Sept. 20, 1955 M. W. KELLENBARGER 2,718,374

MANUALLY ACTUATED FORCE-APPLYING TOOL

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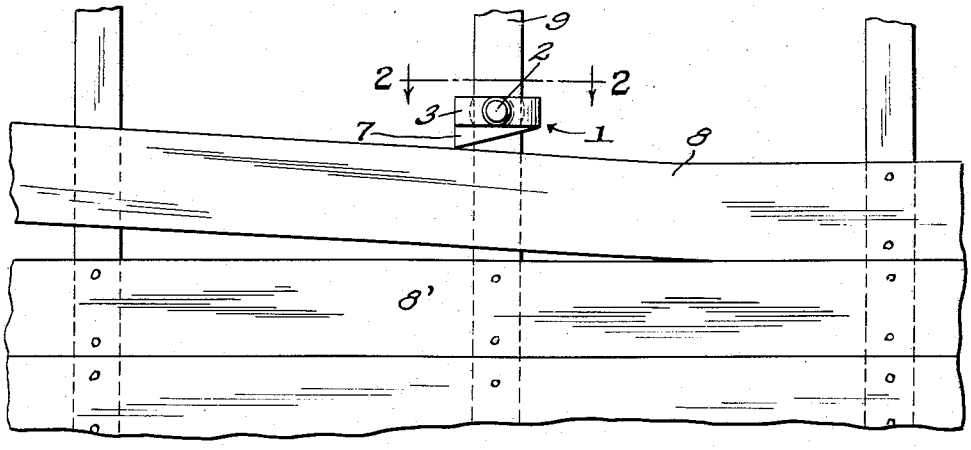


Fig. 1.

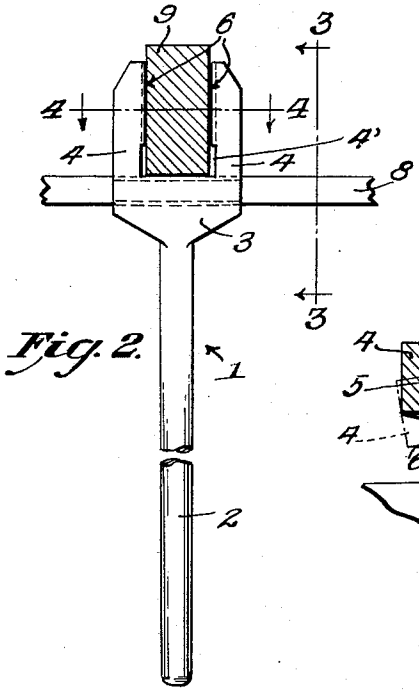


Fig. 2.

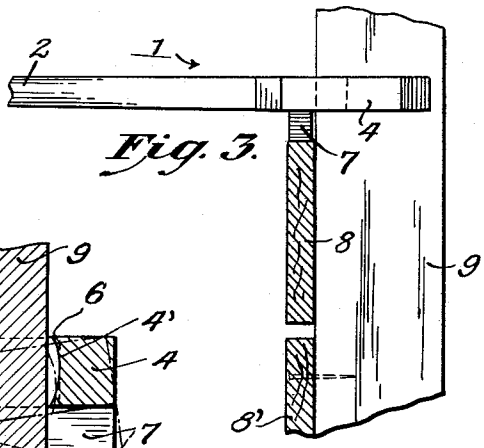


Fig. 3.

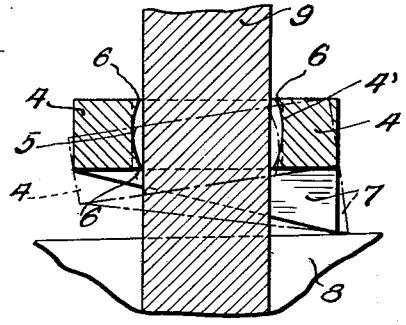


Fig. 4.

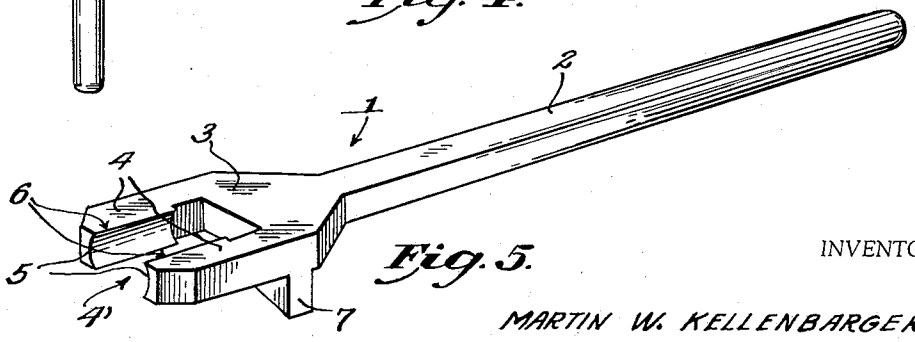


Fig. 5.

INVENTOR

MARTIN W. KELLENBARGER

BY W. S. Rambo

ATTORNEY

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MANUALLY ACTUATED FORCE-APPLYING TOOL

Martin W. Kellenbarger, Lancaster, Ohio

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4 Claims. (Cl. 254—17)

This invention relates to hand-wielded, lever-type, force-applying tools, and has particular reference to an improved tool of this character for use by carpenters and builders in applying bending and straightening forces to warped or twisted boards, planks and other wood members used in the building industry, such as wall siding or sheeting, sub-flooring, studs, joists, rafters and other analogous building units.

It occurs commonly in construction work that boards used for sub-flooring and siding purposes are warped or bent in their length dimensions. In nailing or otherwise securing such boards, it is necessary that the same be secured to their associated studs or joists in edge to edge engagement, or registry, with adjoining, parallel, siding or flooring boards. It is, therefore, an object of the present invention to provide an improved lever-type tool which may be readily applied to warped, bent or twisted wooden building members to enable manual forces to be effectively applied thereto for straightening the same in rendering such members adaptable for proper attachment in contacting parallel order with associated members.

Another object is to provide a force-applying tool for straightening, or otherwise applying flexing forces to boards, studs or the like, by constructing the tool to embody an elongated handle formed at one end with a slotted stud or joist-receiving jaw, there being an offset board-engaging, wedge-shape projection formed laterally on the tool transversely of the inner part of the jaw, which, as the jaw of the tool is moved along the joist or stud received thereby, presses on the edge of a warped board in contact therewith in a manner enabling manual effort, applied through the tool, to flex and straighten the warped board in bringing the same into securing parallelism with an adjacent board, and at the same time enabling the jaw of the tool, through forces reacting to those serving to produce straightening of the projection-engaged warped board, to grip the opposite sides of the joist or stud in a manner so that the tool may be positively maintained in its force-applying position on the joist or stud while holding the engaged warped board in a nailing position.

A further object is to provide a force-applying, board-bending and straightening tool having at one end of the handle thereof a novel jaw formation, which, in addition to its capability as a means for facilitating edge straightening of longitudinally warped siding or floor boards, is also formed so as to be useful in straightening warped joists, rafters and studding and as an adjunct in the wrecking of frame buildings.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawings, wherein:

Fig. 1 is a front elevational view of a wall siding assembly, disclosing the bending tool of the present invention in operative relation to an associated stud of the assembly in applying force to a warped board of the siding to straighten the same for final nailing in desired relation with an immediately adjoining board;

Fig. 2 is a detail horizontal transverse vertical sectional view taken on the plane disclosed by the line 2—2 of Fig. 1;

Fig. 3 is a detail vertical sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a similar view on the line 4—4 of Fig. 2;

Fig. 5 is a perspective view of the improved board-bending tool of the present invention.

Referring in greater detail to the drawings, the numeral 1 designates the bending tool of the present invention in its entirety. The tool comprises in its preferred form a one-piece body formed advantageously from a malleable iron or steel forging. In this instance the tool is shaped to provide a straight elongated longitudinally extending handle 2. At its forward end, there is formed with the handle, as an integral continuation thereof, a head 3. The head is provided with a pair of longitudinally extending, parallel jaw extensions 4 which provide between them an open ended, jaw-forming slot 4'. The opposed jaw-forming faces 5 of the head are, in this instance, concaved to present, as shown in Fig. 4, relative sharp, parallel, stud and joist-gripping edges 6. Also, the head is formed at the inner end of the slot with a transversely extending, laterally offset, wedge-shaped projection or abutment 7, the thicker end of the projection lying at one side of the tool head.

When the tool as so constructed is used in bending, for example, a board 8, which has become warped in its vertical longitudinal plane, as shown in Fig. 1, in order that the warped board may be bent or flexed to bring the same, along its lower longitudinal edge, into close-fitting engagement with the complemental upper longitudinal edge of a next adjacent board 8', the head of the tool is disposed so that a joist 9, to which the board 8 is to be nailed, is received in the jaw-forming slot of the tool head. In so disposing the tool for active use, the head thereof is positioned so that the wedge-like projection or abutment 7 is directed downwardly, with the thicker end of the projection in contact with the upper longitudinal edge of the board 8, as shown in Fig. 1. Thereafter, the handle portion of the tool is pulled downwardly, which pulling force, due to the relatively offset line of engagement between the projection 7 and the upper edge of the board 8, serves to cock or tilt the jaws angularly into pinching and holding engagement with the sides of the stud or joist 9, thereby preventing slipping of the tool on the stud or joist. This enables the tool to be fulcrumed about the jaw-forming head thereof, in order that the same may exert a leverage-multiplied force upon the siding 8 in flexing the latter into edge-abutting engagement with the siding board 8'. The cocking or angular tilting movement of the head 3 is shown by full and broken lines in Fig. 4. In this action, the downward flexing or bending of the warped end of the board 8 in bringing the same into contact with the underlying board 8' produces reaction forces on the tool head to effect the angular tilting or cocking thereof, whereby to force two of the edges 6 of the jaws into biting contact with the sides of the associated joist 9, thus holding the tool in its force-applying position while the board 8 is being nailed or otherwise secured to the associated studding. Advantageously, the spacing between the concave jaw-forming faces 5 of the head is such as to but slightly exceed the usual thickness dimension of standard joists, studding or rafter members.

While the tool of the present invention is employed primarily in straightening warped boards, or in forcing floor and siding boards into positions for nailing the same to studs or the like, the tool is also useful in other capacities, as in wrecking work to twist out joists, rafters, studding and other members of frame buildings.

I claim:

1. A manually operated, lever-type, force-applying tool of the character set forth, comprising: a rigid elongated body providing a longitudinally extending handle; a relatively enlarged head formed with one end of the handle, said head including a pair of transversely spaced, parallel and longitudinally extending jaw-forming extensions, the latter providing between them an open-ended stud-receiving slot, opposed slot-forming faces of said extensions possessing a concave formation to produce relatively sharp stud-engaging and gripping edges; and a force-applying projection formed rigidly with and extending laterally from said head adjacent to the inner end of the stud-receiving slot formed therein, said projection lying at one side of the longitudinal axis of the tool.

2. A manually operated, lever-type, force-applying tool of the character defined, comprising: a rigid elongated body formed to provide a longitudinally extending handle; a relatively enlarged head provided stationarily on one end of the handle, said head including a pair of relatively spaced parallel jaw-forming extensions defining a stud-receiving slot which opens to the outer end of the head, said extensions including oppositely disposed, transversely spaced and longitudinally extending jaw-defining surfaces, each of the latter in turn including a pair of parallel, longitudinally extending and vertically spaced, stud-gripping edges; and a pressure-applying fulcrum projection rigidly formed with and extending laterally from said head at a position adjacent to the inner end of the slot therein, said projection including an outer board-engaging edge laterally offset with respect to relatively perpendicular planes passing through the longitudinal axis of the tool, said edge being disposed to produce rotational tilting of the head when the tool is moved to apply bending forces to a warped board through said projection, whereby to bring the parallel edges of said extensions into gripping relation with the opposite sides of a stud positioned in said slot between the gripping edges.

3. A manually operated tool for flexing and straightening warped boards preparatory to nailing thereof to associated studding, comprising: a rigid elongated body providing a longitudinally extending handle; a relatively enlarged head stationarily formed with the forward end of said handle, said head being bifurcated to provide in longitudinal alignment with said handle an elongated stud-receiving slot, the latter opening to the extreme forward end of the tool, said slot being defined by parallel longitudinally extending side walls having opposed concave faces terminating in inwardly projecting parallel upper and lower stud-gripping edges; and a pressure-applying and fulcrum-providing projection rigidly and stationarily formed with and protruding laterally from one side of said head at a position adjacent to the region of union of the head with the handle, said projection being formed with an outer board-edge contacting region of restricted area, said region being disposed in laterally offset relation to relatively perpendicular planes intersecting the longitudinal axis of the tool.

4. A tool as defined in and by claim 3, and wherein a fulcrum-providing projection extends transversely across one face of the head and possesses a substantially wedge-shaped configuration.

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