F. A. HANES & W. STAPLES.

ADJUSTABLE BOX BIT.

APPLICATION FILED AUG. 28, 1907.

960,315. Patented June 7, 1910.

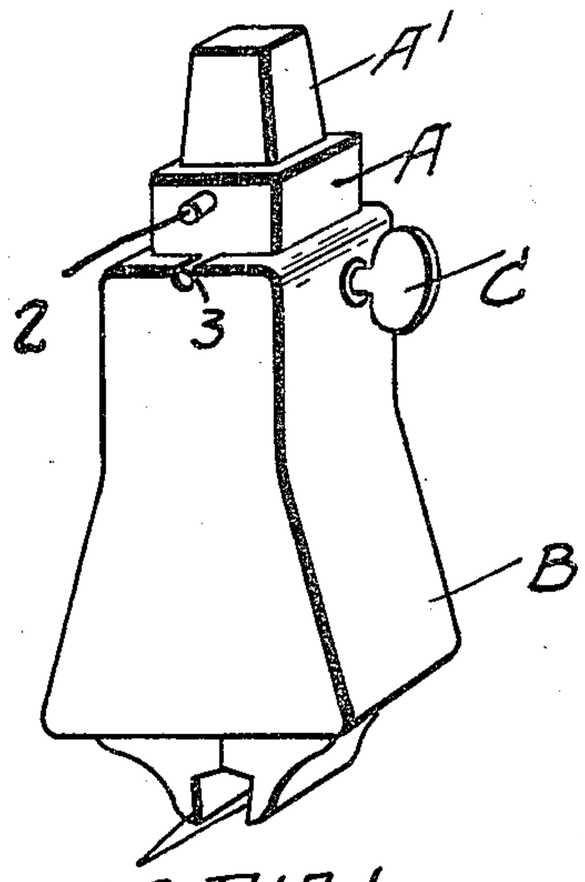

FIG. 1.

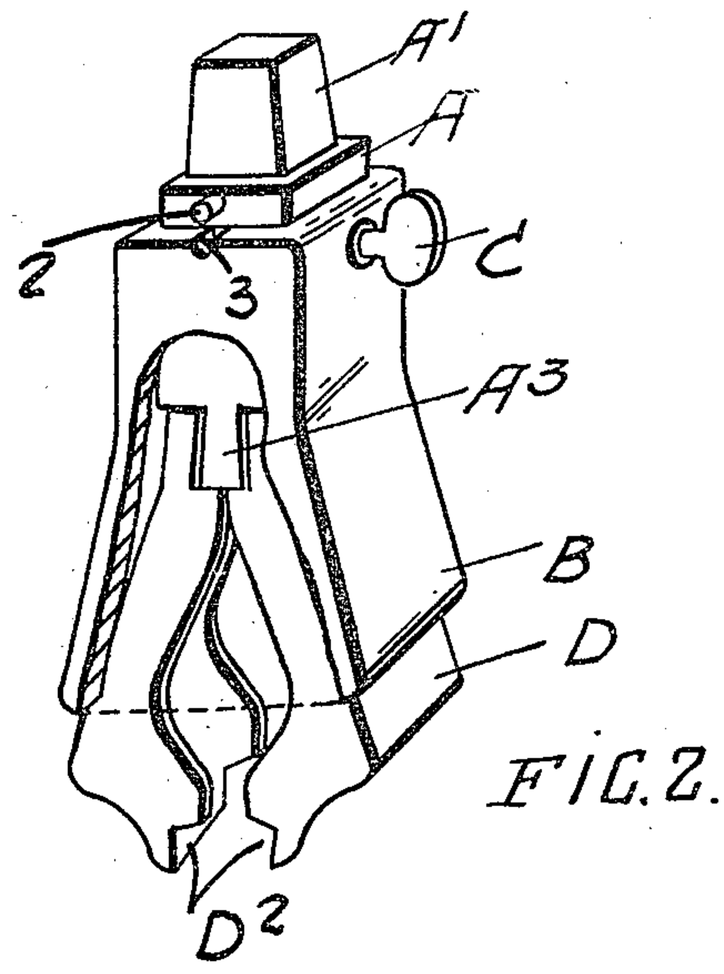

FIG. 2.

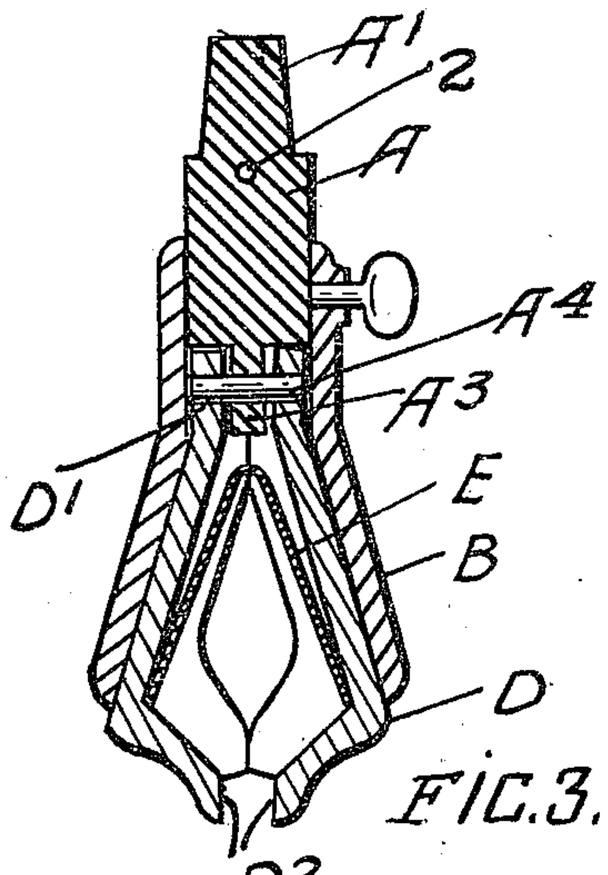

FIG. 3.

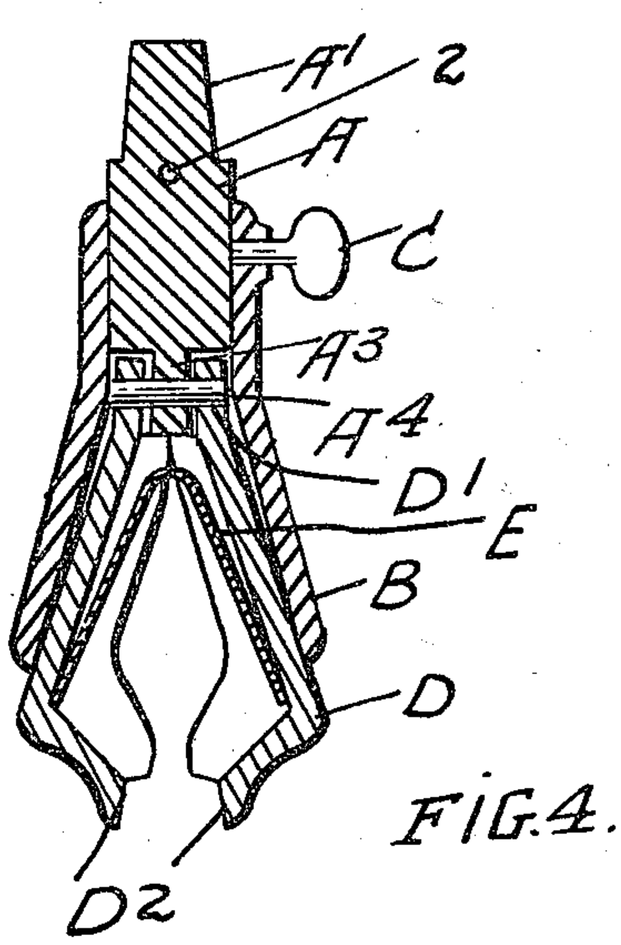

FIG. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE BOX-BIT.

960,315. Specification of Letters Patent. Patented June 7, 1910.

Application filed August 28, 1907. Serial No. 390,535.

To all whom it may concern:

Be it known that we, FREDERICK ALONZO HANES, agent, and WILLIAM STAPLES, carpenter, both of the town of Huntsville, in the district of Muskoka, Province of Ontario, Canada, have invented certain new and useful Improvements in Adjustable Box-Bits, of which the following is the specification.

Our invention relates to improvements in adjustable box bits, and the object of the invention is to provide a bit of this class, which may be readily operated and in which the space between the jaws will be perfectly free to allow the entrance of the bolt as the nut is being screwed home and it consists essentially of a stock designed to fit into the end of a brace, a casing fitting over the stock and provided with a flaring mouth and a set screw extending therethrough against the stock, a retaining pin extending from each side of the stock and designed to engage with a recess in the upper end of the casing opposing jaws held on a pin projecting from the outer end of the stock and provided with notch gripping ends and a separating spring of an inverted V-shape located between the jaws as hereinafter more particularly described by the following specification.

Figure 1 is a perspective view of our improved box bit showing the jaws in contracted position. Fig. 2 is a similar view to Fig. 1 showing the side of the casing broken away and the jaws expanded. Fig. 3 is a vertical section showing the jaws contracted. Fig. 4 is a vertical section showing the jaws expanded.

In the drawings like characters of reference indicate corresponding parts in each figure.

A is the stock which is provided with a reduced upper portion A′ of substantially rectangular form designed to fit into the brace.

A^3 is a reduced lower end having a pin A^4 extending laterally from each side of the reduced portion A^3.

B is the casing which is secured on the stock A by means of the set screw C. The casing flares outwardly on two sides as indicated.

D are jaws which are provided with enlarged holes D′ at the top and through which the pin A^4 extends and which permit a certain determinate freedom of movement of the outer ends of the jaws. It will be noticed that the jaws are flared outwardly and abut each other near the bottom in the contracted position and are provided with notches D^2 located opposite to each other.

E is a spring V-shaped in form and located in an inverted position between the jaws D, the jaws being formed hollow to receive the spring. The tendency of the spring E is to force the jaws apart into an expanded position.

2 is a cross pin extending through the stock and projecting therefrom and 3 are notches made in the end of the casing and into which the pin enters when the jaws are fully expanded. By means of the pin 2 the stock is held within the casing. By unloosening the set screw C and pressing the casing B upwardly, the jaws D will be carried by the spring outwardly or into the expanded position and close to the casing as indicated in Figs. 2 and 4. The amount of movement of the casing B will determine the distance which the notches D are separated so as to grip the nut. When the jaws have been moved the requisite distance to grip the nut the set screw C may be tightened and thereby hold the jaws in the expanded position.

By such a device as we have described we are enabled to use a brace on our box bit and thereby quickly and expeditiously tighten up a nut in position where it would be difficult to use an ordinary wrench.

By the use of a spring of the form shown it will be seen that the bolt may enter freely between the jaws without any obstacle so as to allow of the nut being screwed home.

What we claim as our invention is:

A box bit comprising a stock having a reduced lower end having an opening therein, a pin passing through said opening, opposing jaws having openings at their upper ends engaging with said pin, said jaws inclining first outwardly and then inwardly to form nut gripping ends, and said jaws having side flanges, a spring inverted V-shaped bearing against said outwardly inclined jaws and confined against displacement by said inwardly inclined portions and

said flanges, a casing having its upper end of rectangular form to engage the stock and having a notch in its upper edge and its lower end having two opposing sides flaring outwardly to engage the outwardly inclined walls of the jaws, a thumb screw passing through the rectangular portion of the casing and adapted to secure the same to the stock, and a pin 2 in the stock adapted to engage the notch and limit the upward movement of the casing thereon.

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