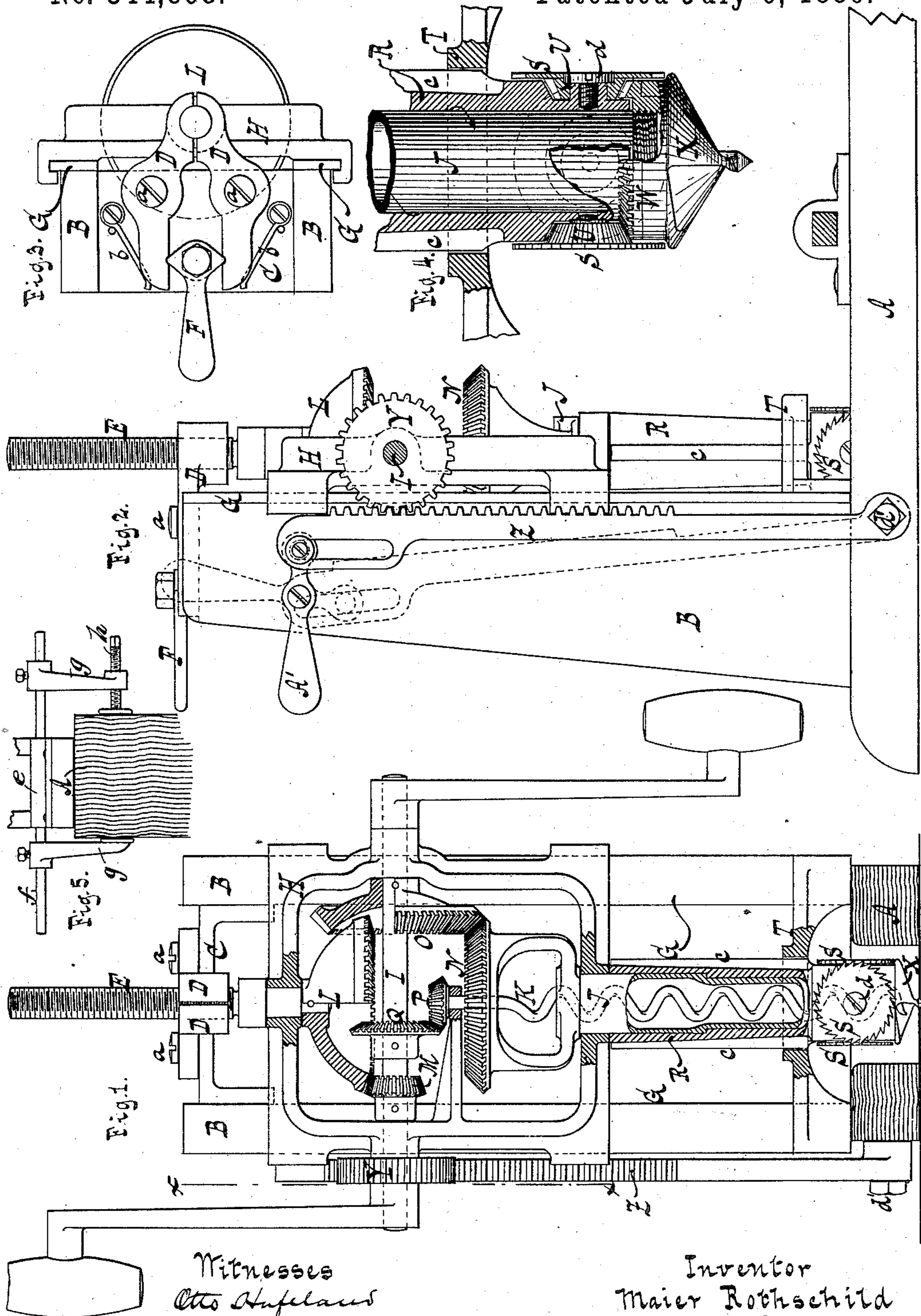


(No Model.)

M. ROTHSCHILD.  
MORTISING MACHINE.

No. 344,868.

Patented July 6, 1886.



Witnesses  
Otto Hufeland  
William Miller

Inventor  
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# UNITED STATES PATENT OFFICE.

MAIER ROTHSCHILD, OF SHAMOKIN, PENNSYLVANIA.

## MORTISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,868, dated July 6, 1886.

Application filed November 5, 1885. Serial No. 181,953. (No model.)

*To all whom it may concern:*

Be it known that I, MAIER ROTHSCHILD, a citizen of the United States, residing at Shamokin, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Boring-Tools, of which the following is a specification.

This invention relates to certain improvements in tools for boring holes, and more especially square holes. The peculiar and novel construction which constitutes my invention is pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical section. Fig. 2 is a sectional side view, the plane of section being indicated by the line *x x*, Fig. 1. Fig. 3 is a plan or top view. Fig. 4 is a sectional view of the drill, the drill-rod, and the guide for the drill-rod, on a larger scale than the previous figures. Fig. 5 is a detail view of the clamp which I use for securing my boring-tool to the work.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the base, from which rise two standards, B B. These standards are connected at their top by a flanged plate, C, and on this plate are mounted two jaws, D D. These jaws swing on pivots *a a*, Figs. 1 and 3, and they are semi-cylindrical, and provided with internal screw-threads, intended to engage with the threads of the feed-screw E. A knuckle-lever, F, serves to close up the jaws against the feed-screw, and the tails of the jaws are exposed to the action of springs *b b*, which have a tendency to throw the jaws open. If the knuckle-lever F is turned to the proper position, the jaws are thrown open by the springs *b b* and the feed-screw is released.

In the faces of the standards B B are formed or firmly secured guides G G for the movable frame H. This frame forms the bearings for the driving-shaft I, the feed-screw E, the drill-rod J, and the clearer K. In the lower end of the feed-screw is firmly mounted a bevel-wheel, L, which gears into a bevel-wheel, M, mounted on the driving-shaft I. The drill-rod J is geared together with the driving-shaft I by bevel-wheels N O and the clearer K by bevel-wheels P Q.

From the bottom part of the frame H ex-

tends a tubular guide, R, through which extends a drill-rod, and which is provided with ribs *c c*, which engage with grooves in a traverse, T, that is secured to the guides G G, or to the standards B B.

On the guide R are mounted four circular saws, S S, which are secured to the outer surfaces of bevel-wheels U, and which, together with said bevel-wheels, turn freely on the screw-studs *d*. The drill-rod J extends a short distance beyond the lower edge of the guide R, and it carries the master-wheel W and the bit X. The master-wheel gears into the bevel-wheel U, Fig. 4, and if a revolving motion is imparted to the drill-rod the saws S are caused to revolve by the action of the master-wheel W upon the bevel-wheels U.

On the driving-shaft is mounted a cog-wheel, Y, and on the side of the base A is mounted a rack-bar, Z, which swings on a pivot, *d'*, and can be thrown in or out of gear with the cog-wheel Y by the action of a lever, A'.

When the machine is in operation, the jaws D D are closed and the rack-bar Z is thrown out of gear with the cog-wheel Y, as shown in dotted lines in Fig. 2; but when a hole has been bored the rack-bar is thrown in gear with the cog-wheel Y, the jaws D D are opened, and by turning the driving-shaft in the proper direction the frame H, together with all its appliances, can be raised, ready for the next hole.

The clearer K consists of a spiral wire, which extends through the hollow drill-rod, and when the tool is in operation this clearer is turned in such direction that the chips are discharged at the upper end of the hollow drill-rod.

The base A can be secured to the work by a suitable clamp—such, for instance, as that shown in Fig. 5—in which A represents the base, on which is firmly fastened a box, *e*. In this box is secured a guide-rod, *f*, which carries two arms, *g g*. These arms are adjusted on the rod *f* by set-screws, and one or both are provided with a clamping-screw, *h*.

By changing the number of saws holes of different shape can be bored—such as hexagonal, octagonal, &c.—and by changing the form of the bit my machine can be adapted for boring holes in minerals.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a supporting main

- frame, a frame movable back and forth thereon, and a driving-shaft carried by said movable frame, with a drill-rod geared to the driving-shaft, a guide for the drill-rod, the saws mounted on the sides of the guide, the cog-wheels connected to the saws, and the master-wheel and bit secured to the outer end of the drill-rod in advance of the cog-wheels on the saws, substantially as described.
2. The combination, substantially as hereinbefore described, of the hollow drill-rod, the clearer extending through the drill-rod, the driving-shaft geared together with the clearer and with the drill-rod, the guide for the drill-rod, the saws mounted on the sides of this guide, the cog-wheels connected to the saws and the master-wheel, and bit secured to the drill-rod.
3. The combination, substantially as hereinbefore described, of the movable frame, the feed-screw connected to the frame, the rotary drill-rod mounted in said frame, the guide for the drill-rod firmly connected to the frame,

the saws mounted on the sides of this guide, the cog-wheels connected to the saws and the master-wheel, and bit secured to the drill-rod. 25

4. The combination, substantially as herein described, of the movable frame, the feed-screw connected to this frame, the rotary hollow drill-rod mounted in said frame, the guide for the drill-rod firmly connected to the frame, the saws mounted on the sides of the guide, the cog-wheels connected to the saws, the master-wheel and bit secured to the drill-rod, the clearer extending through the drill-rod, and the driving-shaft mounted in the movable frame and geared together with the drill-rod, the feed-screw, and the clearer. 30 35

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses. 40

MAIER ROTHSCCHILD. [L. S.]

Witnesses:

WM. ENGEL,

CHAS. H. DOUTY.