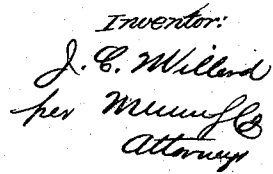


Patented Sept 1, 1868.



United States Patent Office.

JAMES C. MILLERD, OF RIVER POINT, RHODE ISLAND.

Letters Patent No. 81,664, dated September 1, 1868.

IMPROVEMENT IN EXPANDING-MANDREL OR BORING-TOOL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES C. MILLERD, of River Point, in the county of Kent, and State of Rhode Island, have invented a new and useful Improvement in Boring-Tools; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my improved boring-tool, with a portion of the holder broken away, to exhibit the construction and arrangement of the cutters.

Figure 2 is a longitudinal section of the tool through the line *x x* of fig. 1.

Figure 3 is a view of the adjusting-key.

Similar letters of reference indicate like parts.

The object of this invention is to provide a simple and effective tool for boring out holes in casting and other iron work.

It consists, in general terms, of a pair of stud-cutters or boring-plates, held in a mortise or rectangular eye in the end of a metal shank, and arranged at right angles to the axis of the shank, so that the said boring-plates will pass in contact with each other, when being set out or in by an adjusting-screw.

In the drawings, A is the shank of the tool, a stout metal rod, and is formed with a mortise or rectangular eye, the width of which is just equal to twice the thickness of one of the boring-plates B, so that the latter, when in contact side by side with each other, may just fit within the mortise, as shown.

The length of the mortise just equals the width of the boring-plates.

The plates are set out or in by a right-and-left-threaded screw, *a*, which rests in the semi-cylindrical face *e* of the block *b*.

This screw, when turned in the face of the block, actuates the plates B B, for at the lower proximate corners of the plates are formed corresponding hollow threads, extending one-quarter of a circle, as shown at *d*, which, together, make up the half of a hollow thread.

The face of the block *b* and this hollow thread thus enclose the screw, and hold it in place. It is kept from longitudinal movement by a collar, *c*, affixed across the middle of the face *e*, and which fits on the neck connecting the right-and-left-hand thread of the screw.

The block *b* is formed with flanches, *f f*, which fit against the surface adjacent to the mortise, and serve to hold the block in place.

The mortise is wider than the seat of the block *b*, so that the block may be withdrawn by lifting it out of its seat, thus bringing the flanches up to where the width of the mortise will permit them to pass through it.

The plates are clamped firmly in place, when set out or in to the proper distance, by a capstan-headed set-screw, D, arranged with its point acting against the bottom of the block *b*, through a hollow thread in the shank at that point, the said hollow thread opening into the mortise, and downward into a recess or spring, C, in the shank, so as to render the head of the set-screw accessible with a key, E, (shown at Figure 4.)

This key is formed with a square end, *g*, for inserting in a square hole in the end of the screw *a*, to turn the latter. The round end, *h*, is inserted in the holes of the head of the set-screw D, when the latter is to be turned to clamp or loosen the plates B. The edges *i i* of the plates are bevelled, to present the proper cutting-edge to the work.

This tool is used in the same manner as other boring-tools of analogous nature.

m m are the shoulders connecting the seat of the block with the mortise proper.

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

1. The combination, in a boring-tool, of the boring-plates B B, right-and-left-handed screw *a*, and block *b*, when operating together within a mortise or eye in the shank A, all substantially as shown and described, and for the purpose set forth.

2. The set-screw D, arranged to operate in combination with the above-claimed parts, substantially as herein described.

JAMES C. MILLERD.

Witnesses:

IRA O. SEAMANS,

JOHN B. ALLEN.