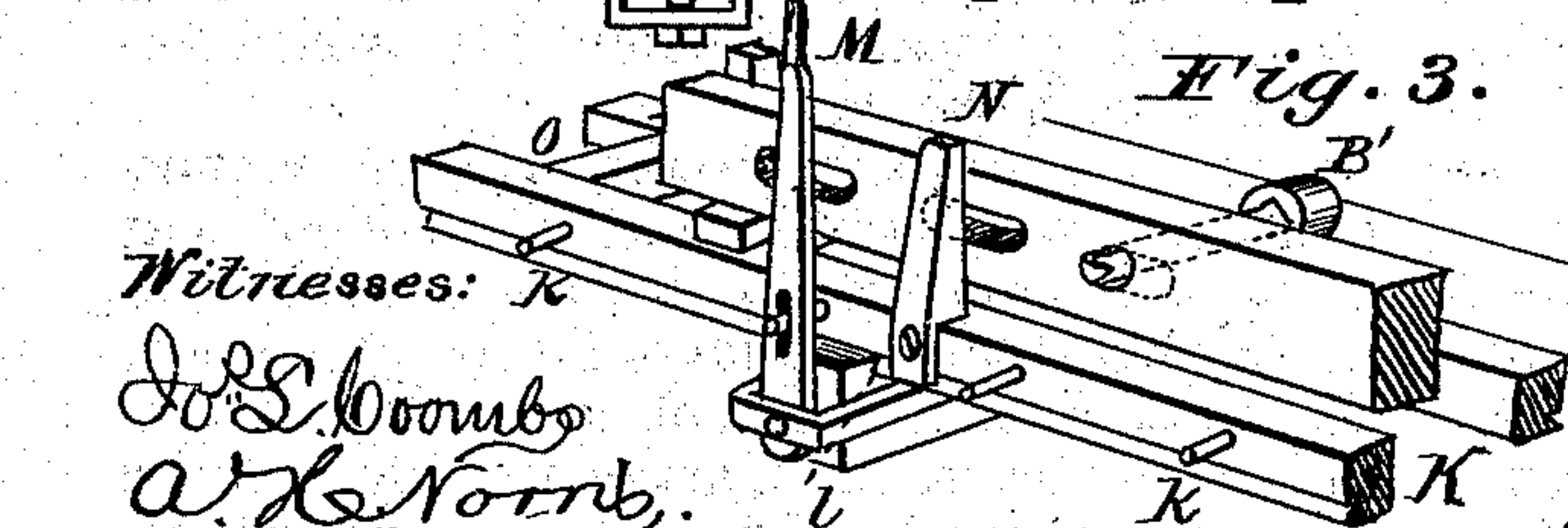
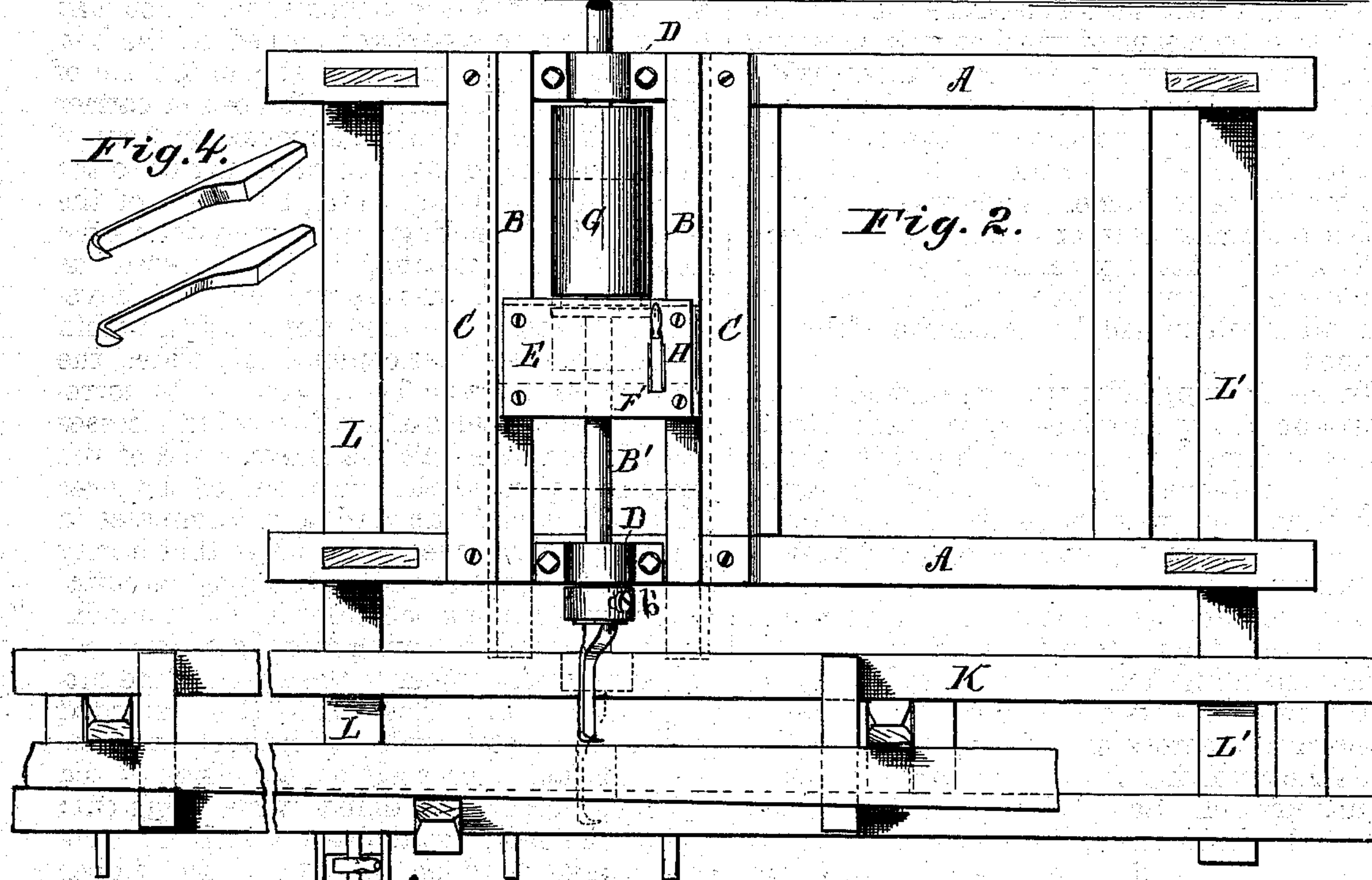
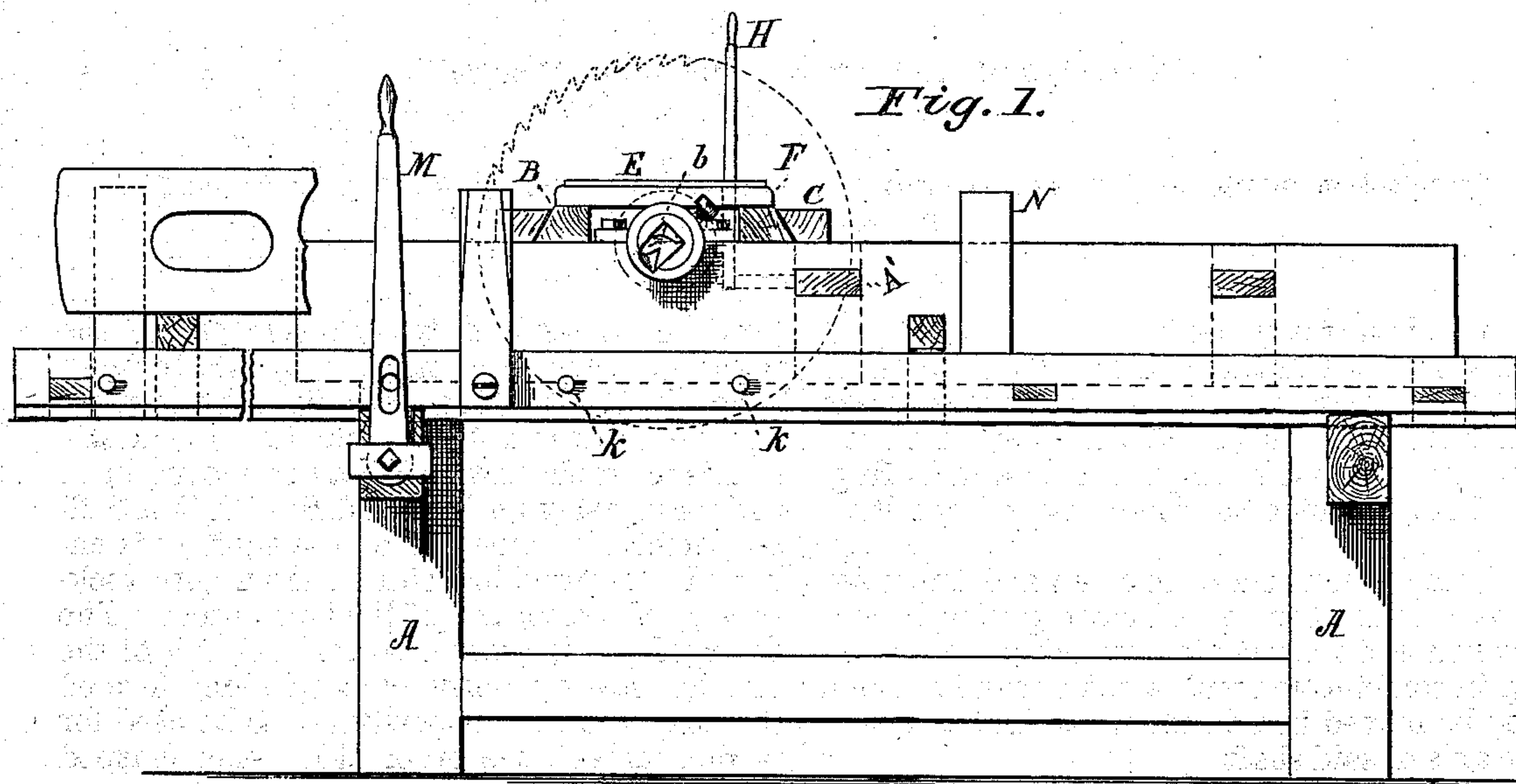


H. KALBACH.
Boring-Machines.

No. 156,226.

Patented Oct. 27, 1874.



Inventor:
Harrison Kalbach
By James L. Norris
att'y.

Witnesses: K
J. S. Boonby
A. B. Norris.

UNITED STATES PATENT OFFICE.

HARRISON KALBACH, OF ROBESONIA FURNACES, PENNSYLVANIA.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. **156,226**, dated October 27, 1874; application filed September 12, 1874.

To all whom it may concern:

Be it known that I, HARRISON KALBACH, of Robesonia Furnaces, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Boring-Machine, of which the following is a specification:

My invention relates to a new and improved apparatus for boring and sawing timber; and it consists of a horizontal revolving shaft working in combination with a bed or carrier which may be moved in a direction at right angles to the axis of said shaft.

The horizontal shaft is mounted upon a sliding frame, by means of which it may be moved longitudinally toward the bed-carrier before mentioned. The sliding shaft and bed or carrier are operated by means of levers, as hereinafter described. The end of the shaft nearest the frame or carrier is adapted to receive either a circular saw, or a cutting or boring tool; and the frame or carrier is provided with standards or arms to hold and carry the lumber, all of which will be hereinafter fully described.

In the drawings, Figure 1 represents a front elevation of my improved apparatus; Fig. 2, a view looking down upon the top of the same; Fig. 3, a detached view of the bed or carrier and boring tool, with the lumber in position to be bored or mortised; and Fig. 4 the cutting or boring tool.

A represents the frame which supports the various working parts of the machine. B represents a sliding frame, mounted upon the top of the frame A, between guides C C, extending transversely across said frame A. B' represents the revolving shaft which carries the saw or cutting-tool. Said shaft is journaled to the top of the frame A, at the front and rear, as shown at D D, and is mounted between the two sides of the sliding frame B, and connected to the same by means of a half-collar, formed on the edge of the plate E, attached to the cross-piece F, which secures the two sides of the frame B together. Said edge is bent downward at right angles to the plate E and the half-collar formed on the end of the broad pulley G, attached to the revolving shaft B', by which the power is applied to said shaft. H represents a lever, pivoted at its lower end to a cross-

beam, A', extending transversely across the frame A. Said lever extends upward through a slot, F', through the cross-piece F and plate E, where it terminates in a handle. By means of this lever the frame B may be moved back and forth, carrying the shaft B' with it, as will be perceived. One end of the shaft B' is enlarged, and provided with a rectangular socket, *b*, for the reception of the boring-tool. The enlarged portion serves to hold one side of the circular saw by means of a shoulder formed thereon, when the apparatus is to be used for sawing lumber, the other side being clasped and held by means of a screw-bolt, which may be set into a screw-socket formed at the bottom of the rectangular socket *b*, in the end of the shaft B'. K represents the bed or carrier for the timber. This is supported in front of the cutting-tool or saw, at right angles to the axes of the revolving shafts, by means of the beams L L', extending transversely across the frame A, and projecting in front thereof, as shown. These beams are provided with dovetailed recesses *l l* on their upper sides, within which the frame K is confined and slides, the sides of said frame being grooved to correspond with the sides of the dovetailed recesses for this purpose. To the extreme end of the beam L is pivoted the lower end of the lever M, which extends upward, and terminates in a handle. Said lever is slotted, so that it may set over the pegs or pins *k*, arranged at suitable intervals along the front of the frame K, for the purpose of moving said frame forward, and subject the timber to the action of the cutting-tool or saw. The frame K is provided with upright standards N, arranged at suitable intervals alternately on each side of the same, to support the timber while being cut; and at one end of said frame a stop, O, is secured, against which the end of the timber rests, and by means of which it is carried forward with the frame.

I use an ordinary circular saw in connection with my apparatus, and it is evident that it may be a cross-cut or rip saw, according to the nature of the material to be operated upon. The cutting or boring tool, however, is of peculiar construction. Detached views of the same are shown in Fig. 4 of the drawings. Said tool consists of a single-edged cutter,

formed with an ordinary rectangular shank to fit the socket in the shaft B'. Said cutter, a short distance from its end, is bent at an angle to the body of the blade, so that its end, which is ground to a point, will fall exactly in the axial line of the revolving shaft B', when the cutter is inserted, so as to readily enter the wood and cut the same without splitting. The bent end commences the bore and widens it gradually, and the edge of the straight portion of the blade trims the sides of the bore, as will be perceived. The tool is held in place in the end of the shaft by means of a binding-screw, b', passing through the enlarged portion of said shaft.

The operation of my invention will be readily understood from the above description. The revolving shaft is pushed forward by means of the lever H, and carries the tool or saw toward the timber, which is supported on the carrier K. The carrier K is carried forward

by means of the lever M, which may be set over each of the pegs k for the purpose, so as to form the mortises of proper length and suitable distances apart, as will be readily perceived.

What I claim is—

The sliding frame B, cross-piece F, having a slot, F', and the lever H, pivoted at its lower end, and passing up through said slot for moving the frame B, in combination with the carrier K, with its series of pins k, and the slotted pivoted lever M, adapted to be adjusted to any one of the pegs for moving the carrier, all as herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand.

HARRISON KALBACH.

Witnesses:

JOS. L. COOMBS,

ALBERT H. NORRIS.