

(No Model.)

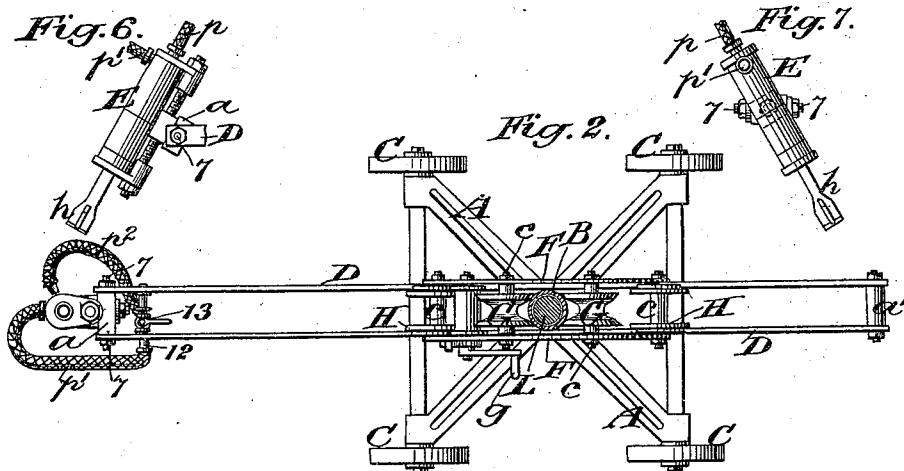
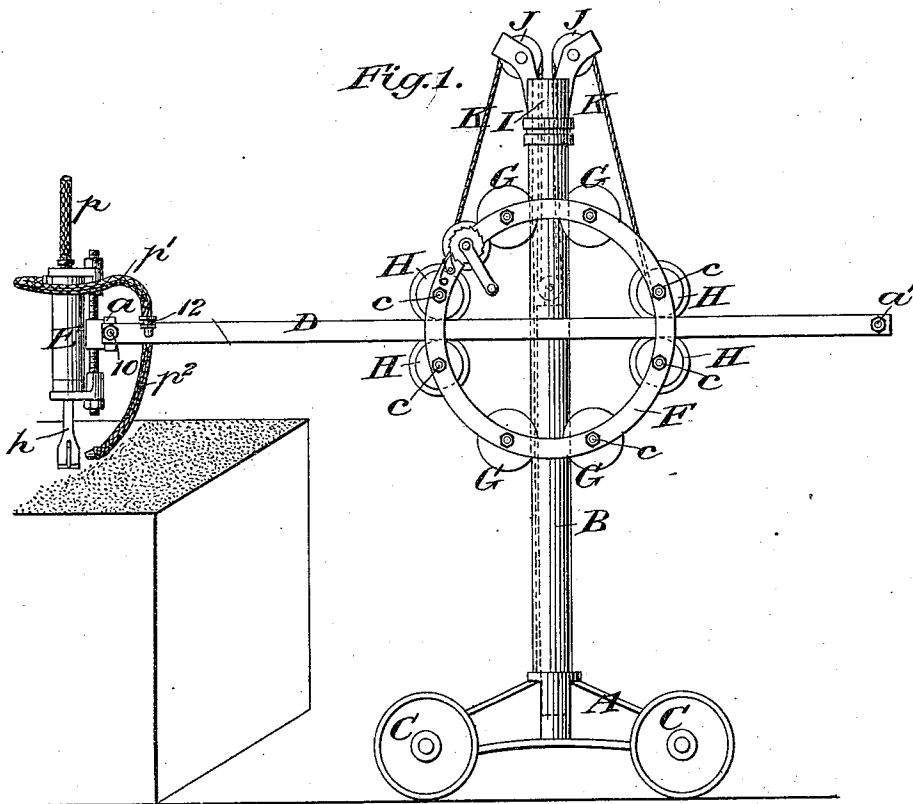
2 Sheets—Sheet 1.

J. S. MACCOY.

ART OF AND MACHINERY FOR DRESSING STONE.

No. 549,272.

Patented Nov. 5, 1895.



Witnesses:-
George Barry,
O. Sundgren

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Ch. Sundgren

Inventor:-
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by attorneys
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James S. Macboy.
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(No Model.)

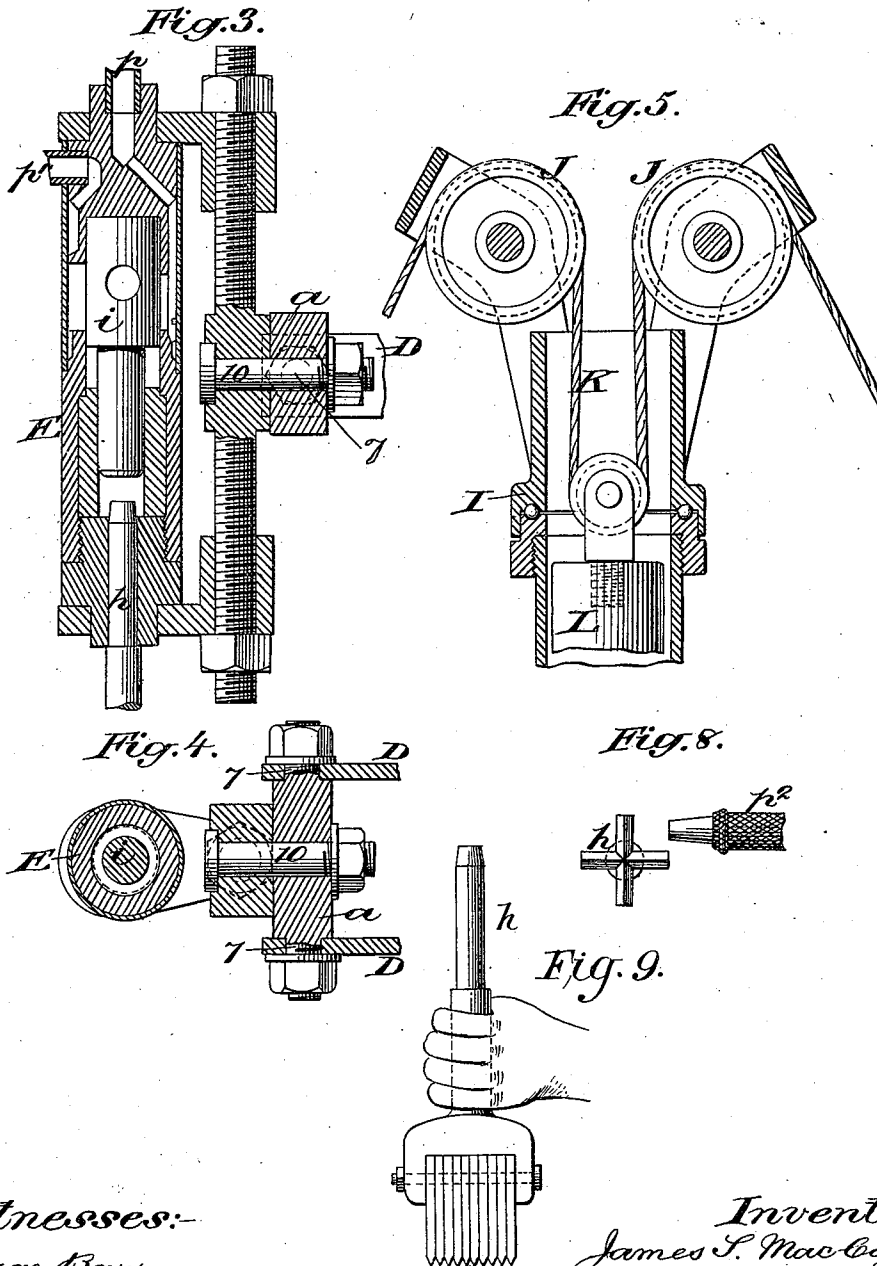
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Inventor:
James S. McCoy.
by attorneys
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UNITED STATES PATENT OFFICE.

JAMES S. MACCOY, OF NEW YORK, N. Y.

ART OF AND MACHINERY FOR DRESSING STONE.

SPECIFICATION forming part of Letters Patent No. 549,272, dated November 5, 1895.

Application filed July 28, 1894. Serial No. 518,807. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. MACCOY, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in the Art of and Machinery for Dressing Stone, of which the following is a specification.

I will now proceed to describe my invention, with reference to the accompanying drawings, of a stone-dressing machine, and will afterward point out in claims the novelty of the improvement.

Figure 1 represents a side elevation of the machine. Fig. 2 represents a plan of the same with all the parts represented above the line *x x* in Fig. 1 omitted. Fig. 3 represents a vertical section of the pneumatic tool used in said machine and a portion of the carrier to which it is attached. Fig. 4 represents a horizontal section in the line *y y* of Fig. 3. Fig. 5 represents a vertical section of the upper part of the column on which the tool-carrier is supported. Figs. 6 and 7 represent part of the carrier with the tool at different angles. Fig. 8 represents some details which will be hereinafter explained. Fig. 9 is a side view of a cutter having several parallel cutting-edges for producing a multiple cut.

Similar letters of reference designate corresponding parts in all the figures.

A is the base, upon which is erected a hollow cylindrical column or standard B, the said base being on wheels C for the purpose of enabling it to be moved easily from place to place.

D *a a'* designate the tool-carrier, consisting of two parallel bars D and spacing pieces or blocks *a a'*, secured between them to hold them at such a distance apart that they may move vertically or horizontally on the standard B.

F *c* designate a frame in which the tool-carrier works, consisting of two rings F, arranged on opposite sides of the standard B, and tool-carrier and shafts *c*, which serve to hold the rings at the proper distance apart for the tool-carrier to move between them, and serve also as the axles for rollers G G and H H, of which there are four pairs, viz: two upper and lower pairs G G, spaced to fit and run up and down upon opposite sides of the standard B, and front and rear pairs

H H so spaced that the tool-carrier may run back and forth between them. The upper and lower rollers G G are grooved to fit the standard, and the front and rear rollers H H are flanged on both sides to fit within the side bars D of the tool-carrier.

I is a revolving cap or collar fitted with a ball-bearing to the top of the standard B. The cap or collar I carries two pulleys J J, over which runs a rope or chain K, the opposite ends of which are connected with the front and rear parts of the carrier-frame F *c*. From a loop or bight of this rope or chain depending between the pulleys a weight L is suspended within the hollow standard B, the said weight serving as a counterbalance to the tool-carrier D, the power-operated tool E *i h*, and the carrier-frame F *c*.

One end of the rope or chain K is fastened permanently to the carrier-frame F *c*, and the other end is attached to a windlass *f*, the axle of which turns in bearings in the carrier-frame and is provided with a hand-crank *g*, by which the rope or chain may be lengthened or shortened between the carrier-frame and the weight to vary the limit of play of the carrier-frame and the upward and downward movement of the carrier-frame and tool-carrier upon the hollow standard B.

The carrier-frame and tool-carrier are free to be laterally turned upon the support or standard in such manner as to permit the tool to operate upon work within the radius of the bars D of the tool-carrier without moving the whole machine, while the counterbalancing of the carrier-frame, carrier, and tool by the weight L allows the tool to be easily raised and lowered by the operator, according to the height of the work.

The pneumatic tool which I have selected for the illustration of my invention consists in part of a cylinder E, to the lower end of which is fitted a chisel or cutter *h*, and which contains a piston *i*, which is made to operate as a hammer by the induction and eduction of compressed air above and below the said piston alternately, the said piston containing also a valve for controlling said induction of compressed air to the cylinder E from the induction-pipe *p*, and also for controlling the exhaust from the said cylinder through the exhaust-pipe *p'*. The said tool is represented

as attached to the spacing-block *a* of the tool-carrier, the said block being pivoted at its ends, as shown at 7, into the side bars *D* of the carrier. The attachment of the cylinder to said block is made by a pivot 10. By this double pivotal attachment 7 10 the tool is made adjustable at any angle to the tool-carrier either with respect to the length or breadth of the latter, as may be understood by reference to Figs. 6 and 7 of the drawings. As thus far described the pneumatic tool constitutes no part of my present invention, which so far as it relates to the tool consists in the blast-pipe *p*², which is connected with or forms a continuation of the said exhaust-pipe, and further consists in fitting the cutter or dressing-instrument to the lower head *j* of the cylinder, which constitutes a chuck for the said instrument in such manner that it is capable of turning freely therein.

The exhaust-pipe *p*¹ is represented as a piece of flexible tubing which extends from the exhaust-port of the cylinder to a coupling 12, which connects the said pipe with the carrier-frame, and which coupling has connected with it a cock 13, to which is connected the blast-pipe *p*², the end of which is directed, as shown in Fig. 1, toward the point or cutting-edge of the cutter or dressing instrument *h* and terminates in such proximity thereto that it will deliver a blast of the exhaust-air upon the stone at the point where the said instrument is in operation and also upon the said instrument itself, thereby blowing away the cuttings of the stone out of the way of said instrument and serving to cool the said instrument.

The cutting or dressing instrument *h* may be a bit, chisel, or cutter of any known or suitable kind and has a round shank *h'*. The lower head *j* of the cylinder *E*, which constitutes a chuck for the said cutter, is simply bored with a round bore corresponding in size with the shank of the cutter, so that the cutter may be freely turned by the hand of the operator and its cutting-edge may be directed to produce an aligned cut, notwithstanding that the tool moves both to and from and also around the central support, and therefore in curved lines. This is especially important in the use of cutters having several parallel cutting-edges for producing a multiple cut. Such a tool is represented in Fig. 9, consisting of a stock in which are a number of parallel blades.

In the operation of this machine the cutter *h* may be held by one hand of the attendant and moved by him over the surface of the stone in any and every direction desired, while at the same time keeping its edge true to any desired line without regard to the direction in which the tool-carrier points or in which the tool is moved over the stone, this movement of the tool being permitted by the movement of the frame *F* *c* and carrier *D* *a* *a'* around and up and down the standard and by the longitudinal movement of the said

carrier in the said frame, and in the said movement the cutter is accompanied or followed by the blast-pipe, which, being connected with the cutter, always supplies the blast of air at the point required.

For some kinds of dressing, in which there is used as the cutting-instrument a cross-bit, such as is shown in place in Fig. 1, the blast-pipe *p*² may be directed to one side of the center of the bit, as shown in Fig. 8, which represents an inverted plan view of such a bit and of the end of the blast-pipe. By this arrangement the blast may be made to give a rotary motion to the bit in the chuck. When such a bit so rotated is used, the operator, instead of taking hold of the bit to direct it, may take hold of the tool-carrier somewhere near the tool.

In that part of my invention which consists in subjecting the cutting-instrument and the surface to be cut to the action of a blast, I do not confine myself to the use of the blast of air exhausted from the cylinder of a pneumatic tool, as it is obvious that a blast of air from any source may be employed.

I do not claim as my sole invention either the power-operated hammer or tool, the carrier which carries the said hammer or tool, the frame in which the said carrier is operated, the standard on which said frame moves, or the counterbalancing devices applied to said frame and carrier herein described or the combinations thereof, those being the subject-matter of application, Serial No. 505,707, for United States Patent, filed March 20, 1894, by Frank H. Marsh, George H. Williams, and myself.

What I claim as my invention is—

1. The method herein described of producing on stone a multiple cut surface in a desired alignment, wherein the cutting instrument is moved by the hand of the workman and directed over the stone with its edges in the desired alignment while the bodily movement of the said instrument is in curved lines, substantially as herein set forth.

2. In a machine for dressing stone, the combination of a support and a tool carrier movable around said support, a reciprocating power-operated tool attached to said carrier and movable therewith in arcs around said support and a cutter fitted to said tool to turn freely therein that its edge may be directed in any alignment, substantially as herein set forth.

3. In a machine for dressing stone, the combination of a support and a tool carrier movable around said support, a reciprocating power-operated tool attached to said carrier and movable therewith in arcs around said support and a cutter having several parallel cutting edges fitted to said tool to turn freely therein that its edges may be directed in any alignment, substantially as herein set forth.

4. In a machine for dressing stone, the combination of a pneumatic hammer comprising a cylinder and piston and means of admitting

steam to and exhausting it from said cylinder for producing the operation of said piston, said cylinder being provided with a chuck for a cutting instrument, a carrier for supporting said hammer movably over the stone to be dressed and a cutting instrument fitted loosely to said chuck and capable of turning freely therein, substantially as and for the purpose herein set forth.

10 5. In a stone dressing machine, the combination with a chuck and a cross bit fitted to

rotate freely therein, a blast pipe directed toward said cutter at one side of the center thereof and means of supplying air to said blast pipe for producing the rotary motion of the said cutter, substantially as herein set forth. 15

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Witnesses:

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LIDA M. EGBERT.