J. BERRY.

Mortising-Machine.

No. 165,294. Patented July 6, 1875.

Fig 2.

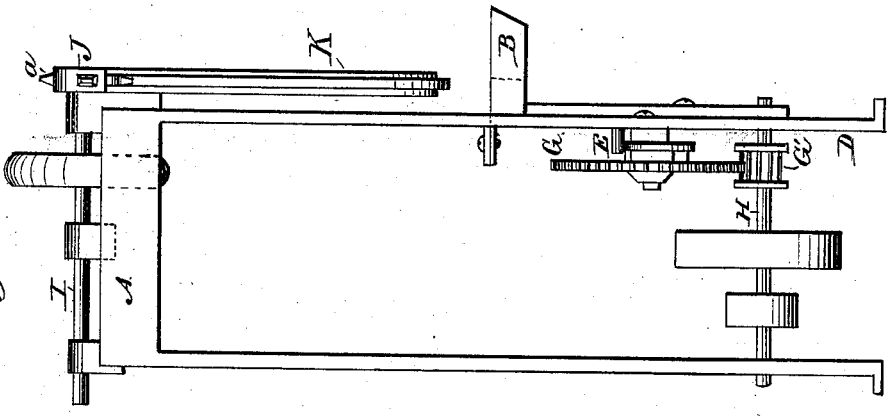

Fig 1.

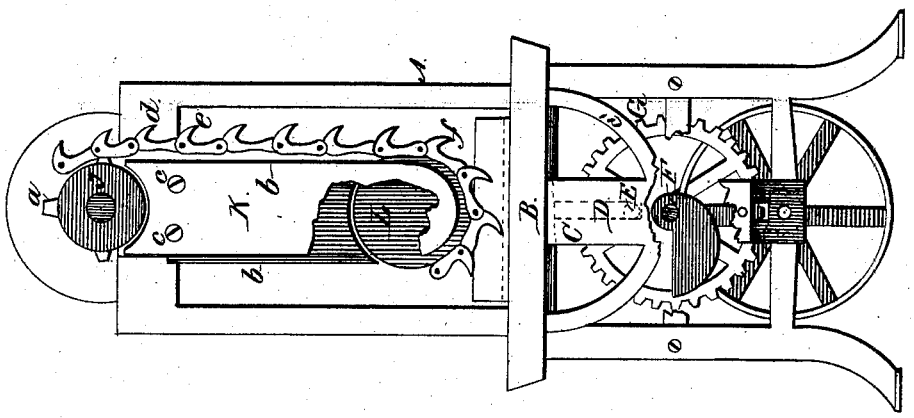

Fig 4.

Fig 3

Witnesses;

Harry C. Clark

H. E. Matthews

Inventor.

John Berry

By C. W. M. Smith

his Atty.

UNITED STATES PATENT OFFICE.

JOHN BERRY, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. **165,294**, dated July 6, 1875; application filed January 4, 1875.

To all whom it may concern:

Be it known that I, JOHN BERRY, of San Francisco, in the county of San Francisco and State of California, have invented an Improvement in Mortising-Machines; and I do hereby declare that the following description and accompanying drawings are sufficient to enable any person skilled in the art to which it appertains to make and use the same.

My improved mortising-machine consists in the employment of a chain-saw, having peculiar teeth and certain adjustments, so that it can be run continuously without heating, and the mortise be smoothly and quickly cut.

To explain my invention, so that its construction and operation can be readily comprehended, reference is had to the accompanying drawings and to the letters marked thereon, forming a part of this specification, in which—

Figure 1 is a front elevation, partly broken; Fig. 2, a side elevation, also partly broken; Fig. 3, side view of the saw-teeth; Fig. 4, a rear-edge view of the saw-teeth or chain.

A represents the rectangular frame of my mortising-machine. B is the table, upon which the timber to be mortised is placed. This table is attached to a flat vertical bar, C, supported by a curved brace, C′, through both of which, and a vertical slotted brace, D, immediately in the rear of the bar C, a pin, E, passes, having a projecting head, which is engaged by a cam, F, upon the outer face of the wheel G, where teeth operate the lantern-wheel G′ upon the driving-pulley shaft H, and by which means an alternate rectilinear motion is imparted to the table. The upper driving-shaft I has its bearings at the top of the frame, and the upper end of it projects to the front. Upon the end of the shaft I fix a metal disk, J, the edges of which are flattened or clipped at four points, and from which four points or quarters extend lugs or teeth *a a*. Below the disk J, and attached to the frame of the machine, is a flat metal plate, K, formed by joining two flat plates, whose juncture is prevented centrally by the flange-plates *b b*, which form ways for the endless chain-saw, to be described hereinafter. This plate K is attached to the frame by the bolts *c c*, and extends down vertically to near the mortise in the table B when it is elevated. Both ends of the plate are open at the upper end, to admit the working and passage of the teeth *a a* of the disk J, and at the lower end for the admission of a disk-plate, L, around which the endless chain passes.

The disk L is an important feature of my invention, as by the use of it the machine can be brought up to and maintained at the necessary and uniform rate of speed without the heating of the parts, for the reason that the disk revolves on no axis of its own, but is simply kept in place between the two plates forming the plate K by the endless chain passing around its periphery.

In practice it has been found that machines of a similar construction have become useless after having been in operation a short time, for the reason that the bearings became heated; but in the use of my device of a rotating disk in the end of the plate without a center axis or bearing this defect is entirely remedied, and the machine can be run hours in succession, and without stoppage, as the disk has but few bearing-points, and does not rotate with that velocity proportionate with the travel of the endless chain-saw.

The endless chain-saw is formed by two sets of teeth, *d e*. Those represented at *d* are double. The chain is formed by reuniting the two ends of the single teeth *e* between the ends of the double teeth, by which a slot, *f*, is formed in each series of the double teeth, the single teeth being set forward a little from the vertical line of the back of the chain, so that a groove, *f′*, is provided, which receives the guides or flanges *b b* of the metal plate, and the edge of the disk L, while the lugs or teeth *a a* of the disk at the end of the shaft J enter deeper into the slot *f*, and carry the endless chain of teeth around to accomplish the desired object of cutting the mortise, the single teeth *e* acting as pioneer cutters for the double teeth *d*.

I am aware of the Letters Patent No. 140,257, and hereby disclaim the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The endless chain-saw, consisting of the single and double teeth *d e*, so united that a

groove, *f'*, and slots *f* are formed along its inner edge, to receive the guide plates or ways *b b* and teeth *a a* upon the plate J, and the periphery or edge of the disk L, as set forth and specified.

2. The loosely-fitted guiding-disk L, in combination with the plate K and endless chain-saw, all the parts being constructed and operating substantially as herein set forth and specified.

3. The combination of the endless chain-saw, having double and single teeth *d e*, slot *f*, and groove *f'*, with the actuating-disk J and guiding disk or plate L, when constructed substantially in the manner as herein set forth and specified.

In witness whereof I have hereunto set my hand and seal.

JOHN BERRY. [L. S.]

Witnesses:
C. W. M. SMITH,
PHILIP MAHLER.