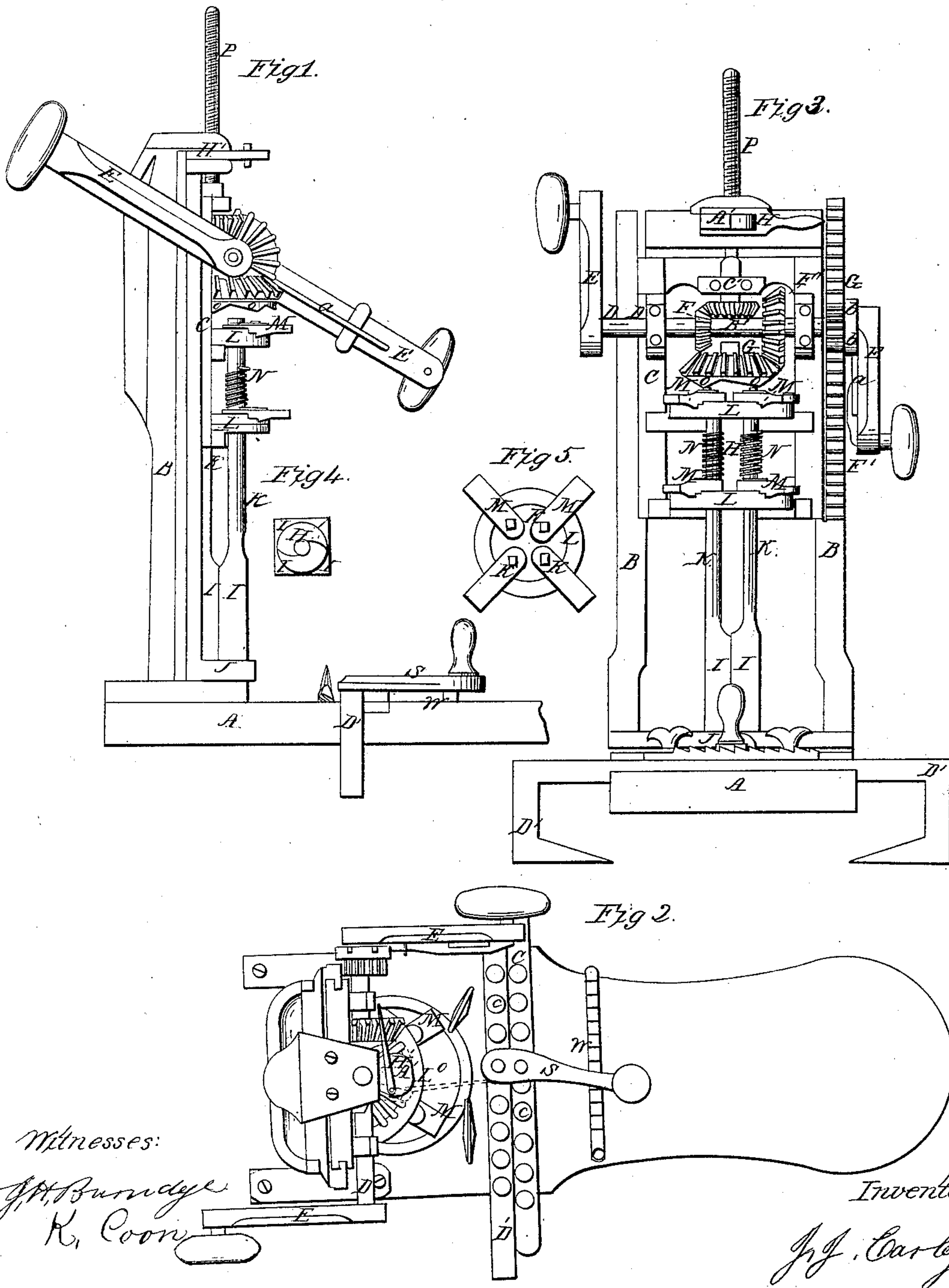


J. J. Earley,

Mortising Machine.

N^o 82,096.

Patented Sep. 15, 1868.



Witnesses:

J. H. Burnage
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Inventor:

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United States Patent Office.

J. JACOB EARLEY, OF FAIRFIELD, OHIO.

Letters Patent No. 82,096, dated September 15, 1868.

IMPROVEMENT IN BORING AND MORTISING-MACHINES

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, J. JACOB EARLEY, of Fairfield, in the county of Columbiana, and State of Ohio, have invented certain new and useful Improvements in Boring-Machines; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of the machine.

Figure 2 is a top view.

Figure 3, a front view.

Figure 4, a detached section.

Like letters of reference refer to like parts in the different views.

A, fig. 1, represents a platform or base, on which are erected the standards, B. Between these standards is fitted a sliding frame, C, in which is arranged the following machinery, viz:

D is a shaft, having its bearings in each side of the frame, to the extreme ends of which are secured the cranks, E. To said shaft is also keyed the bevel-pinions, F F', the pinion F' being made to engage in a pinion, G, keyed to the shaft of the auger, H, the cutting-end of which is shown in fig. 4.

The auger-referred to is enclosed by and revolves within four rectangular chisels or cutters, I. Said chisels are kept in close relation to each other, and guide by a stay, J, in which they have an alternating vertical movement, for a purpose hereafter shown.

The shafts K of these chisels, constituting their upper end, are secured and guided by the circular stays L L', supporting the adjustable radial arms M, through the inner ends of which the shafts of the chisels slide, as shown in Figure 5.

N N are spiral springs, encircling the shafts or stems of the chisels, the purpose of which will hereinafter be shown.

The vertical-striking movement of the chisels is given to them by the cams O, fig. 3, constructed upon the under side of the bevel-wheel G. These cams are five in number, and are so arranged, in relation to the chisels, that as the wheel revolves, the cams engage in the ends of the chisels and force them downward, one after the other, in regular successive orders, as the wheel revolves, but are immediately returned upward by the springs N.

The feed-work of this machine consists of the screw P, fig. 3, fitted to and working in a nut, A', fig. 3. At the lower end of said screw is keyed a bevel-pinion, B', made to engage in the corresponding wheel F, above referred to. The lower end of the screw is attached, by a journal-joint, C', to the frame C.

By this arrangement, it is obvious that, as the screw is turned by the movement of the wheels, the frame C will be moved downward or upward, for feeding or following the descent of the auger, or for the withdrawing of the same after completing the work of mortising.

The practical operation of this machine is as follows:

The apparatus is placed on the timber so as to bring the auger over the point where the mortise is to be cut, and thereto secured by the clamp-hooks D', the position of which is such as to allow of their being driven into the sides of the timber. The operator takes his seat upon the platform, in front of the machine, and with both hands works the apparatus by the cranks above referred to. As the auger descends into the wood, the chisels follow, and by their repeated and regular strokes cut down the sides of the hole into a square mortise, the chisels and auger being fed slowly downward by the screw P, operated by the wheels F and B'.

When the work of boring and mortising is complete, the frame C and its arrangement of gearing-chisels and auger are run upward for repeating the operation, by opening the nut A', thereby allowing the screw to slip through it without turning. The whole is then raised by a rack and pinion, G and F'. Said pinion is fitted loosely to the shaft, but, for the purpose of raising the frame, is secured to it by a stop, a, fig. 1, attached to the inside of the crank F, which is pushed down into a notch, b, cut in the periphery of a wheel, R, connected

to the pinion. By this means the said pinion is made fast to the crank and shaft, and on turning the same will work the wheel upward, and thereby elevate the frame, as above said.

By this means of elevating the frame much time is saved in withdrawing the auger and chisels from the hole, so that the machine can be shifted from one place to another, and thus expedite the work of boring and mortising.

The clamp-hooks D may be extended, so as to adapt them to different widths of timber, thus: The lever S, fig. 2, is provided with two dowel-pins, which are inserted in the holes, c, made in the shanks of the hooks. The hooks on being placed in position on the platform, a groove being provided for them, are then forced into the timber by drawing the lever horizontally across the platform, and are then secured by the rack W, into the teeth of which the end of the lever is caught.

The two sections of the expansion-nut A' are secured together by a yoke, H', which, on being moved to the position indicated by the dotted line e, fig. 2, will allow the nut to open for the passage of the screw, for the purpose above specified.

It will be obvious that different-sized mortises can be beaten by this machine, by simply removing the auger and chisels, and replacing them by others of the required size for the work. The radial arms M, being adjustable, can be moved in or out as the size of the chisels may require.

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

1. The adjustable chisels I I, springs N, cams O, and wheel G, when arranged and operated, in combination with the auger H, for the purpose specified.

2. The circular stays L, adjustable radial arms M, for expanding and contracting the shanks of the chisels, in the manner set forth.

J. JACOB EARLEY.

Witnesses:

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PETER SCHWEPER.