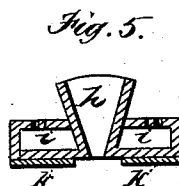
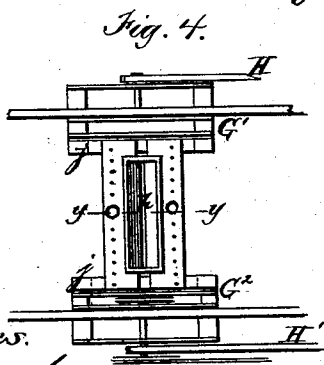
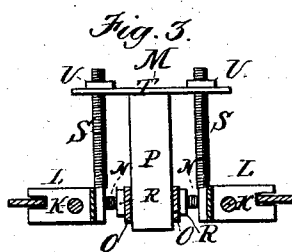
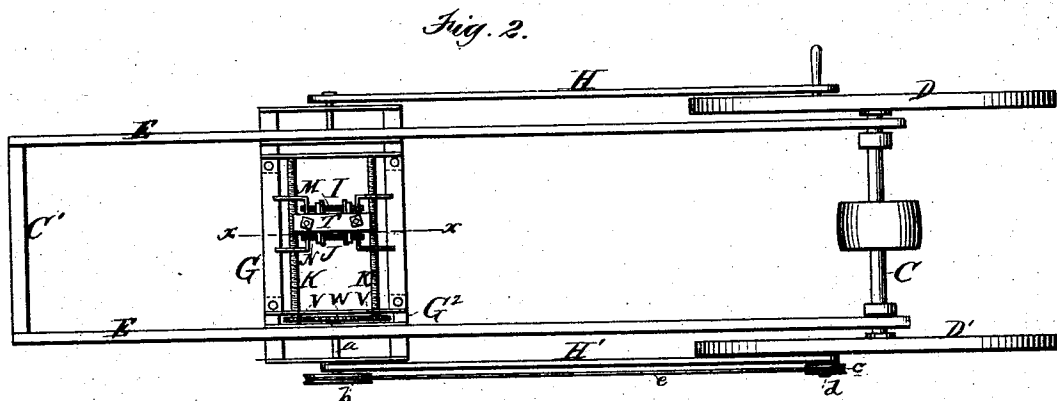
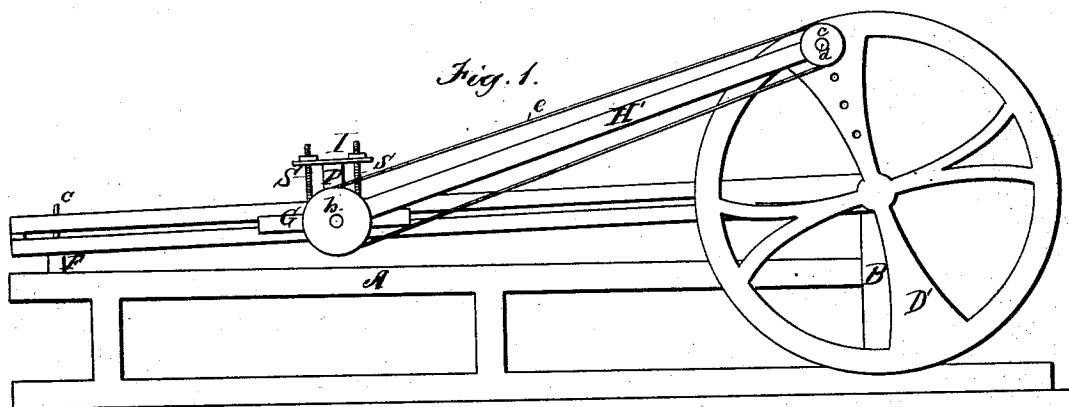


J. N. CLEMMER.
Machines for Polishing Stone.

No. 155,145.

Patented Sept. 22, 1874.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH N. CLEMMER, OF JUDA, WISCONSIN.

IMPROVEMENT IN MACHINES FOR POLISHING STONE.

Specification forming part of Letters Patent No. **155,145**, dated September 22, 1874; application filed July 18, 1874.

To all whom it may concern:

Be it known that I, JOSEPH N. CLEMMER, of Juda, in the county of Green and State of Wisconsin, have invented a new and Improved Machine for Dressing Marble, &c.; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a plan view, showing the stone-dressing attachment; Fig. 3, a section through line *x x*, Fig. 2; Fig. 4, a plan view of the carriage, showing the sand-dressing attachment; and Fig. 5, a section through line *y y*, Fig. 4.

Similar letters of reference in the accompanying drawings denote the same parts.

This invention relates to that class of machines employed for dressing or planing the surface of marble and other stone slabs by the use of sand or a grit-stone rubbed on the surface of the slab; and it has for its object to provide a machine which shall accurately dress or plane stone-surfaces, with an expenditure of less time and power than heretofore, and which shall be adapted to operate on slabs or blocks of different sizes.

To these ends the invention consists, first, in the employment of a carriage adapted to reciprocate longitudinally over a platform or table supporting the slab to be dressed, said carriage holding the dressing or planing attachments which are brought to bear on the slab. The carriage is located in suitable ways or guides, and reciprocated by rods or pitmen connected to fly-wheels on a driving-shaft, the length of stroke of the carriage being regulated by varying the point of attachment of the connecting-rods to the fly-wheels, thereby accommodating the machine to slabs of different lengths. The frame constituting the guides of the carriage is hinged or pivoted to the driving-shaft that gives the carriage motion, thereby enabling the latter to be raised or lowered while in motion without affecting its relation to the driving-shaft or interfering with its operation. An automatic lateral feed-motion is imparted to the dressing attachment holding the "gritter," when the latter is in use, said motion being at right angles with that of the carriage, thereby feeding the gritter or

dressing-stone across the slab, and dressing it uniformly from edge to edge. It further consists in the construction of the frame employed for holding the gritter; and, finally, in an attachment to be used in lieu of the gritter for dressing the stone by the use of sand.

In the drawings, A represents a long table or platform, adapted to support the slab of stone to be dressed. At one end of the table A are standards B B, projecting somewhat above it, and having in their upper ends the bearings of a transverse driving-shaft, C, the latter carrying on its ends the fly-wheels D D'. E E represent parallel slotted bars or guides, each pivoted at one end to the driving-shaft C, their outer ends being connected by a cross-bar, C', and resting on a block, F, on the outer end of the table A. The guides E are adapted to swing vertically on the driving-shaft, and are prevented from being displaced laterally by vertical pins *e* projecting from the block F. G represents a carriage, located in the slotted guides E, so as to slide therein longitudinally of the table A. The carriage is preferably constructed in two parts, G¹ G², Fig. 4, one sliding in each guide, and both connected by the dressing attachment in use. The parts G¹ G² are constructed so as to slide freely in their guides without being displaced laterally, and have lugs projecting inwardly, to which the frames of the dressing attachments are bolted. H H' represent rods or pitmen, connecting the parts G¹ G² of the carriage with the fly-wheels D D', the carriage being reciprocated in its guides by this means. The rods H H' are adapted to be connected to the fly-wheels at different points, toward or away from the center, their throw and that of the carriage being thereby regulated so as to enable the machine to dress slabs of different lengths. I, Figs. 1 and 2, represents the dressing attachment, which I term the gritter, the same involving the principle of rubbing the surface of the slab with a block of stone. The attachment I is composed of a rectangular frame, J, adapted to be attached to the lugs of the parts G¹ G² of the carriage, thereby connecting the latter. The frame J is provided with parallel screw-shafts K K, journaled in its side pieces so as to extend transversely of the table A. The screw-shafts K pass through and support

lugs L of a secondary carriage, M, said lugs having threaded orifices, which engage with the threads on the shafts K; consequently, by the rotation of the latter by the means hereinafter described, the secondary carriage M is moved transversely of the table, and at right angles with the direction of motion of the primary carriage G. The carriage M is provided with parallel horizontal screw-bolts N N, which pass through clamping-plates O O, the latter holding the stone block P, which is inclosed by the rectangle formed by the bolts N and plates O. The latter are held closely against the stone by nuts R. S S are vertical screw-bolts projecting from the carriage M on opposite sides of the block P. The bolts S pass through a horizontal plate, T, that bears upon the upper end of the block P, and is depressed, so as to force the latter downward, by nuts U on the bolts S. The screw-shafts K are each provided on one end with a pinion, V, which meshes with a larger pinion, W, the latter being located on a shaft, *a*, journaled in the part G² of the carriage G. The shaft *a* projects through the portion G² of the carriage and the connecting-rod H', the latter being connected to the carriage thereby. *b* represents a pulley, located on the outer end of the shaft *a*, so as to revolve with the latter. *c* is a grooved disk, rigidly attached to the wrist-pin *d*, that connects the rod H' with the fly-wheel D'. The pulley *b* and disk *c* are connected by a suitable belt, *e*.

It will be seen that the rotation of the driving-shaft and fly-wheels produces through the rods H H' a reciprocation of the carriage G longitudinally of the table A, thereby carrying the block P longitudinally over the surface of a stone slab resting on said table. At the same time the rigid disk *c*, which is carried around by the fly-wheel D', but does not revolve independently, imparts sufficient motion to the band or belt *e* to cause the latter to rotate the pulley *b* slowly, thereby communicating motion through the pinions W V to the screw-shafts K, and feeding the secondary carriage with its block P, across the table, at right angles with the direction of its reciprocation. The block P is thus caused to act uniformly on all parts of the surface of the slab, and when it is carried to one side of the table, by reversing the motion of the driving-shaft, or crossing the belt *e*, the carriage M is carried back to the opposite side.

The guides E, being pivoted to the driving-shaft C, can be raised for the admission of a slab between them without suspending the operation.

By adjustably attaching the rods H H' to the fly-wheels, the stroke of the carriage is regulated to correspond with the length of the slab to be dressed.

Figs. 4 and 5 represent the dressing attachment, which I term the sander, which consists of a trough or hopper, *h*, located between wa-

ter-receptacles *i i*, the latter being attached to the parts G¹ G² of the carriage in place of the gritter, the trough extending transversely of the table, as shown in Fig. 4. The trough is open at the bottom, and in each side of the opening are suitable metallic plates *k*, which, in connection with the sand, effect the dressing of the slab when the sander is reciprocated over its surface. The water-receptacles *i* are perforated, so as to sprinkle the surface of the slab; suitable openings being made in the upper surfaces of the water-receptacle for the introduction of water therein, which openings may be closed by plugs or hinged doors, or other suitable means. The reciprocatory movement of the sander will cause the water to wash out through the perforations in the top surfaces of the water-receptacles.

The attachments being easily secured to and removed from the primary carriage, are adapted to be used interchangeably—for instance, the sander can be employed first to partially dress the surface of the slab, the operation being completed by the gritter, as by the usual hand process.

By the use of this machine greater speed and accuracy are secured, and the results are in all respects more satisfactory than by the use of the common hand process.

I claim as my invention—

1. The slotted guides E E, pivoted at one end to the driving-shaft C, and resting on the platform A, in combination with the fly-wheels D D', adjustable pitmen H H', carriage G, having the screw-bolts K K, provided with pinions, and carriage M, in which the stone block P is adjusted, substantially as described, and for the purposes set forth.

2. The gritter I, consisting of the frame J, having the screw-shafts K K, provided with pinions V, and carrying the secondary carriage M, in combination with the carriage G, having the pinion W, shaft *a*, and pulley *b*, substantially as described.

3. The combination of the pulley *b*, rotating the shaft *a* and its connections, with the connecting-rod H, rigid disk *c*, belt *e*, and fly-wheel D, substantially as described, for the purpose specified.

4. The secondary carriage M, having the horizontal screw-bolts N, clamping-plates O, vertical bolts S, and plate T, all adapted to clamp and hold adjustably a stone block or other dressing attachment, substantially as and for the purpose specified.

5. The sander, consisting essentially of the trough or hopper *h*, water-receptacles *i*, supporting-pieces *j*, and metallic rubbing-plates K, in combination with the carriage G, substantially as described, for the purpose specified.

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Witnesses:

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