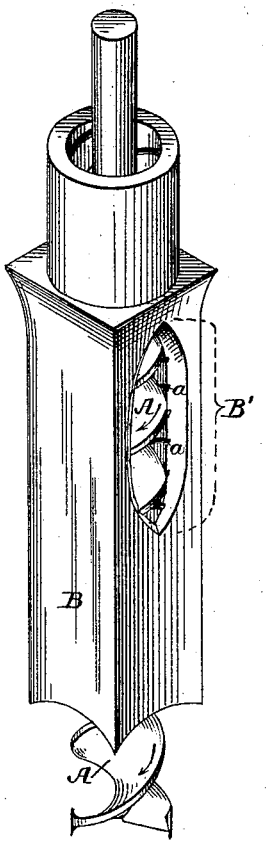
(No Model.)

L. O. ORTON.

MORTISING BIT.

No. 493,444. Patented Mar. 14, 1893.

FIG. 1.



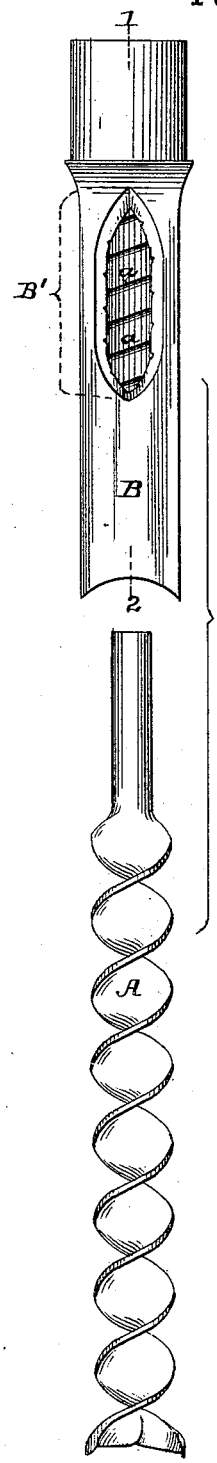
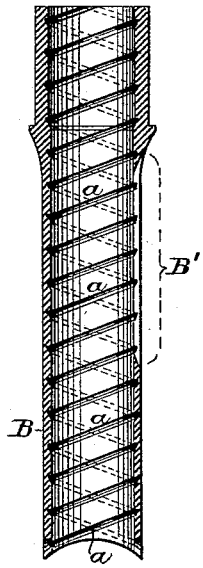


FIG. 2.

FIG. 3.



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UNITED STATES PATENT OFFICE.

LYMAN O. ORTON, OF PHILADELPHIA, PENNSYLVANIA.

MORTISING-BIT.

SPECIFICATION forming part of Letters Patent No. 493,444, dated March 14, 1893.

Application filed August 27, 1892. Serial No. 444,257. (No model.)

To all whom it may concern:

Be it known that I, LYMAN O. ORTON, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain Improvements in Mortising-Bits, of which the following is a specification.

My invention consists of an improvement in that class of mortising bits in which a central boring bit is combined with an outer rectangular or box-like mortising bit or cutter, the object of my invention being to provide for the free discharge, from such a tool, of the chips or shavings resulting from the cutting operation. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1, is a perspective view of a mortising bit or cutter constructed in accordance with my invention, the lower end of the boring bit being shown some distance below the lower end of the mortising bit. Fig. 2, is a side elevation of the boring and mortising bits detached from each other; and Fig. 3, is a vertical section of the mortising bit on the line 1—2, Fig. 2.

In Figs. 1 and 2 A represents a boring bit or auger of the usual construction, and B a rectangular or box-like bit in which said boring bit fits with reasonable snugness, that is to say, so that while it can be freely turned within the bit B, it is prevented from having any considerable lateral movement within said bit. The lower end of the hollow box-like bit B is sharpened so as to provide cutting edges extending around the bottom of the same, and in the use of the tool the two bits are carried by proper members of the organized machine so that a combined rotating and forward movement can be imparted to the boring bit or auger A to cause the same to produce a round hole in the work, the mortising bit B having a forward movement only, so that it serves to cut away the wood from the corners of the mortise outside of the limits of the circular opening formed by the bit A.

In the operation of tools of this class difficulty has been experienced in disposing of the chips or shavings due to the cutting action of the two bits, the said chips or shavings having a tendency to rotate with the boring bit, and in time to clog the tool. Attempts have been made to overcome this objection by providing the interior of the mortising bit B with grooves forming ribs extending longitudinally or parallel with the line of the bit for engagement with the chips or shavings in order to prevent rotation of the same and insure their elevation within the bit B by the screw-like action of the rotating auger A, but considerable friction results from this construction.

In carrying out my invention, therefore, I provide the interior of the mortising tool B with a spiral groove or grooves *a* as shown in Fig. 3 in which the rear portions of the grooves are shown by full lines, and the front portions by dotted lines. The grooves are preferably abrupt as to their upper faces, and inclined or beveled as to their lower faces although rectangular grooves may be employed if desired. Near the upper end of the mortising bit B an opening B′ is formed in one side of the same, this opening communicating with the bore of the bit, as shown in Figs. 1 2 and 3.

When the tool is in use the combined upward and rotating tendency of the chips or shavings causes them to come under the influence of the spiral grooves *a* and to follow the same from the bottom of the tool to the side opening B′ from which said chips or shavings are freely discharged, all clogging of the tool being thereby prevented and the freeing of the tool effected with the minimum of friction. If desired, the chips or shavings may be carried to the upper end of the bit B and discharged therefrom, but the use of the side opening B′ is preferred in order to provide for the discharge of the said chips or shavings at the earliest available point, for the purpose of reducing the friction, as before set forth.

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

1. The combination of the central boring

bit of a mortising tool, with the outer mortising bit having one or more internal spiral grooves, substantially as specified.

2. The combination of the internal boring bit of a mortising tool, with the outer mortising bit having one or more internal spiral grooves, and a side discharge opening, substantially as specified.

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

LYMAN O. ORTON.

Witnesses:
JOSEPH H. KLEIN,
HENRY HOWSON.