Mar. 20, 1923.

1,449,083.

P. L. BILLINGSLEY.

MORTISING DEVICE.

FILED JULY 5, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

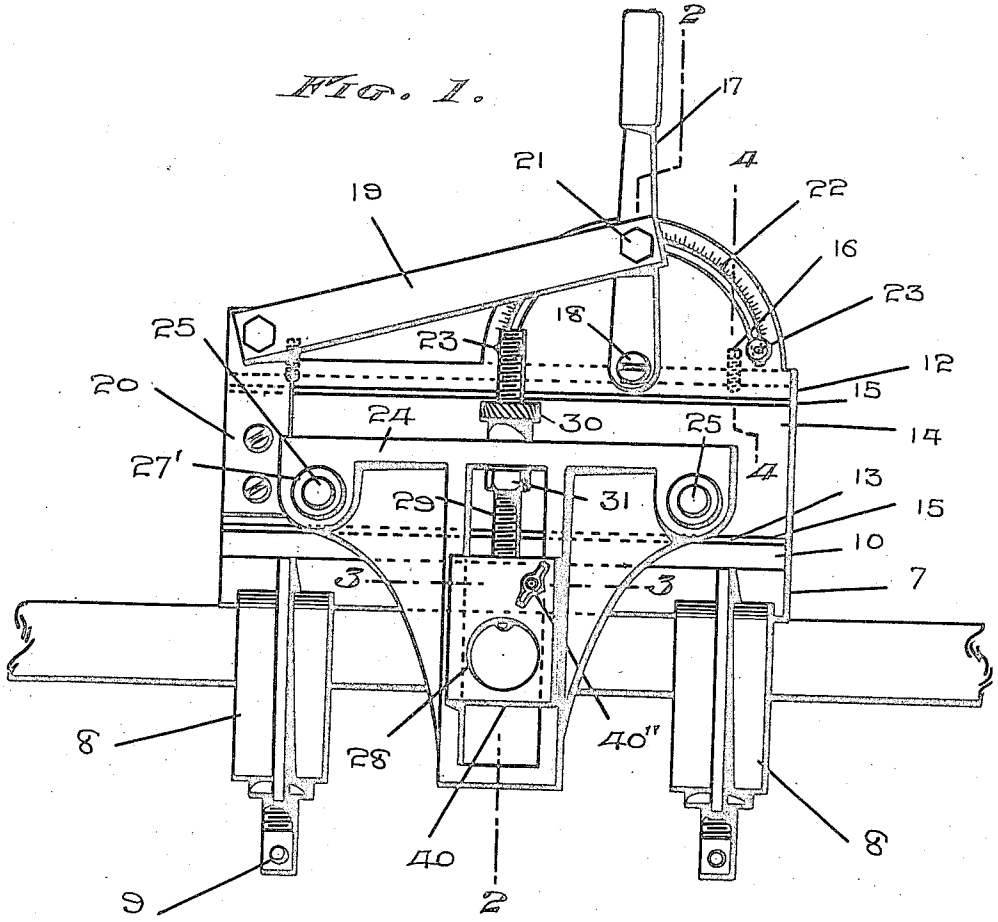
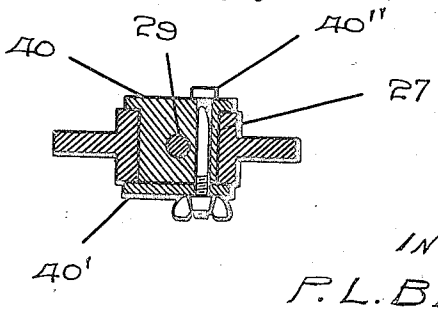


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

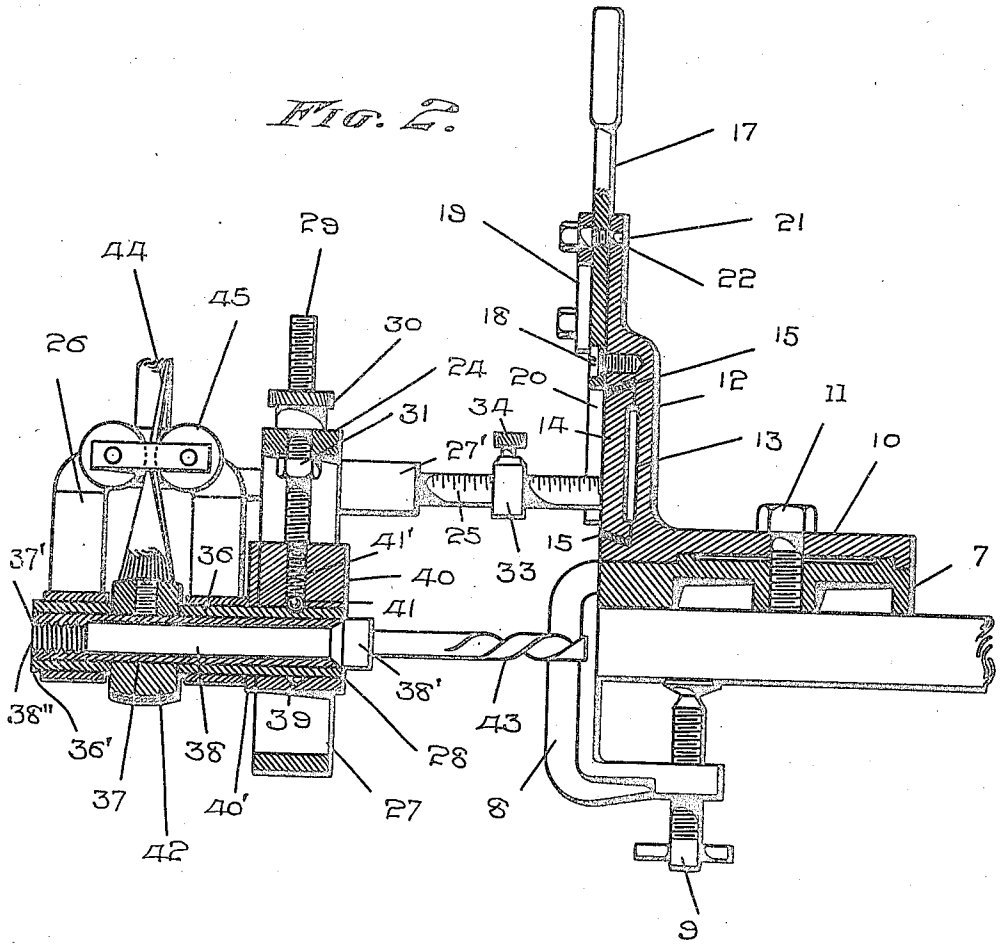
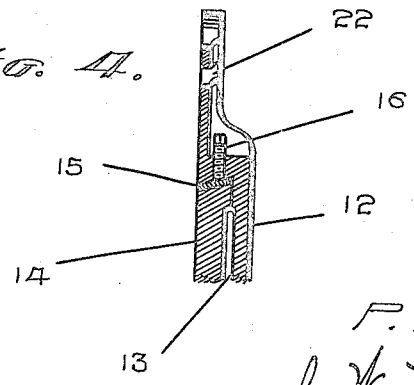


Fig. 4.



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Patented Mar. 20, 1923. 1,449,083

UNITED STATES PATENT OFFICE.

PERCY LEON BILLINGSLEY, OF ORLANDO, FLORIDA.

MORTISING DEVICE.

Application filed July 5, 1921. Serial No. 482,382.

To all whom it may concern:

Be it known that I, PERCY L. BILLINGSLEY, a citizen of the United States, residing at Orlando, in the county of Orange and State of Florida, have invented certain new and useful Improvements in Mortising Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to mortising and kindred devices, and aims to provide a novel and improved portable device of that kind adapted to be driven by a flexible driving mechanism, and adapted especially for use as an attachment to the flexible operating mechanism disclosed in my copending application filed May 17, 1921, Serial No. 470,413. (Patent No. 1,424,148 granted August 1, 1922).

Another object is the provision of such a device comprising novel means for mounting and guiding an auger bit or equivalent tool, for making mortises or recesses in the edges of doors, boards, and other objects, or for doing other similar work, provision being made for adjustments to regulate the transverse position of the mortise or slot, the length thereof, the depth of the mortise or recess, and the angles of the end walls of the mortise.

A further object is the provision of such a device which can be conveniently used instead of the ordinary brace and bit, with a considerable saving in labor and time, and not only enabling the work to be done with ease and dispatch, but also with accuracy and neatness, to comply with various conditions required.

The invention has for another object the provision of such a device having novel features of construction and arrangement of the component parts, to enhance the efficiency and utility of the device.

With the foregoing and other objects in view, which will be understood as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the device as applied to a door or other object, with the driving mechanism removed.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1, portions being shown in elevation, and also showing the driving mechanism attached to the device.

Figs. 3 and 4 are sectional details taken on the respective lines 3—3 and 4—4 of Fig. 1.

The device comprises a base 7 to seat on the door or other object, as seen in Figs. 1 and 2, adjacent to the edge thereof, and the base has angle brackets 8 extending from one edge near the ends thereof to project across the edge of the door or object in which the mortise or recess is to be formed, and clamping screws 9 are threaded through the terminals of said brackets opposite to the base 7, for clamping the base on the door or object.

A plate or member 10 is fitted for turning movement on the base 7 about a pivot bolt or screw 11 extending through said plate and threaded into the base, and also serving to clamp said plate on the base. The plate 10 has an upright flange 12 which can be positioned either parallel with or at different angles relatively to the edge of the object by turning the plate 10 when the screw 11 is loosened. The outer side of the flange 12 is provided with a horizontal longitudinal dove-tailed channel 13 in which a slide 14 of similar cross-section is movable. Wear strips 15 are disposed between the upper and lower edges of the slide 14 and the upper and lower bevelled undercut walls of the channel 13, for snugly guiding the slide 14 for reciprocatory movements, and screws 16 are threaded through the upper edge of the flange 12 to contact with the upper strip 15, for taking up wear.

In order to conveniently move the slide 14, a hand lever 17 is fulcrumed on a pivot screw 18 secured in the flange 12 above the channel 13, and said lever extends upwardly, and is connected by a link 19 with a piece 20 secured to the outer side of the slide 14. The pivot screw or member 21 which connects the link 19 and lever 17 works within an arcuate slot 22 with which the flange 12 is provided above the channel 13, and adjustable stop bolts or members 23 are disposed in said slot for the contact of the pivot member 21, to limit the oscillation of the lever 17, and thus provide a length gage, to determine the length of the mortise or

slot made. The slot 22 is graduated off by markings on the flange 12 to assist in placing the stops 23 at the desired points, in order to define the length of the mortise or slot, by limiting the movement of the lever 17 and slide 14 accordingly.

A depth slide 24 is mounted for movement toward and away from the edge of the object and the base 7. Thus, said slide 24 has sleeves 27′ slidable on rods 25 carried by and extending horizontally or perpendicularly from the slide 24. Stop collars 33 are fitted slidably on the rods 25, and have set screws 34 to clamp them in the desired adjusted positions, and said rods can be graduated to assist in positioning said stop collars, according to the depth of the mortise or recess desired. The collars 33 limit the movement of the slide 24 on the rods 25 toward the base 7 and object, to thereby determine the depth of the mortise, and also providing a depth gage.

The slide or member 24 has a guide or slideway 27 arranged vertically between the ends of said slide, and a slide or block 40 is slidable upwardly and downwardly in said guide or slot 27, and has a circular opening or bore 28 extending therethrough transversely of the slide 24 and guide 27. The slide 40 has a clamping plate 40′ at one side held by a clamping bolt 40″ to clamp said slide in its adjusted position. An upstanding screw stem 29 is secured to the upper portion of the slide 40 and passes slidably through the upper portion of the slide 24, and an adjusting nut 30 is threaded on said stem and bears on the slide 24. A lock nut 31 is threaded on the stem below the upper portion of the slide 24 to be tightened for holding the stem 29 and slide 40 in adjusted position.

The auger bit 43 or equivalent tool is rotated by a driving or operating mechanism which is assembled with the slide 40. As shown in Fig. 2, the flexible operating mechanism, as disclosed in the aforesaid application, is used, and only the freely movable terminal portion of such mechanism is shown (the same reference characters being used as in such application). Such mechanism includes a terminal yoke 26 which has bushings 36 and 36′ secured in the terminals thereof, and a tubular spindle or arbor 37 is fitted for rotation in said bushings. A pulley wheel 42 is secured on the spindle 37 between said bushings for retaining the spindle in place, and a belt 44 passes around said pulley wheel for rotating said spindle, and is guided between rollers 45. The shaft or shank 38 which carries the bit or tool 43 is received by the tubular spindle 37, and said spindle has a screw-threaded portion 37′ at that end opposite to the bit into which the screw-threaded terminal 38″ of the shaft 38 is secured, for fastening said shaft to the spindle. The shaft has a collar 38′ thereon to bear against that end of the spindle opposite to the screw-threaded end, for fastening the shaft securely to the spindle, and the bit or tool 43 projects beyond the collar 38′. The bushing 36 is extended from the yoke 26 in order to enter the opening 28 of the slide or block 40, so as to provide a detachable slip connection between the driving mechanism and the portable or movable device. The extended portion of the bushing 36 is conveniently slipped in the opening 28, for assembling the mechanism and device, and in order to hold them assembled, said bushing has an annular groove 39 in the extended portion thereof to receive a ball or catch 41 slidable in the slide or block 40 and projected by a spring 41′ confined behind said ball. When the slide 40 and bushing 36 are fitted together, the ball or catch 41 is pressed into the bore or socket, and when the parts are moved together, said ball will snap into the groove 39, thereby holding the yoke 26 and slide 40 together, but permitting said parts to turn relatively, when the device is moved longitudinally. The bushing 36 can thus turn in the slide 40. When the driving mechanism and device are thus assembled, the bit or tool can be attached by sliding the shaft 38 into the spindle 37 and screwing said shaft into place. The bit is thus secured to the rotary spindle 37 of the driving mechanism, and such spindle and bit will be adjusted with the slide 40 upwardly and downwardly. The terminal portion or bushing 36 of the driving mechanism is thus conveniently assembled with the device for adjustment therewith, to position the bit or tool accordingly, and in a like manner other devices or attachments can be used interchangeably with the mortising device, by having such devices each equipped with a slide or block 40 to fit on the bushing 36. Various devices or attachments for doing different kinds of work can thus be used interchangeably with the driving mechanism.

In using the device, the slide or block 40 is assembled with the driving mechanism, by fitting the bushing 36 in said slide, and the ball 41 will snap into the groove 39, to hold the mechanism and device assembled. The bit or tool 43 is then attached by inserting the shaft or stem 38 thereof into the tubular spindle 37 and screwing said shaft into place within the spindle. The base 7 is then clamped on the edge portion of the door, board, or other object, with the bit 43 retracted and projecting toward the edge of the object. By adjusting the slide 40 upwardly and downwardly, the vertical position of the bit 43 is adjusted, to determine the transverse position of the mortise or slot between the opposite sides of the object, thereby providing a transverse positioning gage. The width of the mortise or slot is

determined by the diameter of the bit 43, and different sizes of bits can be used interchangeably. The stop collars 33 are then adjusted on the rods 25 and tightened to limit the movement of the slide 24, and thereby determine the depth of the mortise. The stops 23 are then adjusted to determine the length of the mortise, and the plate or member 10 is adjusted to position the bit 43 either at right angles with the edge of the object or at other angles, to either make the end walls of the mortise perpendicular with or at acute or obtuse angles with the edge of the object, as desired. After such adjustments have been made, the mortise or recess is readily cut, when the auger bit is driven by the driving mechanism, by simply sliding the slide 24 toward the object, so that the bit 43 bores into the wood, and by moving the slide 14 the bit will rout out the wood to lengthen the mortise to the limit desired, the depth of the mortise being limited by the contact of the sleeves 27′ of the slide 24 with the stop collars 33.

Various sizes of mortises can thus be readily cut in the edges of the doors or other objects, for receiving locks, etc., and the mortises can be of different depths and lengths, and may also be positioned in different transverse positions between the opposite sides of the object. It is also possible to make the mortise with its end walls arranged at acute or obtuse angles with the edge of the object.

The work can be done quickly and easily, without the labor and time required as when doing the work with an ordinary brace and bit. Furthermore, the work is done accurately and neatly, and without a possibility of spoiling the job, because the adjustments made will define and limit the movement of the bit or cutter.

Having thus described the invention, what is claimed as new is:—

1. A mortising device comprising a base to be clamped on the edge portion of an object at one side thereof, a pair of rods supported from said base to be disposed at said side of the object and to project beyond the edge of the object, a slide movable on said rods toward and away from the object and formed between said rods with a guide extending transversely with respect to said edge of the object to extend across said edge, and a slide adjustable in said guide for supporting an auger bit.

2. A mortising device comprising a base to be clamped on the edge portion of an object, a slide supported from said base for movement longitudinally of the edge of said object, rigid rods outstanding from said slide, a second slide movable on said rods toward and away from the object, and having a guide between said rods extending transversely with respect to said edge of the object, and a slide for supporting an auger bit movable in said guide.

3. A mortising device comprising a base to be clamped on the edge portion of an object at one side thereof, a plate bearing on said base and pivotally connected thereto for angular adjustment, said plate having a flange extending away from the base at an angle, a slide carried by said flange at one side thereof to move longitudinally with reference to the edge of the object, rigid guiding means carried by said slide and extending away from the edge of the object, a slide movable on said guiding means toward and away from the edge of the object, and a slide carried by the second named slide for adjustment transversely of said edge of the object and adapted to carry an auger bit to enter the edge portion of the object.

4. A mortising device comprising a base to be clamped on the edge portion of an object at one side thereof, a plate bearing on said base and pivotally connected thereto for adjustment to different angular positions, a slide carried by said plate and movable longitudinally of the edge of the object, a second slide supported from the first named slide for movement toward and away from the edge of the object, and a third slide supported from the second slide for adjustment transversely of said edge and for supporting an auger bit to enter the edge portion of the object.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PERCY LEON BILLINGSLEY.

Witnesses:
H. M. VOORHIS,
ANNIE M. SADLER.