(No Model.)

J. E. DONALDSON.

CHISEL.

No. 361,145. Patented Apr. 12, 1887.

Fig. 1.

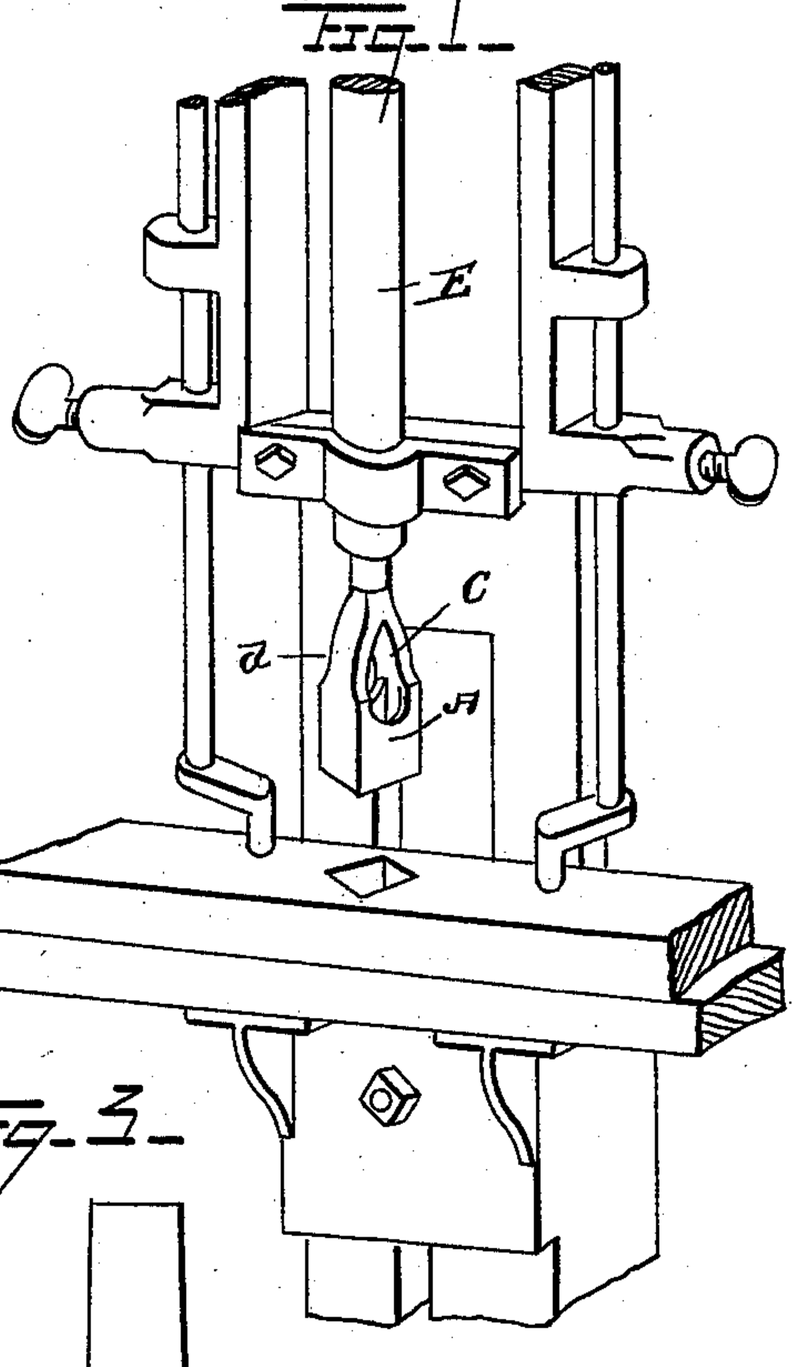


Fig. 4.

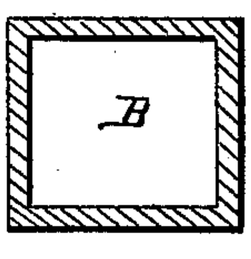


Fig. 5.

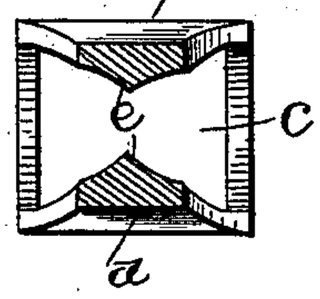


Fig. 2.

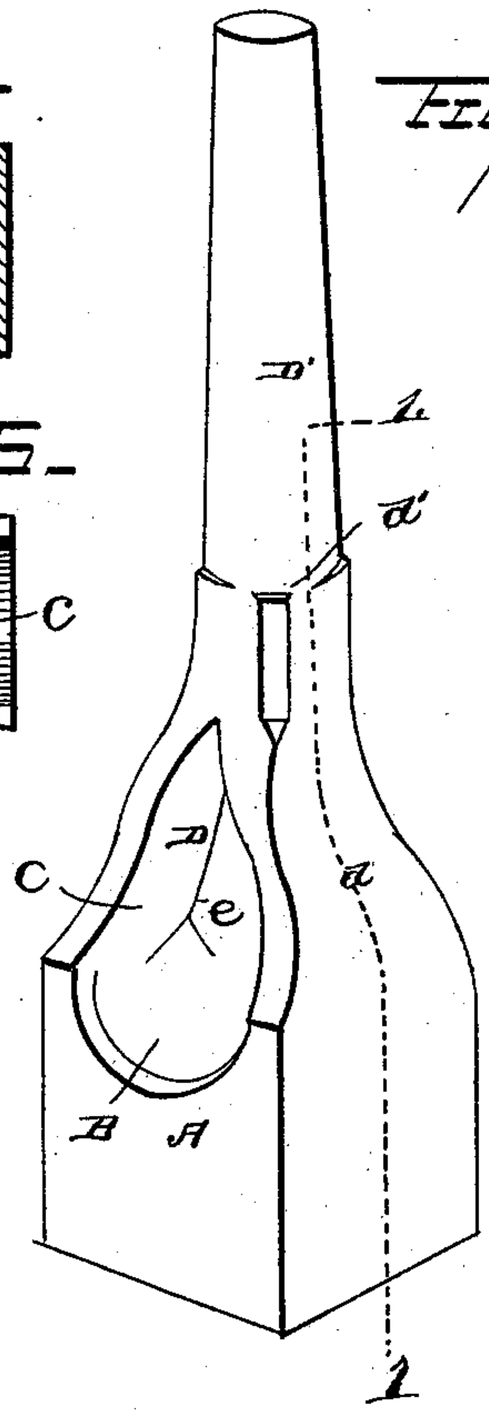
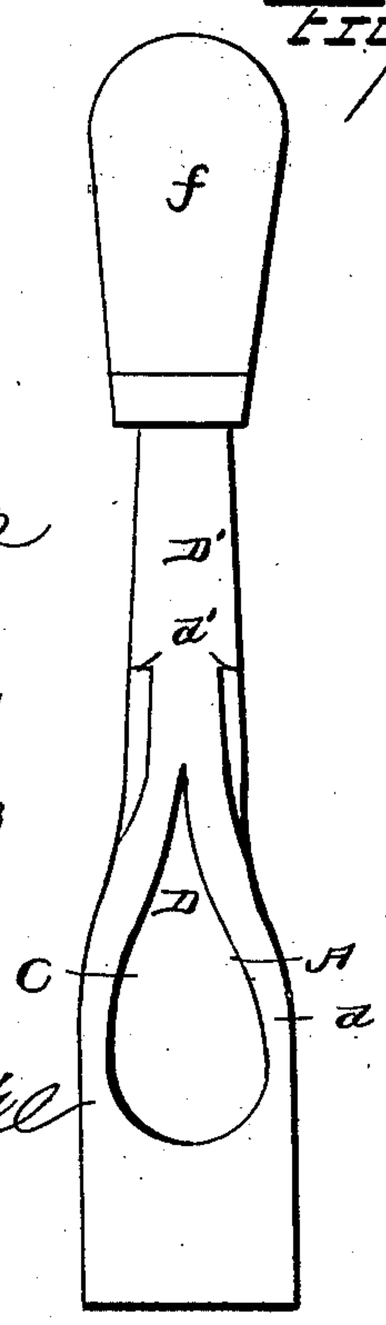


Fig. 3.

Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN ED DONALDSON, OF MONTEZUMA, INDIANA.

CHISEL.

SPECIFICATION forming part of Letters Patent No. 361,145, dated April 12, 1887.

Application filed May 18, 1886. Serial No. 202,555. (No model.)

To all whom it may concern:

Be it known that I, JOHN ED DONALDSON, a citizen of the United States, residing at Montezuma, in the county of Parke and State of Indiana, have invented a new and useful Improvement in Chisels, of which the following is a specification.

My invention relates to an improved chisel for mortising-machines; and it consists of the peculiar construction and combination of parts, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

The object of my invention is to provide an improved chisel which shall be very simple, strong, and durable in construction, cheap and inexpensive of manufacture, and thoroughly effective in operation.

My improved chisel is made in a single piece of metal and provided with an interior chip-passage and with lateral outlets for the escape of the chips, and the inclosing walls or "arch" of the outlet is of peculiar form to rapidly and effectually expel or discharge the chips.

The device can be used in any class of foot or power machine for cutting mortises in fence-rails, balustrades, or the like, and it can be also adapted as a hand implement or tool.

In the accompanying drawings, Figure 1 is a perspective view of so much of a mortising-machine as is necessary for a proper understanding of my invention, showing my improved chisel adjusted for use therein. Fig. 2 is an enlarged perspective view of my improved chisel detached from the machine. Fig. 3 is a vertical central sectional view thereof on the line 1 1 of Fig. 2. Figs. 4 and 5 are transverse horizontal sectional views on the lines 2 2 and 3 3, respectively, of Fig. 3. Fig. 6 is a view of the chisel adapted for use as a hand implement or tool.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates my improved chisel for cutting mortises, which is of the desired size and substantially square in cross-section.

The chisel is made hollow in form to provide an interior scrap or chip passage, B, and the lower edges of the chisel are beveled or inclined outwardly to form the cutting-edges *b*, which act upon the work.

The upper end of the chisel is provided with lateral or side openings, C, which provide the exit or discharge openings for the chips, and the sides *d* of the chisel are tapered or inclined inwardly toward each other to form an arch, D, and they meet together at the center of the chip-passage B of the device.

The chisel is provided with an integral stock or shank, D′, which is provided with a shoulder, *d′*, and this stock is to be fitted in the mandrel E of a machine for mortising fence-posts, (shown in Fig. 1;) but I would have it understood that I do not confine myself to the use of my invention in the machine shown herein, as it can be used in any class of mortising-machine.

The exit-openings C for the chips are curved at their lower edges, to provide large passages for the free escape of the chips therethrough from the interior chip-passage, and the upper edges of the said openings are tapered or inclined toward each other. The inner opposing faces of the arch or sides *d* of the chisel are provided with inwardly-projecting ribs or flanges *e*, which are formed integrally therewith and arranged longitudinally and centrally thereon. These ribs are substantially V-shaped in form, and the lower edges of the ribs gradually decrease until they merge into the sides *d*, while the upper edges meet or join together, and by this peculiar construction and arrangement of the ribs and the lateral discharge-exits in the chisel the chips, as they are forced or elevated up the interior scrap-passage, are effectively and rapidly discharged and broken.

The exterior diameter of the squared chambered end of the chisel corresponds or is equal to the diameter of the mortise to be cut, and the peculiar bevel of the cutting-edges *b* facilitates the elevation of the chips in the interior chip-passage, while the lateral openings and the projecting interior ribs discharge the chips from the chisel. The stock or shank may be extended or lengthened a sufficient distance and provided with an enlarged head, *f*, to adapt the chisel for use as a hand tool or implement, as shown in Fig. 6, the head *f* receiving the blows of a hammer or mallet.

When a mortise is to be cut by my improved chisel, a hole of very nearly the diameter of the mortise desired is first bored into

and through the work by a machine or implement of suitable character, and the chisel is then brought down upon and forced through the work to cut the mortise, the chips passing through the interior passage and striking the inwardly-projecting ribs, by which they are deflected laterally through the escape-openings.

By using a chisel constructed in accordance with my invention in a mortising-machine of either hand or foot, the mortises can be rapidly and accurately cut, and the chips are discharged without stopping the machine or requiring the operator to clear the chips from the chisel.

The chisel can be made by a mechanic or blacksmith of ordinary skill, and it is simple and durable in construction, cheap and inexpensive of manufacture, and thoroughly effective for the purposes designed.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A mortising-chisel made substantially square in cross-section and having an interior longitudinal chip-passage terminating at one end in an arch, the central ribs arranged on the inner opposing sides of the arch, and the lateral discharge-openings communicating with the chip-passage, substantially as described, for the purpose set forth.

2. A chisel for cutting mortises, formed of a single piece of metal and having an interior chip-passage, the cutting-edges, the inclined or arched sides provided with the centrally and longitudinally arranged ribs on their opposing faces, and the lateral discharge-openings, substantially as described, for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN ED DONALDSON.

Witnesses:
LEWIS R. YOUNG,
WILLIAM HARRINGTON.