

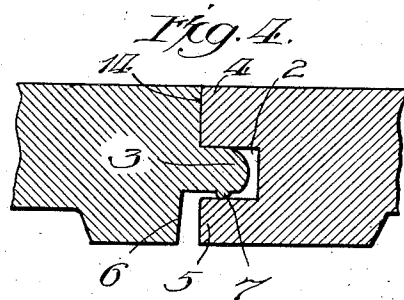
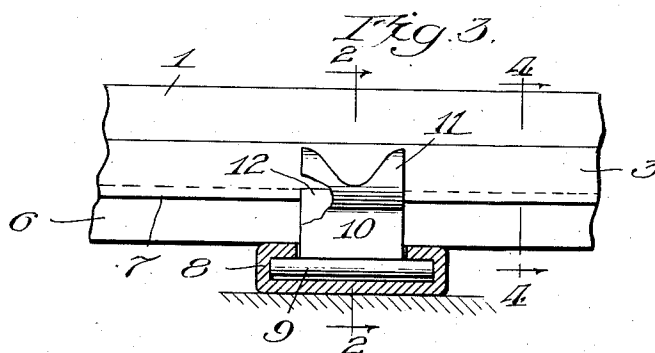
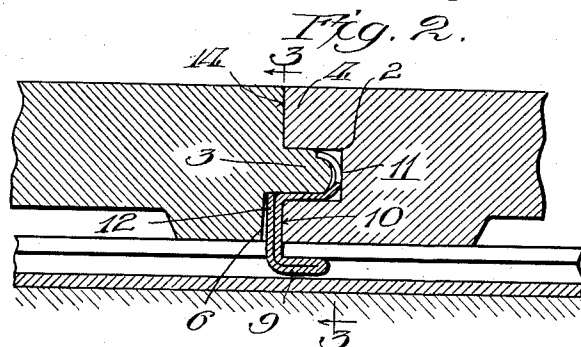
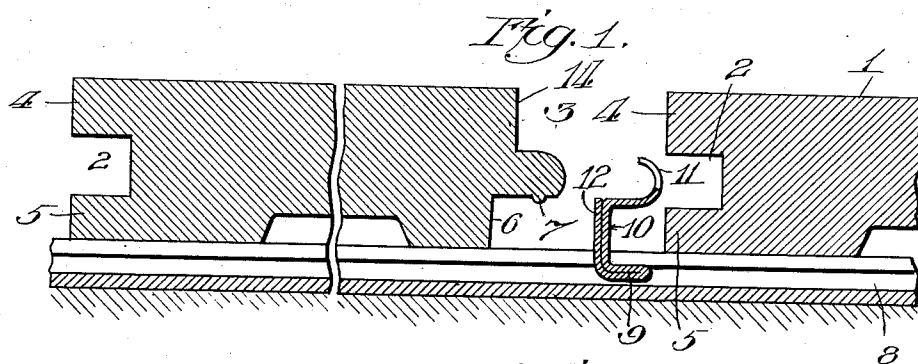
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BOARD OF THE TONGUE AND GROOVE TYPE

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BOARD OF THE TONGUE AND GROOVE
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8 Claims. (Cl. 20—8)

The most satisfactory type of wooden floor is that in which the boards are provided with tongues and grooves by means of which they are interlocked when engaged edge to edge with the tongue of each board entered in the groove of an adjacent board. In the better grades of flooring care is taken to make the tongues a tight fit in the grooves. For example, when two such boards are fitted together and one of them is grasped and lifted, the other board will also be lifted because of being held by the grip of the lips or flanges on the tongue interposed between the same. This construction insures that after a floor has been laid each board is supported by and in turn supports the two boards on opposite sides thereof, so that no board can be pressed down below the plane of the top of an adjacent board, nor can any board rise so as to project above the top of an adjacent board.

There has heretofore been developed a system of fastening in place and holding down floor boards of the tongue and groove type by means of metal clips partially embracing the tongues and extending downwardly to a foundation through the joints between the boards, instead of employing nails as the fastening means. In order effectively to hold the boards in place, the upper ends of the clips must be in the shape of hooks each of which extends into the groove in a board underneath the tongue and follows the tongue inwardly and upwardly until it embraces the inner or free edge of the tongue. The clips must be strong and sturdy in order properly to perform their functions and, even though they be made of sheet metal, they will be so thick that it is impracticable to employ them with standard floor boards, because there is not room for them, and also for the tongues, and in the grooves in which both the tongues and the clips must be nested. Therefore, the practice heretofore has been to cut away material from the under side of the tongues of the boards so that the tongues no longer fit tightly into the grooves of meeting boards. While this expedient provides room for the clips, it destroys one of the most valuable properties of this type of flooring construction in that in the span between adjacent clips the tongue of the one board stands clear of the lower lip below the groove in the adjacent board, and therefore the latter board is not held down by the tongue and consequently is not restrained from rising so as to cause it to project above the first board. Neither is the board on which the tongue is located supported from below by the second board, and therefore, if a heavy weight is

placed on the first of these boards in the span between two clips, that board will be pressed down below the other. This will occur, for example, if the leg of a piano or other heavy piece of furniture rests on a floor board at some point between adjacent clips. Since the tongue on that board is not supported from below, the tongue side of the board is pressed down relatively to the adjacent board into which the tongue is entered.

The object of the present invention is to make it possible effectively to lay a floor of tongued and grooved boards with the use of holding clips instead of nails or the like without loss of any of the desirable qualities or properties inherent in the old standard tongue and groove construction.

Since the standard flooring boards do not provide room for clips in the tongue and groove joints, and since the departure from standard contours that has heretofore been the expedient adopted to provide the necessary room has brought about the disadvantages to which I have referred, it is my purpose to retain, in effect, the tried and proven standard contours and yet provide room or space for the reception of the clips. Therefore, the present invention may be said to have for its object to produce a board of the tongue and groove type which will permit the tongue on one board to be held as tightly as may be desired in the groove of the meeting board so that two boards which are fitted together mutually support each other to prevent relative displacements at right angles to the planes thereof and, at the same time holding clips may be effectively engaged with the tongues without producing an open joint or otherwise destroying or diminishing the desirable qualities or properties inherent in a standard tongue and groove joint.

The only way in which a tongue can be made to fit tightly into a groove is to make it thick enough to engage with the lips on opposite sides of the groove. Also, if clips are to be placed in a tongue and groove joint so as partially to embrace the tongue, space must be provided therefor between the tongue on the one board and the lower lip on the second board. In accordance with my invention, I so construct the boards that the tongue in one will fit as tightly as may be desired in the groove of an adjacent board, the contour of the tongue being such, however, that when a clip is driven home it can cut out of the tongue a little space in which it may lie and be housed. To this end, I simply cut away from the

under side of the tongue of a standard or other board enough material to leave only a comparatively thin or narrow rib or bead. This bead need be only as high or as deep as the thickness of the metal of the clip so that, if it were not for the presence of the bead, there would be sufficient room in the groove, underneath the tongue, to hold the clip. However, the bead gives a solid bearing on the part of the tongue upon the lower or bottom lip of the adjacent board and thus obviates the looseness that would exist in the joint if the rib or bead were not present. The transverse width or thickness of the rib or bead being small, it is evident that when a clip is driven against the outer side or face thereof, particularly if the clip be so shaped as to have more or less of a shearing edge along the line of the base and perhaps throughout the depth or height of the rib or bead, the little section of the rib or bead that lies in front of the clip will be cut away by the clip. Thus, the tongue retains its support on the underlying lip on the other board, throughout the entire length of the tongue; much the greater part of the rib or bead being left intact and, where little sections have been cut away by the clips, the clips themselves take the place of the rib or bead and thus the continuity of support for the tongue is not interrupted.

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 vertical section through two of my improved boards lying upon a foundation, spaced apart from each other and there being a clip interlocked with the foundation and positioned between the two boards; Fig. 2 is a view similar to Fig. 1, showing the parts in the positions which they occupy in the completed floor, and this figure may be regarded as being a section on line 2—2 of Fig. 3; Fig. 3 is a section on line 3—3 of Fig. 2, the right-hand board in Fig. 2 being omitted; and Fig. 4 is a section on line 4—4 of Fig. 3.

Referring to the drawing, 1 represents a board having in one long edge a groove 2 and at the opposite long edge a tongue 3 adapted to fit into the groove of a similar board when the two boards are placed edge to edge. If desired, this board may be exactly like any standard board of the tongue and groove type except to the extent which I shall now describe.

Since the floor boards must be secured to an underlying foundation, the holding clips must, of course, rise from the foundation up into the joints between meeting boards. In standard floor board construction the upper lip 4 and the lower lip 5 at the grooved edge of each board abut against vertical faces above and below the tongues fitting into the grooves. In order to provide room for what may be termed the stems of the clips, I cut away a part of each board below the tongue so that, instead of having a vertical edge face in position to contact with a similar edge face on the lower lip 5 of a meeting board, there is an edge face 6 that stands clear of this lip when two boards are engaged with each other. It has, of course, been necessary to do something of this kind heretofore, although in some cases the lip 5 has been cut back, whereas in others the necessary space has been provided by cutting away more

or less material from the lower halves of both edges of each board.

In accordance with my invention, it may be said that I start with a tongue which is the standard tongue and then cut away material from the under side and across the greater part of the width of the tongue. I am not concerned, however, with the manner in which the desired contour is obtained, as long as the result is a tongue that will rest on the lower lip of a meeting board along a comparatively narrow strip extending lengthwise of the tongue, thus leaving the major portion of the under side of the tongue raised above this lip for a distance approximately equal to the thickness of the metal of the clips to be used in holding the boards down. In the arrangement shown, I have cut away enough material from the under side of the tongue to leave only a comparatively narrow rib or bead 7 set inwardly a short distance from the free edge of the tongue. As best shown in Fig. 4, this rib or bead on one of two boards fits tightly against the lower lip 5 of the second board as does also the top of the tongue against the upper lip 4 of the latter board when two boards are engaged with each other. In other words, two of my improved boards fit together just as do two ordinary or standard tongued and grooved boards, and a floor composed of my boards may therefore be laid by nailing, if desired.

In the drawing I have illustrated the manner of laying a floor composed of my improved boards. Thus, the boards are laid upon a foundation composed of shallow channel-shaped strips 8. The particular form of clip that I have shown, which, however, is intended only to be illustrative, is one made of a piece of sheet metal folded and bent to provide a foot portion 9 and a stem portion 10 of double thickness, together with an upper trough-like hook portion 11. If one free end of the plate or sheet of which the clip is made is bent up so as to lie on the front side of the clip as it approaches the tongue of a board in laying the floor and terminates at the upper end of the stem, as indicated at 12, this part of the clip constitutes an effective shearing member adapted to cut right through the comparatively thin rib or bead on the tongue when the clip is driven against the tongued edge of a board so as to cause the hook partially to embrace the tongue. The little piece of rib or bead that is cut away by the clip is pushed ahead by the clip and drops down in front of it so as to be out of the way. The face 6 on the tongued edge of the board stands far enough back so as to be out of contact with the stem of the clip. Therefore, if the little section of rib or bead that is cut away by a clip should happen to lodge in the space between the stem of the clip and the face 6, it would simply be crushed into a sufficiently flat condition so as not to interfere with the complete closing of the joint between the lip 4 and the vertical face 14 above the tongue. By setting the bead or rib back somewhat from the edge of the tongue, there is no danger that the rounded edge of the tongue will ride up on the clip to lift the bead or rib above the top of the stem of the clip when the clip engages the rib or bead; since the flat under face of the tongue outwardly from the rib or bead at this time overlies the stem of the clip and the pressure of the stem is normal to the face of the rib or bead at the base of the latter.

Heretofore I have referred to my invention as applying to boards adapted to be used as flooring.

It will, of course, be understood that the principle is the same whether a layer of boards lies horizontally or vertically or at any angle or in any angular position between the horizontal and the vertical and regardless of whether the layer of boards is to be walked upon or is to serve simply as a siding or as a ceiling or any other purpose.

While I have illustrated and described with particularity only a single preferred form of my invention, 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. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending lengthwise of the tongue.

2. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending throughout the entire length of the tongue.

3. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending lengthwise of the tongue, the over-all depth or thickness of the tongue at the bead being such that the bead fits snugly against the bottom of the groove in a similar board and the tongue fits snugly against the top of the groove in the latter board when the two boards are engaged with each other.

4. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending lengthwise of the tongue, the parts being so proportioned that when two similar boards are engaged edge to edge the tongue on one of the boards fits against the lip at the top of the groove in the second board, whereas only the bead

portion of the tongue fits against the lower lip of the second board.

5. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending throughout the entire length of the tongue, the thickness of the rib or bead being such that the rib or bead will shear readily when an object is driven against the side thereof and thus make it possible to cause a fastening clip or the like to cut away a section of the rib or bead when driven upon the tongue.

6. In combination, two tongue and groove boards fitted together edge to edge, a fastening clip extending up into the joint between the boards and partially embracing the tongue member on one of the boards, the depth of the body portion of the tongue plus the thickness of the material of the portion of the clip that underlies the tongue being equal to the width of the groove, and said tongue having on the under side adjacent to the clip longitudinal bead-like means whose depth is equal to the thickness of that part of the clip underlying the tongue.

7. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending lengthwise of the tongue, the over-all depth or thickness of the tongue at the bead being equal to the corresponding dimension of the groove, whereby the tongue on one board will be a tight fit in the groove of a similar board.

8. A board of the tongue and groove type having on the under side of the tongue a rib or bead extending lengthwise of the tongue, said rib or bead being set in a short distance from the free edge of the tongue.

FRANK W. CHERRY.