invention, with a few modifications, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the definitions of my invention constituting the appended claims.

I claim:

1. As an article of manufacture, a flooring panel flexible as a whole and adapted to be laid on a floor base, and comprising: straight edged tiles arranged with the edges of adjacent tiles in contact with each other, said contacting edges being provided at one face of the panel with recesses, and an elastic medium adhering to the walls of said recesses, said elastic medium forming the sole uniting means between said tiles.

2. As an article of manufacture, a flooring panel flexible as a whole and adapted to be laid on a floor base, and comprising: straight edged tiles arranged with the edges of adjacent tiles in contact with each other, said contacting edges being provided at one face of the panel with recesses, and an elastic medium filling said recesses and adhering to the walls thereof, said elastic medium forming the sole uniting means between said tiles.

3. As an article of manufacture, a flooring panel flexible as a whole and adapted to be laid on a floor base, and comprising: pieces of wood arranged with their edges in contact with each other and producing a series of parallel joints disposed in straight lines extending across the panel, said contacting edges being provided at one face of the panel with recesses, and an elastic medium adhering to the walls of said recesses and hingedly uniting said pieces, said elastic medium forming the sole uniting means between said pieces.

4. As an article of manufacture, a flooring panel flexible as a whole and adapted to be laid on a floor base, and comprising: rectangular wooden tiles arranged with the edges of adjacent tiles in contact with each other, said contacting edges being provided at one face of the panel with recesses, and an elastic medium adhering to the walls of said recesses and hingedly uniting said tiles, said elastic medium forming the sole uniting means between said tiles.

5. As an article of manufacture, a flooring panel flexible as a whole and adapted to be laid on a floor base, and comprising: rectangular

wooden tiles arranged with the edges of adjacent tiles in contact with each other, said contacting edges being provided at one face of the panel with recesses forming a system of interconnected shallow grooves some of which are
5 parallel to each other and extend across the

panel, and an elastic medium in said recesses adhering to the walls thereof and hingedly uniting said tiles, said elastic medium forming the sole uniting means between said tiles.

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