

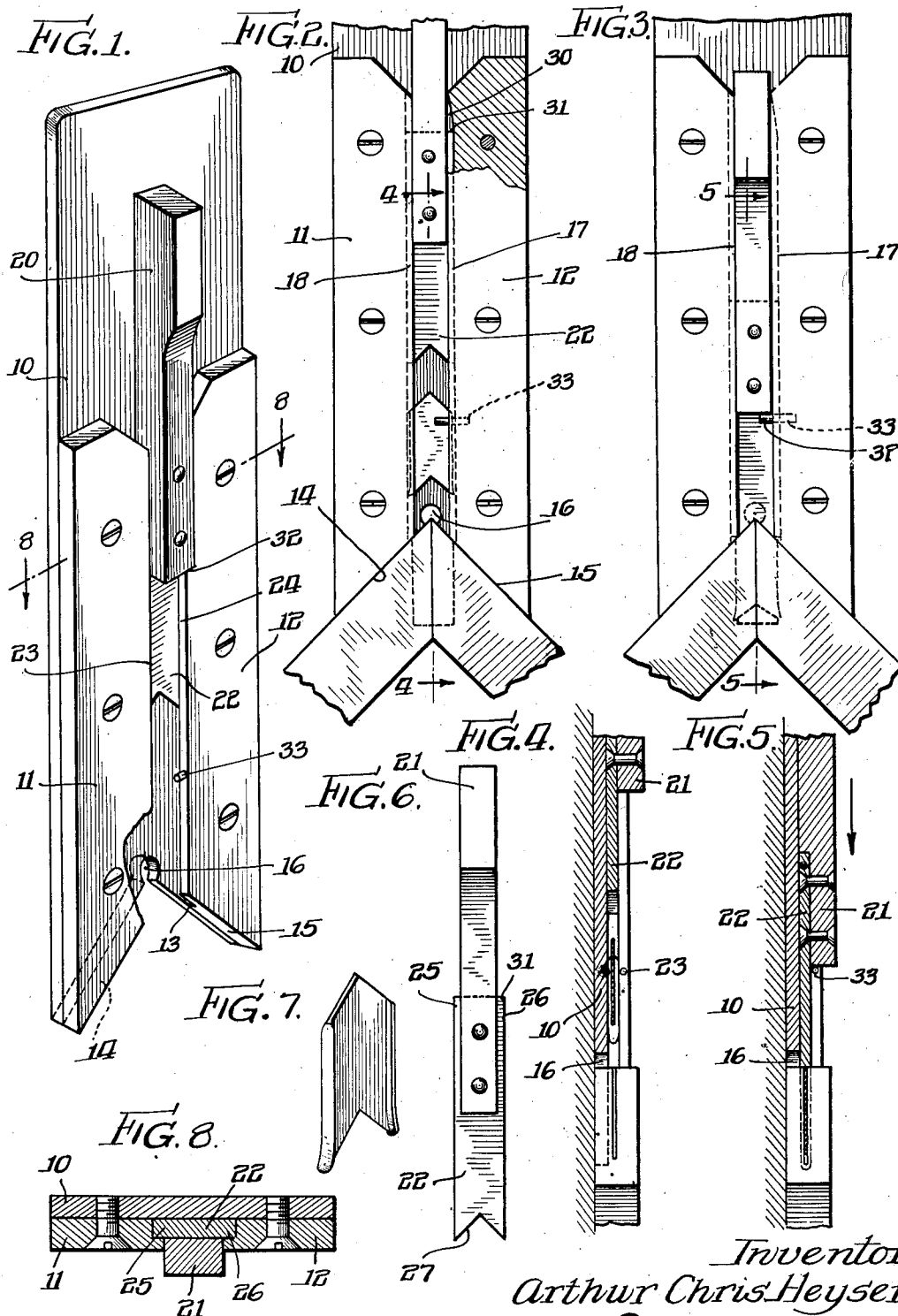
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DRIVING TOOL FOR MITER FASTENERS

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DRIVING TOOL FOR MITER FASTENERS

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This invention relates to general to implements for setting in place and driving miter fasteners.

It is an object of this invention to provide a tool which will set and drive in place a miter fastener; it is another object of this invention to provide a tool which will accurately conform to a miter joint and drive a miter fastener in a more accurate manner; it is a further object of this invention to provide a tool which will completely drive the miter fastener in place without marring or damaging the material being guided together; it is an additional object of the present invention to provide a tool which will remain in retracted position until it is being used for driving a miter fastener into place; it is furthermore an object of this invention to provide a tool for driving miter fasteners into joints which are located in proximity to other surfaces and at the same time protect the other surfaces from damage due to the driving action.

Other objects and advantages of the present invention will appear more fully from the following detailed description, which, taken in connection with the accompanying drawing, will disclose to those skilled in the art the construction and operation of a preferred form of the present invention.

Figure 1 is a perspective view of one preferred embodiment of the present invention.

Figure 2 is a front elevation of the embodiment shown in Figure 1, showing the driving member in retracted position.

Figure 3 is a front elevation of the embodiment shown in Figure 1, showing the position of the driving member at the end of the driving stroke.

Figure 4 is a cross-section of the embodiment shown in Figure 2 about line 4—4 of Figure 2.

Figure 5 is a cross-section view of the embodiment shown in Figure 3 about line 5—5 of Figure 3.

Figure 6 is a front elevation view of the driving member of the preferred embodiment shown in Figure 1.

Figure 7 is a perspective view of one preferred form of miter fastener which may be driven by the embodiment shown in Figure 1.

Figure 8 is a plan section view of the embodiment shown in Figure 1 taken about line 3—3 of Figure 1.

The embodiment shown in the drawing comprises a body member formed of a back plate member 10 and a pair of complementary front plate members 11 and 12 respectively, separated to provide a groove therebetween. The front plate members are provided with milled-out lon-

gitudinal corner segments 13 which overlie the back plate 10 and form longitudinally extending slots therewith.

The device is provided with a pair of abutment faces 14 and 15 respectively. These abutment faces are perpendicular to the surface plane of the back plate 10 and also perpendicular to each other whereby to form in the bottom of the device a 90° V-shaped opening which will accurately embrace the corner surfaces of a miter joint. These two abutment surfaces 14 and 15 do not intersect each other in a sharp corner. Instead a circular relieved opening 16 is provided in the area of the point where the abutment surfaces would intersect if so extended. This relieved surface makes it possible for the tool to fit the miter corner snugly despite the fact that most miter corners have a slight irregularity right at the apex of the corner which otherwise would interfere with the seating of the tool. By reason of the milled-out portions in the front plate members 11 and 12, parallel slots or guide-ways 17 and 18 are provided.

A driving member 20 is provided. This driving member is shown in more detail in Figure 4 and consists of a driving butt 21 and a driving blade 22. The driving butt is of a width sufficient to slide smoothly in the guide space or groove between the edges 23 and 24 respectively of the front plate members 11 and 12 respectively. The driving blade 22 is wider than the driving butt and is rigidly mounted on the end of the driving butt 21 so that the longitudinal axes of the blade and butt respectively coincide. Thus the blade overhangs the driving butt on each side to provide flanges 25 and 26 respectively. The forward or engaging end of the driving blade is provided with a 90° V-shaped aperture 27 which is geometrically similar to the 90° V-shaped opening between the abutment faces.

The driving blade has a width such that it will slidably engage the guide-ways 17 and 18 respectively. Thus the driving member as a unit will slide upwardly and downwardly in the guide-ways. The thickness of the driving blade, and correspondingly the width of the guide-ways, is sufficient to accommodate a miter fastener, such as that shown in Figure 7.

Various different sizes of miter fasteners may be accommodated by providing wider distances between the slots and correspondingly wider and thicker driving blades as the circumstances may require.

One of the guide-ways 17 is provided with an arcuate bottom portion 30 at the upper extremity

thereof. This arcuate portion is really an upward curving of the floor of the guide-way 17 so that at the top the guide-way has smaller depth than it has throughout its operative length.

5 The driving blade is provided with a sharp corner 31 which jams up against this arcuate portion as the blade is retracted. This jamming or wedging, however, causes the blade to be held in retracted position while the tool is being set over the work prior to the actual driving of the miter fastener. After the tool is set in place the driving butt may be struck with a hammer or other suitable instrument. Thereupon the driving member will be forced downwardly and 10 the corner 31 of the driving blade will become disengaged from the arcuate portion 30 whereby the driving blade will drop downwardly and operatively engage the miter fastener. The driving butt may then be hit a succession of blows which 15 will cause the miter fastener to be driven down into the work and finally set into place.

The driving butt is provided with a shoulder 32. The front plate 12 is provided with a stop pin 33. When the driving member has been 25 driven down toward the work a distance such that the V-shaped end of the driving blade is exactly flush with the abutment faces 14 and 15 respectively, the shoulder 32 will come up against the stop pin 33 whereby any further downward 30 motion is prevented. Thus the driving blade leaves the miter fastener flush with the surface of the work and does not itself strike against the work so as to mar the same. Of course, if it is desired to drive the miter fastener further into the work, the stop member may be adjusted 35 downwardly to provide for a further extension of the driving blade.

The driving blade may also be made somewhat thinner than the miter fastener so that it will 40 follow the miter fastener into the work without marring the edges of the miter joint. Frequently it is necessary to place a miter fastener in a joint which is superposed on a large flat surface. Such a situation would be met in setting the trim about a doorway for instance. There it would be neces- 45 sary to set a miter fastener into a corner which was only a small distance removed from a large expanse of the wall. Normally a hammer or other driving instrument would probably nick some of the surface of the adjacent wall and mar 50 it. In the present invention this is overcome by providing a large back plate 10 which extends upwardly and behind the driving butt 21 of the driving member 20. This flat plate acts as a shield and prevents any marring of the adjacent 55 surfaces surrounding the miter joint into which the miter fastener is being driven.

It is thought that the invention and numerous attendant advantages will be understood from the foregoing description and it is obvious that 60 numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention, or sacrificing any of its attendant advantages, the form herein described being a preferred embodiment for the purpose of illustrating the invention. 65

Having thus described the invention, what is claimed as new and is desired to be secured by Letters Patent of the United States is as follows:

70 1. In a device of the character described, a body member, a longitudinally extending groove in said body member, work engaging surfaces formed at one end of said body member adjacent said groove, and a driving member operably disposed in said groove and adapted to slide longi- 75

tudinally therein between predetermined limits, said driving member having a driving butt extending axially therefrom beyond the upper limits of the groove, said body member being extended on at least one side of the driving butt to form a guard plate, said guard plate having an area substantially co-extensive with the corresponding side of the butt in its extended position whereby to protect adjacent work along said side from being damaged during actuation of the butt. 10

2. In a device of the character described, a body member, a longitudinal groove in said body member, a driving member operably disposed in said groove and adapted to move longitudinally therein, and means in said groove to frictionally 15 engage the driving member at a point defining the upper limit of travel of the driving member to maintain said driving member at said upper limit.

3. In a device of the character described, a 20 body member, a longitudinal groove in said body member, a driving member operably disposed in said groove and adapted to move longitudinally therein, means in said groove to frictionally engage the driving member at a point defining the upper limit of travel of the driving member to 25 maintain said driving member at said upper limit and stop means mounted in said body member and adapted to engage the driving member at a point defining the lower limit of travel of said driving member. 30

4. A tool for driving miter fasteners into a miter joint, comprising a body member, a longitudinally extending guide-way in said body member, a driving member operably disposed in said guide-way, and a work engaging portion 35 formed in said body member adjacent to one end of said guide-way, said work engaging portion having a shape adapted to conform to the corner surfaces of a miter joint, said work engaging portion being relieved away from the surface of the miter joint in the area of the apex of said miter joint. 40

5. A tool for driving a miter fastener into a miter joint, comprising a body member, a driving member mounted for movement relatively thereto, and a work engaging surface formed adjacent one end of said body portion, said work engaging surface comprising two mutually perpendicular non-intersecting plane surfaces and an arcuate surface intersecting both of the plane 50 surfaces and bridging the gap therebetween.

6. In a device of the character described, a body member, a longitudinal groove in said body member, a driving member operably disposed in said groove and adapted to move longitudinally therein, and a portion of one of the walls of said groove converging toward the opposite wall so as to provide a section in said groove of decreasing width, said driving member being adapted to be frictionally engaged in said section of decreasing width when the driving member is retracted in the groove. 60

7. In a device of the character described, a body member, guide means associated with said body member, a driving member operatively disposed for movement in said guide means whereby to permit longitudinal movement with respect to said body member, and means adjacent one end of said guide means only and frictionally engaging the driving member at a position defining the upper limit of travel of said driving member to forcefully maintain the driving member substantially at said position against displacement. 70