(No Model.)

C. E. BILLINGS.

EXPANSIVE BIT.

No. 360,990. Patented Apr. 12, 1887.

Fig. 1

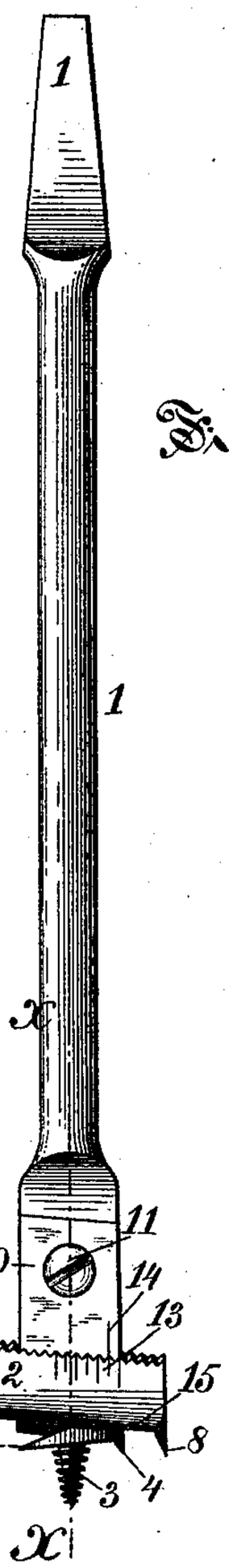
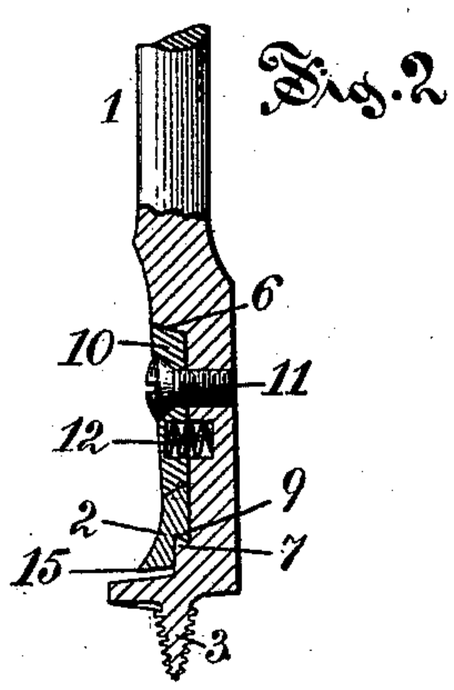


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES E. BILLINGS, OF HARTFORD, CONNECTICUT.

EXPANSIVE BIT.

SPECIFICATION forming part of Letters Patent No. 360,990, dated April 12, 1887.

Application filed January 8, 1887. Serial No. 223,743. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BILLINGS, of the city and county of Hartford, Connecticut, have invented certain new and useful Improvements in Expansive Bits, which are described in the following specification, and illustrated by the accompanying drawings.

As indicated by the foregoing title, this invention relates to the class of rotary boring-tools known as "center-bits," and particularly to center-bits which are provided with adjustable cutters. In center-bits of this class the means which have heretofore been employed for setting the cutter upon the shank of the bit have been either complicated in structure or unreliable in operation.

It is the object of the present invention to obviate both of these difficulties. The best manner in which I have contemplated accomplishing this object is shown in said drawings, in which—

Figure 1 is a side view of my improved bit, and Fig. 2 is a longitudinal section on line *x x* of Fig. 1.

In these views, the numeral 1 denotes the shank of the bit, while 2 is the adjustable cutter. Shank 1 is provided, in the usual manner with a center pin, 3, a nicker, 4, and a router, 5. One side of shank 1 is cut away in a broad and shallow transverse channel, as seen in Fig. 2. This channel, which has a uniform cross-section, is bounded at its upper edge by the flaring bevel 6 and at its lower edge by the under cut shoulder 7. Cutter 2, which is a strip of steel having a cutting-point or nicker, 8, and a sharpened front edge, 15, which serves as a router, is provided with a rear shoulder or dovetailed ridge, 9, which is adapted to engage said shoulder 7. The upper edge of cutter 2 is beveled downward from back to front, as seen in Fig. 2, and is serrated, as seen in Fig. 1. The numeral 10 denotes a clamping-plate whose lower edge is serrated and beveled to match the upper edge of cutter 2, and whose upper edge is beveled to match bevel 6. This plate is provided with a clamping-screw, 11. A throwing-off spring, 12, is placed between plate 10 and the bottom of said channel. The front side of plate 10 and cutter 2 is provided with a graduated scale, 13, and index-mark 14, which indicate the radial extension of nicker 8 from center point, 3, and show the size of the bore for which the tool is adjusted. The distance between any two contiguous teeth upon the serrated edge of cutter 2 is preferably equal to the distance between any two contiguous graduation-marks upon scale 13.

Such being the construction of my improved bit, its general operation is similar to that of other expansive bits having adjustable cutters. When screw 11 is loosened, spring 12 pushes plate 10 partly out from the channel in which it is contained. The contiguous serrated edges of plate 10 and cutter 2 are thereby disengaged from each other. The latter is then moved by hand endwise until the desired adjustment is indicated by said graduated scale. Screw 11 is then turned in, whereby plate 10 and cutter 9, adjusted as desired, are clamped into the positions shown in Fig. 2.

The clamping device, above set forth, is very simple, and the adjustable cutter, held as described, has no longitudinal motion when the bit is used in the ordinary manner.

I claim as my invention—

1. A center-bit provided with an adjustable cutter and with a clamping-plate, which are adapted to engage each other by means of contiguous serrated surfaces, in combination with a set-screw, whereby said plate and cutter may be set in desired positions, and with a spring which tends to release said plate and cutter, substantially as and for the purpose specified.

2. A center-bit provided with an adjustable cutter and with a clamping-plate, which are adapted to engage each other by means of beveled and serrated edges, in combination with a set-screw which is adapted to set said plate and cutter in desired relative positions upon the shank of said bit, and with a spring which is adapted to disengage said plate and cutter, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my name in the presence of two witnesses.

CHARLES E. BILLINGS.

Witnesses:

EMMA TAXTER,

WILLARD EDDY.