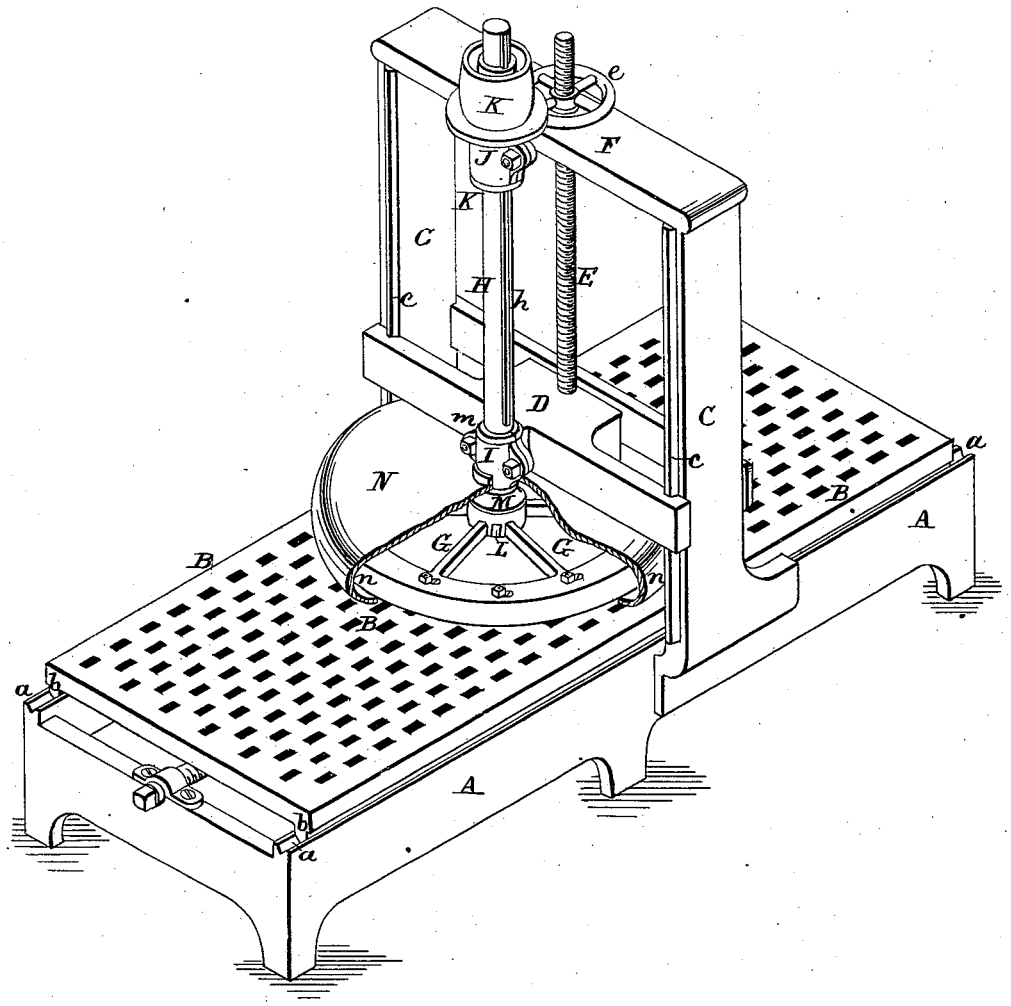
2 Sheets--Sheet 1.

J. J. SQUIRE.

Stone-Dressing Machine.

No. 161,835. Patented April 6, 1875.

FIG. 1.



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By Knight Bro's
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Stone-Dressing Machine.

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FIG. 2.

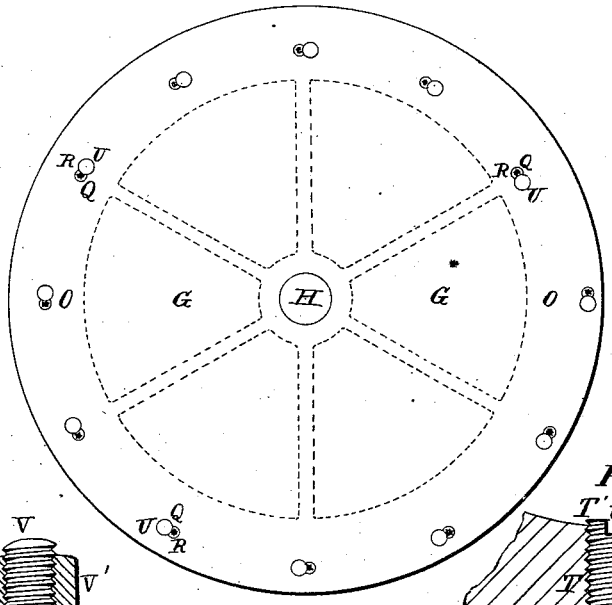


FIG. 4.

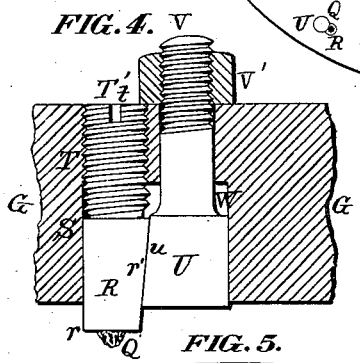


FIG. 3.

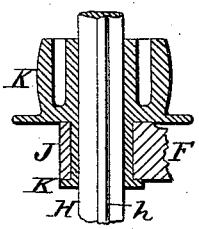


FIG. 6.

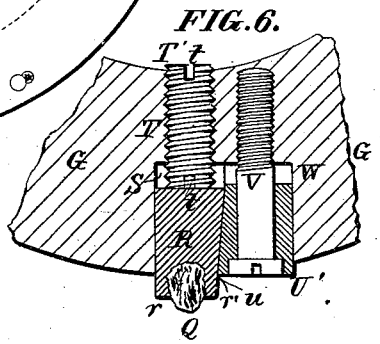


FIG. 5.

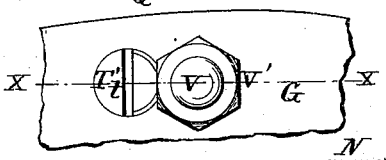
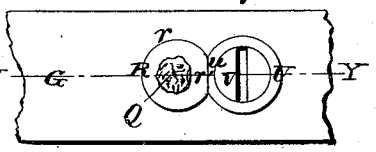
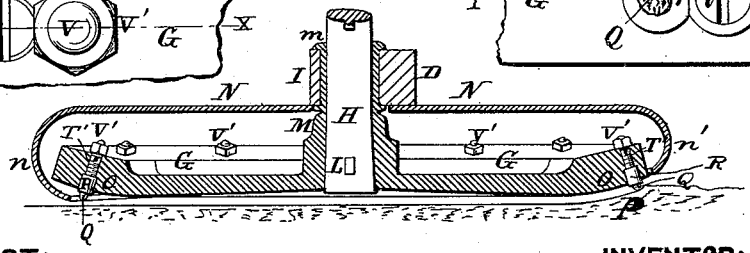


FIG. 7.





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UNITED STATES PATENT OFFICE.

JOHN J. SQUIRE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH W. BRANCH, OF SAME PLACE.

IMPROVEMENT IN STONE-DRESSING MACHINES.

Specification forming part of Letters Patent No. **161,835**, dated April 6, 1875; application filed February 23, 1875.

To all whom it may concern:

Be it known that I, JOHN J. SQUIRE, of St. Louis, St. Louis county, State of Missouri, have invented a certain new and useful Improvement in Stone-Dressing Machines, of which the following is a specification:

My improvement relates to that class of stone-dressing machines in which diamond cutting-points are inserted in metallic heads for dressing the stone.

The first part of my improvement consists in the construction of the adjustable diamond-holder. The diamond is inserted in the end of a metallic piece having a general cylindrical form, but having a flattened side, whose surface is inclined to the axis, so as to form the piece into a blunt wedge. This holder-piece rests in a circular cavity in the head, and at its rear end is a set-screw, by which it is adjusted so as to give the cutter more or less prominence. The holder-piece is fixed firmly in its position (when in use) by a wedge, which occupies a circular cavity in communication at the side with the holder-cavity, and the wedge is held in position by a screw upon its end and a nut thereon. The second part of my invention consists in the combination, with the cutter-head, of a shield, whose down-curved marginal flange collects the water thrown from the head by centrifugal force, and returns it to the cutter-head at the points needed.

In the drawings, Figure 1 is a perspective view of the machine. Fig. 2 is a bottom view of the cutter-head. Fig. 3 is an axial section of the cutter-head and spindle. Fig. 4 is a section through the diamond-holder, as applied to a disk-formed cutter-head at line *x x*, Fig. 5. Fig. 5 is a top view of same. Fig. 6 is a section through the diamond-holder, as applied to the periphery of a cylindrical or conical cutter-head at line *y y*, Fig. 7. Fig. 7 is a face view of same.

A is the bed of the machine, having V-grooved channels *a*, receiving the foot, ribs, or slides *b* of the reciprocating table B, on which is secured the stone to be dressed. This table may have impulsion in its reciprocating movement by any suitable mechanism similar to that in an ordinary iron-planer, but giving a slower forward motion. C is the housing or uprights to which the vertically-adjustable frame D is secured, and on which it is adjustable upon slide *c*. E is an adjusting-screw, which is attached to the frame D, and has a screw wheel or nut, *e*, at its upper end, bearing upon the cross-bar F of the housing, and by turning which the frame D, and with it the cutter-head G, is vertically adjusted according to the thickness of the stone to be dressed. The spindle H of the cutter-head turns in lower boxings I, fixed to the frame D, and in upper boxings J, fixed to the bar F. The spindle has a spline, *h*, by which it is forced to turn with the sleeve K, through which it passes, and in which it has free vertical adjustment. The sleeve K turns in the boxing J, and at its upper end is a pulley, receiving a belt, by which the cutter-head is turned, through the medium of the sleeve K and spindle H. The lower end of the spindle passes through the cutter-head, and is fixed thereto by a key, L. The spindle passes through a neck, M, upon the upper side of the cutter-head, and said neck turns in the boxes I, and has a collar, *m*, resting on the top of said boxes. By this collar the cutter-head is vertically supported on the frame D. Attached to the boxing I is a shield, N, which covers the cutter-head upon the top, and descends in a curved marginal flange, *n*, as low as is permitted by the surface of the stone operated upon. This shield catches the water thrown off from the periphery of the cutter-head by centrifugal force, and returns it to the points where needed to keep the working parts cool. The flange *n* upon the side opposite to that of the cutters in active operation may be curved up at the lower edge sufficiently to form a channel to convey the water to the active side *n'*. It will be understood that the shield is stationary, it being attached to the boxing I or frame D. That part of the lower surface O of the cutter-head containing the cutters is rounded, as shown in Fig. 3, and the cutters are placed in a spiral line around the face, as shown in Fig. 2, so as not only to cut in lines parallel with each other, but to work over the whole surface of the cut P in the stone. The diamond Q is in-

serted in the end of a metallic holder, R, which is cylindrical in the main, but has a convex end, *r*, from whose salient part the diamond projects. At one side of the holder is a flat spot, *r'*, which is inclined to the axis of the holder, so as to form it into a blunt wedge, whose thinner end is outward, or at the diamond end. The holder is inserted in a circular cavity, S, of the head G, and in line with said cavity is a screw-threaded hole, T, containing a set-screw, T', which has a slot, *t*, at either or both ends, to allow of its adjustment by a screw-driver at either end that may be the most easy of access. For instance, when the holder is inserted in the periphery of a solid cylindrical cutter-head, the outer end only would be accessible, and this after the extraction of the holder from its socket; but when the holder is inserted in a disk-formed cutter-head, as shown in Figs. 1, 3, 4, and 5, or in a hollow cylinder, as shown in Figs. 6 and 7, the end farther from the holder may be more easily accessible. When the holder is adjusted to proper prominence by the set-screw T', it is held firmly in position by a wedge, U, that, like the holder, is mainly of cylindrical form, but has a flat spot, *u*, inclined to its axis, but with the thicker end of the wedge outward, so as to fit the flat surface of the holder, as shown in Figs. 4, 6, and 7. This wedge, at the smaller end, is extended in a screw, V, which, in the form illustrated in Figs. 4 and 5, passes through the cutter-head, and is secured by a nut, V'; while in the modification shown in Figs. 6 and 7 the screw V engages in a screw-socket in the body of the cutter-head, and in this form the screw turns in a sleeve, U', which constitutes the wedge for tightening pressure against the holder. As a modification of this arrangement, I have used a frusto-conical-ended screw with no sleeve; but this does not answer so good for the purpose as the sleeve U'. It will be seen that the part of the socket W of the wedge U adjacent to the holder has side communication with the holder-cavity, so that the inclined flat surfaces of the holder and wedge come in contact; but the extensions of the sockets or cavities for the set-screw T' and the screw-extension V of the wedge, respectively, do not communicate, but are divided by a septum of metal.

I claim as new and of my invention—

1. The combination of rotary cutter-head G and shield N, substantially as and for the purpose set forth.

2. The combination, with a metallic cutter-head, of the holder R, with flattened side *r'*, locking-wedge U, with flattened side *u*, and set-screw T', substantially as set forth.

JOHN J. SQUIRE.

Witnesses:

SAML. KNIGHT,

ROBERT BURNS.