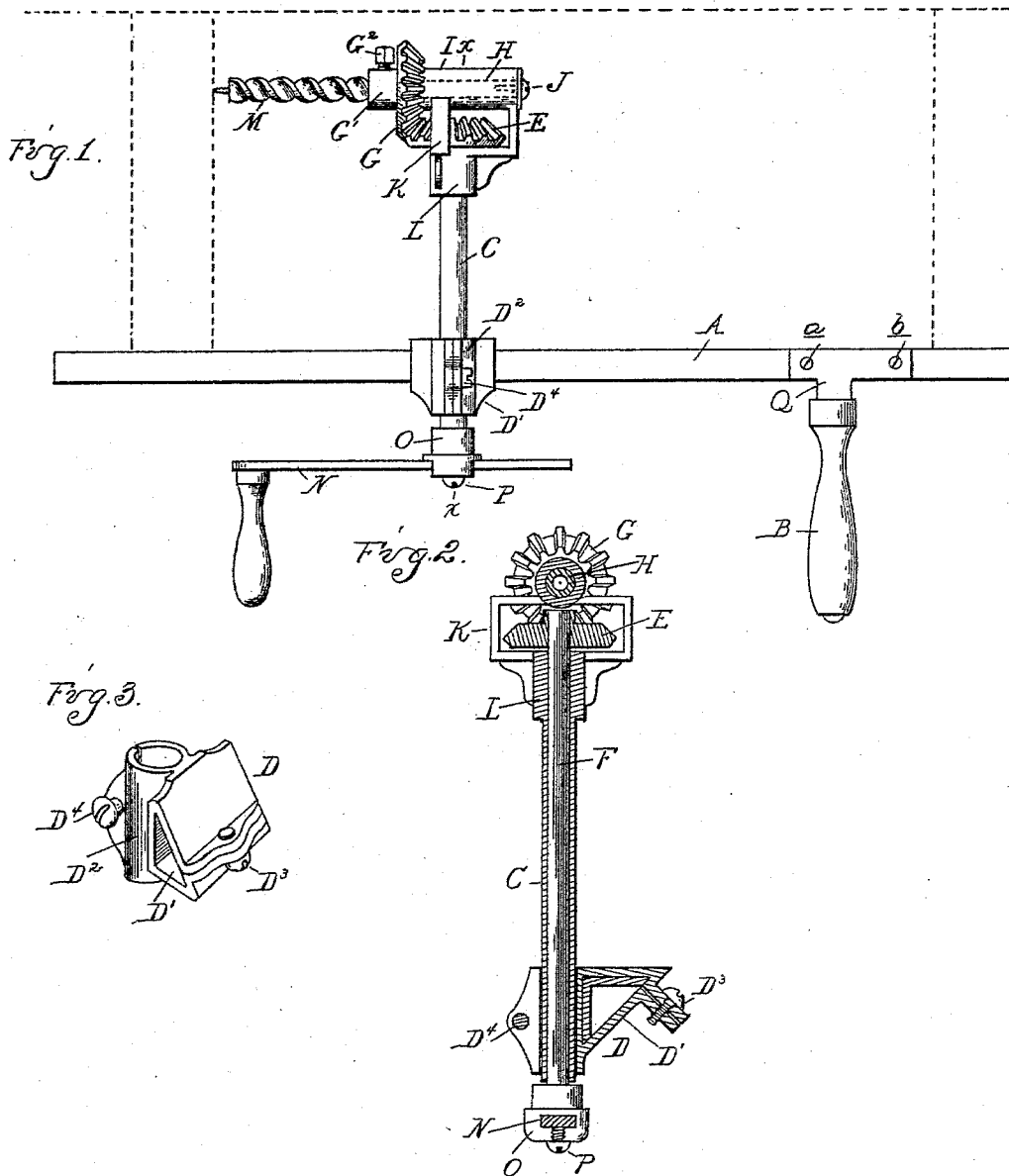


(No Model.)

E. E. ANTHONY.
BORING MACHINE.

No. 569,597.

Patented Oct. 20, 1896.



Witnesses
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Inventor
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By *[Signature]* Attys.

UNITED STATES PATENT OFFICE.

ELLIOTT E. ANTHONY, OF DETROIT, MICHIGAN.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,597, dated October 20, 1896.

Application filed February 3, 1896. Serial No. 577,889. (No model.)

To all whom it may concern:

Be it known that I, ELLIOTT E. ANTHONY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of the invention is to provide a boring-machine adapted for boring holes through joists in ceilings or for floors or other parts of the woodwork of a building where the usual tools cannot be used.

To this end my invention consists in the peculiar and novel construction, arrangement, and combination of a boring-tool provided with driving and guiding means, whereby the tool may be rotatorially worked between joists and in other confined positions, all as more fully hereinafter described and shown.

In the drawings, Figure 1 is an elevation of my improved boring-machine as arranged for operation. Fig. 2 is a cross-section on line *x x* in Fig. 1, looking toward the left. Fig. 3 is a detached perspective view of the clamping-slide.

A is the feed-bar, provided near one end with a handle B, fastened thereto at right angles.

C is a hollow standard supported at right angles to the beam by means of a clamping-slide D, having two split clamping-sleeves D' and D², the former being adapted to engage with and be adjustably clamped upon the feed-bar by means of a set-screw D³ and the latter to adjustably clamp the standard by means of the clamp-screw D⁴.

E is a bevel-pinion mounted upon the end of a shaft F, which passes loosely through the standard and carries at its upper end the bevel-pinion free to revolve.

G is another bevel-pinion meshing with the bevel-pinion E at right angles. It is provided with a stub-shaft H, which is journaled in a bearing I and held from endwise displacement by a screw J, tapped into the end of the stub-shaft, or by other suitable means. The bearing I is rigidly secured to the standard C at right angles thereto by suitable arms K, projecting from a collar L, which is fastened upon the end of the standard.

The beveled pinion G is provided with a socketed hub G' for the reception of the boring-tool M, which is removably secured therein by means of a set-screw G² or otherwise. The shaft F projects below the standard and is provided with a slidingly-adjustable crank-handle N, the drawings showing to this end a transversely-slotted head O, secured upon the lower end of the shaft, provided with a set-screw P, by means of which the crank-handle N is adjustably secured to the head.

In practice, the parts being arranged and constructed as shown and described, they are intended to operate as follows: By means of the clamping-sleeve D' the clamp-slide may be adjusted to any point along the feed-bar A, and by means of the clamping-sleeve D² the standard may be raised or lowered or rotatorially adjusted around its axis into any position desired. In using the machine in boring between joists from below, as shown in Fig. 1, the workman holds the machine with one hand, by means of the handle B, so that the feed-bar rests against the under side of two adjacent joists, and with the other he actuates the crank, having previously adjusted the parts in proper relation to the work. The boring-tool is advanced into the work by the workman pushing the feed-bar in the proper direction, and to this end the latter must be of the necessary length to bridge the interval between the joists. The feed-bar thus constitutes a guide for the tool, and in order to hold it it is preferably made of angle-iron, whereby one flange affords a straight flat bearing against the joists, while the other flange imparts the necessary stiffness to the bar and at the same time makes it relatively light. This cross-section of the feed-bar, in connection with the triangular clamping-sleeve D', is also especially effective for clamping the standard so firmly as to prevent any loose play.

The handle B may be made adjustable on the feed-bar. It is, however, ordinarily sufficient to provide it with a flat shank Q, which fits against the side of the feed-bar and is secured thereto by two screws *a b*, placed at unequal distances from the axis of the handle, so that by securing the shank reversely its position on the feed-bar is altered.

As the construction and operation of the

machine is so simple it will be unnecessary to describe any of the further manifold uses of the machine, which is especially adapted and designed for the work required in buildings for plumbers, steam, gas, and electric-light fitters in arranging the pipes and conduits as required for the modern equipment of a building.

What I claim as my invention is—

10 1. In a boring-tool, the combination with a spanning feed-bar having a handle thereon and adapted to be moved longitudinally to feed the tool, of a hollow standard, means for adjustably securing the standard to the bar,
15 a shaft passing through the standard, a bearing on the standard, a shaft in the bearing at an angle to said other shaft, intermeshing gears on the shafts, a tool-holder, and a handle for rotating the shafts, substantially as
20 described.

2. In a boring-machine, the combination of the handled feed-bar, the sliding clamp in the feed-bar formed with a split clamping-sleeve engaging with the feed-bar and with a split
25 clamping-sleeve at right angles thereto, the tubular standard adjustably secured by said clamping-sleeve to the feed-bar, a bearing connected to the end of the standard at right angles thereto, a stub-shaft journaled in said
30 bearing, and carrying the boring-tool and drive mechanism for said stub-shaft actuated by an adjustable crank-handle on the end of

a drive-shaft passing through the standard, substantially as described.

3. In a boring-machine, the combination of 35 the angle-bar A, the handle B secured thereto, the sliding clamp D formed with a split triangular sleeve adjustably clamping the bar A and with the tubular split sleeve D² for securing the standard, the tubular standard C 40 provided with the bearing I, the stub-shaft II journaled in said bearing and carrying the bevel-pinion G and boring-tool M, the shaft F journaled in the standard and carrying the bevel-pinion K meshing with the bevel-pinion 45 G' and the handle N adjustably secured to the shaft F, substantially as described.

4. The combination of a stub-shaft carrying the boring-tool, a drive-shaft carrying an actuating-crank, a frame or standard forming 50 suitable bearings in which the two shafts are journaled at right angles to each other and connected by intermediate gearing and a feed-bar provided with a sliding clamp having a clamping-sleeve formed thereon adapted to 55 adjustably secure the standard at right angles to the feed-bar, substantially as described.

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

ELLIOTT E. ANTHONY.

Witnesses:

M. B. O'DOHERTY,
O. F. BARTHEL.