G. M. Atherton.

Boring & Mortising Mach.

No 26,330. Patented Dec 6. 1859.

Fig: 1.

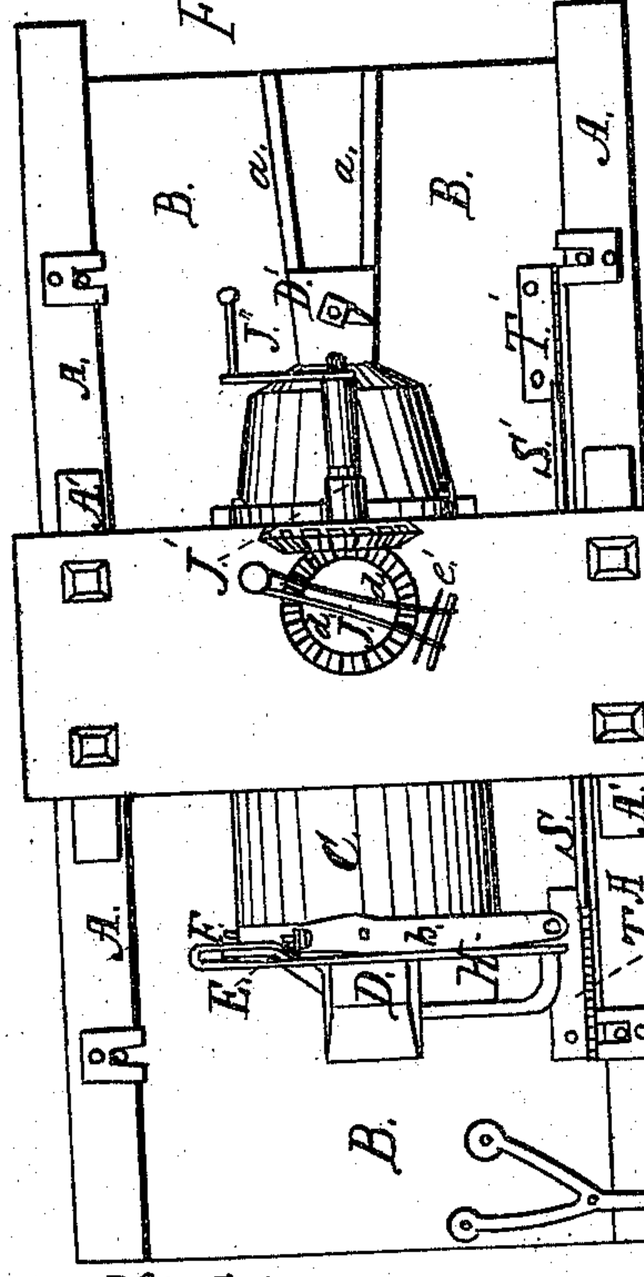

Fig: 3.

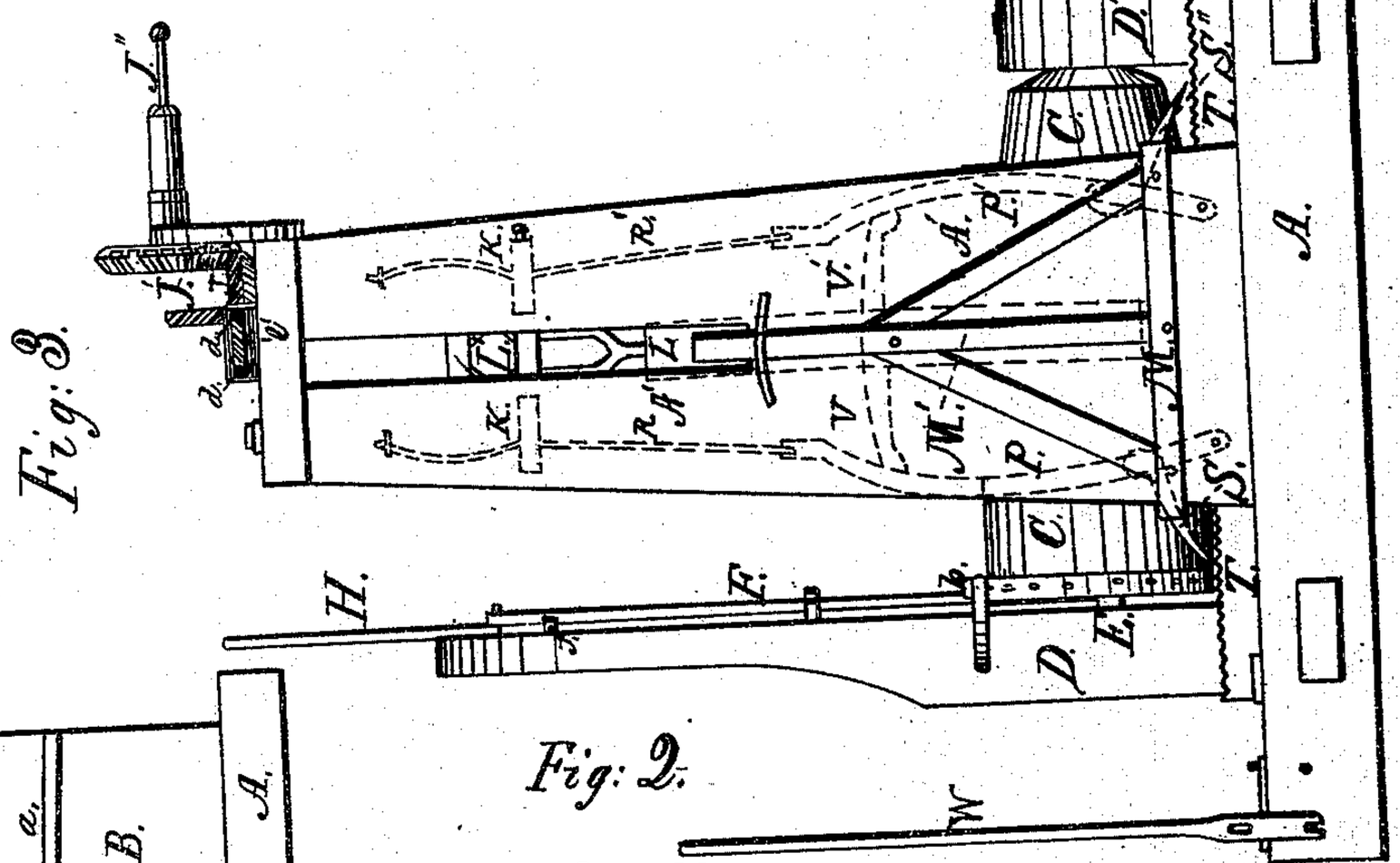

Fig: 2.

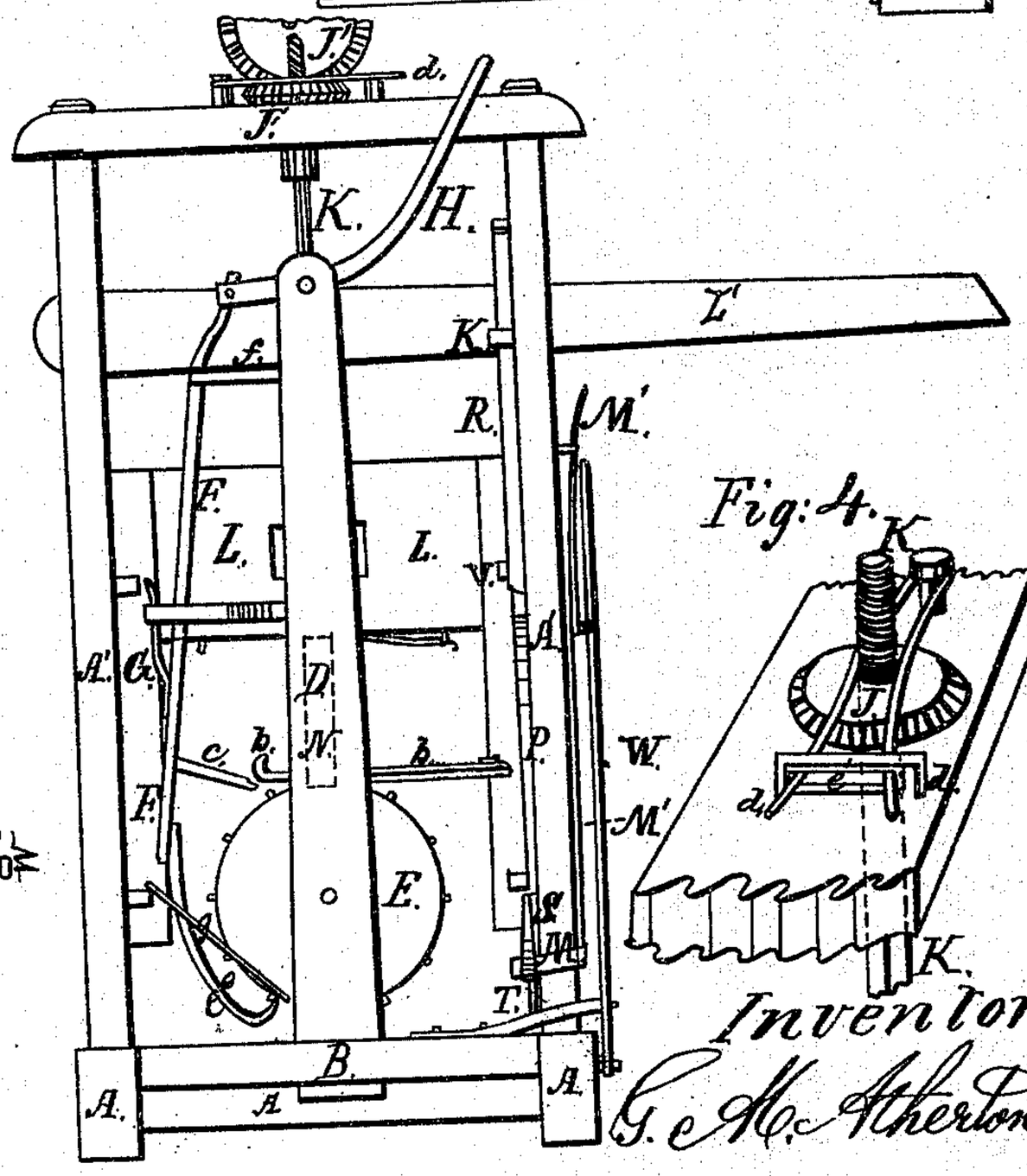

Fig: 4.

Witnesses.

Jas. Seeds.

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UNITED STATES PATENT OFFICE.

G. M. ATHERTON, OF FRIENDSVILLE, ILLINOIS.

HUB BORING AND MORTISING MACHINE.

Specification of Letters Patent No. 26,330, dated December 6, 1859.

To all whom it may concern:

Be it known that I, G. M. ATHERTON, of Friendsville, in the county of Wabash and State of Illinois, have invented certain new and useful Improvements in Machinery for Boring and Mortising Hubs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, represents a plan view of the machine, Fig. 2, is an end elevation of the same, Fig. 3, is a side elevation, and, Fig. 4, is a perspective view of the device for operating the auger.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to certain novel improvements in boring and mortising hubs, for vehicles, said improvements consisting in arranging upon the inside of one of the standards, two spring rods, one on each side of the reciprocating gate, to which rods are pivoted two pawls, which may be made to engage alternately with suitable racks upon the carriage by a lever working in a guide, so as to move the carriage simultaneously with the upward movement of the reciprocating gate for carrying the mortising chisel, all as hereinafter described.

To enable those skilled in the art to fully understand my invention, I will proceed to describe its construction and operation.

A, represents a fixed framework, serving as guides for a traveling carriage, B, and to support the mechanism for boring and mortising the hub, which is represented, by C, as being centered between two posts D, D′ on the traveling carriage B, the post D′, is capable of adjustment in a slot in the carriage B, for adapting different lengths of hubs, it is fixed rigidly in place after the hub has been centered, by wedges *a*, *a*.

One end of the hub bears against an index wheel E, the diameter of which is greater than that of the hub C, with its periphery armed with projecting teeth or pins. The hub is fixed to this wheel and turns with it, *b*, is a spring plate one end of which is fixed to a bent arm projecting out from post D, while the other end is raised by an arm *c*, projecting from a spring rod F, as this rod is drawn up. The plate *b*, has a small perforation through it which when it is not acted upon by the arm *c*, passes over one of the pins projecting from the index wheel, E, and prevents this wheel and the hub from moving.

On the lower end of the rod F, is a curved hook or pawl *e*, which is held up against the periphery of the index wheel by a spring G, secured behind the arm and acting upon the end of a guide for this rod F. *f*, is another guide for the rod F, and *g*, still another for keeping the rod in position while it is being raised or depressed which is done by means of a bent lever, H, pivoted on top of post D. Now by depressing the handle of the lever the rod F, will be raised, which, by means of the hook *e* acting upon the pins projecting from index wheel E, and the arm *c* acting upon the spring plate *b*, the hub may be rotated the required distance for making another mortise in it. By this arrangement it is only necessary to move the index wheel E, for a space of one or two pins after each mortise is made, in order to cause the mortises to be all cut at equal distances apart upon the hub.

The boring and mortising tools are supported by a frame composed of two uprights A′, with a cross piece connecting these two together. On the top of this frame A′, is a horizontal bevel spur wheel J, with a hollow shaft, through which works the auger K. The wheel J, is rotated by a bevel-wheel J′, having its bearings in a bracket projecting up from the cross piece of the standards A′. To the shaft of this latter bevel wheel is connected a crank handle J″, for giving motion to the auger K. The auger K, receives a rotary motion and at the same time is forced into or drawn from the hub by means of a screw thread, cut on its upper end, the stem of the auger fitting in a square socket in the shaft of bevel wheel J. The raising and depressing of the auger during the motion of the bevel wheel J, is effected by two fixed spring arms *d*, *d*, which clasp the screw end of the auger, and are held tightly in the thread of the screw by a clamp *e′*. This device I don't desire to claim therefore it is not necessary to particularize it, the operation being to rotate the auger and at the same time to raise or depress it so as to effect the operation of boring, by simply turning the crank J″.

L, is a vertical reciprocating gate for carrying the mortising tool N, shown in red lines Fig. 2, working in suitable guides in standards A′ and operated by a lever L′,

placed above it and pivoted to a standard on one side of the machine and connected to the gate L, by a jointed rod. The lever works in a vertical slot in the opposite standard. On the inside of this latter standard and shown by red lines, Fig. 3, are curved rods P, P′, pivoted to said standard near the bottom of the same and attached to springs R, R′, at their tops which springs pass through boxes, *k*, *k*, furnished with set screws for tightening the springs R R′.

S, S′ are pawls pivoted to the rods P, P′ and T, T′, are racks projecting up from the carriage B, which are acted upon by the pawls so as to move the carriage back and forth as the mortising of the hub proceeds. These pawls are operated through the medium of rods P, P′, and springs R R′, by arms V, V′, which proceed out on each side of the reciprocating gate L, the gate being raised and depressed by the lever L′. On the outside of this standard is a lever M, operated by a rod M′; the ends of this lever are turned under the pawls S, S′, so that either one of said pawls, can be disengaged from the racks T, T′, by simply moving the lever back or forth; these pawls work in opposite directions.

The operation of boring and mortising the hub is as follows: The operator takes hold of the crank J″, and rotates the auger K, which is driven into the hub at the same operation, it is then withdrawn and the carriage moved to forward by a lever W, and another hole bored close to the first one and so on until the space to be mortised is properly bored out. The auger is then removed from the hub and the mortising tool is depressed by the lever L′, and elevated again when the carriage is moved forward and backward by the action of the pawls S, S′ upon the racks T, T′, as above described. The mortising tool N, can be rotated by a handle attached to it so as to bring its beveled side opposite the work to be cut. When the carriage has moved forward the length of the mortise the motion is reversed by throwing the opposite pawl in play with its rack. When the boring is to be performed the pawls are both disengaged from the racks upon the carriage and it is moved by the hand lever W, as before described.

This machine is strong, simple and operates with great efficiency. Any sized hubs may be mortised with great exactness and rapidity. By removing the posts on the carriage on which the hub is connected a rest, or table, can be substituted, and the machine used for various species of mortising work.

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

The arrangement of two pawls S, S′, with spring rods P, P′, and arms V, V, projecting from the reciprocating gate L, for operating the same, in combination with lever M, for relieving either one or both pawls from racks T, T′, the whole being arranged and combined for the purpose of moving the carriage with the hub up to the mortising tool as set forth.

G. M. ATHERTON.

Witnesses:
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