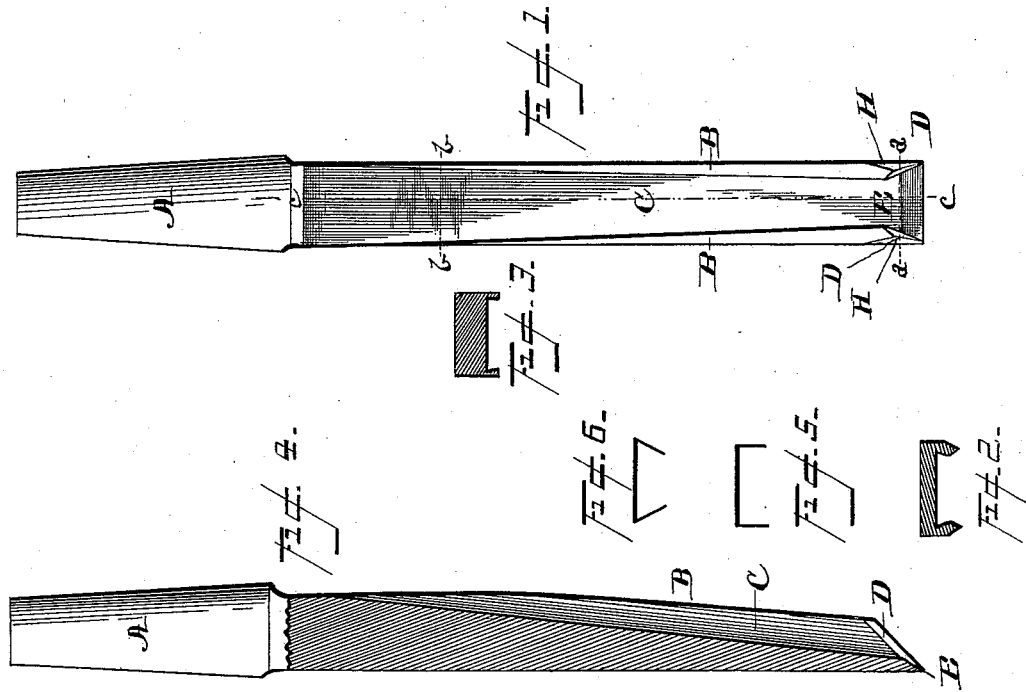


(No Model.)

J. A. ARTHUR.
CHISEL.

No. 522,282.

Patented July 3, 1894.



WITNESSES

W. Johnson.
Edmund C. Wells.

INVENTOR

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UNITED STATES PATENT OFFICE.

JOSEPH A. ARTHUR, OF RONCEVERTE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ARTHUR MACHINE COMPANY, OF CHARLESTON, WEST VIRGINIA.

CHISEL.

SPECIFICATION forming part of Letters Patent No. 522,282, dated July 3, 1894.

Application filed August 25, 1892. Serial No. 444,088. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. ARTHUR, residing at Ronceverte, in the county of Greenbrier and State of West Virginia, have invented certain new and useful Improvements in Mortising-Chisels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to chisels, especially such as are intended for use with mortising machines, although the chisel may be used for hand work.

The object of the invention is to produce a chisel which shall be self clearing, and which shall cut easily with little strain on the material of the chisel or on the wood.

Figure 1 is a face view of my improved chisel. Fig. 2, is a section at line *a, a*, and Fig. 3 a section at line *b, b*. Fig. 4 is a section on line *c, c*, showing the head in elevation. Fig. 5 is an end view of an old form of cutting edge. Fig. 6 is a similar view of the improved form.

The chisel may have any usual head or tang A.

The body of the chisel has side wings B, B, which wings project from the edges of the chisel, forming a channel, C, along the face of the chisel, from the point upward. This channel C, owing to the form of the wings, grows wider toward the upper end of the chisel, and by preference it is also shallower. The wings B B are undercut, so that the channel C is dovetailed, in its cross section. The lower edges D of the wings B are beveled to a cutting edge, and serve to trim the sides of the mortise cut by the chisel, at the same time the main cutting edge E of the chisel advances into the wood.

The general features of the chisel so far described are old. That is, mortising chisels have been made with side wings, and with dovetailed guide grooves for the chips. But in all chisels of this kind with which I am acquainted the cutting edges of the wings have been in a plane at right angles to the plane of the back of the chisel in which the cutting edge lies, as shown in the diagram Fig. 5, while in my chisel the cutting edge of each wing B is at an acute angle to the main

cutting edge of the chisel. The inclination of the wing cutters is effected by grinding or beveling the wing cutters from the outside as well as from the inside. The plane faces H, Fig. 1, may be formed by grinding the outer surfaces of the wings. In theory this drawing in of the edges of the wing cutters should prevent the chisel from making a clearing cut of the full width of the mortising edge. In practice I find the clearance to be excellent while the strains on the chisel and on the wood are much less than with the old form of chisel.

In cutting a mortise with the old form of chisel having its cutters at right angles, as in Fig. 5, if there be not a considerable thickness of wood outside the mortise the mortise is likely to break through the wood at the side. With my chisel I am able to cut the same mortise in a much thinner strip of wood, without breaking through the side of the wood.

When the cutting edges of the wings are inclined upward, as in my invention, the chips are naturally cut in dovetail form, and will thus easier pass up the clearing channel C, and as the channel grows broader toward the top of the chisel, the chips work upward, and do not tend to move down in the channel. The repeated cuts by the chisel finally bring the edges of the wings which are close to the main cutting edge against the side of the mortise, thus trimming the mortise to its full width.

By dividing the bevel between the two faces of the wing, probably the greatest strength is obtained. The chip will be slightly compressed as it enters the channel, and will expand as it rises.

The channel near the top should be shallow, to permit the chips to escape easily.

I claim—

1. A mortising chisel having side wings, each of said wings beveled on both outer and inner faces to a cutting edge, substantially as described.

2. A mortising chisel having side wings, said wings beveled on both faces to cutting edges which join the main cutting edge of the chisel.

3. A mortising chisel having side wings,

said wings beveled on both faces to cutting edges which join the main cutting edge at acute angles.

4. A mortising chisel having side wings
5 whose outer faces are at a right angle to the plane face of the chisel, said wings being beveled on both faces to cutting edges which join the main cutting edge at acute angles.

5. The mortising chisel having side wings
10 which are beveled on both faces to cutting

edges, said wings being undercut, so that the channel between them is dovetailed, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH A. ARTHUR.

Witnesses:

W. A. BARTLETT,
EDEN C. WELLS.