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DEVICE ADAPTED FOR LAYING FLOORS

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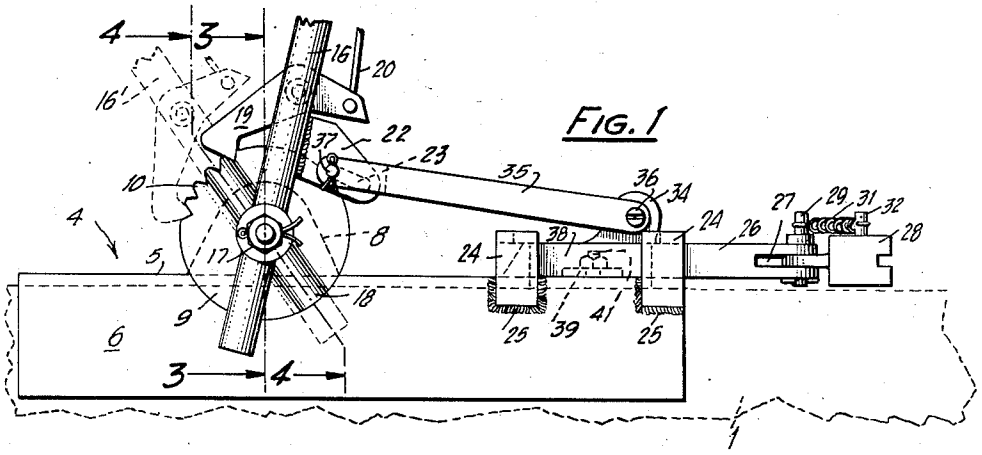


FIG. 1

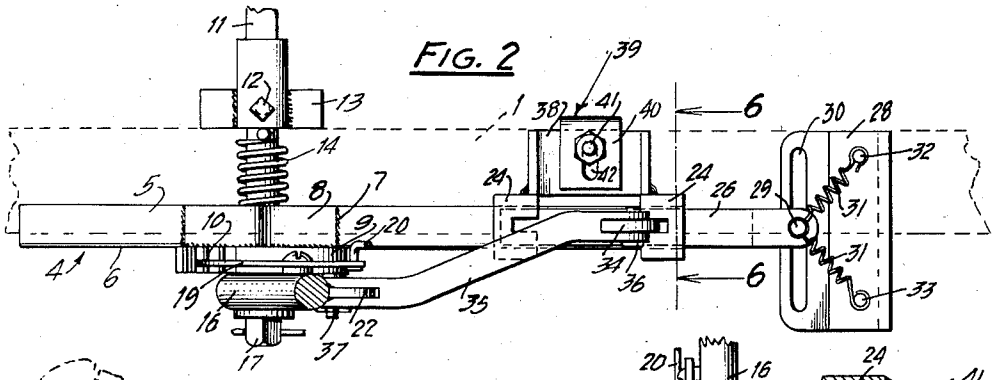


FIG. 2

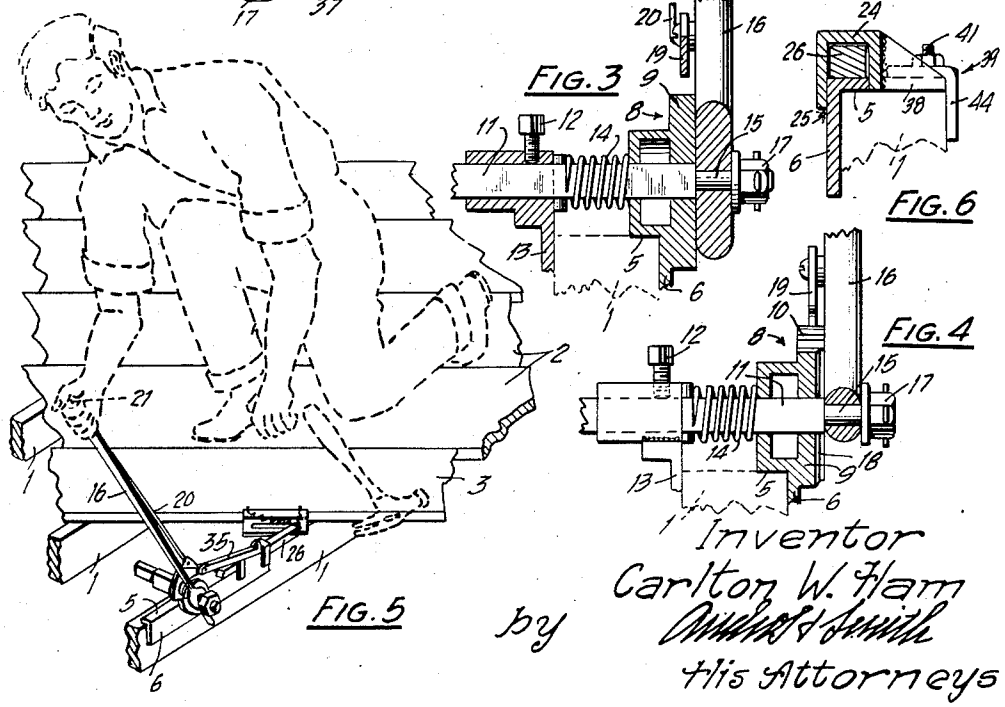


FIG. 5

FIG. 3

FIG. 6

FIG. 4

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DEVICE ADAPTED FOR LAYING FLOORS

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8 Claims. (Cl. 254—15)

This application is a continuation in part of my application Serial No. 366,671, filed July 8, 1953, and now abandoned.

My invention relates to a device for laying floors, sidings, and the like where the boards should be laid in close contact with each other throughout.

The boards used in laying floors are not always straight throughout their length and it is very difficult, where a board is slightly warped or curved in a lateral direction, to force it into firm, close contact with the last previously laid board and hold it in such contact while it is nailed to the floor beams. Furthermore, the rough flooring and siding which is first laid is usually laid at an angle of 45° to the beams or studs to which it is nailed, while the finish flooring is usually at right angles to the beams.

The principal object of my invention is to provide a simple device which may be clamped to the floor beam or stud adjacent a board which has been previously nailed thereto, either in a direction normal to the floor or stud or at another angle thereto and, by means of which, the next board to be laid can be readily forced into contact with the previously laid board before the nailing thereof. A further object is to provide a device of this character which, when the board about to be laid has been forced into contact with the last previously laid board, will hold or lock the board about to be laid in its proper place while it is being nailed to the floor or stud.

I accomplish these objects by the means described below and illustrated in the accompanying drawing in which—

Fig. 1 is a side elevation of my device with a portion of the hand lever used in actuating the device broken away;

Fig. 2 is a top view of the device, as shown in Fig. 1;

Fig. 3 is a section of Fig. 1 in the plane 3—3;

Fig. 4 is a section of Fig. 1 in the broken plane 4—4;

Fig. 5 is a perspective view showing how my device is used to force a board into its proper position for nailing; and

Fig. 6 is a section of Fig. 2 in the plane 6—6.

Referring to the drawing—

1 represents a floor beam and 2 the floor boards which have been nailed thereto; the board about to be nailed in place being indicated by the numeral 3 in Fig. 5.

My device comprises an angle element 4 having one leg 5 adapted to rest on a floor beam and a depending leg 6 adapted to lie alongside of the floor beam and forming one of a pair of jaws for clamping said device to said beam.

Formed integral with or welded to the top of the angle element 4, as shown at 7 in Fig. 2, is an upstanding bearing 8, having as a part thereof, a circular disc 9 having ratchet teeth 10 on its upper periphery. Slidably mounted in the bearing 8 is a transversely-extending, square shaft 11 to which is secured in adjustably-spaced relation to the depending portion 6 of the element 4, by means of the set screw 12, a second depending jaw-forming element 13 adapted to lie along the other side of a floor beam 1 to which the device is attached. Surrounding the square

shaft 11 and interposed between the bearing 8 and the second jaw-forming element 13, is a helical compression spring 14 which yieldingly holds the clamping jaws 6 and 13 in spaced relation to each other adapting the jaws to pass a floor beam between them when the device is placed upon the floor beam, as shown in the drawing.

At its right hand end, as viewed in Figs. 3 and 4, the square shaft 11 is provided with a cylindrical portion 15 on which the hand lever 16 is rotatably mounted and held in intimate contact with the side of the disc 9 by means of the nut 17. The side of the disc 9 adjacent the hand lever is a plane surface except for a groove 18 adapted to receive the side of the hand lever, which can move in contact with the outer face of the disc 9, when said lever is in the position shown at 16' in Fig. 1. This position of the hand lever is its normal and initial position when said device is placed on the floor beam. When the hand lever 16 has a lower portion thereof resting in the groove 18 into which it is normally pulled by the spring 14, the floor beam-gripping-jaws are spread apart so that they may be readily slipped over the top of the floor beam. But, when the hand lever 16 is pulled, as shown in Fig. 5, from the position 16' towards the position 16 in Fig. 1, it moves out of the groove 18 and pulls the square shaft and the beam-gripping-jaw 13 towards the jaw 6, thus firmly clamping the device to the floor beam.

Attached to the hand lever 16 is a pawl 19 which cooperates with the ratchet teeth 10 of the disc 9. This pawl is normally held in contact with said teeth by a spring (not shown) which cooperates with and tends to pull upwardly the rod 20 which terminates in a pawl-releasing button 21 (see Fig. 5) in the top of the hand lever 16. Attached to the hand lever 16, is a plate 22 having a slot 23 therein. Slidably mounted in two, inverted U-shaped guides 24, which are a part of or are welded to the angle element 4, as shown at 25, is a bar or rod 26 which is bifurcated at its outer end, as shown at 27, to receive the member 28 which is both pivotally and slidably connected thereto by the pin 29 which passes through the slot 30 in the member 28. Thus the device is adapted for use in laying boards which are at right angles to the floor beams or studs or disposed at an acute angle thereto, as shown in Fig. 5. Where the boards are laid at an acute angle to the floor beams, the member 28 must move laterally with respect to the member 26 and, where a mere pivotal connection is provided between the members 26 and 28, the member 28 in such case, must slide along the edge of the board being laid and, because it is held against this edge by substantial pressure, the edge of the board and particularly boards of the tongue and groove type, are damaged. In order to hold the member 28 with the slot 30 therein normally at about right angles to the member 26, I provide the tension springs 31 which are connected to the pin 29 and pins 32 and 33 on the member 28.

In order to advance and retract the member 28, the bar or rod 26 is provided with an upstanding ear 34 which is pivotally connected to the link 35 by means of the pin 36. The other end of the link 35 is also bifurcated and pivotally connected to the plate 22 on hand lever 16 by means of a pin 37 extending through the slot 23.

In order to prevent any lateral movement of that end of the device in which the rod 26 is slidably mounted, I have welded to the sides of the elements 24, a shelf-like member 38 which serves to support the angle 39 having one leg 40 adjustably secured to the shelf by a bolt 41 which passes through a slot 42 in the leg of the angle 39 which rests on the shelf. The depending leg 44 of the angle 39 forms a clamping jaw which may be adjusted to engage the side of beams or studs of various widths.

In operation, with the hand lever 16 in the groove 18 and the beam-gripping-jaw 13 so adjusted that it is spaced sufficiently from the depending leg 6 of the angle 4 to allow

the device to be readily slipped over the top of the floor beam, and the adjustable jaw **39** positioned to allow its end of the device to drop readily over the top of the beam, the device is positioned on top of the beam, as shown in Figs. 1, 2 and 5. If the board **3** has already been nailed to the beam adjacent that on which the device is positioned, the device is placed on the beam with the member **28** abutting the edge of the board **3**. The operator, shown in dotted outline in Fig. 5, by pulling the hand lever **16** toward him, first moves the hand lever out of the groove **18** in the disc **9**, and, during this movement, the disc **9** functions as a cam. As the lever **16** is moving out of the groove **18**, the jaws **6** and **13** are moved towards each other and into clamping engagement with the beam.

The slot **23** is provided in the plate **22** so that, if the pin **37** be positioned in the right hand end of this slot when the lever **16** is in the groove **18**, there is no forward movement of the member **28** until the device is firmly clamped to the beam. As the operator pulls the lever **16** further towards him, the board **3** will be forced into firm contact with the last previously nailed board, and the pawl **19** cooperating with the ratchet teeth will then hold the board **3** in proper position while it is being nailed to the beam. As soon as it is nailed, the pawl may be released by pressing the button **21** on the top of the lever and the parts returned to their normal position for attachment to another beam.

While I have described my invention in its preferred embodiment, it is to be understood that the words which I have used are words of description rather than of limitation and that changes, within the purview of the appended claims, may be made without departing from the true scope and spirit of my invention in its broader aspects.

What I claim is:

1. In a device adapted for use in laying floors, the combination with a base adapted to rest on top of a floor beam, of means for clamping said base to the beam upon which it is resting; a bar slidably mounted on said base to move substantially parallel to said beam when said device is clamped thereto, and having a free end projecting beyond said base; means including a hand lever for reciprocating said bar; a member adapted to abut the edge of a floor board resting on the same beam as said device; and means connecting said member to the free end of said bar providing both pivotal and lateral sliding movements of said member relative to said bar; whereby said device is adapted for use in laying floor board disposed at various angles to the floor beams.

2. The structure set forth in claim 1 together with spring means biased normally to hold said member disposed at about right angles to said bar.

3. The structure set forth in claim 1 in which said member is provided with a slot therein; and the means connecting said member to said bar comprises a pin passing through said slot.

4. The structure set forth in claim 1 in which said member is provided with an elongated slot therein; and the means connecting said member to said bar comprises a pin passing through said slot, and spring means biased normally to hold said member with said slot disposed at about right angles to said bar with said pin in about the center of said slot.

5. A device adapted for use in laying floor boards and comprising a base adapted to rest on top of a floor beam on which said boards are to be laid; a pair of laterally spaced, beam-clamping, depending jaws on said base; a member adapted to abut the edge of a floor board when said device and said board are supported on a beam to which said board is to be secured; a bar; means slidably mounting said bar on said base to move axially in a direction substantially parallel to a beam on which said device is supported; means including a hand lever for advancing and retracting said bar; means actuated by said hand lever when moved in a direction to advance said bar from a retracted position for automatically effecting a closing movement of said jaws before said bar is advanced to a substantial degree; and means both pivotally and slidably connecting said member to the free end of said bar, whereby said device may be used for laying floor boards disposed at various angles to the floor beams on which they are supported without damaging the edges of said boards.

6. The structure set forth in claim 5 together with spring means biased normally to hold said member disposed at right angles to said bar.

7. The structure set forth in claim 5 together with a second pair of depending jaws substantially spaced from the first mentioned jaws; and means for adjusting the spacing thereof to embrace beams of various thicknesses.

8. A device adapted for use in laying floors for pushing a floor board, about to be nailed in place, into firm contact with the last laid board and holding it in place during the nailing thereof; said device comprising a base adapted to rest on a floor beam; a fixed, beam-engaging jaw depending from said base; a bearing on said base having a diametrically extending groove in one side thereof; a transversely-extending shaft axially slidable in said bearing; a second, beam-engaging depending jaw and means securing it to said shaft in adjustably spaced relation to said fixed jaw; a member adapted to abut the edge of a floor board about to be nailed; means slidably mounting said member on said base to move towards and away from said base; a hand lever rotatably mounted on said shaft; a link operatively connecting said member to said lever for movement thereby; a spring biased normally to force said second jaw away from said fixed jaw and yieldingly to hold said lever in said groove when said member is retracted to a substantial degree by said lever; whereby, a comparatively slight movement of said lever in a direction to advance said member will move said lever out of said groove and effect a beam-engaging movement of said second jaw before said member is advanced to a substantial degree.

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