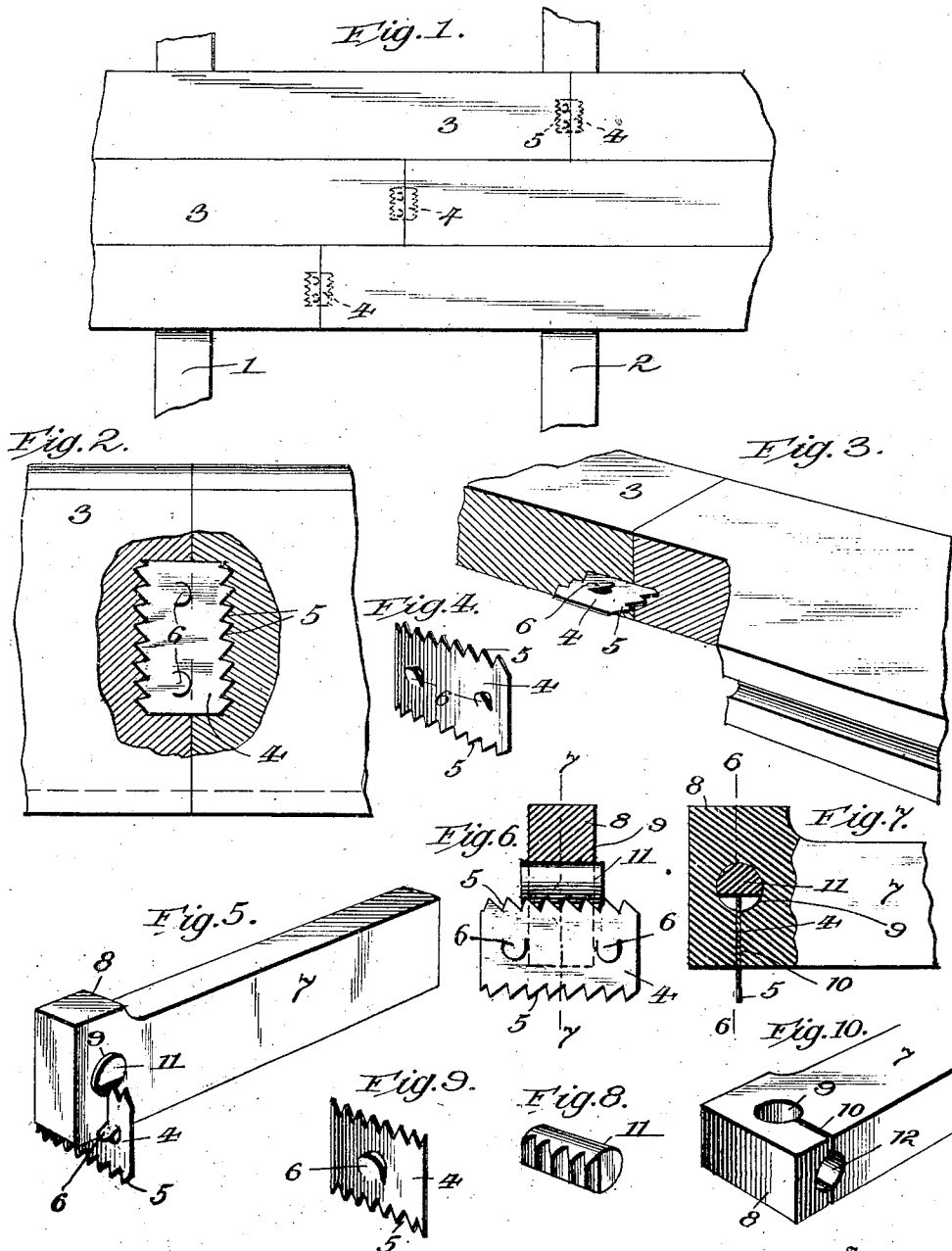


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FASTENING MEANS FOR FLOORING AND THE LIKE.
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UNITED STATES PATENT OFFICE.

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FASTENING MEANS FOR FLOORING AND THE LIKE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT M. CUNNINGHAM, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Fastening Means for Flooring and the like, of which the following is a specification.

This invention pertains to an improved fastening means for floor boards and the like. It has heretofore been proposed to tongue and groove the flooring boards along both sides and the ends thereof, in order to effect a locking engagement between the abutting ends of the boards and to thus prevent sagging or relative movement of the parts adjacent said ends. This, however, has only been successfully employed in conjunction with hard wood flooring where the grain is close and the wood is of such texture and hardness as will enable the tongue and groove to be properly formed across the grain at the end of the board. It has not been found feasible to employ such construction with pine flooring or relatively soft wood or where the grain is coarse. The inability to thus support the adjacent ends of the boards by the tongue and groove connection necessitates bringing the abutting ends of the boards together over a joist in order that such ends may be properly supported and nailed to the joist.

It has also been proposed to employ various doweling devices to secure abutting pieces of wood together, such for instance as a strip having a series of pointed prongs projecting laterally therefrom at each side, and also a double pointed dowel pin. The present invention has to do with means for securing the ends of the flooring boards, whether they be formed of hard wood or soft wood, of either close or cross grain, and to enable the boards to be used up in full length where, ordinarily, particularly in pine flooring, much of the stock goes to waste owing to the necessity of bringing the joints over the joist. Said means consists essentially of a plate-like member having teeth formed upon each of two of its oppositely disposed edges and a top stop tongue struck up out of the body.

The invention is illustrated in the annexed drawings wherein,—

Figure 1 is a top plan view of a portion of a flooring laid up in accordance with my method;

Fig. 2 is an enlarged view partly broken away showing one of the fastening devices in position between the abutting ends of two pieces of the flooring;

Fig. 3 is a sectional perspective view of two pieces of flooring;

Fig. 4 is a perspective view of one of the fastenings.

Fig. 5 is a perspective view of the tool employed to initially position the fastener in the end of the boards, one of the fasteners being shown in position in the tool;

Fig. 6 is a transverse sectional view taken on the line VI—VI of Fig. 7;

Fig. 7 is a longitudinal sectional view taken on the line VII—VII of Fig. 6;

Fig. 8 is a perspective view of the anvil employed in the tool;

Fig. 9 is a perspective view of a modified form of the fastener; and

Fig. 10 is a similar view of the tool employed in conjunction with such modified form of fastener.

Referring to the drawings 1 and 2 denote the ordinary floor joist and 3 the floor boards. Such boards are preferably formed with tongue and groove along their longitudinal exposed edges, as is customary, and the ends of each board will be cut off straight across so that they abut, as indicated in the drawings.

The fastener is formed of sheet metal stamped out and comprises a body 4, preferably oblong in form, and having upon its longer sides or edges series of teeth 5, which preferably take the form of saw teeth, that is to say, one face thereof approximates a line which is nearly at right angles to the longitudinal axis of the fastener, but the other edge is inclined. The fastener is also provided with two stop elements which take the form of tongues 6—6, struck up out of the body and approximately in line with the longitudinal axis thereof. Said fastener is adapted to be driven into the end of each of the floor boards as it is laid, and the next board to be positioned is then driven to place, the fastener passing into the board being thus driven so that the abutting ends of the boards and the fastener finally occupy the position shown in Figs. 1 to 3 inclusive.

To effect the position of the fastener in the end of the board I preferably employ a tool, such as shown in Figs. 5 to 7, inclusive, comprising a bar or handle 7, having a head 8, said head being provided with a trans-

verse cylindrical opening or bore 9 and a slot 10 extending into said cylindrical bore from one side thereof. Mounted within the bore 9 is an anvil 11 with that face which extends toward the slot serrated to conform to the teeth 5 of the fastening member 4. When it is desired to drive one of the fasteners into the end of a board the operator merely slips one of the fasteners into the tool, as indicated in Fig. 5, places the exposed toothed edge of the fastener 4 against the end of the board and through blows applied to the head 8 forces the fastener into the end of the floor board which has been previously laid. The stops or tongues 6 being slightly out-turned or standing at an inclination to the body of the fastener come to a position where they are substantially embedded in the board and the tool is then withdrawn. The next board is then positioned and driven up, the exposed teeth upon the fastener entering the board and the stops or tongues 6 preventing the fastener from being driven into the board in which it was initially positioned. These stop elements consequently cause the fastener to be equally distributed or positioned within the abutting ends of the boards. The ends of the boards are thus securely interlocked and any sagging movement of one with reference to the other is precluded notwithstanding the fact that such ends do not overlie a joist. The formation of the serrated edges in the shape of saw teeth enables the fastener to be readily driven, and what is more, such teeth upon the exposed edge of the fastener as the second board is driven to place, tend to crowd the board longitudinally and into close and intimate contact with the board lying adjacent thereto along its side. In other words the teeth tend to wedge the board sidewise.

Furthermore, as above noted, it is not essential that the joints be brought over a joist and hence the saving in flooring material is

considerable even in a floor of moderate area where under the old method of laying it was absolutely necessary in order to produce a floor in which the abutting ends of the boards would not sag or yield with reference to each other, to have the abutting joints all formed or positioned over a joist. The fastener may, of course, be employed in conjunction with boards which come to position over a joist as well as between the joist and the mere fact that the joint happens to coincide with the joist does not preclude the employment of the fastener.

It is conceivable that instead of having two stops or tongues or a plurality of stops or tongues, as 6, a single tongue may be employed, as shown in Fig. 9, and further that the teeth need not take the form of saw teeth but may be equally inclined on each face, as shown in Fig. 9. Under such arrangement, however, it is essential that the tool be provided with a counterbore, as 12, to receive the centrally disposed stop member or tongue of the fastener.

What is claimed is:

1. As a new article of manufacture, a fastener adapted to form a locking joint between abutting boards, comprising a plate-like member having teeth formed upon each of two of its oppositely disposed edges, and a stop tongue struck up out of the body at a point substantially midway between the toothed edges.

2. As a new article of manufacture for securing the ends of abutting boards together, a plate-like member having teeth formed upon each of two of its opposite edges and a pair of tongues struck up out of said plate-like member in a line substantially equidistant from the toothed edges of the plate.

In testimony whereof I have signed my name to this specification.

ROBERT M. CUNNINGHAM.