4 Sheets—Sheet 1.

W. J. MACOMBER.

STONE DRESSING MACHINES.

No. 182,837. Patented Oct. 3, 1876.

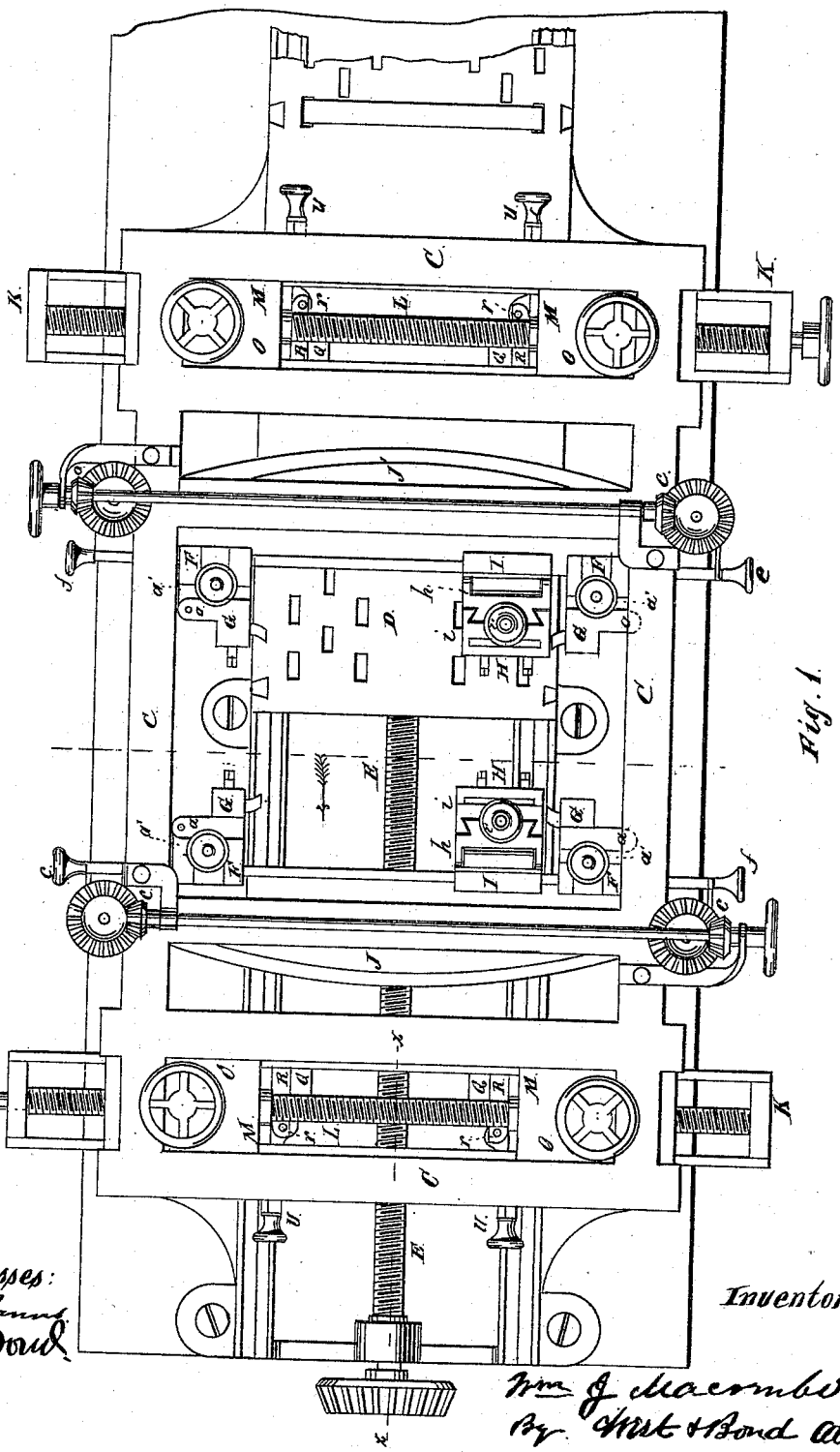

Fig. 1.

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Inventor:
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By Mott & Bond Attys

4 Sheets—Sheet 2.

W. J. MACOMBER.

STONE DRESSING MACHINES.

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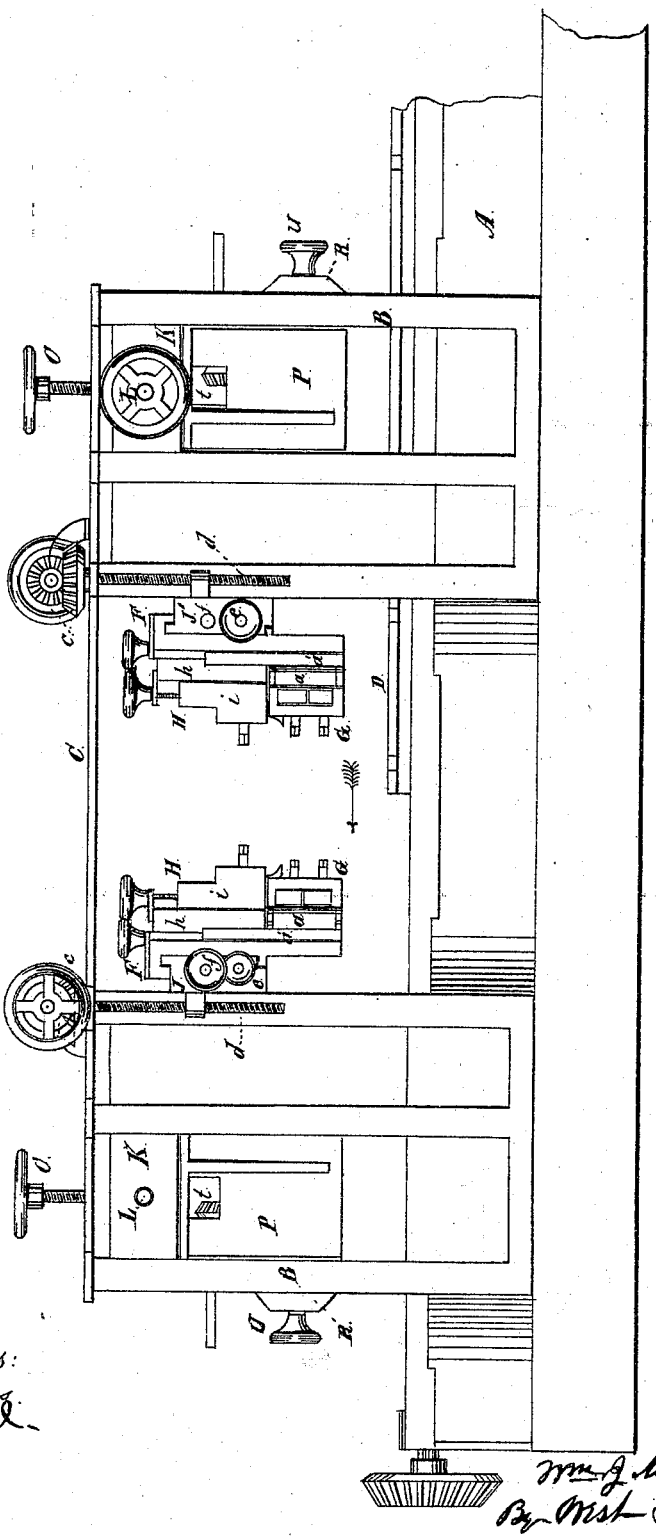

Fig. 2.

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4 Sheets—Sheet 3.

W. J. MACOMBER.

STONE DRESSING MACHINES.

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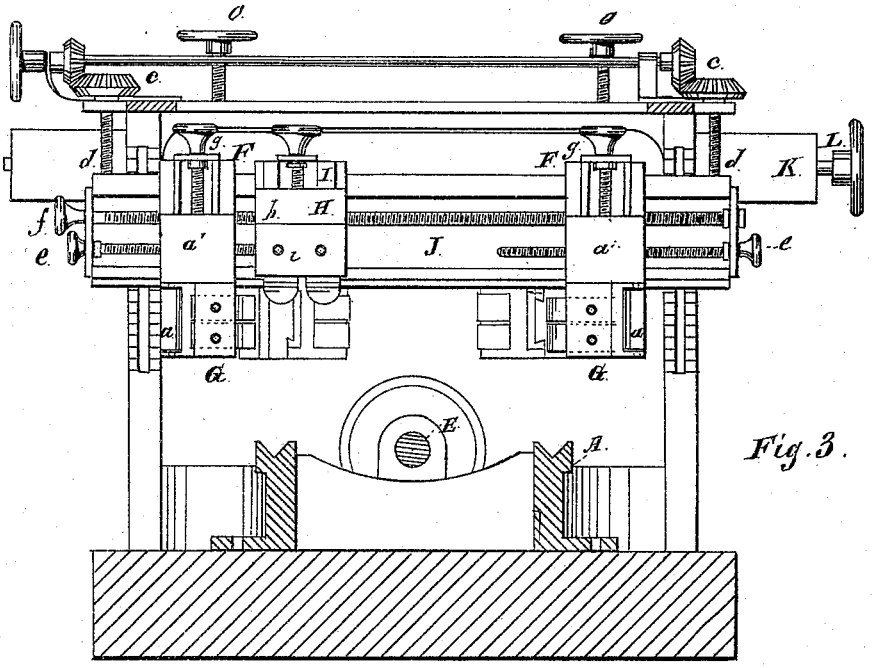


Fig. 3.

Fig. 4

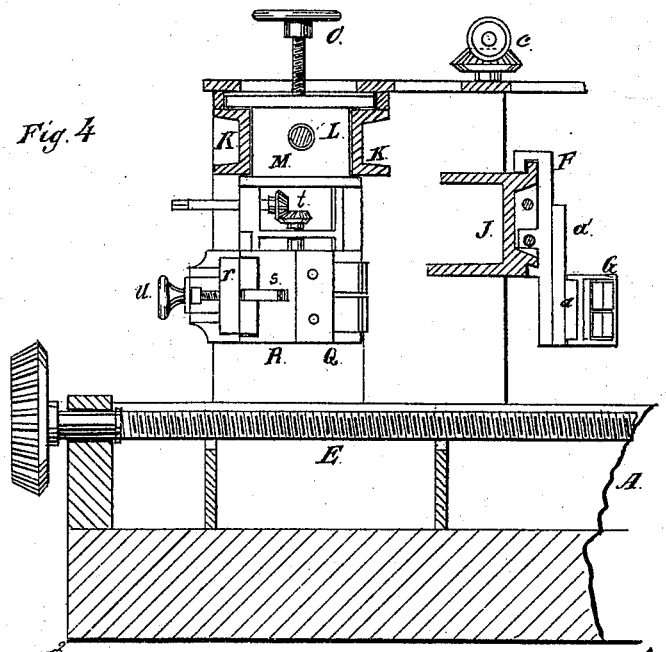
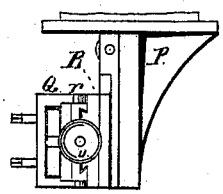


Fig. 4a



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4 Sheets—Sheet 4.

W. J. MACOMBER.

STONE DRESSING MACHINES.

No. 182,837. Patented Oct. 3, 1876.

Fig. 5.

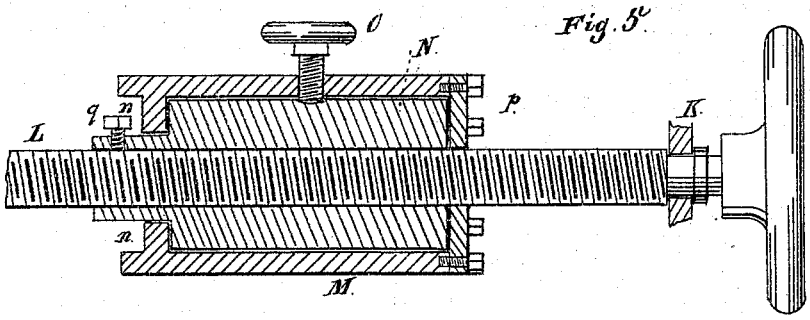


Fig. 6.

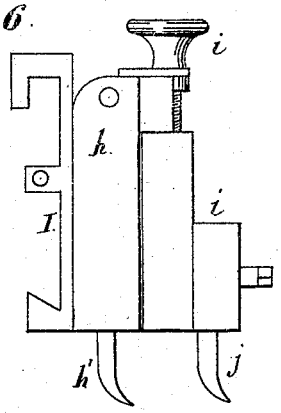
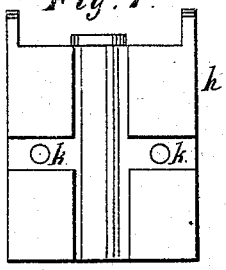


Fig. 7.



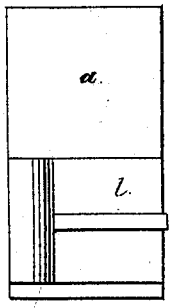


Fig 8

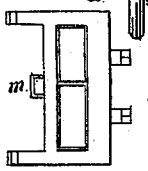


Fig. 9

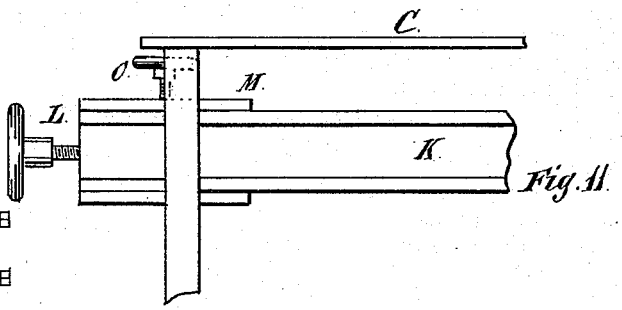
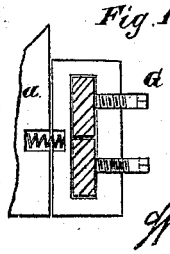


Fig. 11

Fig. 10.



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UNITED STATES PATENT OFFICE.

WILLIAM J. MACOMBER, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND EDWARD BACKUS, OF SAME PLACE.

IMPROVEMENT IN STONE-DRESSING MACHINES.

Specification forming part of Letters Patent No. **182,837**, dated October 3, 1876; application filed August 17, 1876.

To all whom it may concern:

Be it known that I, WILLIAM J. MACOMBER, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Machinery for Dressing Stone, of which the following is a full description, reference being had to the accompanying drawings, consisting of four sheets, in which—

Figure 1 is a plan view; Fig. 2, a side elevation; Fig. 3, a vertical central section; Fig. 4, a vertical longitudinal section of a portion of the machine, taken at *x* of Fig. 1; Fig. 5, an enlarged vertical section of the device for operating the tool-holder which operates upon the ends of the stone; Figs. 6 and 7, enlarged details of the holder carrying the tools which operate upon the surface of the stone; Figs. 8 and 9, enlarged details of the tool-holder and plate to which it is hinged, which operate upon the edge of the stone; Figs. 10 and 11, variations; Fig. 4ª, a detail, being an end view of the parts shown.

The objects of the invention are to construct a machine by the use of which stone can be dressed upon both edges and upon the top surface at the same time, also so that by the use of the same machine the ends of the stone can be dressed; and it consists in so arranging the parts that the stone can be dressed upon its edges and top from each end to a point a little beyond the center; and in so constructing the tool-holder which carries the tools for operating upon the surface that it can carry two sets of tools, one behind the other; in so constructing the tool-holders that one set of tools operates when the stone is moved in one direction, and does not operate when it is moved in the opposite direction; and in a special construction and arrangement of the tool-holders which operate upon the ends of the stone, and their operating devices.

In the drawings, A represents the bottom frame of the machine; B, the uprights of the main frame; C, the top pieces thereof. D is the bed-plate or table upon which the stone to be dressed is placed. It is arranged to move longitudinally in grooves, or upon ways on the top of the frame A. E is a screw, driven in any suitable manner, by means of which the table D can be moved back and forth, suitable devices being used to reverse the motion of this screw, so as to move the table forward or backward at pleasure. F are sliding frames. G are the tool-holders proper, which carry the tools which operate upon the sides or edges of the stone. They are hinged at *a* to a plate, *a'*, which slides up and down on the frame F. The plate *a'* can be moved up and down, carrying with it the tool-holder G, by means of the screw *g*. H is the tool-holder, which carries the tools which operate upon the surface of the stone. It is hinged at its upper end to a frame, I. J J' are frames having a vertical movement by means of the beveled wheels *c* and screws *d*. This device is in common use in similar machines.

The frames F I slide to the right and left upon the frame J J', F F being operated by the screws *e e*, and I by means of the screw *f*.

The tool-holders which carry the tools which operate upon the surface of the stone are constructed as follows: *h* is hinged to I. It carries one set of tools, *h'*. *i* has a vertical movement upon *h* by means of the screw *i'*, and this part carries the other set of tools, *j*. As represented, the tools *h'* are secured in place by means of screws at *k*, the heads of which pass into a recess in *h*.

The whole tool-holder is raised and lowered with the frame or bars J J'. The part *i* is independently raised and lowered by the screw *i'*, so that the tool *h'* can be adjusted upon a plane a little below that of the tools *j*. There are two sets of the tool-holders F H, located opposite each other, and at some distance apart. In a full-sized machine I would locate them, say, six feet apart. The tool-holders are so hinged and arranged that the tools of one set operate when the stone is moving in one direction; but do not operate when the stone is moving in the opposite direction. The part G is held against *a'* by means of a spring, *l*, Fig. 8, one end of which is secured to *a'*, and the other engages with G at *m*. For this purpose a coil spring can be used in place of that shown at *l*, as represented in Fig. 10—the spring being inserted in recesses in G and *a'*, the ends of the spring both being fast.

The devices for dressing the ends of the stone are constructed as follows: K is a frame permanently secured in place. L is a screw, which rotates in bearings in the ends of the frame K. M is a box or case, of the form shown, with shoulders *n* near one end—the other end *p* being removable. N is a nut located within the case M. It is inserted before the plate *p* is applied, and is held in place by this plate at that end. The other end is provided with shoulders which engage with the shoulders *n*. This nut N projects at one end beyond the case M. O is a set-screw, the end of which comes in contact with the outer surface of the nut N. *q* is another set-screw passing through that part of N which is outside of the case M, the end of which comes in contact with the screw L. If the set-screw *q* be so far removed that its end will not come in contact with L, and the set-screw O is down, the nut N will be held so that it cannot rotate in M, and by the rotation of the screw L the case M, and any of the parts attached thereto, can be moved to the right or left; but if the set-screw O be partly withdrawn, and *q* be set down, then the screw L and the nut N can rotate together within the case M without moving the same.

This is the device which I use for advancing and receding the tools which operate upon the ends of the stone, such tools being connected to the case M in the following manner: To the under side of the case M is permanently secured a depending frame, P. R is a plate moving vertically upon the frame P. Q is a tool-holder hinged to R, at *r*. *s* is a spring which holds the tool-holder Q against the plate R.

The plate R is adjustable vertically by means of the cog-wheels *t*, and the tool-holder Q can be adjusted on the plate R by means of the screw *u*.

The upper and lower plates of the case M extend beyond the main part of the case, upon the sides, forming flanges, between which the frame K is located, the flanges serving the purpose of guides.

The operation of this machine is as follows: The stone to be dressed is to be secured to the movable bed or table D, in any suitable manner. While the edges and tops are being dressed, the tools for dressing the ends are to be drawn back on each side, so as to clear the stone.

If the table D be made to move in the direction of the arrow in Figs. 1 and 2, the cutters in the holders F H, which are upon the frame J, having been properly adjusted, will dress the edges and a portion of the top of the stone, while the tools or cutters upon the frame J′ will not be in operation, so that when the stone has passed so far that its outer end is beyond the cutters upon the frame J′, and the center of the stone has reached the cutters upon the frame J, the movement can be stopped, and the bed, with the stone thereon, be moved in the opposite direction, when the cutters upon the frame J′ will come into operation, and those upon J will not be in use.

This saves injuring the ends of the stone, which is liable to happen when the stone is worked its whole length by a single set of tools; and also saves a good deal of time in moving the stone back and forth. After the stone has passed through once the tools can be adjusted for a second cut.

There being two sets of tools in the holder H, one opposite and a little below the other, there is a double cut in the surface.

The tools upon the frame J′ do not operate when the stone is moved in the direction of the arrow, because the movement of the stone swings the holders upon their hinges, while the tools and their holders upon the frame J are, by the same movement of the stone, crowded firmly against the plates with which they come in contact.

After the edges and top have been dressed the bed or table D, and stone thereon, is to be adjusted so that one end of the stone will be in proper position to be dressed by the action of the tools at one end of the machine; then by the rotation of the screw L, the case M, with the parts connected therewith, including a set of tools, will be moved across the end of the stone; and when the tool has reached the center of the stone, or passed a little beyond it, this case M can be returned, and the corresponding case on the opposite side of the machine, with the tool connected therewith, can be brought into operation by reversing the movement of the screw L.

In manufacturing these machines I place the upper part C of the frame somewhat higher than represented in the drawing, leaving a space between it and the top of the secondary frames K, so that the heads of the set-screws O O can pass beneath C, and the case M be carried to the ends of K, so as to get the tools connected with M more perfectly out of the way of the stone, as shown in Fig. 11.

The main portion of a full-sized machine may be about thirty feet long, with a space about six feet between the two sets of tools, and the frame A must be extended farther than represented in the drawings, to allow of sufficient longitudinal movement of the bed D.

I have shown two sets of cutters in the holder H. It is evident that this holder might be adapted to receive more than two sets of cutters, the object being to finish up the stone by passing it through the machine at once.

The holders for carrying the tools which dress the sides and ends may also be constructed to carry two or more sets of tools, the construction being similar to that described.

The construction of the devices for operating the tool-holders, which carry the tools for dressing the ends of the stone, is such that, by using the tool upon one side of the ma-

chine, checks and return moldings can be cut, and internal miters made.

The use of two frames or heads, J J′, carrying two sets of tools, adapted to operate cutting alternately from opposite ends of the stone toward the center, is an important feature.

What I claim as new, and desire to be secured by Letters Patent, is as follows:

1. The combination of two sets of tools and tool-holders, F H, arranged so as to operate alternately from the opposite ends of the stone toward the center, substantially as and for the purposes specified.

2. In a stone-dressing machine, a hinged tool-holder, arranged to carry two or more sets of tools, one set in advance of the other, and each set operating upon a different plane, substantially as specified.

3. In a stone-dressing machine, the screw L, case M, and nuts N, in combination with suitable tool-holders, each case and nut constructed so that it can be operated independently of the other, substantially as and for the purposes set forth.

4. The spring *l*, in combination with a hinged tool-holder, substantially as and for the purpose specified.

5. In a stone-dressing machine, the two adjustable frames J J′, adapted to receive two sets of tools and holders, substantially as described.

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