J. M. BALLOU.

STONE-SAWING MACHINES.

No. 195,560. Patented Sept. 25, 1877.

Fig 1.

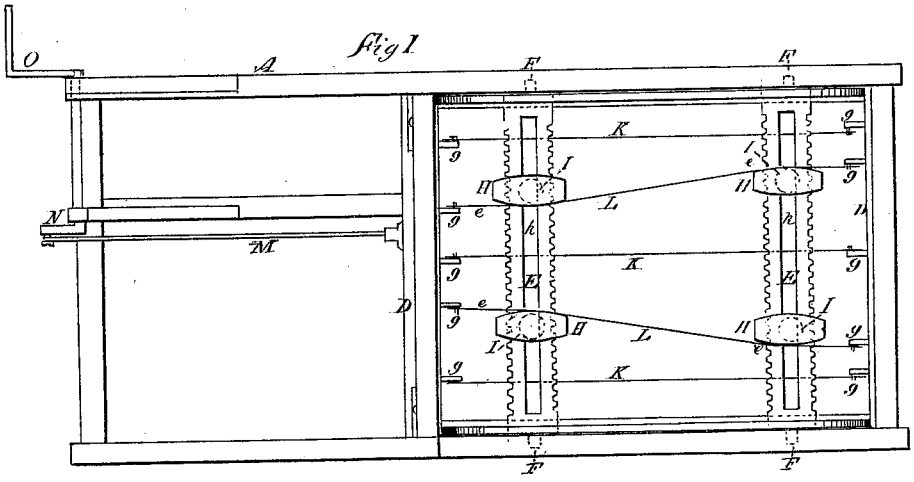


Fig 2.

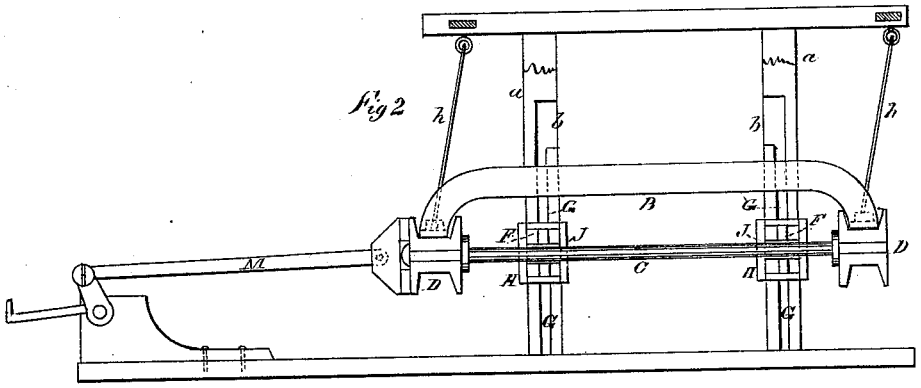
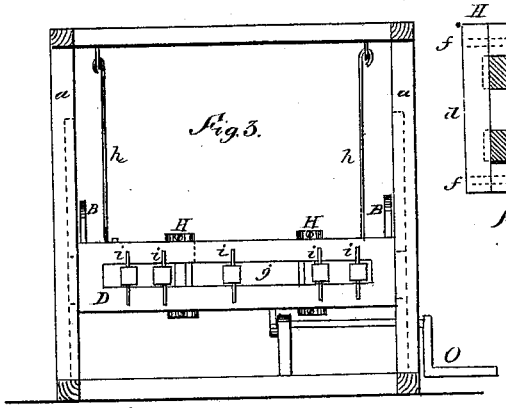


Fig. 3.



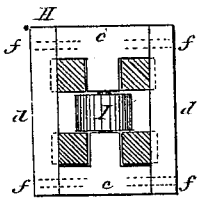


Fig. 4.

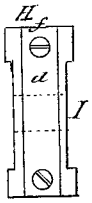


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH M. BALLOU, OF HAMILTON, ONTARIO, CANADA.

IMPROVEMENT IN STONE-SAWING MACHINES.

Specification forming part of Letters Patent No. 195,560, dated September 25, 1877; application filed February 10, 1877.

To all whom it may concern:

Be it known that I, JOSEPH MADISON BALLOU, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Machines for Sawing Marble; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

This invention relates to certain improvements in machines for sawing marble; and consists of a novel construction and combination of parts, which will be fully hereinafter described.

By reference to the annexed drawings, forming part of this specification, Figure 1 represents a plan view of my improved marble-sawing machine. Fig. 2 represents a side view of the same. Fig. 3 represents an end view. Fig. 4 represents a side view of the clasp, and Fig. 5 an end view of the same.

A is a stationary frame. B is a sliding frame, composed of different parts, as will be shown hereinafter. C C are two bars or rods, one on each side of the machine, running the entire length of the sliding frame, and are secured to cross-heads D D at each end, respectively, as shown in Fig. 2. They pass through a notch, J, in the ends of the racks, respectively, the purpose of which will be shown hereinafter.

E E are two open or slotted double racks, provided with two rows of vertical teeth on each side, two slots, *h h*, and each one is cut with a projection or tenon, F, which enables the racks to slide in grooves G, the upright timbers *a* having one cut in each.

H H H H are four clasps, made to be adjusted on the racks E E. They consist of four pieces, *c c* and *d d*, fastened together by four screws, *f f f f*. The parts *d d* have cogs cut inside, to mesh into the cogs on the rack. In the center of said clasps a roller, I, is made to revolve horizontally, against which the ends of the diagonal saws press. Each end of the racks E has a slot, J, cut in it for the horizontal rod C to pass through, which is for the purpose of raising and lowering the said racks and frame B and gang of saws. K are straight saws of the usual style; and L L are two, placed diagonally, for sawing marble pyramidical. Each of these latter saws has spring-steel ends *e* riveted to it, by which means they can conform to the diagonal line they are caused to make. Around the pulleys the extreme ends of the saws are fastened to projections or dogs *g*, &c., and keyed in the usual manner.

h h h h are wires or chains, which hold up and support the sliding frame.

M is a connecting-rod, one end secured to the front cross-head D, and the other to a crank, N, to which the handle O is attached for operating the machine.

i i i i are pins or keys, which fasten the saws by their passing through the ends of the dogs, respectively.

It will be observed that the saws L L are placed diagonally, and that to their ends are attached spring-steel, so that they may operate on the rollers inside of the clasps. The said clasps are movable by loosening the screws *f*, when they can be placed so as to give any desired angle to cut pyramid-shaped marble monuments.

The operation of the machine is as follows: As the handle O is turned motion is communicated to the crank N and connecting-rod M to the sliding frame B, which moves back and forth horizontally, carrying a gang of saws for cutting marble. My device will saw marble in two cuts pyramidically, and any desired angle can be cut by simply adjusting the clasps H on the racks E.

If straight saws alone are required to be used, then the racks are raised up to the slot *b* and taken out of the frame, which is easily done by undoing the fastenings of the saws.

I may mention that the racks can be constructed without the teeth, and also the clasps, one screw of which might be only used to fasten the same to the racks; but I prefer to construct the parts as shown, as being more durable, and likely to give more satisfaction.

Having thus described my improved device for sawing marble in pyramidical form, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a stone-sawing machine, the combination of the slotted double racks E, having tenons F, with the uprights *a*, having grooves

G, substantially as and for the purpose described.

2. The combination with a marble-sawing machine, of the clasps H, with cogs adjustably secured to the racks E, and provided with roller I on the inside, substantially as and for the purpose specified.

3. The combination of the tenoned racks E E, slots J J, clasps H H, pulley I, grooves G G, and bars C C, in a marble-sawing machine, as and for the purpose set forth.

JOSEPH MADISON BALLOU.

In presence of—
WM. BRUCE,
WM. B. BRUCE.