(No Model.)

E. F. BEUGLER.

EXPANDING BORING TOOL.

No. 462,789. Patented Nov. 10, 1891.

Fig.1.

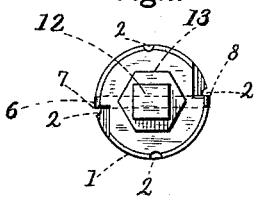


Fig.2.

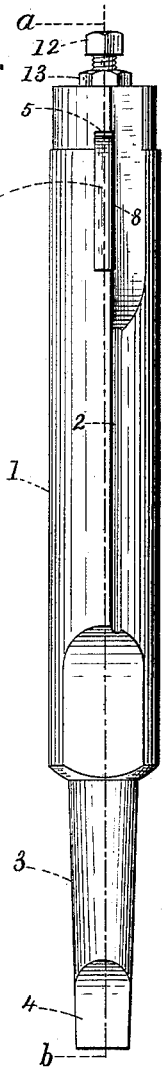


Fig.3.

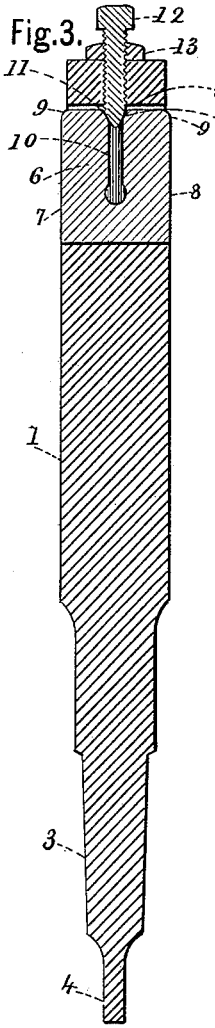


Fig.4.

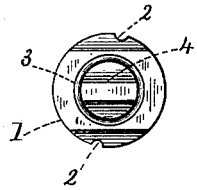
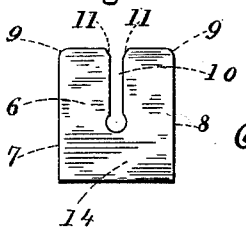


Fig.5.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN F. BEUGLER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO EDGAR T. WARD, OF SHELDONVILLE, MASSACHUSETTS.

EXPANDING BORING-TOOL.

SPECIFICATION forming part of Letters Patent No. 462,789, dated November 10, 1891.

Application filed September 19, 1889. Serial No. 324,411. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. BEUGLER, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Expanding Boring-Tools, of which the following is a specification.

My invention relates to that class of expanding boring-tools in which the cutters are adapted to be expanded when the cutting-edge is worn away by use or by grinding, whereby one set of cutters may be used for a long time for boring holes of one size, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a plan or top view of the device. Fig. 2 is a side elevation. Fig. 3 is a vertical longitudinal section in line *a b*, Fig. 1. Fig. 4 is a bottom view. Fig. 5 is a detached side elevation of the cutter.

The tool-holder 1 is made in cylindrical form and is provided with a series of longitudinal grooves 2 to give room for the chips to pass through. At the lower portion is the usual taper shank 3, by which it is secured in the lathe or boring-machine, and at the end is the usual flattened portion 4 to prevent it from turning in the socket. At or near the top of the holder is a transverse opening 5, in which the cutter 6 is closely fitted. The two cutters are formed of one piece of steel having the cutting-edges 7 8, the upper portions of which are rounded, as shown at 9. In the center of the cutters is a slot or opening 10, having the inclined sides 11. In the center of the top of the tool-holder is a set-screw 12, which passes into the transverse opening 5, and the tapering point of the set-screw passes into the top of the opening 10, fitting between its sides 11. The object of the set-screw 12 is to expand or force the cutting-edges 7 and 8 outward when required, after which it is rigidly tightened in place by a jam-nut 13. It will be noticed that the cutter is made with a heavy or strong portion 14 below the opening 10, so that it requires considerable power from the set-screw 12 to spread the cutters; consequently they will spring back with a strong force when released from the set-screw. This construction is very important, as it keeps them rigid and steady, so that they will cut smoothly without trembling. The shank or holder being of hardened steel furnishes a guide for them.

The operation will be readily understood from the foregoing description and drawings.

I claim as my invention—

In an expanding boring-tool, the combination, with a cylindrical tool-holder having a series of side grooves extending longitudinally the entire length of the enlarged portion of the holder and opposite the cutters to permit the chips to pass through, and a transverse opening through the front end of the holder to receive the cutter, of a double cutter having an opening 10, extending part way down, side cutting-edges 7 and 8, end cutting-edges 9, and a flat-back end adapted to rest against the side of the transverse opening, and a taper-pointed screw and jam-nut for expanding and securing the cutters in place, substantially as described.

EDWIN F. BEUGLER.

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