(No Model.)

M. A. HOWE.

INSERTIBLE SAW BIT.

No. 471,326. Patented Mar. 22, 1892.

Fig. 1.

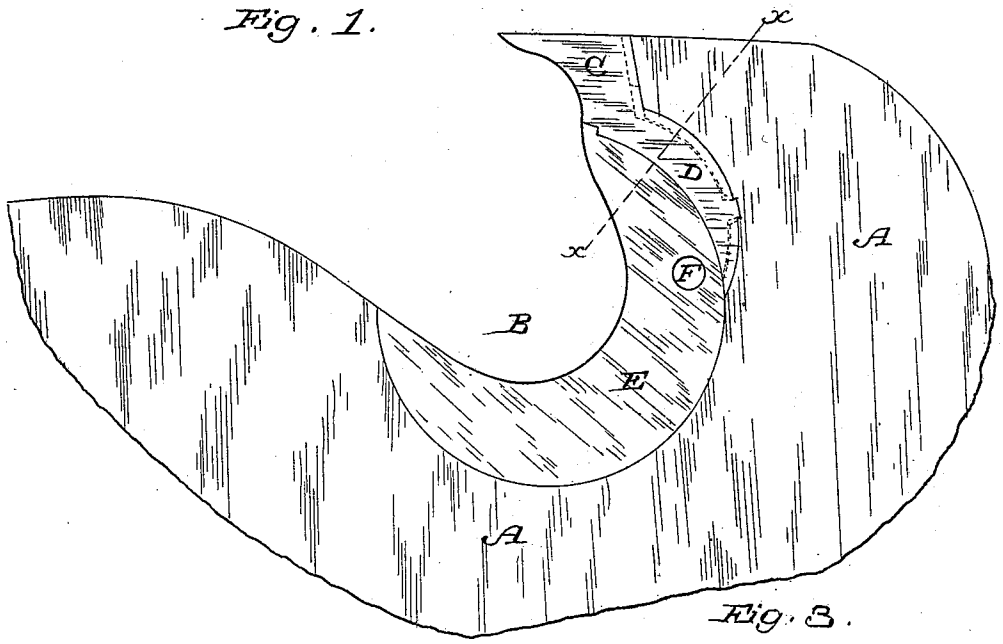


Fig. 3.

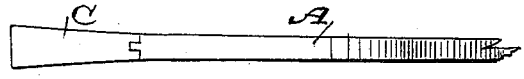
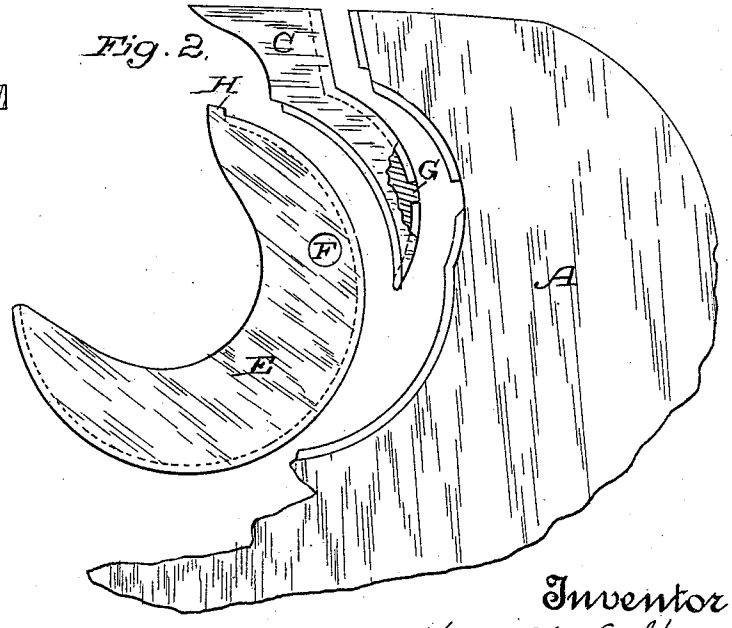


Fig. 4

Fig. 2.



Witnesses,
D. H. Nourse
J. A. Bayless

Inventor,
Merrill A. Howe
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

MERRILL A. HOWE, OF SAN FRANCISCO, CALIFORNIA.

INSERTIBLE SAW-BIT.

SPECIFICATION forming part of Letters Patent No. 471,326, dated March 22, 1892.

Application filed August 1, 1891. Serial No. 401,417. (No model.)

To all whom it may concern:

Be it known that I, MERRILL A. HOWE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Insertible Saw-Bits; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in insertible saw-bits.

It consists of the bit, the holding-extension of which and the segment by which it is engaged and held are fitted into the throat of the tooth-opening in the saw-plate upon the arcs of two intersecting circles, and in conjunction with this of certain holding-lugs, whereby the bit and the segment are prevented from shifting their positions, and in details of construction, as will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of a section of a saw-plate, showing the bit in place. Fig. 2 shows the segment and the bit removed from the plate. Fig. 3 is an edge view of the cutting-bit and saw-plate, showing the tongue and groove by which they are joined together. Fig. 4 is a section on the line *x x* of Fig. 1.

A is the saw-plate, having a series of tooth-openings B made around its periphery, and C is the cutting-bit, the back of which is fitted to the straight portion of the opening in the saw-plate against which it abuts with a rectangular tongue and groove or with a V-shaped tongue and groove, as may be found most suitable. I prefer the rectangular tongue and groove at this point, as it presents a flat surface and shoulder against which any side pressure is exerted, and the tendency of the bit to be forced to one side or the other by side strains is thus averted.

D is the extension from the lower end of the bit-shank, and this extension is semi-crescent shaped, the exterior face being formed on a curve of a circle and exactly fitting a corresponding curve in the rear of the throat or opening in the saw-plate and interior to the straight portion previously described. The interior curve of the extension is coincident with the second circle in which the holding-segment is fitted, and these intersecting curved edges meet in a point at the inner end of the extension.

E is the circular holding-segment, the exterior of which forms a segment of a circle, which intersects the circle of the back of the saw-bit extension at the lower end, thus forming a crescent-shaped opening into which this extension of the saw-bit fits. The opposite end of the circle in which the segment E fits intersects the front of the throat or opening in the saw-plate, and the interior curve of the segment coincides with the throat or opening and forms an extension thereof. The rear end of the segment forming a corresponding extension with the interior curve of the saw-bit, as shown, provides a large open throat for the escape of sawdust, and the construction enables me to set the saw-bits very closely together on the periphery of the saw. The back and front of the crescent-shaped extension of the saw-bit are made concave and convex V-shaped, respectively, and the outer interior of the throat or opening in the saw-plate, which forms a continuation of the interior of the bit-extension, is made correspondingly convex V-shaped, while the outer periphery of the segment has a concave V-shaped groove or channel, which exactly fits the circular curvature of the interior of the bit-extension and the throat or opening of the saw-plate. A hole F is made through this segment, and by means of a lever having a pin which passes through the end of the lever and through the hole in the segment the segment may be turned out of or into its place, so as to release or lock the bit.

In order to prevent the bit from moving by reason of carrying pressure or strain brought upon the point of it, I have formed a lug G in the back of the bit-extension, and this fits into a corresponding depression or notch made in the interior of the arc into which it fits, so that when the bit is in place this lug prevents any movement of the bit from its seat. The upper end of the segment which abuts against the interior of the curve of the bit-extension has a lug or stop H, which when the segment is in place fits into a corresponding notch made at the front of the bit just where the curve of the throat of the bit meets the curve of the interior arc of the extension

by which the bit is locked in place. This forms a stop to prevent the segment from being shifted from its position in the direction in which it has a tendency to move when the saw is running. By means of these two locking devices the bit and segment are always firmly held in place and are easily removed at any time without driving out separate pins or the use of other attachments.

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

1. In a saw, the independent bit having the crescent-shaped extension, the back of which fits the arc of a circle formed in the saw-plate, and a locking-segment fitting an arc or segment formed in the throat or opening of the saw-plate and also the curve in the front, in which the segment fits and intersects the curve of the back of the bit-extension, substantially as herein described.

2. A saw having the throats or openings with intersecting arcs of circles formed therein, saw-bits having semi-crescent-shaped extensions, the back edges fitting one of the circles, a segment corresponding in curvature with the interior circle of the saw-plate and the bit-extension and fitting therein, a straight back of the bit extending from the rear curve of the extension to the periphery of the saw and having a rectangular groove made in it, and a corresponding rectangular tongue made upon the straight portion of the saw-plate against which it fits, substantially as herein described.

3. A saw-plate having throats or openings formed with intersecting-circles, bits having semi-crescent-shaped extensions formed upon the curves and coinciding with said circles, and locking-segments fitting the interior circles of the bit-extensions and the throats or openings in the saw-plate, in combination with the fixed lugs G, formed on the exterior circle of the saw-bit extension and fitting corresponding depressions in the plate, and fixed lugs H upon the end of the locking-segment, which abuts against the inner portion of the saw-bit, substantially as herein described.

In witness whereof I have hereunto set my hand.

MERRILL A. HOWE.

Witnesses:
S. H. NOURSE,
J. A. BAYLESS.