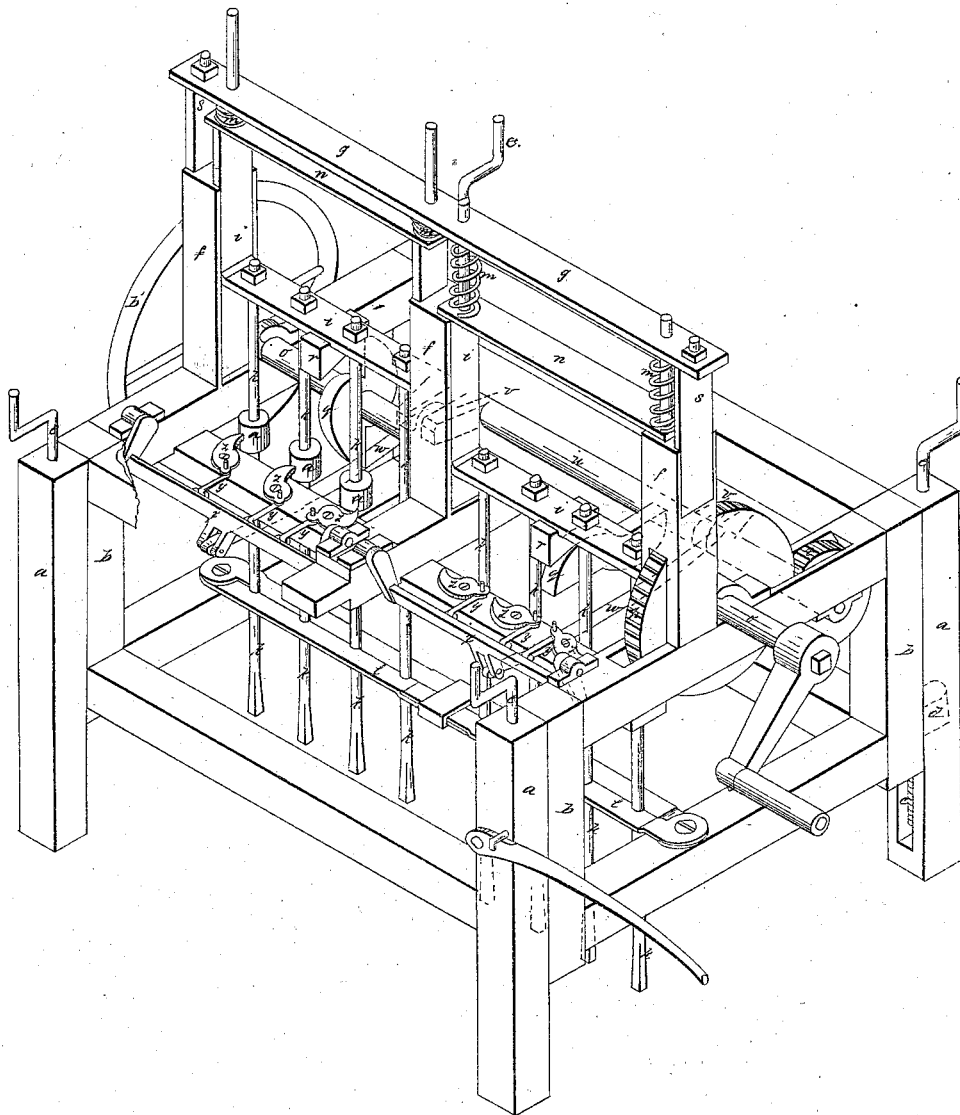


G. Fletcher, Sr.

Stone Drill.

N^o 7,301.

Patented Apr. 23, 1850.



UNITED STATES PATENT OFFICE.

GEO. FLETCHER, SR., OF GREENSBURGH, INDIANA.

MACHINE FOR DRILLING STONE.

Specification of Letters Patent No. 7,301, dated April 23, 1850.

To all whom it may concern:

Be it known that I, GEORGE FLETCHER, SR., of Greensburgh, Decatur county, Indiana, have invented new and useful Improvements in the Mode of Operating Drills for Stone or Stone-Drilling Machines; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, which are made part of this specification, in which the figure represents a general view of the machine.

The nature of my invention consists in a method of rotating the drills between each stroke.

I am aware that in machines for drilling there exist devices for rotating the drill between each stroke, and that the frame has been adjusted to various heights by means of racks in the legs which impinge upon the ground, but from what I have seen of them and from their very limited use, I believe them to be very inefficient except under peculiar circumstances. My apparatus is adapted for every description of vertical drilling.

In the drawing (*a*) are the legs supporting the frame (*b*) by which the drilling apparatus is vertically adjustable, by means of the winches (*e*) working the screws (*c*) in the lugs (*d*) attached to the frame. These parts are seen by dotted lines in Fig. 1. On the upper horizontal timbers of the frame (*b*) are standards (*f, f, f*) forming (the two outer ones) bearings (*s*) for the rail (*g*) through holes in which the guides of the gates (*i*) which carry the drills (*k*) pass. The inner sides of the outer standards and both sides of the inner one serve also as guides for the gates. To the lower horizontal plates of the gate (*i*) the drill shafts are attached by nuts and screws or other device; and attached to the lower horizontal bar of the frame (*b*) is another plate (*l*) which serves to guide the drills at a point nearer their work, and preventing lateral motion which might occur from their being considerably protracted. Spiral springs (*m*) placed between the upper rail (*n*) of the gate (*i*) and the rail (*g*) serve to increase the power of the blow. In the angle formed by the stanchion (*f*) and the upper horizontal bar of the frame are journal boxes in which a shaft (*o*) carry-

ing a spur wheel (*p*) revolves; upon this shaft are cams *q*, which by impingement against lugs or friction blocks (*r*) immediately under the main horizontal bar of the gates (*i*) raise the gates, and as they continue to revolve allow them to drop in a manner too familiar to require comment.

The spur wheel (*p*) gears into a pinion (*t*) on a shaft (*u*) parallel with the shaft (*o*). To cranks (*v*) on the shaft (*u*) are attached bent pitmen (*w*) which passing under the gate (*i*) to the other side of the machine, work an oscillating crank (*x*) to which smaller pitmen (*y*) are attached which operate the levers (*z*) causing them to vibrate. The point of the lever in its forward motion comes in contact with a tooth on the pinion (*a'*) which is upon the drill shaft, and turns it the distance of one cog at a time, giving it a revolution of one cog between each stroke and thus causing the drills to strike in a new place at each fall of the gate. 2 or more drills may be placed in a gate and their distances apart graduated at pleasure. The lever returns to its original position after the gate has fallen and the pinion is consequently out of its reach, being then ready for another stroke, the lever being brought into operation immediately before the fall of the gate. A fly wheel (*b'*) is attached to the main driving shaft for securing an uniformity of motion.

Having thus fully and clearly described the nature and construction of my improvements in machinery for drilling stone, what I claim therein as new and desire to secure by Letters Patent is—

The combination of the lever (*z*) with the cranks and pitmen which operate it for the purpose of rotating the drill periodically by impingement against the cogs of the pinion (*a'*) at its greatest elevation, returning to position when the pinion is removed from its range, the whole arranged and operated substantially in the manner and for the purpose set forth.

To which specification of improvements in stone drills, witness my hand.

GEORGE FLETCHER, SR.

Witnesses:

EDWARD H. KNIGHT,
S. B. SNEDAK.