PUBLISHED
APRIL 27, 1943.
BY A. P. C.

L. MALZER

PARQUETRY FLOORING

Filed April 1, 1940

Serial No.
327,119

2 Sheets-Sheet 1

Fig. 1.

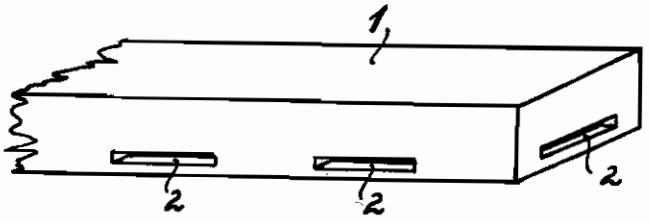


Fig. 2.

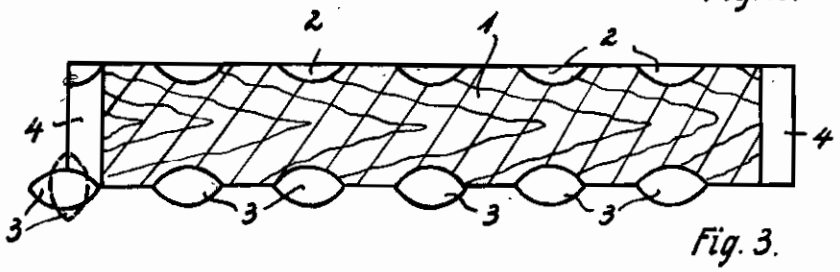


Fig. 3.

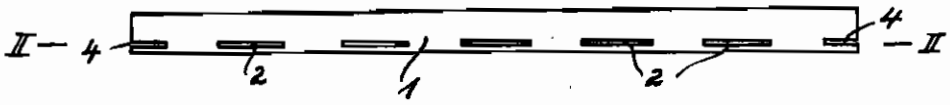


Fig. 4.

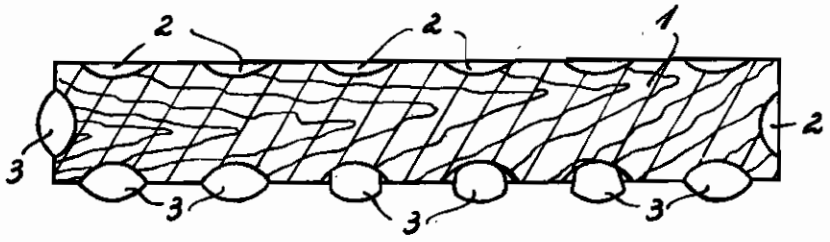
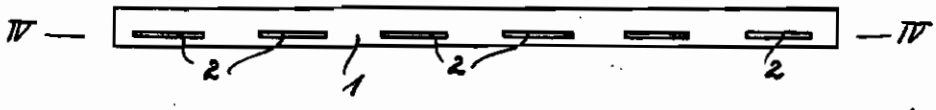


Fig. 5.



Inventor
LORENZ MALZER

By

Attorney

PUBLISHED
APRIL 27, 1943.
BY A. P. C.

L. MALZER
PARQUETRY FLOORING
Filed April 1, 1940

Serial No.
327,119
2 Sheets-Sheet 2

Fig. 6.

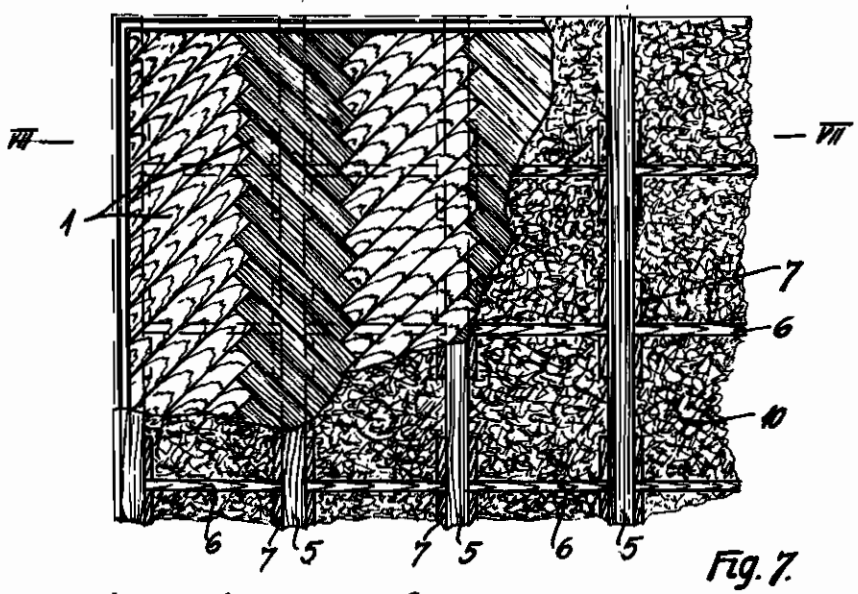


Fig. 7.

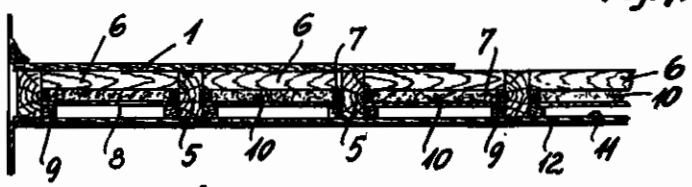


Fig. 8.

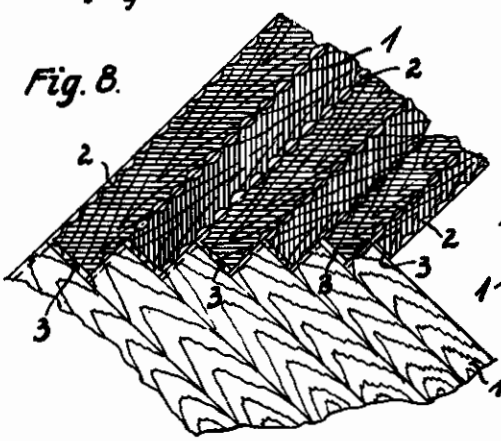
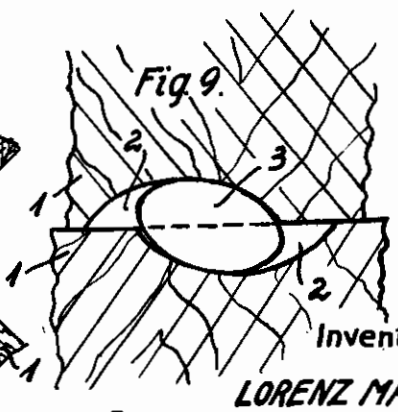


Fig. 9.



Inventor
LORENZ MALZER
By
Attorney

Published Apr. 27, 1943 Serial No. 327,119

ALIEN PROPERTY CUSTODIAN

PARQUET SYSTEM

Lorenz Malzer, Frankfurt (Main), Germany;
vested in the Alien Property Custodian

Application filed April 1, 1940

The invention refers to strips for parquet or inlaid floors connected crosswise by disconnected grooves on their lateral as well as end faces, which are arranged in such a manner that, with a comparatively low height, in other words with a comparatively limited thickness of the various strips, a comparatively high thickness for wearing results, without causing, as a result of the comparatively short distance of the joint-grooves from the lower edge of a strip, the danger of the lower side portion of the grooves breaking off. In comparison with the inlaid floor strip commonly used the strip according to the invention having the same thickness of wearing surface may be manufactured with a total thickness of one third less, which results in a considerable saving of material. In other words, this invention deals with a strip for inlaid floors with part-way cross joints, which is specially characterized in that the thickness of the upper side portion of the grooves which is formed by several grooves in the shape of a circular arc separated by intermediate material, is several times that of the lower side portion of the grooves and that the intermediate material between the successive grooves is only wide enough to insure a sufficiently large surface of interengagements between grooves and projections engaging into same, to keep the lower side portions from breaking off.

The strips for inlaid floors in use at the present time, usually in a thickness of 16 mms are provided with a through-going cut groove in a distance of about 7 mms from the upper edge of the strip. Joining or other strips will fit into this cut groove. The wearing thickness in this case amounts to less than 7 mms. To place the through-going groove at the lower edge of the strip is impossible on account of the impending danger of the lower side portions of the grooves breaking off.

However, the joints of the strips according to the invention are arranged in such a manner that the connecting grooves provided for on the end and lateral faces do not go all the way through, but are arranged with spaces between them. The connecting grooves are therefore individual cuts separated from each other by the intermediate material. In spite of the comparatively short distance of the grooves from the lower edge of the strip the lower side portion of the groove will not break off because sufficient material remains between the various rectangular holes.

Compared to the floor strips with grooves and keys running all the way which are commonly used, the following advantages are obtained: If the thickness of the material is the same a greater resistance against wear is at disposal; or, the thickness of the wearing surface being the same, the strips may be made of a considerably thinner material. The results are the following: The thickness of the flooring in general is decreased which means, keeping the originally planned height of the rooms, a reduction of the total height of the building, if a building of several stories was planned. The decreased weight of the flooring permits a lighter construction of the ceiling supports and above all a saving of wood on the inlaid floor proper. Contrary to the commonly used construction method of grooves and keys, which may cause the lower side portion of the grooves to break off and also cause the keys to break in the direction of the grain of the wood, because the grooves and keys are forced to bend as they run in the same direction as the natural grain of the wood, the joints in accordance with the invention follow in no case the natural grain of the wood. Therefore, if joints according to the invention are used, the lower side portions of the strips and the keys cannot break in the direction of the grain. Hereby and also by leaving a certain amount of material at the edges of the strips between the grooves and by using short appropriately shaped keys—made of wood or a composition material on a base of phenol, urea, casein or wood, with the joints according to the invention, a bending-, inpact-, notching-, tensile- and compressive strength of the inlaid floor joints is attained, that the strips may be placed on the timberwork without using a false bottom or other supporting frames. This may also be done with the patterns deviating from the so-called boat flooring and without having the end faces of the strips rest on supporting members or resilient supports or be fastened to same. This decreases the height of the flooring in general and with buildings of several stories the total height of the buildings (namely by the height of the false bottom) and causes a saving of material (namely the material used for the false floors).

The invention will be better understood by reference to the following detailed description in connection with the accompanying drawing showing by way of example and purely schematically some embodiments of the invention and in which:

Fig. 1 is a perspective view showing a strip of inlaid floor having the invention applied thereto.

Fig. 2 is a section on line II—II of Fig. 3.

Fig. 3 is a side elevation of a similar strip as Fig. 1.

Fig. 4 is a section on line IV—IV of Fig. 5, showing a modification.

Fig. 5 is a side elevation of the modification shown in Fig. 4.

Fig. 6 is a plan view of parquet or inlaid floor, with the wooden strips partly removed to show the substructure.

Fig. 7 is a section on line VII—VII of Fig. 6.

Fig. 8 is a plan view, partly in section, showing the connection between adjacent strips of varying width and

Fig. 9 is an enlarged fragmentary section illustrating a detail.

Similar reference numerals denote similar parts in the different views.

The strips for the inlaid floor 1, made entirely of hard-wood (oak) or of a base plate of soft wood and a cover of veneer or such of finer wood, are provided with curved recesses or grooves 2 instead of longitudinal grooves on their lateral faces (see Fig. 1). As will be seen from Figs. 2 and 4 these recesses or grooves 2 may be made by a vertical cutter producing circular segment shaped recesses. The grooves 2 are arranged contiguously with varying space between them. The keys 3 fitting in the grooves 2 are in the shape of elliptical paraboloids, the parabolae of same being of the same size and shape as the circular segments of the grooves 2. The corners of the keys 3 may be cut off, as demonstrated on two keys of Fig. 4. These keys 3 join several of the strips 1 in an almost jointless integral. The grooves 2 which may be of any desired shape, square, oval or elliptical, but for reasons of efficacy may taper down, are comparatively narrow. Practically a height of 2 mms is sufficient. They are placed in a short distance from the lower edge of the strip 1. A distance of from 3 to 4 mms from the lower edge will generally be sufficient. Nevertheless it is practically impossible for the portion between the groove 2 and the lower edge of the strip 1 to break off, even if submitted to heavy stress, taking of course for granted that the use is normal, because, as can be seen from the plan and longitudinal views, there is enough solid original material between the various grooves 2, which increases parabolically from the farthest points of two neighbouring grooves 2 and therefore does not follow the direction of the grain. If the grooves 2 are not made too large, breakage is impossible. Also the keys 3 of elliptical shape have at no point the same direction as the grain of the wood and under normal circumstances cannot break. The notching strength of the elliptical keys 3 is the same, as if the keys were rectangular and extended the whole length of the strip. In place of wood any other suitable material, such as, a composition or laminated material or press material of wood, cellulose, phenol or a similar product may be used for the keys, as these synthetic materials are considered to have better properties than wood. Therefore by using keys made of a composition or synthetic material, the strength of the joints may be materially increased.

Taking 6 mms as the total of the distance between the groove 2 and the lower edge of the strip 1 and for the height of the grooves 2, which is practically entirely sufficient, and 12 mms as the distance from the groove 2 to the upper edge of the strip 1, a material thickness of the entire floor strip of 18 mms results. Of this thickness almost 12 mm can be considered as available for wear, but the joint in its entirety does not lose its solidity. Experience has shown that the floor strips with grooves and keys from end to end must have a thickness of 24 mms if a wearing thickness of 12 mms is expected, because for the joint including the lower side portion of the strip a height of at least 12 mms is required. With the exception of the so-called boat flooring these floor strips with grooves and keys from end to end must be, as is known from experience, laid on a false bottom. This false bottom must have a thickness of from 12 to 24 mms, if the same solidity as that of a joint constructed according to the invention is desired. Once the upper side portion of the strip with grooves and keys from end to end is worn to almost the upper edge of the longitudinal groove, the key and the lower portion of the strip together do not have sufficient strength. With a floor joint of this kind the false bottom is required to carry the main load. By joining the strips according to the invention by disconnected grooves 2 and correspondingly short keys 3, preferably of parabolical-elliptical shape, there remains enough original material between the grooves 2 and also the keys 3 to guarantee under the worst wearing conditions sufficient compressive bending- and impact bending strength, even if the strip has been worn to almost the upper edge of the groove 2. A false bottom or any other base underneath the joints according to the invention is therefore not required. Besides that, by joining the strips according to the invention, a multitude of individual pressure carrying centres is created, which as a whole increases the solidity of the floor. In case an individual key 3 or a groove 2 should be destroyed by abnormal happenings, the joint as a whole cannot be loosened, as would happen to a joint with grooves and keys from end to end. The multitude of such pressure carrying centres gives to the joint in its entirety a closer, almost homogeneous connection, which assures greater strength.

Referring now to Figs. 6 and 7, it will be seen that a false bottom is not being used, the various floor strips resting directly on the mainbeam on one side and on the other side on transverse braces 6 which again rest on blocks 7 fastened to the main beam. To make a complete picture, the intermediate ceiling 8 with beam braces 9, fill 10, ceiling cober 11 and plaster 12 are shown in Figs. 6 and 7.

Fig. 8 explains figuratively the employment of floor strips 1 of a different width. The cut grooves 2 of the strips of a different width do not lie across from each other, but are staggered. This makes it possible to fit the keys 3 into the cut grooves 2 in spite of the different width of the floor strips 1. This however is only possible due to the elliptical shape of the keys 3, according to the invention. The keys 3 will line up corresponding to the counter-set or staggered position of the grooves 2 contacting each other. Fig. 9 shows schematically on an enlarged scale how a key 3 lines up.

The cut grooves 2 and the keys 3 may be arranged, as is shown in Figs. 2 and 3, on the end faces 4 of the strips in such a manner that a through-going groove of the height and depth of a cut groove 2 is provided which makes it possible that either the front or the lateral faces of the adjacent strips may be joined to the end faces 4 of the strips 1 by placing the keys 3 wherever they are required. It is also possible, as is shown in Figs. 4 and 5, to provide the front faces 4 of the strips 1 with a cut groove 2 and a key 3 each of the same kind as are provided on the lateral faces of the strips 1.

The method and apparatus of the present invention have been described in detail with reference to specific embodiments. It is to be understood, however, that the invention is not limited by such specific reference but is broader in scope and capable of other embodiments than those specifically described and illustrated in the drawing.

LORENZ MALZER.