

UNITED STATES PATENT OFFICE.

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TOOL FOR WORKING STONE.

SPECIFICATION forming part of Letters Patent No. 770,455, dated September 20, 1904.

Application filed May 14, 1904. Serial No. 207,891. (No model.)

To all whom it may concern:

Be it known that I, AINSLIE E. DOUGLAS, of Peabody, in the county of Essex and State of Massachusetts, have invented certain new and
5 useful Improvements in Tools for Working Stone, of which the following is a specification.

My invention relates to improvements in tools for working stone and other materials; and the object is to produce a tool for drilling,
10 pounding, cutting, polishing, and otherwise working upon stone material; but it may be used in other ways.

My invention consists of certain novel features hereinafter described, and particularly
15 pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a central vertical section of my improved stone-working tool. Fig. 2 is a side
20 elevation of the tool, partly in section.

Like letters of reference refer to like parts throughout the several views.

The tool B is carried firmly on the frame A. It consists of a central cylinder C, to which
25 is screw-threaded on the top the adjustable head D with handles D' for operating the same, as hereinafter described. Within the head D are two plates E E', between which are balls E², thereby establishing a ball-bearing
30 ing to receive the end thrust or pressure of the collar F, resulting from a blow of the tool upon its work. In the collar F and the head D revolves the chuck-shaft G, supported at its outer end by the inner end
35 of the frame A, and fixed on said chuck-shaft G is the pulley A', by which power is communicated to said chuck-shaft G. In the lower end of the chuck-shaft G is the slot G², adapted to receive the end H of the spindle H',
40 through which connection motion may be rotatively applied from the shaft G to the spindle H'. At the same time the spindle H' will permit longitudinal movement in the end of the shaft G. Said spindle H' carries the cam
45 L', arranged for contact with the cam L, which has a fixed support in the cylinder C against the head M, as shown in Fig. 1. Around the spindle H' and bearing against the under side of the collar F and the upper

side of the cam L' are the right and left 50 springs N and O, the spring O being arranged within the spring N. By providing two springs the same amount of pressure can be obtained as from a single heavy spring, which is too rigid and does not travel fast enough,
55 whereas the two light springs not only give the same amount of pressure, but are flexible enough to move easily, and, by being right and left, do not interfere with one another in their movements. In the lower head M are
60 the circular nuts K K' to provide bearings for the balls J, between which are located the vertical antifriction-rollers I, to reduce the friction on the lower end of the spindle H'. The adjustable head D may be adjusted to
65 different positions to produce more or less tension on the spring O to strike a lighter or a heavier blow.

G' and M' are suitable metallic bushings, and into the bushing M' the tool is inserted
70 and secured to the spindle H'.

The movement of the spindle H' rotatively operates the cam L' against the cam L for moving the spindle H' longitudinally in one direction, carrying and contracting the springs
75 N and O against the collar F, and when the cams L and L' come to a position for permitting the return of the spindle H' the springs N and O reverse the movement of the spindle H' longitudinally. This spring-driven
80 movement of the spindle H' is imparted to the drill or other tool, which when the tool is being operated is inserted into the bushing M', and this movement imparts a blow for driving the tool against the work being acted
85 upon.

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United
90 States, is—

1. In an apparatus of the character described, the slotted chuck-shaft, a spindle having a key at one end adapted to have sliding connection with the slot of the chuck-shaft,
95 oppositely-arranged springs for actuating said spindle, a tubular portion around said springs and spindle, an adjustable head adapted to be

adjusted on said tubular portion for varying the tension of said springs, a lower head secured to said tubular portion and forming a bearing for the lower end of said spindle, a
5 cam secured to one end of said spindle, and a cam secured in said tubular portion and cooperating with said spindle-cam to give a sudden endwise impulse to said spindle.

2. In an apparatus of the character described, a slotted chuck-shaft, a spindle having a key at one end adapted to have sliding connection with the slot of the chuck-shaft, oppositely-arranged springs for actuating said
10 spindle, a tubular portion around said springs and spindle, an adjustable head adapted to be adjusted on said tubular portion for varying

the tension of said springs, a lower head secured to said tubular portion, antifriction-rollers in said lower head and forming a bearing for the lower end of said spindle, a cam
20 secured to one end of said spindle, and a cam secured in said tubular portion and cooperating with said spindle-cam to give a sudden endwise impulse to said spindle.

In testimony whereof I have signed my name
25 to this specification, in the presence of two subscribing witnesses, this 5th day of May, A. D. 1904.

AINSLIE E. DOUGLAS.

Witnesses:

E. L. HARLOW,
A. L. MESSER.