

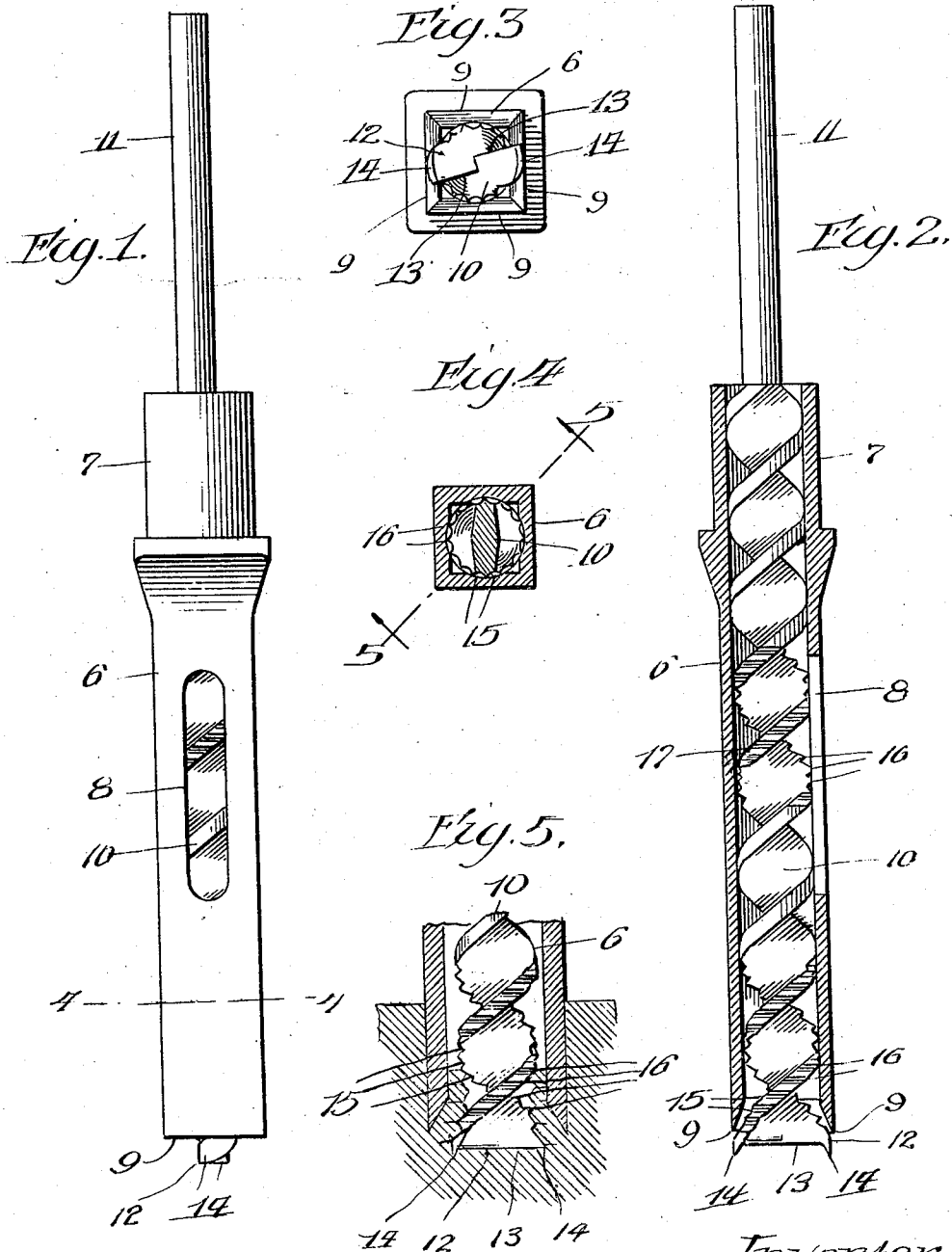
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MORTISING TOOL

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UNITED STATES PATENT OFFICE

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MORTISING TOOL

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This invention relates to mortising tools of the type which employ a hollow chisel and a bit therein, and its principal object is to provide a novel arrangement of parts, whereby the usual excessive heating of the tool and resulting damage therefrom is eliminated. It is well known that when the ordinary mortising tool of this type is used, the chips cut by the bit become wedged in the hollow chisel and the friction which results therefrom causes the tool to heat excessively and very frequently causes the walls of the chisel to crack, thereby rendering the tool ineffective. These difficulties have been overcome by forming serrations or flutings along the cylindrical face of the bit which act to comminute the chips as they enter the hollow of the chisel, thereby reducing the chips to very small particles which readily run out of the mortise which is being cut.

The invention consists, therefore, in a mortising tool of the type employing a hollow chisel and therein a bit, in which the bit is formed with serrations or flutings along a portion of its cylindrical face to provide teeth that comminute the chips formed by the tool. It further consists in a bit formed with transverse serrations or flutings along a portion of its length.

It further consists in the several novel features of construction, arrangement and combination of parts hereinafter fully set forth and claimed.

The invention is clearly illustrated in the drawing accompanying this specification in which—

Figure 1 is a side elevation of a mortising tool embodying a simple form of the present invention;

Fig. 2 is a vertical longitudinal section thereof showing the bit in side elevation;

Fig. 3 is an end elevation of the tool;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary vertical cross section taken on the line 5—5 of Fig. 4.

Referring to said drawing, the reference character 6 designates a hollow chisel of conventional form provided with a shank 7 by which it is secured in a chuck of a suitable

mortising machine. The hollow chisel is square in cross section and is provided with an elongated slot 8 in one of its side walls through which the chips are discharged, and the walls at the cutting end are sharpened to form chisel edges as at 9, as is customary.

The bit 10 extends through the hollow chisel 6 and is rotatably mounted therein. One end of the bit is provided with a shank 11 adapted to be attached to the revolving chuck of the mortising machine. The hollow chisel 6 is bored out to form a long bearing for the body portion of the bit to rotate in.

The bit projects beyond the sharpened end of the chisel and the diameter of its cutting end 12 is made slightly larger than the diameter of its body portion so as to bore a hole substantially of the same diameter as the external diameter of the chisel. As is usual, the cutting end of the bit is formed with sharpened cutting edges 13 and with sharpened marginal spurs 14.

The cylindrical face or helical edge portion of the body of the bit is formed with a series of serrations or flutings 15 which form teeth 16 that act to cut or break up chips that enter the chisel, thereby reducing them to a comminuted condition, whereby they enter the grooves of the bit and are carried up and discharged through the slot 8. The serrations or flutings may extend from the cutting end of the bit through only a portion of its length and the remainder of the helical body of the bit may be left smooth so as to bear in the bore of the chisel, or a second series of serrations or flutings may be provided, as is shown at 17, with smooth portions at the ends thereof.

In operation, the bit is revolved and the chisel is reciprocated in the customary manner, the bit boring a round hole in the material and the chisel following up by cutting out the corner portions to form the square hole. Fig. 5 shows the corners of the chisel entering the material behind the cylindrical hole formed by the bit. It will be observed that the chips formed by the chisel are cut up by the teeth 16 as they enter the chisel and reduced to very small fragments which readily find their way into the helical grooves

of the bit and are carried up therein and discharged through the slot 8, and, consequently, cannot become wedged between the chisel and the drill. Furthermore, by reason of
5 this fact, the parts do not heat to any extraordinary degree and the danger of destroying the temper of the tool is thereby reduced to a minimum. Furthermore, because of the elimination of the relatively
10 large chips, there is no danger that the chisel will become cracked or broken. Mortising tools made in accordance with the present invention last longer and do not require as frequent sharpening as the ordinary mortising
15 tool employing a hollow chisel and bit.

While the teeth 16 have been illustrated as extending in planes running at right angles to the axis of the bit, they may, of course, be inclined and may be of any other suitable
20 contour than the one illustrated in the drawing. It is also to be observed that a bit formed in accordance with the above description may be used as a boring bit separate from the hollow chisel.

25 More or less variation of the exact details of construction is possible without departing from the spirit of this invention. I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend in the following claims
30 to point out all of the invention disclosed herein.

I claim as new, and desire to secure by Letters Patent:

35 1. A mortising tool comprising a hollow chisel, and a bit rotatably mounted therein, the cylindrical face of said bit being formed with chip reducing elements adjacent the cutting end of the bit.

40 2. A mortising tool comprising a hollow chisel, and a bit rotatably mounted therein, the cylindrical face of said bit being formed with serrations adjacent the cutting end of the bit.

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