

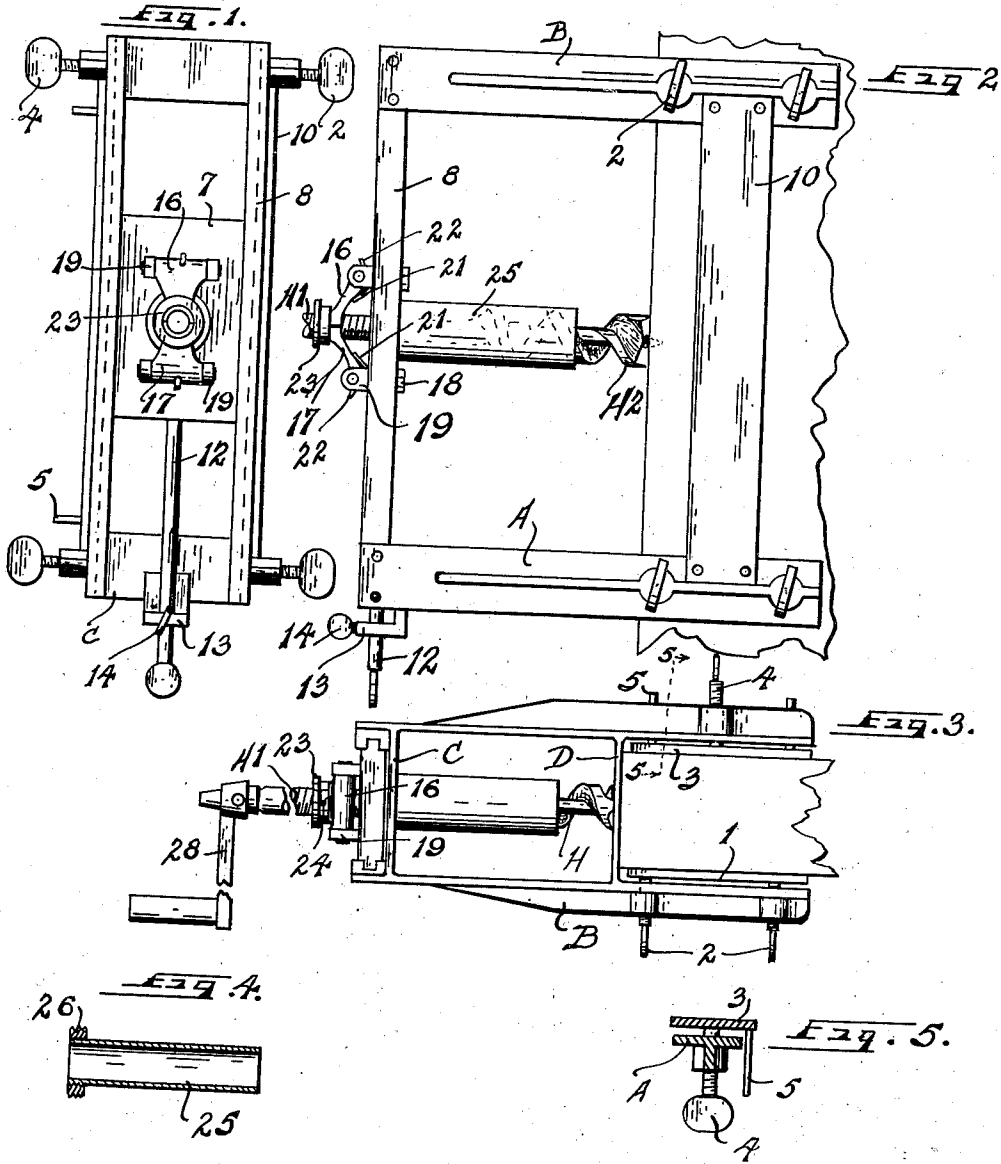
March 12, 1940.

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2,193,204

BORING MACHINE

Filed March 26, 1938



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2,193,204

BORING MACHINE

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Application March 26, 1938, Serial No. 198,256

3 Claims. (Cl. 77-62)

This invention relates to improvements in portable manually operated wood boring devices for morticing and doweling. The object of the improvements is, first, the elimination of superfluous mechanical complexities. Second, to provide a machine which, when secured to an object for morticing or doweling and set in fixed relation thereto, will bore mechanically true holes in the object both in the instance of a single bore or in a row of overlapping bores, thereby eliminating the slow and difficult process of chiselling out the intermediate cross sections and unaligned side sections between the holes so bored.

A still further object is to provide a mechanical aid for drilling a row of aligned holes which will keep the holes parallel and aligned and which will also keep the bit from breaking off into an adjoining hole even though the holes are overlapping or from following the grain of the wood.

These objects I accomplish with the device illustrated in the accompanying drawing in which similar numerals and letters of reference indicate like parts throughout the several views and as described in the specification forming a part of this application and pointed out in the appended claims.

In the drawing,

Figure 1 is a front view of the device.

Figure 2 is a side elevation of Figure 1, showing the boring device attached to a door or board, ready for use, the handle and part of the bit being cut away.

Figure 3 is a plan view of the device as shown in Figure 2.

Figure 4 is a longitudinal section of a smaller cylinder for using smaller diametered bits in the device.

Figure 5 is an inverted section on line 5-5 of Figure 3.

In the drawing I have shown clamp yokes A and B spaced apart by suitable spacer bars 8 at their head end and 10 at their bifurcated ends. The bifurcated ends of said yokes are fitted with clamp plates 1 on one side held in relation to the yokes by spaced apart thumb screws 2 and plates 3 on the other side held in place by a single thumb screw 4, and guided by pins 5 extended from the plate 3 parallel to the thumb screws.

The yokes are preferably formed in a single casting with parallel spacers C and D spacing the sides apart forming a box-like frame work at each end, the outside or each yoke A and B being reinforced by ribs for strength.

A bit breast plate 7 is slidably mounted and carried in grooves or channels formed on the in-

side of the bars 8 thus the plate 7 may be moved end to end of the entire frame work made by the two yokes and their spacers. As a means for controlling the position of the plate 7 I provide a rod 12 mounted in one end of the plate 7 carried through an angle bracket 13 mounted in one of the spacers C of the yoke A. A set screw 14 is provided in the end of the bracket 13 by which the position of the rod may be set and held stationary at any point.

On the outside face of the bit breast plate 7 there is a set of spaced apart half circular internally threaded jaws 16 and 17 made to engage the threaded bit shaft as shown in Figures 2 and 3. These jaws are pivotally mounted to the plate 7 by pivot pins passing through each outside end of the jaws the pins being held by spaced apart bearing blocks 19 secured through the plate 7 by threaded stub shafts and held securely by lock nuts 18 on reverse side of plate 7.

A bayonet slotted sleeve 23 is passed over the two jaws 16 and 17 and engaged over a pin 24 on the jaw 17 to lock the two jaws in engagement with the threaded shaft of the bit. The jaws are held spaced open, when not in use, by leaf springs 21 set under the jaws and pins 22 hold the jaws from opening too far.

These springs are to quickly release the bit for withdrawal from the bore when the sleeve has been released from the jaws, making quicker action in the use of the device.

Centrally through the plate 7 and in axial alignment with the axis of the two lock jaws, when they are engaged together, there is a threaded aperture in which the boring bit guide tube 25 is inserted. These tubes may vary in size the largest being externally threaded to fit the threaded aperture, and when smaller holes are being bored with the device, the smaller tubes will be provided with filler rings 26, said rings being externally threaded to fit into the said aperture, and internally threaded to fit the tube or, if desired, the tubes may be provided with a threaded flange for this purpose. Figure 4 of the drawing shows one of the smaller tubes. Internal collars (not shown) may be inserted into the inside open end of any of the larger tubes if bores smaller than diameter of the threaded bit shafts are desired.

The bit shaft H1 of this device shown in Figures 2 and 3 is provided with the usual tapered end for engaging a crank arm 28 or an ordinary brace and the shaft of the bit H is threaded to mesh in the jaws 16 and 17, with the inner end of the bit formed into the cutting and boring end

H2 preferably of the usual spiral form as shown.

The operation of my device is as follows:

With the exception of the application of the device in the instance of doors already hinged to their respective supports, it is of no consequence in what position or at what angle the device is applied. In the case of doors already hung, however, the logical position of the device would be with the protruding end of the bit breast adjusting rod 12 pointing upwardly.

The clamp plates 1 each having two adjusting screws 2 are set to a predetermined distance from, and parallel with the inside edge of their respective yoke flanges (distance determined by thickness of material to be bored conjointly with center of bore), and are to remain in that position until the job or jobs for which they were set have been accomplished. The single screw 4 on opposite side is to be manipulated for tightening the grip or releasing for removal of the device. This particular arrangement of pairs of screws on one side and single screws on the opposite side holds a twofold purpose, one for expeditious removal and refastening the device to the work and the other for a firmer grip on the work.

It will also be observed that besides automatically feeding the auger into the timber the jaws 16 and 17 also at the same time perform the very important mission of insuring the bit against deviation from a straight forward course. In addition, by removing sleeve 23 the jaws will, by self action of spring 21 automatically open sufficient to facilitate expeditious withdrawal of the bit from the bore.

The great importance of the jaws 16 and 17 will be evident when the fact is realized that the diametrical measurements of the commercially manufactured auger bits are some thousandths of an inch less at the dead end of the auger portion than at the head or cutting end. Consequently, the guide tube 25 being diametrically equal throughout it follows that unless some preventive means such as the jaws 16 and 17 is provided, the bit will be subject to deviation in either direction off its true course, which would render the device useless over and above the merit of the commonly used hand brace.

Being fully aware that prior to my invention diverse devices along the same objective have been made and patented, and although fully convinced from a lifetime practical experience in the field of building construction that the automatic feeding, direct action, and the elimination of all

gears constitute in themselves a valuable improvement in the art, I nevertheless, do not claim this particular combination broadly, but I claim the jaw mechanism as being justly and truly my own origination as an indispensable adjunct in the attainment of mechanically true performance for which the machine in its entirety was designed and constructed.

I do not however wish to be tied exclusively to the threading of the bit shaft and the lock jaws, should other means equally efficient be available and desirable for the propelling of the bit, in which case the lock jaws, minus the threads, would still serve the purpose for which they are intended, namely, to keep the bit from deviating.

Having thus described my invention I desire to secure by Letters Patent and claim:

1. A device for boring aligned holes in wood with an auger bit; comprising a framework adapted to be secured to and embrace the edge of the wood to be bored; a breast plate longitudinally adjustable on said framework; a pair of opposed internally threaded jaws pivotally mounted to said breast plate on each side of a central hole through said breast plate; means to lock the jaws together to guide a bit; a cylindrical tube mounted on the opposite side of said breast plate to guide the bit into the wood; and removable means to vary the size of the bore of said cylindrical tube.

2. In a device for boring aligned holes the combination, of a breast plate having a central guide opening therein carrying a tubular guide member; spaced apart opposed jaws having semi-circular internally threaded engaging portions which when engaged form a circular guide in axial alignment with the opening in the breast plate; springs to normally hold the jaws in open disengaged position; means to lock the jaws in engaging position; and means to attach the breast plate to the work being bored.

3. In a device for boring aligned holes the combination, of a breast plate having a central opening; spaced apart jaws having semi-circular engaging portions which when engaged form a circular guide in axial alignment with the opening in the breast plate; means to lock the jaws in engaging position; a support for said breast plate; means to permit longitudinal movement of the breast plate on its support; and means to attach the support to the work being bored.

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