H. J. BROWNE & A. HOPE.

Improvement in Machines for Breaking and Cubing Stone.

No. 129,784. Patented July 23, 1872.

FIG. 2.

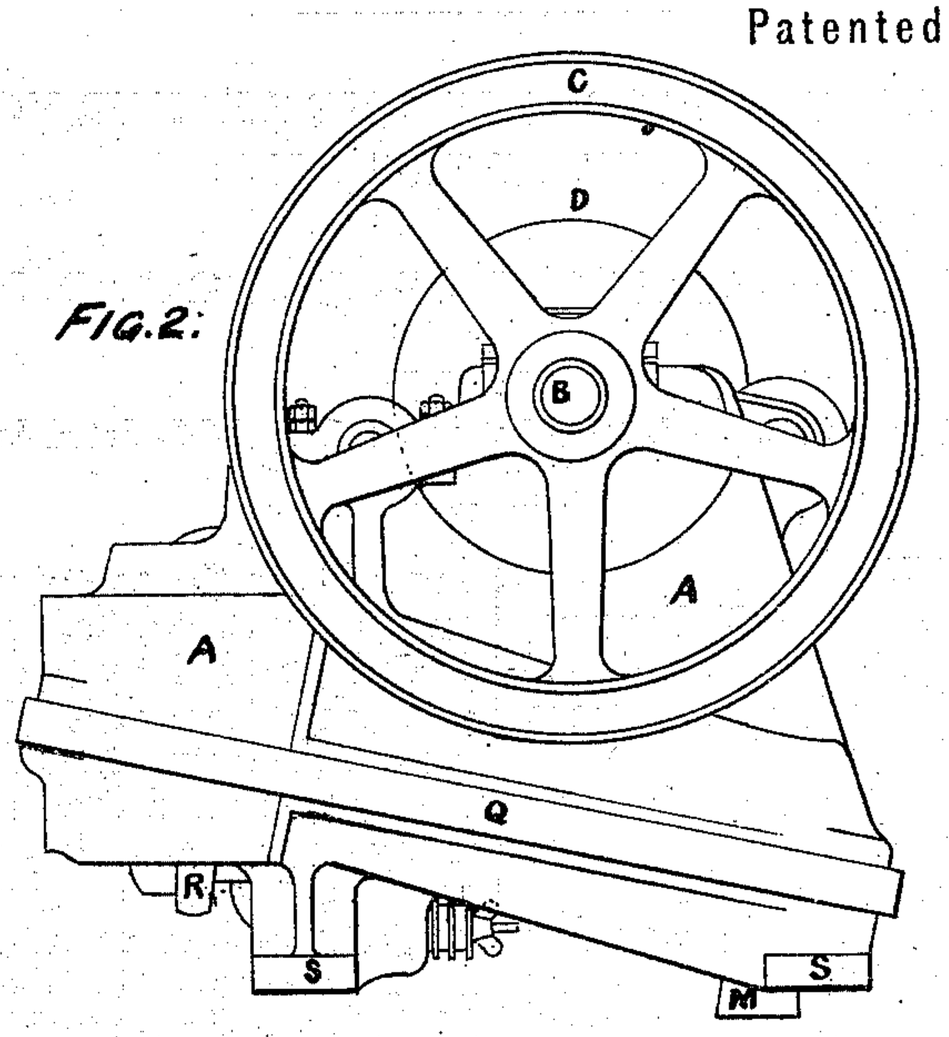


FIG. 4.

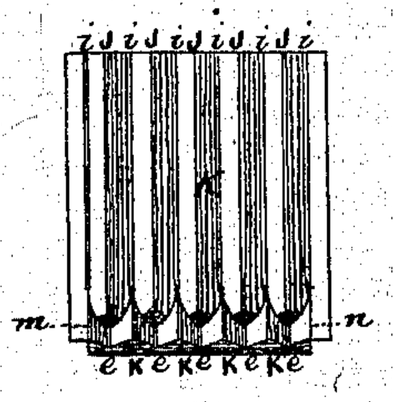


FIG. 1.

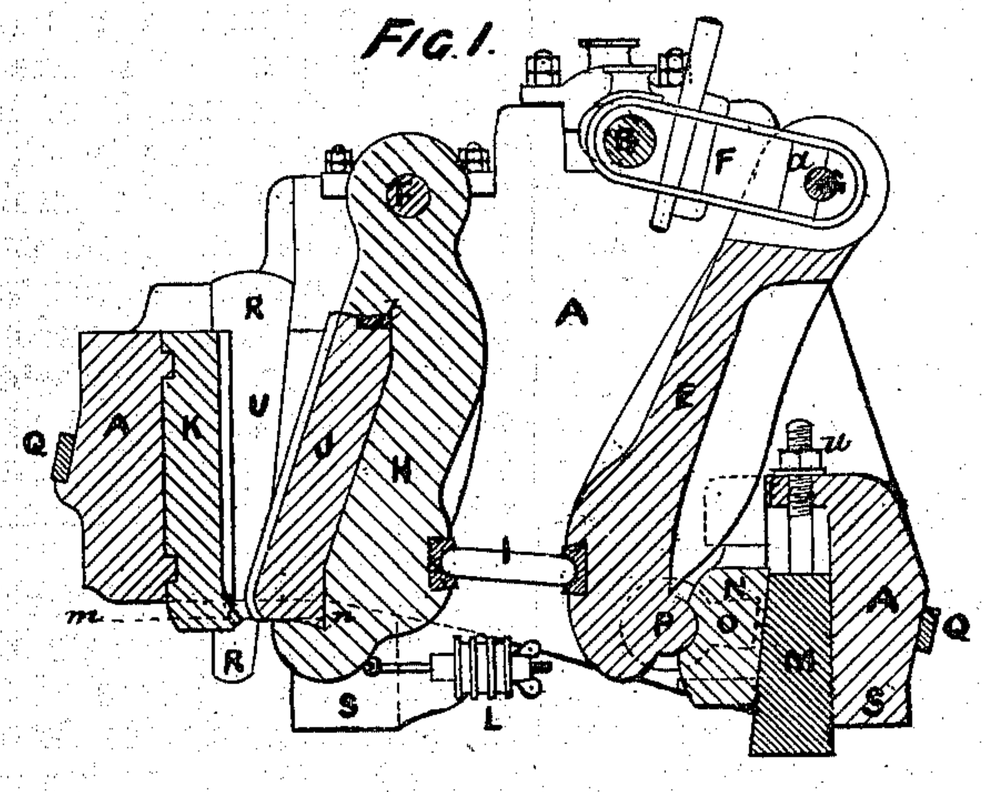


FIG. 5.

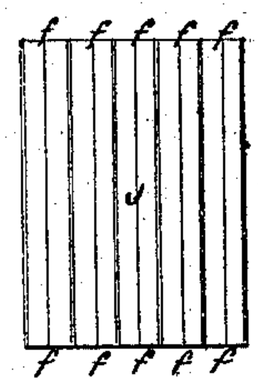


FIG. 7.

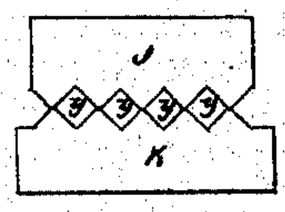


FIG. 3.

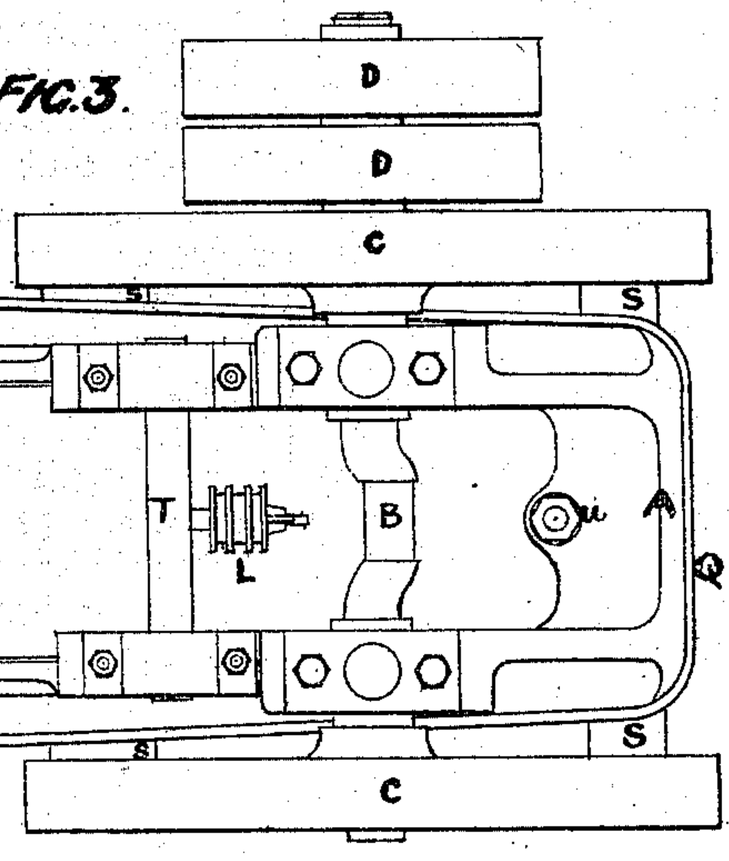
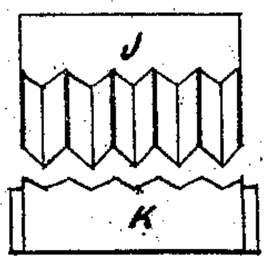


FIG. 6



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UNITED STATES PATENT OFFICE

HUGH JUNOR BROWNE, OF MELBOURNE, AND ARTHUR HOPE, OF PRAHRAN COLONY OF VICTORIA.

IMPROVEMENT IN MACHINES FOR BREAKING AND CUBING STONE.

Specification forming part of Letters Patent No. **129,784**, dated July 23, 1872.

SPECIFICATION.

We, HUGH JUNOR BROWNE, of Melbourne, in the colony of Victoria, merchant, and ARTHUR HOPE, of Prahran, in the same colony, engineer, have invented Improvements in the Construction of Machinery for Breaking and Cubing Stones and other hard substances, of which the following is a specification:

This invention relates to improvements in the construction of stone breaking and cubing machines; and consists in lessening the power required to break stones, and simplifying the same by means of a direct-acting lever of the first or second order; also, rendering the stone of a cubical form by means of the fixed jaw being made at the lower extremity with a straight, curved, or angular set-off projecting forward beyond the general plane of the acting surface of the jaw, which set-off has alternating serrations or grooves. The moving jaw, the serrations of which are continuous, may be either straight, curved, or angular at the lower extremity, so as to correspond with the fixed jaw. The ridges of one jaw coincide with the flutings or channels of the other above an imaginary horizontal line; below that line the tips of the ridges coincide with the tips of the ridges in the opposite jaw, forming square orifices, through which the stone operated upon has to pass, whereby a simple and economical cubing action on the stone is obtained without interruption or stoppage; and in order that our said invention may be fully understood, we shall now proceed more particularly to describe the same, and for that purpose shall refer to the several figures on the annexed sheet of drawing, the same letters of reference indicating corresponding parts in all the figures.

Figure 1 is a sectional elevation. Fig. 2 is an elevation, and Fig. 3 is a plan of our new stone-breaking and cubing machine.

A is the frame or foundation by which the various parts are supported. B is a crank-shaft, on which are fly-wheels C C and fast and loose pulleys D D. E is the lever; F the connecting-rod between the crank B and the lever E, on the top of which there is a pin, G, on which it works. H is the moving jaw, forced forward by the action of the lever E, acting on the toggle I, working in pads fitted into both lever E and moving jaw H. J is a loose serrated face fixed into moving jaw H by means of a key at upper extremities, as shown at *t*. K is the fixed jaw. L is a buffer attached to moving jaw H and fram A to produce the back action of jaw H. M is a wedge-block acting on a sliding block, N, worked by means of a screw and nut, as shown at *u*, to regulate the size of the stone broken. O is one of the two links to keep the fulcrum P of lever E in its proper position in sliding block N. Q is a wrought-iron strap or band shrunk on frame A to give it additional strength and resistance. R is one of the two wedges to fix the jaw K in its place. S S S are brackets on which the machine stands, and by which to fix it to stage or frame-work. T is a wrought-iron pin, upon which moving jaw H hangs; U, the space at which the stone or other substance to be operated upon is fed.

Fig. 4 is a plan of the face of our fixed jaw K. *j j j* are the points of the serrations and *i i i* are the bottoms of the recesses between the serrations in its face above the line *m n* and *k k k* are the points of the serrations and *l l l* are the bottoms of the recesses between the serrations on its face below the line *m n*. It will be observed that the points of the serrations above and below the line *m n* are alternate, and these are continued in their respective lines until they terminate in the recesses.

Fig. 5 is a plan of the shifting-face J on moving jaw H, which has continuous vertical serrations *f* on its acting surface, but recedes slightly at its lower extremity below the line *m n*. Fig. 6 shows the faces of the jaws when closed above the line *m n*. Fig. 7 shows their faces at the line *m n*, forming square or diamond-shaped orifices *y y y y*, through which the stone operated on has to pass.

Claims.

1. The jaw H suspended at its upper end, in combination with the lever E, vibrating to and from said jaw, and intermediate bar or rod I, arranged as set forth.

2. The combination, with the lever E and jaw, H of an adjustable bearing for the fulcrum of said lever and the adjustable wedge M.

3. The combination of the jaw H, its channeled face J, and the stationary jaw K, having channels and projections *k* in a line with said channels, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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