G. DOWNING.

STAMP-MILL.

No. 191,521. Patented June 5, 1877.

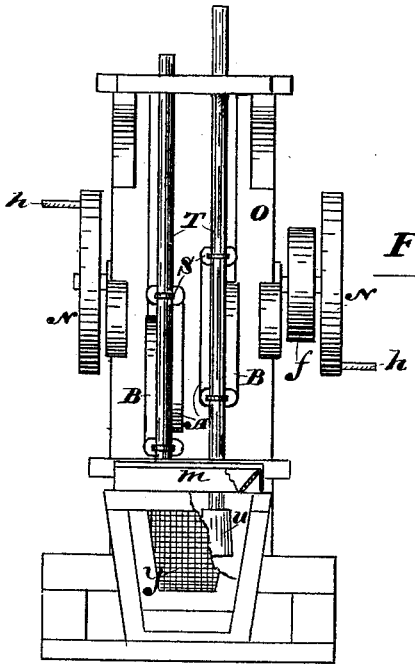

Fig. 1

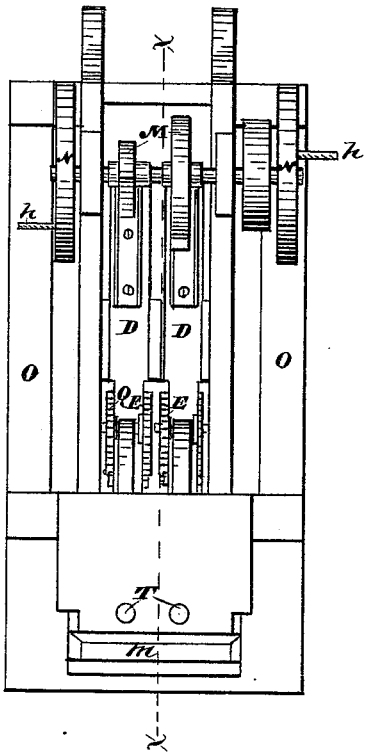

Fig. 2

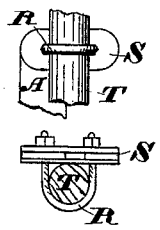

Fig. 4

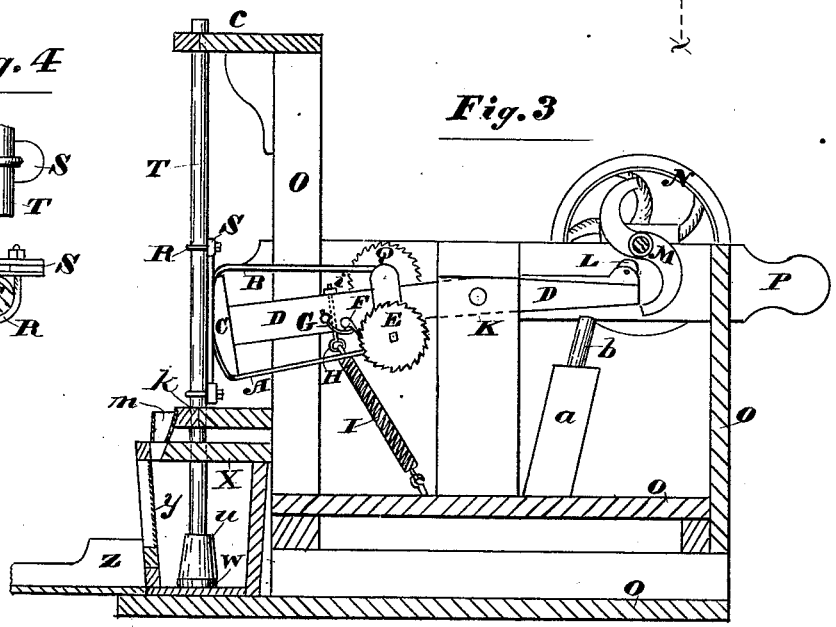

Fig. 3

Attest

W^m. S. Baker

J. M. C. Baker

INVENTOR

George Downing

UNITED STATES PATENT OFFICE.

GEORGE DOWNING, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO COLLINS EATON, OF SAME PLACE.

IMPROVEMENT IN STAMP-MILLS.

Specification forming part of Letters Patent No. **191,521**, dated June 5, 1877; application filed April 14, 1877.

To all whom it may concern:

Be it known that I, GEORGE DOWNING, of the city of Chicago, in the county of Cook, and State of Illinois, have invented a new and useful Improvement in Stamp-Mills, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 3 is a sectional view on the line *x x*, Fig. 2. O is the frame that supports my apparatus. Secured to this frame O, by the pivet-bolt K, is the lever D. On the axle of the drive-wheel N is secured or formed the tapet M. This tappet M, revolving, depresses one end of the lever D. The friction between the tappet M and lever D is diminished by the friction-rollers L. The tappet end of the lever D being depressed by the tappet M, the lever turns on the pivot K, and the other end of the lever D is raised. On this end of the lever D is secured or formed the cross-piece C, the outer face of which is circular. B is a strap or cord fastened at one end to the stamp-shaft T by means of the bar and hoop S R. The hoop R fits into a recess or groove formed in the shaft T. The other end of the strap or cord B is attached to the axle of the ratchet-wheel Q. By means of this rachet-wheel Q the strap is tightened or loosened, at pleasure. The ratchet-wheel Q is held at any set point by means of the catch F and spring G. The object of this cord B is to raise the stamp-shaft T, to which is attached the stamp or head U. The object of the cord A is to pull down the stamp T U. The cord A is attached to the stamp-shaft T, and is tightened and loosened in the same manner as is the cord B. The end of the lever D is pulled down by the spiral spring I. The tension of the spring I is regulated by means of the screw-bolt H and nut *i*. I do not confine myself to the spiral form of spring shown, but I claim the use of any spring in this connection that will accomplish the desired purpose. This spring I is supplemented and re-enforced by the rubber block spring *b*, placed on the support *a*. I do not confine myself to a rubber spring, but claim the use of a spring in this connection of any form or substance that will accomplish the desired result. On this spring *b* the tappet end of the lever D strikes when depressed. The revolution of the tappets M, by means of the drive-wheel N, depresses the tappet end of the lever D, and raises the stamp T U, the same being instantaneously returned again with a quick blow upon the bed or support W, by means of the springs I and *b*. The face of the cross-piece C being circular, and describing the arc of a circle in its movement up and down, the action of the straps A and B is in a directly vertical direction, both up and down, thereby doing away with friction on the shaft T in the journals *c* and *k*. X is the inclosure in which the ore or other substance to be crushed is placed, where it is thoroughly pulverized by the pounding of the stamp U on the bed W. During this process a stream of water can be let on to the pulverizing substance through the supply-hopper *m*. Through this same hopper the substance to be crushed is also supplied. When sufficiently pulverized the crushed substance passes through the sieve or screen Y into the sluice Z, where it is taken care of.

This apparatus can be worked by hand-power by the crank *h*, or any other power desired, by means of the band or pulley-wheel *f*. The spring I, tappet M, drive-wheel N and *f*, and lever D, are essentially the same as in my rock-drilling machine, patented September 22, 1874, No. 155,186. I therefore make no claim on them in this invention, only in combination with other features different from anything shown in my rock-drilling machine above-named.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B and the ratchet-wheels E and Q, in the manner shown and described, and for the purpose set forth.

2. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, and the rod Y, in the manner shown and described, and for the purpose set forth.

3. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, the spring I, spring *b*, and rod T, in the manner shown and described, and for the purpose set forth.

4. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, spring *b*, tappets M, and rod T, in the manner shown and described, and for the purpose set forth.

5. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B, and shaft T, in the manner shown and described, and for the purpose set forth.

6. The shaft T, constructed with the head U secured or formed thereon, in combination with cords A and B, and lever D, as shown and described, and for the purpose set forth.

GEORGE DOWNING.

Witnesses:
F. J. SEYBOLD,
HENRY C. STRONG.