H. & J. L. Young,

Diamond Saw.

No. 108,425. Patented Oct. 18, 1870.

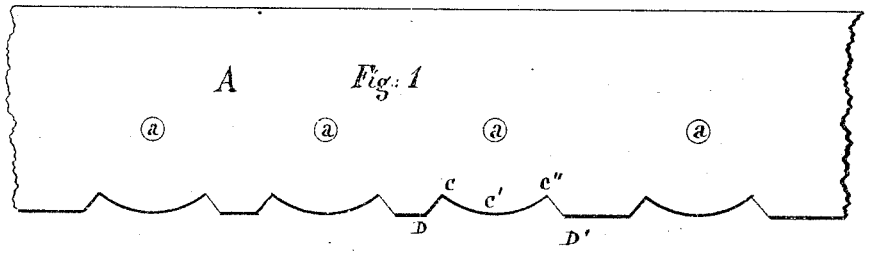

Fig. 1

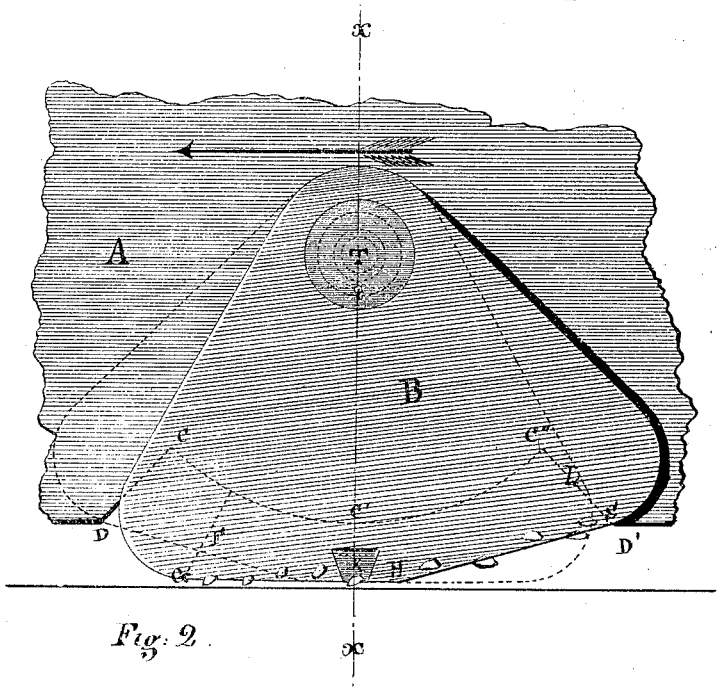

Fig. 2

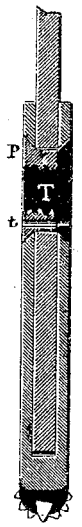

Fig. 3

Witnesses.

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HUGH YOUNG, OF MIDDLETOWN, CONNECTICUT, AND JAMES L. YOUNG, OF NEW YORK, N. Y.

Letters Patent No. 108,425, dated October 18, 1870; antedated October 2, 1870.

IMPROVEMENT IN TOOLS FOR CUTTING STONE.

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

We, HUGH YOUNG, of Middletown, in the county of Middlesex and State of Connecticut, and JAMES L. YOUNG, of New York, in the county and State of New York, have invented certain Improvements in Tools for Cutting Stone, of which the following is a specification.

Nature and Object of the Invention.

This invention relates to tools for cutting stone, and it consists in a pendulum tool, or diamond bearer, protected by two distinct diamonds or clusters of diamonds, or other hard stones, and of such construction, and in such combination with a blade or guiding sheet of metal, mounted so as to have a rectilinear motion in the line of the cut or channel to be made in the stone to be divided, as that when the blade is moved in one direction the one diamond or cluster of diamonds shall be brought into action, and when the blade is moved in the other direction the other diamond or cluster of diamonds shall be brought into action, and these results obtained; viz., that the diamonds may always be set with their cutting-points toward the work they are to do; that they are relieved from all wear when returning, and that the setting of the diamonds is not injured by wear, stroke, or pressure from behind.

Description of Drawing.

Figure 1 is a front view of the blade or guiding sheet of metal, in combination with which our improved tool is to work.

Figure 2 is a front view on a larger scale of a portion of the same, and of one of our improved pendulum-tools pivoted thereon.

Figure 3 is a transversal sectional view of the same through the line *x*, *x'*.

General Description.

A is a blade or tool bearing and guiding sheet of metal, which is made of proper dimensions for resisting the strain put upon it, and which is mounted in any approved manner in guiding-frames, or otherwise, of a machine wherein it will receive a rectilinear go and come motion in the line of the cut to be made in the stone.

This blade A has holes, *a a a*, &c., at different places, giving choice in which to pivot the pendulum cutting-tool B, and said blade is notched so as to allow of the pendulous-motion of the cutter B, and with the abutting edges D C and D' C'', corresponding to those parts of the said cutter B which come against them.

B is our improved pendulum-cutting tool which is so shaped as to straddle the blade A, and by means of the bolt T, and nut P, be hung or pivoted on the same.

The bottom of the cleft in the tool B, is made concave, corresponding approximately to the line C C' C'' of the plate A, and it has two surfaces, F and L, which match the abutting edges D C and D' C'', of the said plate A.

The lower part of the pendulum-tool B, is shaped so as to present two edges, C H and H S, at an obtuse angle one with the other, each of which edges bear or is protected by one or more diamonds, or other hard stones, the diamond or cluster of diamonds having to be, alone or conjointly, sufficient to cut or plow out the channel to be made.

The pendulum piece B, can swing freely upon the bolt and nut T P, and assume the two positions indicated in fig. 2 of our drawing, and the angle of the two edges, G H and H S, bear such relation to the two parts F L that when L comes in contact with the abutting edge C'' D', the edge opposite, or G H, will be parallel, or about so, to the line of motion of the blade A, and the edge H S will be elevated from the line described by the motion of the edge H G, and when the part F is brought in contact with the part C D then it will be the edge H S which will become approximately parallel to the line of motion of the blade A, and the edge G H will be elevated.

The diamond or diamonds of the edge G H are, therefore, distinct from the diamond or diamonds of the edge H S, and *vice versa*, those on each edge having their points or cutting edges turned in opposite directions, one from the other, so that when the blade A is moving in the direction of the arrow, (fig. 2,) the diamond or diamonds of the edge G H are in the best position for cutting in that direction, and when the movement is reversed the diamond or diamonds on the edge H S, (which is then brought down,) are in the best position for cutting in that direction, while, in either case, the diamonds not at work are so elevated by the pendulous motion of the tool that they and the setting of them are freed from wear and damage.

The diamonds for the protection of the tool B may be set directly in the tool or in separate blocks, K, inserted therein.

In order to prevent the nut P from becoming loose upon the bolt T, we have drilled a small hole, *t*, through the head of the bolt T, and through the nut P, and we insert therein a small rivet, screw, or pin, which effectually locks the nut upon the bolt, but which being removed allows of the nut being unscrewed.

Claims.

1. The pendulum-tool B bearing or protected by two distinct diamonds or clusters of diamonds, or other hard stones, arranged and set so that the tool will cut in two directions; in the one direction with the one diamond or cluster of diamonds, and in the opposite direction, with the other diamond or cluster of diamonds, substantially as herein set forth.

2. The combination of the pendulum-tool B, with the blade A, substantially in the manner and for the purposes specified.

HUGH YOUNG.
JAMES L. YOUNG.

Witnesses:
MOSES E. CRASTO,
FRANK P. CRASTO.