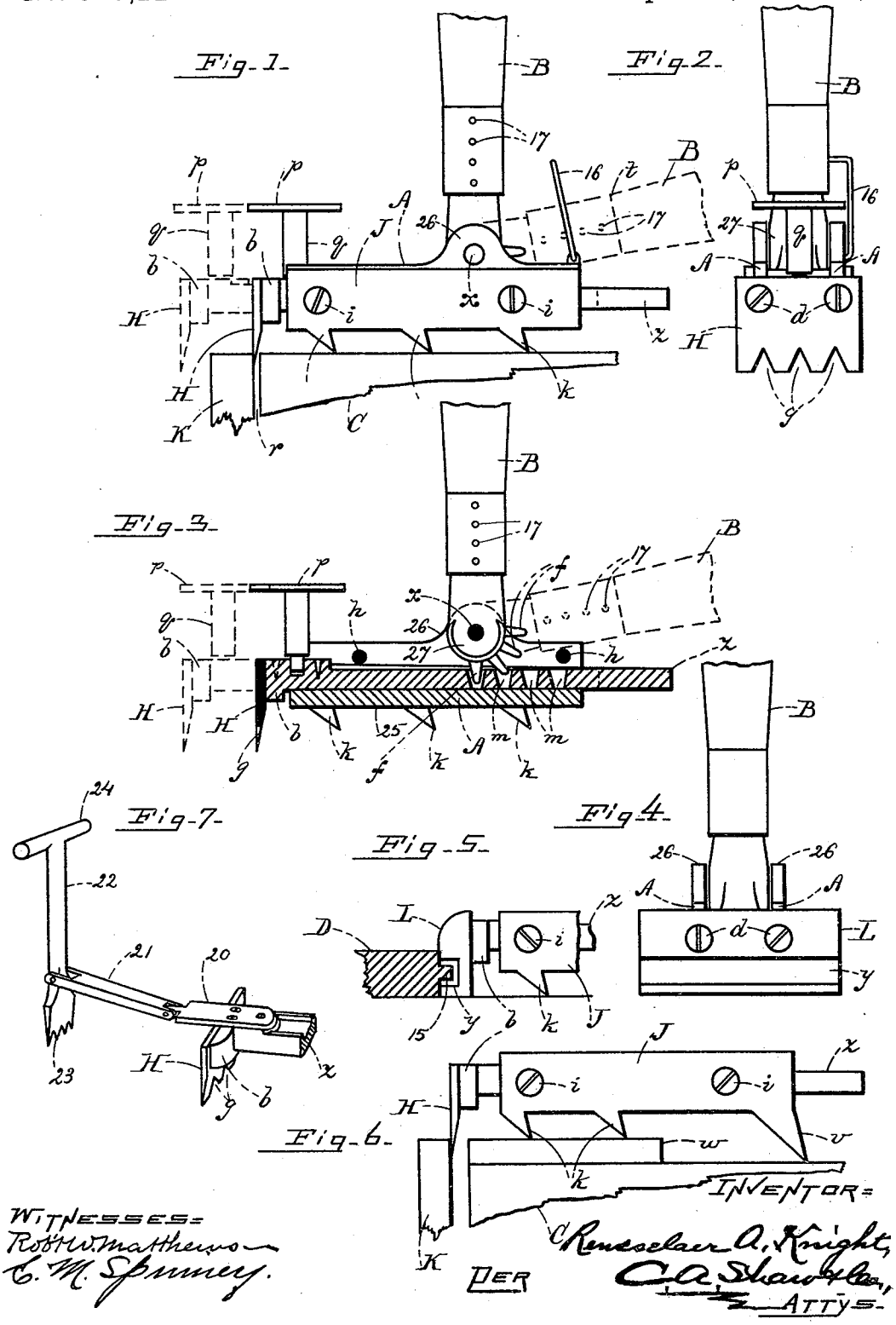
(No Model.)

R. A. KNIGHT.

BOX OPENER.

No. 389,228. Patented Sept. 11, 1888.



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BOX-OPENER.

SPECIFICATION forming part of Letters Patent No. 389,228, dated September 11, 1888.

Application filed May 22, 1888. Serial No. 274,696. (No model.)

To all whom it may concern:

Be it known that I, RENESELAER A. KNIGHT, of Chelsea, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Box-Openers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved box-opener represented as in use, the handle and box being shown as broken off; Fig. 2, an end elevation of the same; Fig. 3, a vertical longitudinal section, certain parts being shown in side elevation and the handle represented as broken off; Fig. 4, an end elevation designed to show the floor set-plate; Fig. 5, a side elevation showing the floor set-plate in use; and Figs. 6 and 7 views showing modifications of my improvement.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of box-openers which are adapted to be used for other purposes; and it consists in certain novel features, as hereinafter fully set forth and claimed, the object being to produce a more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body of the implement; B, the handle; C, a box, and D a floor-board.

The body A comprises a metallic bed-piece, 25, having upwardly-projecting side flanges, 26, in which a toothed segment, 27, at the lower end of the handle B is pivoted on a pin, *x*. Fitted to slide longitudinally on said body between said flanges is a horizontally-arranged rack-bar, *z*, provided with a series of holes or indentations, *m*, (see Fig. 3,) adapted to receive the teeth *f* on the pivoted segment 27, said bar being kept in position on said body by means of transverse pins *h*. The rack-bar *z* is provided on its forward end with a head, *b*, to which is secured by screws *d* (see Fig. 2) a vertically-arranged forcing-plate, H, provided on its lower edge with serrations or teeth *g*, adapted to pass astride of the nails in the box-cover when in use.

A longitudinally-arranged plate, J, is secured to each side of the body A by screws *i*, the lower edges of said plates being provided with rearwardly-projecting teeth *k*, adapted to engage the box C and hold the implement in position when in use. A detachable hand rest or plate, *p*, is disposed in the head *b* of the bar *z* by means of a rod or standard, *q*.

In the use of my improvement as a box-opener the implement is so placed on the box that the teeth or serrations *g* of the forcing-plate H will enter the crack *r* (see Fig. 1) between the cover K and body of the box C, the teeth *k* of the side plates, J, meanwhile resting upon said box as near as possible to said crack, the handle B being in a vertical position. The left hand of the operator is then placed on the hand-rest *p*, to prevent the forcing-plate H from accidentally slipping out from said crack, and the handle B depressed rearward until brought into the position shown by the dotted lines *t* in Fig. 1. This drives the bar *z* forward by means of the teeth *f* on the segment 27, thereby forcing the cover K from the box C, the retaining-teeth *k* on the plates J penetrating the material of the box C and preventing the body of the opener from slipping during the operation.

The leverage afforded by the handle B enables the plate H to be forced against the cover K with sufficient power to overcome the resistance of the nails which secure said cover to the body of the box.

In the modification shown in Fig. 6 the side plates, J, are each provided with an elongated tooth, *v*, at the rear end, the purpose of said teeth being to enable said plates to engage the body of the box C with certainty when a strengthening-brace, *w*, is used at the edge of said box, as is frequently the case. By employing the elongated tooth *v* the implement is also prevented from tilting when the box is provided with a brace, as described.

When the implement is used for setting the boards of a floor, the forcing-plate H is re-

moved from the head *b* of the sliding bar *z*, and a forcing-plate, L, is substituted therefor, said last-named plate being provided with a transverse groove or rabbet, *y*, in its face, adapted to receive a tongue, 15, (see Fig. 5,) on a floor-board, D, and prevent the same from being crushed or broken during the process of setting the boards.

The implement is used in substantially the same manner both for setting up floor-boards and removing box-covers.

A hook or pin, 16, (see Figs. 1 and 2,) is pivoted to the body A, its upper end being adapted to enter a hole, 17, of a series of holes formed in the lower end of the handle B, the purpose of said hook being to hold the handle at any angle into which it may be forced in setting up the floor-board D, thus preventing said board from springing or forcing the bar *z* backward, and holding it securely in position until nailed.

As it is sometimes difficult to keep the forcing-plate H in the crack *r* during the process of detaching the box-cover, it is in such cases found desirable to remove the hand-plate *p* and replace it by the device illustrated in Fig. 7. This device consists of a plate, 20, secured by screws to the head *b*, having a lever, 21, hinged to its outer end. Pivoted in the outer end of the lever 21 is a vertically-arranged bar, 22, provided with teeth 23 on its lower end and a transverse hand-bar, 24, on its upper end. In the use of this modification the hand-bar 24 is grasped in the left hand of the operator, and the teeth 23 of the bar 22 forced downward against the top of the cover, the body of the implement being placed on the side of the box with the forcing-plate H in the crack *r*, as before described.

The use of the parts 20, 21, and 22 enables the forcing-plate H to be easily held in the crack when the handle B is operated, as described.

Having thus explained my invention, what I claim is—

1. In a device of the character described, the combination of a body, detachable side plates secured thereto and provided with retaining-teeth for holding said body in position, a toothed segment pivoted in said body and provided with a handle, a rack-bar fitted to slide in said body, and provided with indentations for receiving the teeth on the segment, and a detachable forcing-plate secured to the forward end of said bar and projecting below the plane of said body, said plate being adapted to be inserted between the cover and body of a box, substantially as specified.

2. In a device of the character described, the combination of a body, detachable side plates secured thereto and provided with retaining-teeth for holding said body in position, a toothed segment pivoted in said body and provided with a handle, a rack-bar fitted to slide in said body and provided with indentations for receiving the teeth on the segment, a detachable forcing-plate secured to the forward end of said bar and projecting below the plane of said body, said plate being adapted to be inserted between the cover and body of a box, and a detachable hand-plate secured to the forward portion of said rack-bar to enable the forcing-plate to be held in engagement with the box-cover, substantially as set forth.

3. In a device of the character described, the combination of a body, detachable side plates secured thereto and provided with teeth for holding said body in position, a toothed segment pivoted in said body and provided with a handle, a bar fitted to slide on said body and provided with indentations for receiving the teeth on the segment, a detachable forcing-plate secured to said bar, and a hook pivoted to said body and adapted to enter a hole in said handle, whereby said handle may be locked or secured in a depressed position, substantially as specified.

4. In a device of the character described, the combination of a body, detachable side plates secured to said body and provided with teeth, a toothed segment pivoted in said body and provided with a handle, a bar fitted to slide on said body and having indentations for receiving the teeth on said segment, a detachable forcing-plate secured to the forward end of said bar, and a lever pivoted to the head of said sliding bar, and having a toothed clutch-bar pivoted in its outer end for engaging the cover of a box and holding said sliding bar in position, substantially as set forth.

5. In a device of the character described, the combination of the body A, the detachable plates J, secured to said body and provided with teeth *k*, the toothed segment B, pivoted in said body and provided with teeth *f*, the bar *z*, having the indentations *m*, the detachable forcing-plate H, provided with teeth *g*, and the hand-plate *p*, secured to the bar *z*, substantially as specified.

6. In a device of the character described, the lever 21, hinged to the plate 20, and the bar 22, provided with teeth 23 and pivoted in the lever 21, in combination with the bar *z*, detachable forcing-plate H, and body A, provided with the toothed side plates, J, and pivoted segment 27, having the handle B, substantially as specified.

7. In a device of the character described, the detachable side plates, J, provided with the teeth *k* and elongated teeth *v*, in combination with the body A, pivoted segment 27, handle B, sliding bar *z*, and a forcing-plate, as H, constructed and arranged to operate substantially as set forth.

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