MUMFORD & WALLIS.

Dressing Millstones.

No. 90,461. Patented May 25, 1869.

Fig: 4.

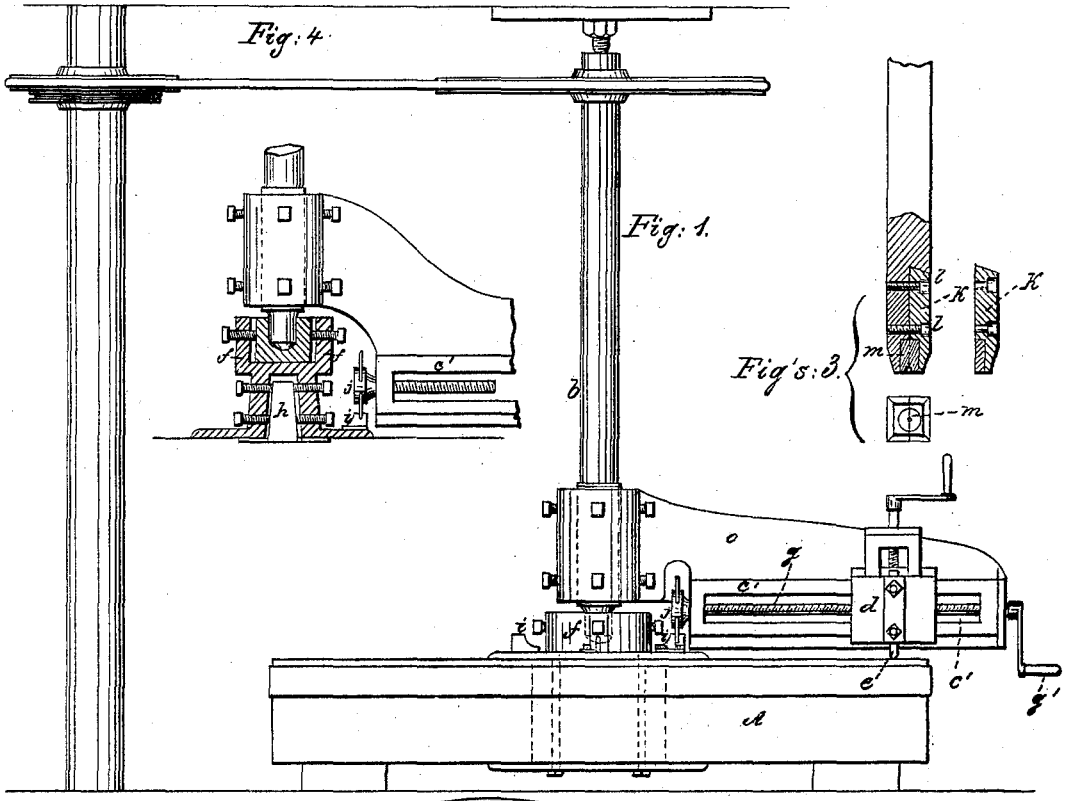
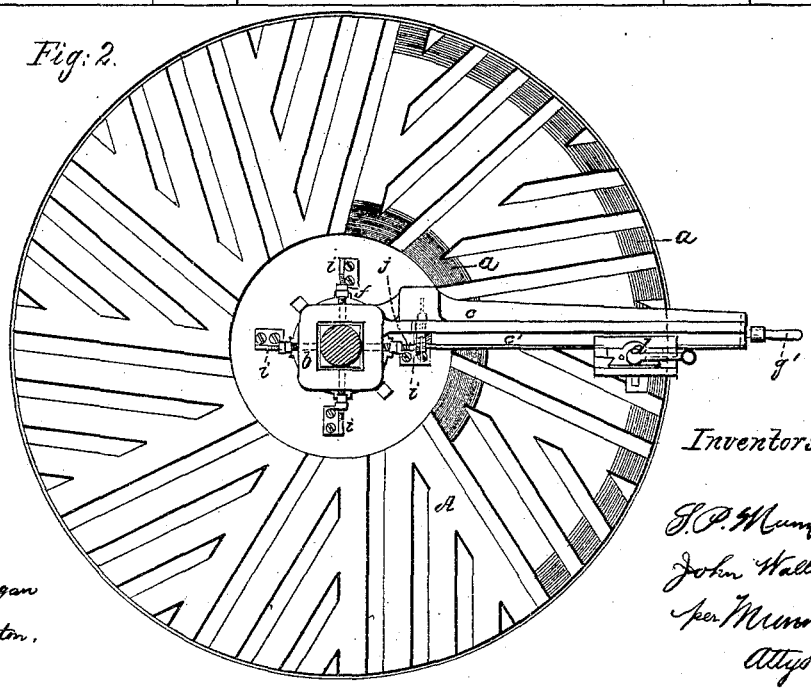


Fig: 1.

Fig's: 3.

Fig: 2.



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SAMUEL PRETTYMAN MUMFORD AND JOHN WALLIS, OF GREENWICH, ENGLAND.

Letters Patent No. 90,461, *dated May* 25, 1869.

IMPROVED MACHINE FOR DRESSING MILLSTONES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, SAMUEL PRETTYMAN MUMFORD and JOHN WALLIS, of Greenwich, in the county of Kent, in that part of Great Britain called England, have invented a new and improved Mode of and Apparatus for Dressing Millstones; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents an elevation of the apparatus adapted to a millstone, for the purpose of dressing the face according to our invention;

Figure 2 is a plan view of the same;

Figure 3 represents our improved method of holding the cutter, in enlarged views; and

Figure 4 represents, in sectional elevation, a method of supporting our apparatus when applied to a bedstone.

Similar letters of reference indicate like parts.

According to our invention of "an improved mode of and apparatus for dressing millstones," instead of dressing the face of the millstones in a series of straight lines, arranged in the well-known manner, we make, on the working-face, a series of curved lines, arranged as a convolute, starting from the eye, or near the centre of the millstone, and terminating near the periphery.

Our improved apparatus consists of a central shaft, *b*, which may be rotated in any convenient manner, on to which is keyed, or firmly secured the longitudinal lever-frame *c*, which carries the slide-rest *d*, and cutting-tool holder *e*, shown detached on an enlarged scale.

The cutting-tool which we prefer to use in carrying out our invention, is a diamond, or other hard stone or stones, set in a holder, such as that shown at fig. 3, and hereafter more particularly described.

This holder is secured, in any convenient manner, in the tool-holder or slide-rest *d*, mounted in the longitudinal frame *c*.

The central spindle *b* rests in a step, *f*, and this step is secured by screws to a centre-pin in the eye or near the centre of the millstone.

The longitudinal frame *c* is made long enough to admit of the slide-rest or holder *d* being moved radially from the centre to the periphery of the millstone.

The slide *d*, with the holder *e* of the cutting-tool, is made to move on guides *c' c'* in the frame *c*, whereby it is kept steady, and the holder *e* retained in a vertical position.

A long screw, *g*, fig. 1, as in slide-rest of an ordinary lathe, passes through a female screw tapped in the rest or tool-holder *d*, so that by turning the screw *g*, by means of the handle *g'*, at its outer end, the rest or tool-holder *d* of the tool may be moved along its guides *c' c'*, in a radial direction from the central part or eye of the millstone A, when the apparatus is in its proper place on the stone.

In order to dress the stone, the longitudinal frame *c*, with the rest or tool-holder *d*, and tool secured therein, is moved round the central step, secured within the eye of the millstone, and the diamond or cutting-tool *e* being made to press on the face of the stone, will cut into the stone a curved line all round, as shown at *a a a*, fig. 2.

Stud-pins or stops are fixed at any convenient point, either just outside the periphery of the millstone, or on the foundation-plate of the step *f f*, as shown at *i i*, figs. 1, 2, and 4.

A tappet-wheel, *j*, on the end of the screw *g* of the slide-rest, comes against these studs or pins every time the lever-arm and tool-holder are brought round to them, and thus the screw *g* is caused to turn on its axis, and thereby to move the rest or tool-holder *d* a short distance along its guides *c' c'*, so that on the succeeding revolution of the apparatus round the central step *f*, the cutting-tool *e* will be made to operate upon a fresh part of the stone.

It will now be understood that every time the cutting-tool comes round to either of the fixed pins or studs, it will be shifted a little further from the centre of the stone, and will thus be made to cut a convolute curve in the face of the millstone.

An important feature of the invention is the mode of securing the diamond in the holder.

The method we employ for effecting this object will be best understood by referring to the detached view of the holder, fig. 3.

The shank of the holder consists of a square stem of iron, half of the lower end of which is removable, as shown at *k*, fig. 3, but when in its place, is secured by screws *l l*.

A hole, *m*, is drilled up the end of the tool, and is filled with a soft metal or alloy, divided in two parts, such as is used for the bearings of machinery, and consists of a mixture of tin, zinc, and antimony.

In order to secure the diamond in its setting, the part *k* is removed, and after making a nick or recess in the lower end of the soft-metal setting, the diamond is placed therein, and the two parts of the holder screwed together, so as to nip the diamond between the two pieces of soft metal, as shown at fig. 3.

The faces, both of the runner and the bed-stone, are dressed in the same manner, and, if desired, the central pin or pivot, round which the frame is made to rotate, may be placed eccentrically in either one or both stones, so that the convolute lines on the faces of the stones will be made to intersect or cross each other when the stones are at work.

Figs. 1 and 2 represent the apparatus adapted to the top stone or runner, but in order to adapt the apparatus to the bed-stone, a somewhat different description of step must be made for the central spindle *b*. This modification is shown in the sectional view, fig

4, in which the step *f* fits over a central pin, *h*, of the bed-stone. It will be seen that the step is provided with adjusting-screws, for the purpose of adjusting its position and fixing it.

Having thus described our invention,

We claim as new, and desire to secure by Letters Patent—

The improved millstone-dressing machine, composed of the vertical shaft *b*, arranged to rotate in the vertical axis of the stone, and provided with the arm C and sliding tool-holder, actuated as set forth, all substantially as and for the purpose set forth.

The above specification of our invention signed by us, this 19th day of June, 1868.

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