Jan. 7, 1941. K. E. CROOKS 2,227,878

FLOORING

Filed April 14, 1938

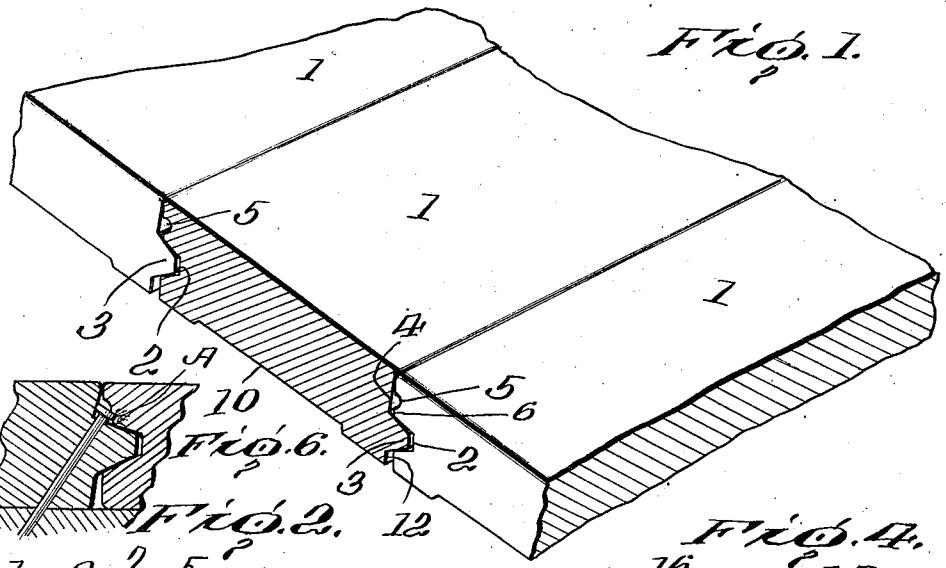


FIG. 1.

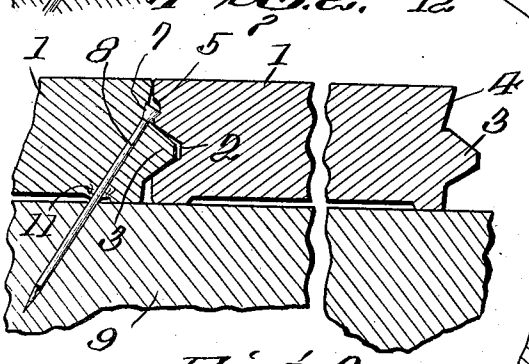


FIG. 2.

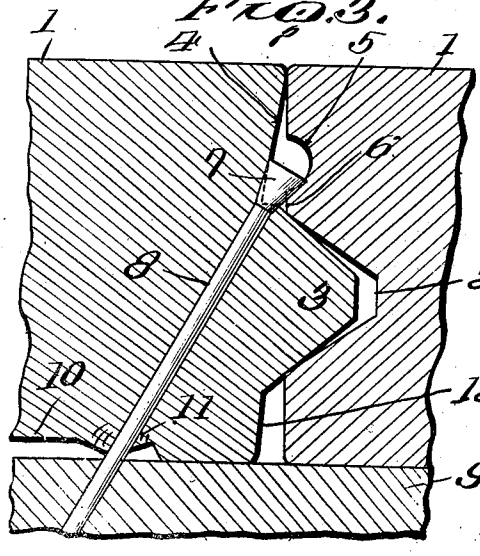


FIG. 3.

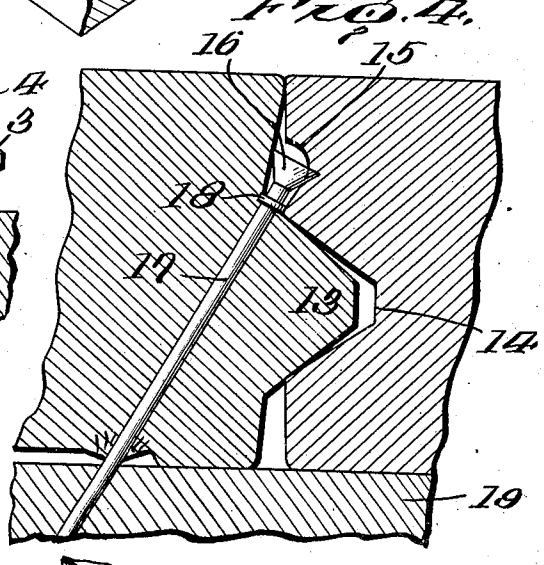


FIG. 4.

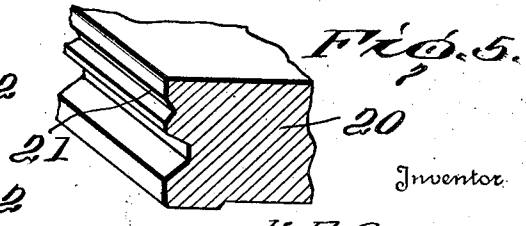


FIG. 5.

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FLOORING

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10 Claims. (Cl. 20—8)

This invention relates to certain new and useful improvements in flooring and is an improvement on the construction of flooring disclosed in my Patent No. 2,008,244, dated July 16, 1935, the object being to provide a floor which can be secured in position on the sub-floor or base by blind-nailing without setting the nail heads, thereby overcoming the difficulties now existing and facilitating the laying of a floor.

Another object of my invention is to utilize the usual nail heads for holding the upper lip of the groove edge of the flooring flush with the tongue edge, thereby overcoming the difficulties now existing in flooring caused by the shrinkage of the flooring.

Another object of my invention is to so construct a floor that the nails not only secure the tongue edge of the sections to the base or sub-floor, but also secure the groove edge of the section to the base or sub-floor whereby a floor is produced in which the sections are secured by blind nailing along both edges, thereby overcoming the difficulties now existing of relying on the tongue edge to hold the groove edge in proper position.

Prior to my invention no means had been devised for holding both edges of flooring sections to the sub-floor so as to prevent the groove edge from rising when shrinking. In the art of laying flooring prior to my invention the flooring section was secured at the tongue edge and relied on the tongue in holding the groove edge flush with the tongue edge, while with my invention additional means is provided for holding the lip of the groove edge above the tongue in its proper position so that the upper surfaces of the sections where they join one another will be maintained flush with one another.

In the art of laying hard flooring, it is necessary that the nails be set or otherwise the interlocking sections forming the flooring will not be allowed to be drawn up in contact with one another and it has been found in practice that the carpenter laying the flooring often neglects to set some of the nails and when nails engage the groove of the flooring, they either split the flooring or prevent the flooring from being drawn tightly in contact with the adjacent strip.

I have found that by providing a nail receiving groove and using a nail with a head, the head of the nail extends over the lip formed by the groove so that the lip of the groove edge is held in its proper position and I am able to lay flooring very cheaply as it has been proven in practice that substantially the same time is consumed in setting the nail as in driving the same.

The construction herein shown and described provides a novel form of self-leveling flooring which has many advantages over prior constructions of flooring and enables the flooring to be laid quickly, cheaply and evenly.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawing,

Figure 1 is a perspective view of a portion of a floor constructed in accordance with my invention;

Figure 2 is a section of flooring strips showing the same secured in position on a sub-floor in accordance with my invention;

Figure 3 is an enlarged section showing the position of the nail within the nail receiving groove;

Figure 4 is a similar view showing the use of a double headed nail;

Figure 5 is a detail perspective view showing a slightly modified form of nail receiving groove; and

Figure 6 is a detail section showing the use of an ordinary type of nail with its head unset and the lip A fractured when the interlocking edges are brought together.

In the embodiment of my invention as shown in Figures 1, 2 and 3, I form along one edge of a section 1 herein shown in the form of a strip, a V-shaped groove 2 and along another edge a V-shaped tongue 3, the apex of the tongues being cut off so that a tongue is formed with converging inclined faces in order to obtain a wedging action between the adjacent sections. The portion of the material from which the section is made above the tongue edge is cut at an angle to the vertical as shown at 4 to reduce the area of contacting surfaces between the abutting edges of the sections and while I have only shown one edge cut off, it is, of course, understood that one or both edges can be cut off without departing from the spirit of my invention.

The vertical portion above the groove of the section is provided with a longitudinally disposed groove 5 which forms a lip 6 and this groove is adapted to receive the head 7 of a nail 8 when driven obliquely through the tongue edge of the section, said nail entering the sub-floor 9 as clearly shown. The section herein shown is hollow-back formation as shown at 10 which provides means to receive the splinter portion 11

of the strip in order that it will rest evenly on the sub-floor or base.

The lower portion of the material from which the section is formed below the tongue edge is cut away as shown at 12 leaving a clearance between adjacent strips below the tongues and grooves and these cut away portions are preferably rounded.

In laying a flooring in accordance with my invention, the sections are secured in position by blind nailing through the tongue edge as clearly shown and I preferably employ nails with conical heads 7 and instead of setting these nails, I allow the heads to project above the tongue as the conical head provides a sharp cutting edge when the sections are driven up into contact with one another, the head 7 of the nail entering the groove and slightly embedding itself in the wall thereof. It is, of course, understood that I do not wish to limit myself to the particular shape of the head of the nail, although I have found in practice that a conical nail has many advantages over other shaped heads as my invention consists in forming a section of flooring with a groove edge having nail head receiving grooves which receives the unset nail so as to prevent the upper portion of the grooved edge of the section from rising above the tongue edge. It will be noted that in the form of groove herein shown a lip 6 is provided which lies under the head of the nail for this purpose.

It will be apparent that when the tongue edge is secured to a sub-floor by blind nailing, the grooved edge can be forced into engagement with the tongue edge without the head of the nail interfering with the forming of a close contact between the upper portions of the strip and the faces thereof so that when a series of sections are secured together to form a floor, both edges of the sections will be secured to the sub-floor by blind nailing in order to hold these sections closely in contact with one another and to compensate for shrinkage and swelling of the strips by change of atmospheric conditions.

In the modification shown in Figure 4, the sections are constructed in substantially the same manner as disclosed in Figures 1, 2 and 3, each section being provided with a tongue 13 along one edge and a groove 14 along its opposite edge, said tongues and grooves being substantially V-shape in cross section, the groove edge being provided with a nail receiving groove 15 to receive the head 16 of a double headed nail 17, the nail being provided with an annular shoulder forming an auxiliary head 18 which engages the upper inclined face of the tongue in order to hold it in proper position on the sub-floor 19. In this form the nail receiving groove 15 is slightly modified and the conical head 16 of the nail is adapted to embed itself in the wall of the groove and as in the two forms thus described conical heads are used which provide knife edges, these heads readily embed themselves slightly into the walls of the groove in order to hold the lip of the groove edge of the section in its proper position.

In the modification shown in Figure 5, the section 20 is provided with a substantially V-shaped groove along one edge and a substantially V-shaped tongue along the other edge, not shown, the groove edge having a substantially V-shaped nail receiving groove 21 and while I have shown several forms of grooves, I wish it to be clearly understood that the configuration of these grooves can be formed to conform to the shape of the head of the nail being used in securing the flooring sections to the sub-floor and therefore I do not wish to limit myself to any particular shape of nail receiving groove so long as it will receive the head of an unset nail and hold the lip of the grooved edge.

While in the drawing and specification I have described flooring formed of strip flooring, I wish it to be clearly understood that I do not wish to limit myself to the use of my improved invention to strip flooring as the same can be used in connection with block flooring and it can also be used in flooring laid in mastic as clearly described in my above referred to patent.

In the construction as shown in Figure 6, an ordinary type of nail is used in securing the flooring sections to the sub-floor and in blind nailing flooring to a sub-floor, a great many of the nails are not set by the carpenter laying the flooring and with the ordinary type of flooring, the head prevents the flooring sections from being drawn tightly in contact with one another while with my construction of flooring with a groove formed in the manner shown, the lip A will fracture if the nail head is unset so as to allow the sections to be drawn tightly against one another thereby overcoming the difficulties now existing in laying flooring as it has been found in practice that the ordinary carpenter is not careful in setting all of the nails which causes cracks to be left between the interlocking sections.

It will also be seen that irrespective of the shape of the nail head that when a nail is driven through a section of flooring into the sub-floor and the head is not set, that when the adjacent section is brought into contact with the previously secured section, that if the nail has not been properly positioned in driving the same, that the lip 6 formed by the groove 5 will fracture when the two sections are driven together in order to allow these sections to be brought into their proper position in contact with one another. This not only improves the method of laying flooring but also enables the flooring to be laid without setting the heads of the nails, which requires substantially the same time as driving the same, and also provides a construction which does not interfere with placing the sections in close contact with one another; and when said sections are placed in abutment with one another, both edges of the strips are held to the sub-floor.

What I claim is:

1. A floor structure comprising a base, a sectional floor arranged on said base composed of a plurality of sections arranged in contact with one another, said sections being secured to said base by blind nailing one edge thereof, the other edge of said sections being provided with a groove to receive the heads of the nails of the adjacent section and being in interlocked engagement therewith for securing said edge to the base.

2. A floor structure comprising a base, a sectional floor arranged on said base composed of a plurality of sections arranged in contact with one another, said sections being secured to said base by blind nailing one edge thereof with double headed nails, one head engaging said edge the other edge of said section being provided with a groove to receive the other heads of the nails and having an interlocking engagement therewith for securing said edge to the base.

3. A self-leveling floor structure comprising a base, a sectional floor arranged on said base composed of a plurality of sections arranged in contact with one another, said sections being inter-

locked together by tongues and grooves formed with inclined faces of a width less than the thickness of the section, a portion of the walls of said tongues and grooves being normally in contact with one another to produce a wedging action between said sections, the portion of the tongue edge of said section above the tongue being cut at an angle to the vertical to reduce the area of contact between said sections above the tongues and grooves, the portion of the groove edge of said section above the groove being provided with a nail head receiving groove, a clearance being formed between the edges of said sections below said tongues and grooves to allow said sections to move in respect to one another and nails extending through said tongues into said base having the heads seated in said grooves and having an interlocking engagement therewith.

4. A self-leveling floor structure comprising a base, a sectional floor arranged on said base composed of a plurality of sections arranged in contact with one another, said sections being interlocked together by tongues and grooves formed with inclined faces of a width less than the thickness of the section, a portion of the walls of said tongues and grooves being normally in contact with one another to produce a wedging action between said sections, the portion of the tongue edge of said section above the tongue being cut at an angle to the vertical to reduce the area of contact between said sections above the tongues and grooves, the portion of the groove edge of said section above the groove being provided with a nail head receiving groove, a clearance being formed between the edges of said sections below said tongues and grooves to allow said sections to move in respect to one another and nails extending through said tongues into said base having the heads seated in said grooves and their edges embedded in the walls of said grooves.

5. A self-leveling flooring formed of a plurality of sections having interlocking tongues and grooves substantially V-shape in cross section of a width less than the thickness of said members, said sections being adapted to be secured to a sub-floor by blind nailing without setting the heads of the nails, the groove edges of said sections being provided with nail receiving grooves to receive the heads of said nails and having an interlocking engagement therewith.

6. A self-leveling floor structure comprising a base, a sectional flooring arranged on said base composed of a plurality of sections interlocked together by tongues and grooves, said sections being secured to said base by blind-nailing with nails having conical heads, the groove edge of said sections being provided with nail receiving grooves to receive the heads of said nails and having an interlocking engagement therewith.

7. A self-leveling floor structure comprising a base, a sectional floor arranged on said base composed of a plurality of sections arranged in contact with one another, said sections being interlocked together by tongues and grooves formed with inclined faces of a width less than the thickness of the sections, said sections being secured to said base by blind nailing, the edge of the section provided with a groove having a nail receiving groove to form a lip which is adapted to lie under the head of the nails to prevent the groove edge of the flooring from rising above the surface of the tongue edge.

8. A self-leveling floor structure comprising a base having a sectional floor arranged on said base composed of a plurality of sections interlocked together by tongues and grooves, said sections being secured to said base by double headed nails extending through the tongue edge of said sections into said base and the groove edge of said section being provided with nail receiving grooves to receive the heads of said nails, one head engaging the tongue and the other head having an interlocking engagement with the groove.

9. A floor structure composed of a plurality of floor sections interlocked together by tongues and grooves and adapted to be secured to a base by unset blind nailing passing through the tongue edge of said section, the groove edge of said section being provided with nail receiving grooves to receive the heads of said nails and having an interlocking engagement therewith.

10. A floor structure comprising a sub-floor, a sectional floor arranged thereon and secured to said sub-floor by unset blind nailing, the sections of said floor being interlocked together by tongues and grooves, the groove edges of said sections being provided with nail receiving grooves to receive the heads of said nails and having an interlocking engagement therewith for securing said edges to the sub-floor.

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