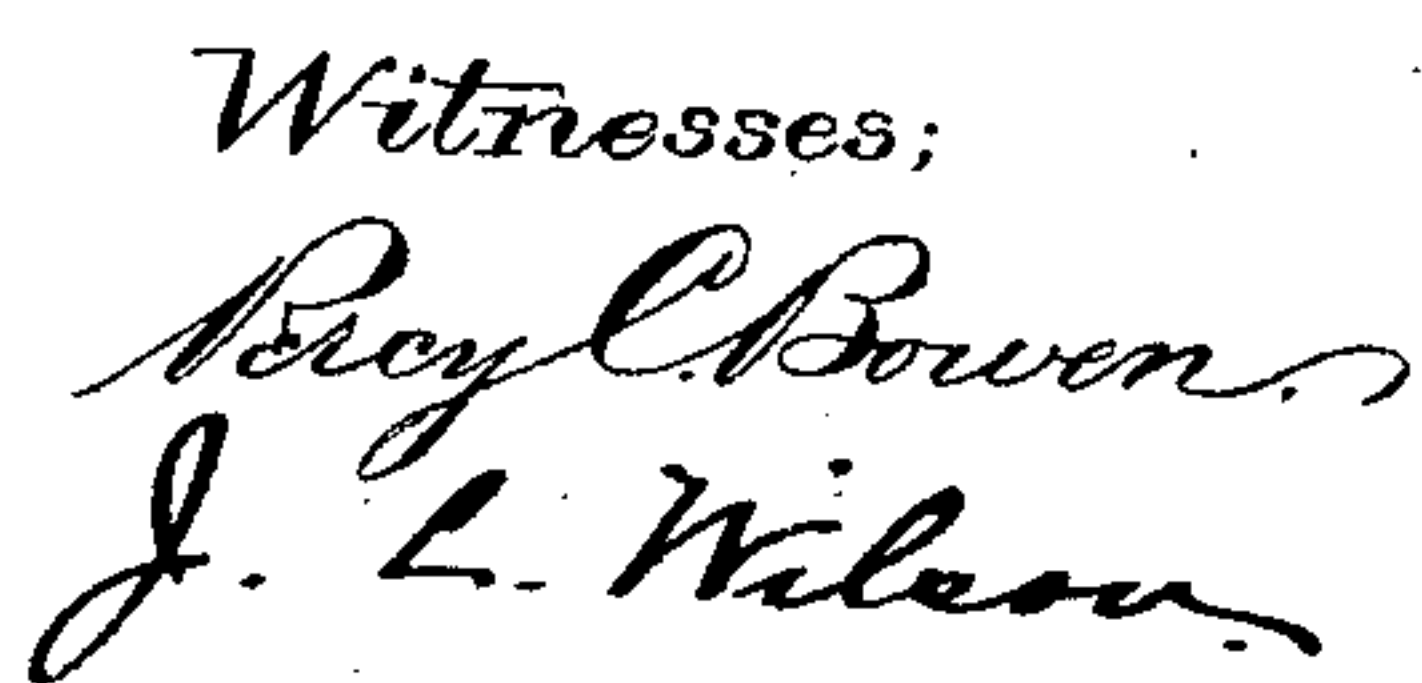


2 Sheets—Sheet 1.

No. 481,383.

Patented Aug. 23, 1892.



Inventor:
George A. Adams
By Whitman & Wilkinson
Attorneys.

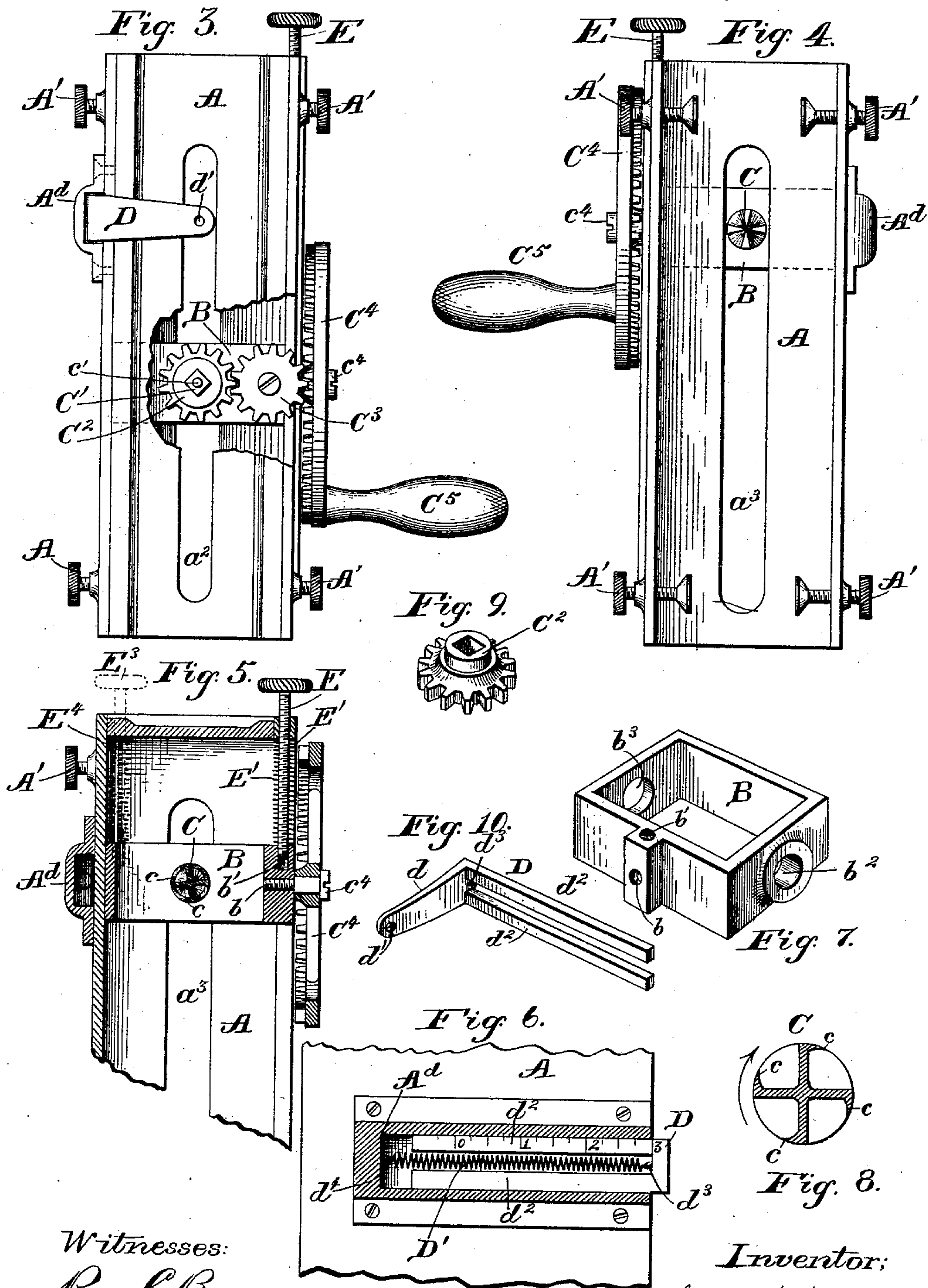
(No Model.)

2 Sheets—Sheet 2.

G. A. ADAMS.
BORING AND MORTISING MACHINE.

No. 481,383.

Patented Aug. 23, 1892.



Witnesses:
Ray C. Bowen
J. L. Wilson

Inventor:
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Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE AUGUSTAS ADAMS, OF SANTA CLARA, CALIFORNIA.

BORING AND MORTISING MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,383, dated August 23, 1892.

Application filed November 2, 1891. Serial No. 410,572. (No model.)

To all whom it may concern:

Be it known that I, GEORGE AUGUSTAS ADAMS, a citizen of the United States, residing at Santa Clara, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Boring and Mortising Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to boring and mortising bits; and it consists of certain novel features hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a side view of a portion of a door with the combined boring and mortising bit attached thereto, parts being broken away. Fig. 2 represents a horizontal section of the device shown in Fig. 1 along the line $x x$. Fig. 3 represents a rear view of the device with the bit in the act of descending, parts being broken away. Fig. 4 represents a front view of the device, showing the bit in the initial position. Fig. 5 represents a vertical section on the line $y y$ of Figs. 1 and 2, looking to the right. Fig. 6 represents a section on the line $z z$ of Fig. 2. Fig. 7 represents a perspective view of the frame carrying the bit. Fig. 8 represents a cross-section of the bit and illustrates the cutting-edges. Fig. 9 represents a perspective view of the gear-wheel, which slides upon the shank of the bit. Fig. 10 represents a perspective view of the spring-frame, in which the end of the shank of the bit is journaled.

The device consists of a rectangular metallic frame A, slotted at a, a', a^2 , and a^3 and having a guide-piece A^d attached thereto. The frame A is connected to the door or timber to be mortised by means of the mill-headed clamp-screws A' . Sliding in this outer frame A is the frame B, carrying the bit C and the mechanism for revolving the same. This bit has a number of helicoidal cutting-edges c , as shown in Figs 2 and 8—preferably four or more. This bit has a shank C' , preferably angular and terminating in a small cylinder c' . This angular shank passes through the gear-

wheel C^2 . The said shank is free to move longitudinally in the said gear, but is held against turning therein by the angularity of the aperture in the wheel. This gear-wheel is journaled in the frame B and held between the outer frame A and the said inner frame B, but moves freely vertically with the frame B.

Meshing in the gear-wheel C^2 is a second gear-wheel C^3 , pivoted on the screw c^3 , which enters the said frame B. The crown-wheel C^4 , mounted upon the screw-bolt c^4 , attached to the frame B, is turned by the handle C^5 and imparts rotary motion to the bit through the gear-wheels C^3 and C^2 .

D represents a frame having an arm d and hole d' to receive the cylindrical stud c' of the shank of the bit.

Between the legs d^2 of the frame D the spiral spring D' is stretched, being connected at d^3 to the frame D and at d^4 to the guide-frame A^d and normally tending to press said frame D and bit C to the right. A^d is a guide-frame attached to the frame A for the said legs d^2 of the frame D to move in freely in a longitudinal direction.

E is a screw having a milled head and adapted to engage in the screw-threads b' in the frame B when the bit is in the initial or boring position. When this screw is disengaged from the said screw-threads b' , the spiral spring E' tends to press the frame B and bit C downward.

In order to equalize the downward pressure on both sides of the frame B, a second screw E^3 and spring E^4 may be added, or both sides of the frame B may be pressed down by one screw acting on the yoke.

The operation of the device is as follows: The frame A is first clamped on the edge of the door or timber W to be mortised, as shown in Fig. 1. The frame B is then slid up high enough to allow the stud c' of the shank C' of the bit to engage in the hole d' of the spring-actuated frame D, which is pulled far enough out for the purpose, and at the same time the weight of the frame B is taken up by screwing down on the mill-headed screw E. The spring D' now presses the bit against the edge of the door or timber W, and upon turning the handle C^5 a hole w is soon bored. The depth of this hole may be properly adjusted by

means of a scale marked on one leg of the frame D, as shown in Fig. 6. When the bit has bored to the desired depth, by pressing the arm *d* back, as shown by the dotted lines in Fig. 2, and releasing the screw E from the threads *b'* the effect of the spring D' is withdrawn and that of the spring E' is put into operation, and this latter, in combination with the weight of the frame B and its attached parts, will cause the bit to cut a straight mortise downward in the edge of the door W.

The length of this mortise may be regulated by a scale marked on the frame A, as shown in Fig. 1.

15 Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a combined boring and mortising machine, the combination, with a bit and means for revolving the same, of a spring adapted to press said bit in the direction of its length and a spring adapted to press said bit transversely, substantially as described.

2. In a combined boring and mortising machine, the combination, with a revoluble bit moving in suitable guides, and means for revolving said bit, of a detachable spring adapted to press said bit in the direction of its length and an adjustable spring adapted to press said bit transversely, substantially as described.

3. In a combined boring and mortising machine, the combination, with a guide-frame and means of attaching said frame to the wooden piece to be cut, of an inner frame sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring adapted to press said bit in the line of its axis, and a spring adapted to press said bit transversely to its axis, with means of withholding said latter spring, substantially as described.

4. In a combined boring and mortising machine, the combination, with a guide-frame and means of attaching said frame to the wooden piece to be cut, of an inner frame

sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring-operated frame attached to said guide-frame and adapted to press said bit in the line of its axis, and a spring adapted to press said bit transversely to its axis, with means of withholding said spring, substantially as described.

5. In a combined boring and mortising machine, the combination, with a guide-frame and means for attaching said frame to the wooden piece to be cut, of an inner frame sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring-operated frame attached to said guide-frame and adapted to press said bit in the line of its axis and a spring normally compressed between said guide-frame and said inner frame adapted to press said bit transversely to its axis, and a screw adapted to clamp said inner frame in said guide-frame, substantially as described.

6. In a combined boring and mortising machine, the combination, with a slotted guide-frame and means for attaching the said guide-frame to the article to be cut, of an inner frame traveling in said guide-frame and carrying a bit free to revolve and to move transversely to the line of its axis, with means attached to said inner frame for revolving said bit, a spring set between said inner and outer frames, and a clamp-screw for clamping said inner frame in said outer frame against the normal pressure of said spring, substantially as described.

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

GEORGE AUGUSTAS ADAMS.

Witnesses:

J. R. WELCH,
H. M. BLAND.