May 31, 1932. J. H. ABRAMSON 1,861,289

PORTABLE MORTISING DEVICE

Filed Dec. 8, 1928

Fig. 1.

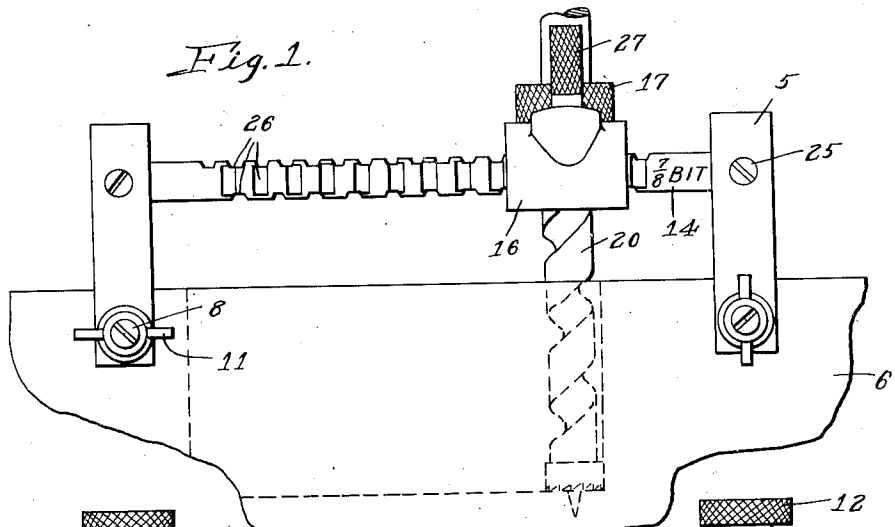



Fig. 2.

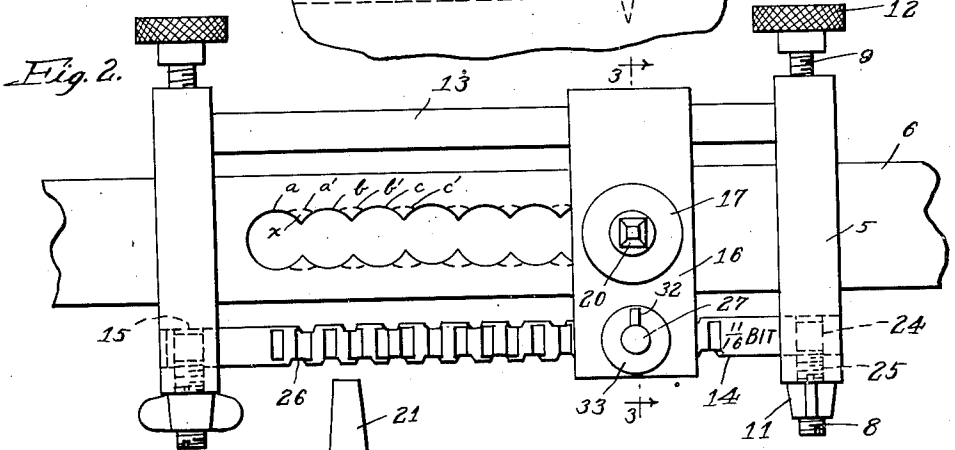



Fig. 3

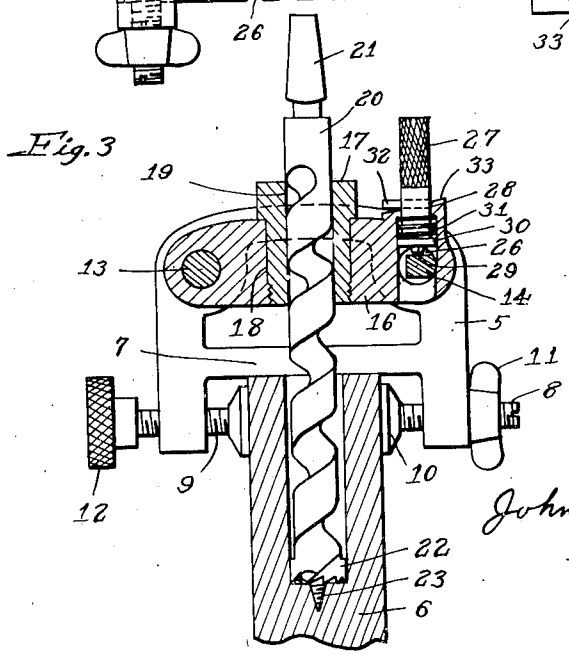
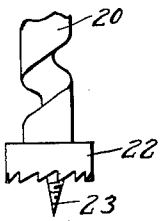



Fig. 4




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# UNITED STATES PATENT OFFICE

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## PORTABLE MORTISING DEVICE

Application filed December 8, 1928. Serial No. 324,655.

This invention relates to a portable mortising device especially designed and adapted for use by carpenters for the mortising of doors to receive their locks, the invention being, however, not particularly limited to such use.

The principal object of the invention is to provide a device of this kind in the form of a jig quickly adjustable to fit any sized door, having a guide thereon for an auger bit shiftable step by step for the boring of a series of holes side by side into the door panel to form a mortise, the guide serving to insure accurate alignment of all of the holes and guiding the bit in the boring of each hole so that the holes are absolutely parallel and no difficulty is encountered in boring each hole to the full depth desired. Thus, the mortising of a door can be done better and in much less time than by the old method.

An important feature of my invention lies in the provision of indexing means for the guide for determining the step by step setting thereof according to the width of mortise to be made and hence according to the size of bit to be used, the object being to produce a mortise sufficiently smooth on its side walls that it is unnecessary to use a chisel to smooth the same after the boring operations.

A still further feature worthy of special mention is the provision of a set of saw-toothed auger bits for use in connection with the device to take care of the mortising of doors for different sized locks, the bits having different sized heads for the boring of the different sized holes but all having the same sized shank for use interchangeably in the same guide opening provided in a collar mounted on the guide. The saw-toothed bits are especially suited for work of this kind; they make a clean cut and are equal to the task of cutting away fillets between adjoining holes, for which purpose an ordinary auger bit could not be used.

The invention is illustrated in the accompanying drawings, wherein—

Figs. 1 and 2 are respectively a side and top view of a mortising device made in accordance with my invention shown applied to the side panel of a door;

Fig. 3 is a vertical cross-section taken on the line 3—3 of Fig. 2, and

Fig. 4 is an isolated fragmentary view of the head end of a saw-toothed auger bit of a different size from that shown in the other views, the same having, however, the same sized shank.

Corresponding reference numerals are applied to the parts in the several views.

In the mortising of a door to receive the door lock, it has been customary for the carpenter to drill a series of holes approximately to the same depth and as nearly as possible in line with and parallel to one another, following which it was necessary to use a chisel to clear out the fillets and such other wood as could not be bored out. This left a great deal to the skill of the workman and took considerable time, and at best a rather rough job was the result. The device of my invention, it will presently appear, enables a relatively unskilled workman to do the same work in less time and make a better job of it.

The device comprises a pair of end frames 5 arranged to straddle the edge of the side panel 6 of a door and be properly located by cross portions 7 of said frames bearing on the edge of the door as shown in Fig. 3, both frames being of skeleton form for lightness and cheapness. Clamping screws 8 and 9 suitably provided with pads 10 on the inner ends thereof to avoid marring the door, are threaded in the end frames and are arranged to clamp the frames onto the door, the screws 8 being arranged for adjustment by a screw-driver and held in adjusted position by wing nuts 11, and the screws 9 being provided with knurled heads 12 permitting the loosening and tightening thereof by hand so that once the screws 8 have been adjusted for a door of a certain thickness the device can be quickly applied to and removed from one door after another, as for example, where a number of doors of the same thickness have to be mortised. A pair of parallel, horizontally spaced guide rods 13 and 14 are mounted in the frames 5. The former is fastened rigidly at both ends to the frames, and the latter is free to turn, but is held against endwise movement, in the holes 15 provided therefor

in said frames for a purpose presently to appear. A guide 16 is slidably mounted on the rods 13 and 14 for adjustment from one frame toward the other in either direction, and hence lengthwise of the edge of the door. A collar 17 is threadedly mounted in a hole 18 in the guide 16 and has a smooth bore 19 arranged to serve as a guide opening for snug reception of the shank of an auger bit 20. The latter has the usual squared and tapered end 21 for reception in the chuck of a brace and, for a reason presently to appear, is preferably provided with a saw-toothed head end 22 provided with the usual lead screw 23. Now, from this much description it will be seen that when the device has been clamped in place on the door with the guide rods 13 and 14 properly aligned therewith and the guide opening 19 properly spaced with reference to opposite sides of the door, a series of holes can be bored with definite assurance that they will all be in line with one another and absolutely parallel. Then too, provided the auger bit is of the right length to allow each hole to be bored to the limit of the bit, all of the holes will be of the same depth, the workman simply boring each hole deep enough to bring the chuck of the brace into engagement with the collar 17. I will now describe a feature of the device permitting indexing of the guide 16 from one position to another so that the series of holes will be uniformly spaced and the fillets left therebetween can be neatly cut away to produce a mortise smooth enough on both sides so that it is not necessary to use a chisel at all to complete the mortise; the door will be ready to receive the lock as soon as the edge thereof has been recessed around the mortise in the usual way.

The guide rod 14 has annular grooves 24 provided in the opposite ends thereof in which the smooth inner ends of screws 25 are received permitting the rod to be turned in the holes 15 but holding the same against endwise movement therein. Several series of notches 26, in this case four series, are milled into the sides of the rod 14, the notches of each series being uniformly spaced lengthwise of the rod and the notches of the different series being spaced differently according to the size of auger bit to be used. A latch 27 slidably received in a bore 28 provided in the guide 16 has a tooth 29 on the inner end thereof arranged for engagement selectively in any notch. Just above the tooth 29 the latch is enlarged, as shown at 30, to provide an annular shoulder thereon against which a compression spring 31 is arranged to act normally tending to hold the tooth yieldingly engaged in its notch. A pin 32 extending radially from the latch outside the bore 28 limits the inward movement of the latch when its tooth is engaged in the notch, as the parts are shown in Fig. 3. A cam surface 33 is provided, however, on top of the guide 16 about the outer end of the bore 28 having the high point thereof diametrically opposite its low point, and when the latch is turned from the position shown, through approximately 180 degrees in either direction, the pin will ride up on said surface and raise the latch as a whole sufficiently to hold the tooth 29 clear of the notches 26 in the rod 14. When the latch is thus retracted the guide 16 can be slid back and forth freely and there is, moreover, nothing to interfere with the turning of the guide rod 14 to bring whichever set of notches 26 are to be used into position for cooperation therewith by the latch. Now, the one set of notches appearing on the side of the rod 14 in Fig. 1 are spaced for use with a $\frac{7}{8}''$ bit, whereas those appearing on the side of the rod in Fig. 2 are spaced for use with an $\frac{11}{16}''$ bit, and the other two sets are spaced for use with two other different sized bits. In this particular instance the $\frac{11}{16}''$ bit is being used and the rod 14 has been turned to a position where the notches for the $\frac{11}{16}''$ bit can cooperate with the latch 27 in determining the step by step adjustment of the cross head 16 for the boring of a series of holes, such as those indicated at *a*, *b*, *c*, etc. in Fig. 2. In the boring of those holes every alternate notch is used in determining the setting of the guide 16. After these holes have been bored the fillets X, which, of course, are of uniform size because of the uniform spacing of the holes, can then be cut away with the bit by settings of the guide 16 determined by the intermediate notches 26, the cutting away of these fillets being indicated by the dotted arcs *a'*, *b'*, *c'*, etc. After this has been done, there is no necessity for the use of a chisel inasmuch as the sides of the mortise are smooth enough; the only remaining operation is that of recessing the edge of the door around the mortise to receive the lock flush with the edge of the door. It will be evident that the workman need lose no time in boring one hole after the other, it being a simple proposition to release the latch after completing one hole to index the guide for the boring of the next hole and so on, and likewise in cutting away the fillets. It is particularly in the latter connection that the use of the saw-tooth type of bit is dictated; the ordinary type of auger bit would be unsuited for use. By reference to Fig. 4 and comparison of this figure with Fig. 3, it will be seen that I have provided a plurality of auger bits 20 having the same sized shanks but having different sized heads, thus permitting use of all of these bits interchangeably in the same collar 17. This, of course, greatly simplifies matters in the production and merchandising of these devices and means an appreciable saving in cost.

It is believed that the foregoing description conveys a clear understanding of my

invention and of its many advantages. The appended claims have been drawn with a view to affording a degree of protection commensurate with these improvements.

I claim:

1. In a device as set forth a pair of supporting end frames, a pair of spaced guide rods extending from one frame to the other one of said guide rods having several series of differently spaced recesses provided in alignment on different portions of the circumference thereof, means for mounting the rod in the end supports permitting the turning thereof to bring any series of recesses into operative position but preventing endwise movement of said rod relative to the supports, a latch on the guide arranged for removably engaging in the recesses of any selected series, said latch being free to turn and having a compression spring normally tending to urge the same toward the recesses, and a pin extending radially from the latch and engaging a surface on the guide to limit inward movement of the latch, the said surface being cam-shaped whereby the latch is arranged for engagement in the recesses when turned to one position but is held out of engagement with the recesses when turned to another position.

2. A portable door mortising device comprising a pair of end frames arranged to be placed demountably on the edge of a door, a pair of parallel horizontally spaced guide rods extending from one frame to the other and connecting the same, an auger bit guide slidably mounted on said rods for adjustment from one frame toward the other longitudinally of the edge of the door, said guide having an auger bit guide opening therein substantially at right angles to the plane of the edge of the door to receive and guide an auger bit in the boring of holes into the door, a number of series of aligned, longitudinally spaced recesses on different portions of the circumference of one of said guide rods, the recesses of each series being substantially uniformly spaced but recesses of different series being differently spaced, the spacing of recesses in the various series being closer for use with smaller auger bits and farther for use with larger auger bits, means for mounting the rod on the end frames permitting the turning thereof to bring any series into operative position but preventing endwise movement thereof, and a latch mounted on the guide and arranged removably and selectively to engage in the recesses of any selected series.

3. A mortising device comprising a pair of supporting end frames, a pair of parallel horizontally spaced guide rods extending from one frame to the other, an auger bit guide slidably mounted on said rods for movment from one end frame toward the other, said guide having a guide opening therein for receiving and guiding an auger bit in the boring of holes into work disposed beneath the guide, several series of differently spaced recesses provided in alignment on different portions of the circumference of one of said guide rods, means for mounting the latter guide rod in the end supports permitting the turning thereof to bring any series of recesses into operative position but preventing endwise movement of said rod relative to the supports, and a latch on the guide arranged for removably engaging in the recesses of any selected series, whereby auger bits of different sizes may be positioned to bore a series of holes in continuity.

In witness of the foregoing I affix my signature.

JOHN HERBERT ABRAMSON.