Dec. 25, 1956 C. R. SAMPLES 2,774,969

LAYING TOOL FOR TONGUE AND GROOVED FLOORING

Filed Sept. 2, 1955

FIG. 1.

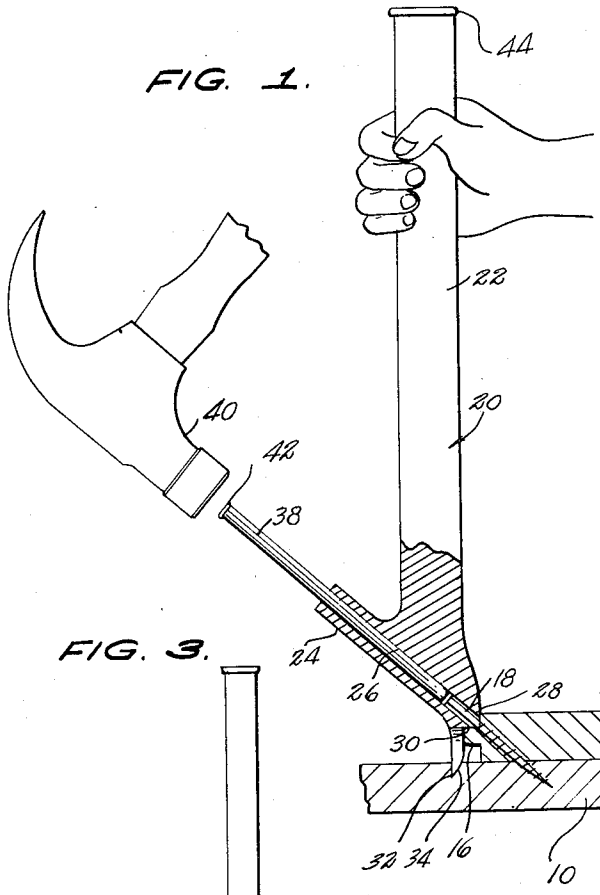


FIG. 2.

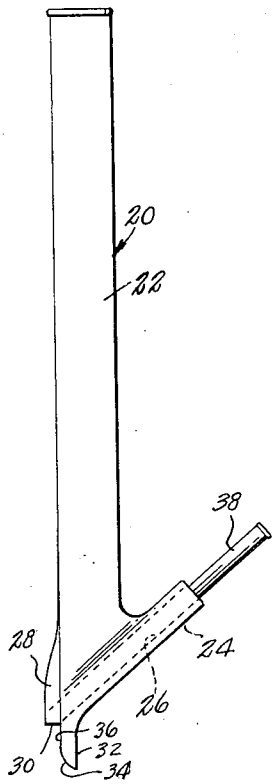


FIG. 3.

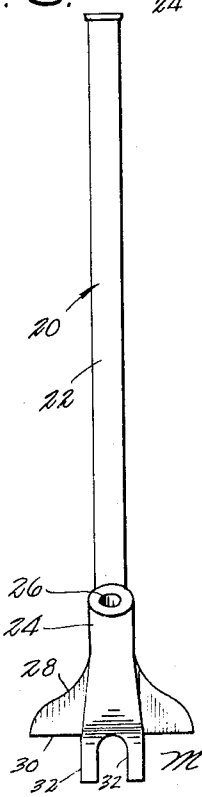
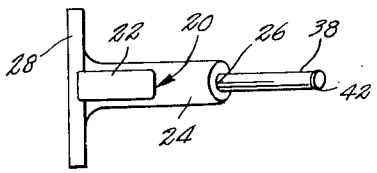


FIG. 4.



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LAYING TOOL FOR TONGUE AND GROOVED FLOORING

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2 Claims. (Cl. 1—47)

The present invention relates to a tool usable to advantage in the laying of flooring of the tongue and grooved type, such as conventional oak or other hardwood flooring.

It is a difficult task, when laying flooring of the type referred to, to press a flooring piece sufficiently tightly against the forward edge of a previously laid piece to insure that a tight joint will be provided therebetween, and to hold the piece being laid against the previously laid piece while the new piece is being nailed to the sub-flooring.

Heretofore, means for forcing the piece being laid against the previously laid piece has been provided, but in some instances, said means has been unwieldy, undesirably complex in construction, or not fully efficient in operation. Obviously, as soon as a piece is laid, there is a necessity for readjusting said means so that it will be able to act upon the next piece that is to be laid, and oftentimes, this is a task requiring an excessive expenditure of time and effort.

Further, means for laying flooring, that is adapted to force the piece to be laid against a previously laid piece should, most desirably, discharge not only the function of forcing the new piece tightly against the old piece, and of holding the new piece in the position to which it is forced, but also the function of permitting accurate driving of the flooring nail at an angle to the front of the new piece.

The present invention has as its main object the provision of a tool which will accomplish these several functions, and as a more specific object of the invention, it is proposed to provide a tool as stated which will be capable of being positioned in relation to the flooring, and removed from position after the nail has been driven, with as much ease and facility as the hammer itself.

Another object is to provide a device as stated which can be formed from a single piece of material, readily cast to the desired shape, and having no relatively movable parts.

Another object is to form a device of the type referred to in a manner such that it will not damage the flooring in any way, when in use.

Another object of importance is to form the device for laying flooring in such a manner as to cause the same, after it has been rocked to a position in which it will force the flooring piece tightly against a previously laid piece, to hold said flooring piece in the position to which it is forced, while being automatically positioned for facilitating the driving of a flooring nail into the flooring at a desired angle.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a view of a tool formed in accordance with the invention partly in side elevation and partly in longitudinal section, as it appears when in use;

Figure 2 is a side elevational view of the tool per se, showing the side opposite that seen in Figure 1;

Figure 3 is an edge elevational view of the tool per se, as seen from the right of Figure 2, a driving tool member being removed; and

Figure 4 is a top plan view of the tool, looking downwardly on the tool as it appears in Figure 2.

At **10** there has been designated conventional sub-flooring, at **12** a piece of flooring which has previously been laid, and at **13** a piece of flooring which is being laid. The piece **12** will hereinafter be termed the "old" piece and the piece **13** the "new" piece. They are, of course, identical in cross section and as is usual, each piece is formed along one longitudinal edge thereof with a laterally, outwardly projecting longitudinal tongue **16** adapted to be received in a complementary longitudinal groove **14** formed in the opposite edge of the next adjacent piece.

In laying flooring of this type, the new piece **13** must be forced tightly against the old piece **12**, so as to insure a desirably tight joint therebetween. Then, while the new piece is held tightly against the old piece, a nail **18** must be driven at an angle of approximately 45 degrees into the new piece, penetrating the sub-flooring, with said nail entering the new piece at the joint between the upper surface of the tongue **16** thereof and the longitudinal edge on which the tongue is formed. In the illustrated example, a screw-type flooring nail is illustrated, but the invention is equally adapted for use of other types of nails, such as cut nails, etc.

The tool **20** constituting the present invention may be cast or otherwise formed from a single piece of iron, steel, or the like, and includes an elongated lever handle **22** integrally formed at one end with a straight sleeve **24** the bore **26** of which is disposed at an angle of approximately 45 degrees to the longitudinal center line of the lever handle **22**. The sleeve at one end projects laterally, outwardly from the handle a substantial distance, while at its other end, the sleeve bore terminates at the lower edge of a cross head **28**, said lower edge of the cross head being designated at **30** and being straight from end to end thereof, with the lower edge **30** being disposed perpendicularly to the length of the handle **22**. The lower edge of the cross head defines a downwardly facing, flat shoulder adapted to engage the upper surface of the tongue **16** of the new piece in the manner shown in Figure 1, said shoulder being of a width approximately equal to that of the tongue. Also integrally formed upon the handle, at the lower extremity thereof, are depending, sharply tipped prongs **32** spaced transversely of the handle and lying in a common plane perpendicular to the plane of the downwardly facing shoulder **30** of the cross head. The prongs extend downwardly below the plane of the cross head a distance slightly greater than the distance between the top surface of tongue **16** and the under side of the new piece **13**, thus to cause the prongs to penetrate the sub-flooring **10** when the tool is in use as shown in Figure 1.

Preferably, the prongs are gently curved as at **34** adjacent their tips, on that face of the prongs confronting the tongue **16** of the new piece of flooring **13**. Immediately above the curved portions of the prongs, the prongs have straight surfaces **36**, terminating at the shoulder **30** of the cross head, the straight surfaces engaging the outer longitudinal edge surface of the tongue **16** when the tool is in use.

Freely slidable in the bore **26** is a driving tool **38**, formed as an elongated length of tool steel somewhat greater in length than the bore **26**, so as to project at its head end from the bore **26** when the tool is in use. A conventional hammer **40** is used, with the force of

the hammer being directed against a head **42** formed upon the outer end of the driving tool element **38**.

In the use of the tool, the new piece **13** is laid against the old piece **12**, and the device is positioned approximately as in Figure 1, with the handle **22** being inclined slightly from the vertical, in a direction away from its fully vertical position shown in Figure 1. The handle **22** at its upper end has a head **44**, and as a first step, the hammer is used to apply force to the handle **22** in an axial direction, by blows against the head **44**, to drive the prongs into the sub-flooring for a short distance. Then, the handle **22** is rocked in a clockwise direction, viewing the same as in Figure 1, and the cross head or butt plate **28** will exert a pressure against the new piece **13**, forcing said new piece against the old piece **12**, the handle being in effect fulcrumed upon the prongs. When the prongs were originally driven into the sub-flooring, the butt plate, it will be understood, would be already in position against the edge of the new piece **13** with the shoulder **30** overlying the tongue **16**.

While maintaining a hold upon the handle, in the position to which the handle was rocked, so as to correspondingly hold the new piece **13** against the old piece **12**, a flooring nail **18** is inserted into the outer end of the bore **26**, and will gravitate within said bore to the intersection point between the tongue **16** and the outer longitudinal edge of the flooring piece **13**. Then, the driving tool **38** is inserted in the position shown in Figure 1, and blows are directed thereagainst with hammer **40**, thus to drive the nail. The driving tool, it should be noted, has a rounded nail-engaging end, and thus not only drives the nail but sets it. Ordinarily, the setting of the nail requires a certain amount of skill, and often, in setting the nail, one damages the tongue **16** should the nail be missed, or should the nail set slip out of engagement with the nail. Accordingly, by use of the tool, hammer marks upon the flooring are eliminated, even when the tool is used by a relatively unskilled person. Further, in every instance the nail is driven into the flooring at a proper angle and at the exact location desired therefor, with the locating of the nail occurring automatically merely by proper positioning of the tool relative to the flooring piece. Still further, a saving of time results, due to the fact that the three operations of tightening the flooring, driving the nail, and then setting the nail, are combined through the use of a single tool formed as illustrated and described.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In a tool for laying over a sub-flooring a piece of flooring of the type including a longitudinal tongue extending along one side edge of the piece and engageable in a longitudinal groove of a previously laid piece: a wholly rigid member including an elongated, straight handle, a cross head extending normally to the length of the handle adjacent one end thereof and forming at one side of the handle a downwardly facing shoulder lying in a plane substantially normal to said length of the handle for exerting a downward pressure against said tongue, prong means projecting downwardly from the handle below the shoulder and formed as a longitudinal extension of said one side of the handle, the prong means having a tongue-engaging surface at one side of the shoulder lying in a plane substantially perpendicular to that of the shoulder, said prong means being sharpened for engagement in the sub-flooring to provide a fulcrum about which the handle may rock thus to shift the shoulder downwardly against the tongue simultaneously with conjoint, lateral movement both of the prong means and cross head for exerting a pressure in a horizontal direction against the tongue and against said side edge, respectively, of the piece being laid thereby to force said piece against the previously laid piece, and a nail guiding sleeve extending obliquely to the length of the handle and to said plane and opening downwardly at said side of the handle through the shoulder at the other side of the shoulder; and a driving tool element slidably engaged in the sleeve for driving a nail into the tongue of the piece being laid.

2. In a tool for laying over a sub-flooring a piece of flooring of the type including a longitudinal tongue extending along one side edge of the piece and engageable in a longitudinal groove of a previously laid piece; a wholly rigid member including an elongated handle, a cross head adjacent one end of the handle forming at one side of the handle a downwardly facing shoulder lying in a plane substantially normal to the length of the handle for exerting a downwardly facing shoulder lying in a plane substantially normal to the length of the handle for exerting a downward pressure against said tongue, prong means projecting downwardly from the handle below the shoulder and formed as a longitudinal extension of said one side of the handle, the prong means having a tongue-engaging surface at one side of the shoulder lying in a plane substantially perpendicular to that of the shoulder, said prong means being sharpened at its lower extremity for engagement in the sub-flooring to provide a fulcrum about which the handle may rock, to shift the shoulder downwardly against the tongue about the axis on which the handle rocks simultaneously with conjoint, lateral movement about said axis both of the prong means and cross head, said prong means and cross head exerting pressure in a horizontal direction responsive to rocking of the handle against the tongue and against said side edge, respectively, of the piece being laid for forcing said piece against the previously laid piece, and a nail guide sleeve extending obliquely to the length of the handle and to said planes and opening downwardly at one end at said side of the handle through the shoulder at the other side of the shoulder, the nail guide sleeve projecting at its other end outwardly from the other side of the handle; and a driving tool element slidably engaged in the sleeve for driving a nail into the tongue of the piece being laid.

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