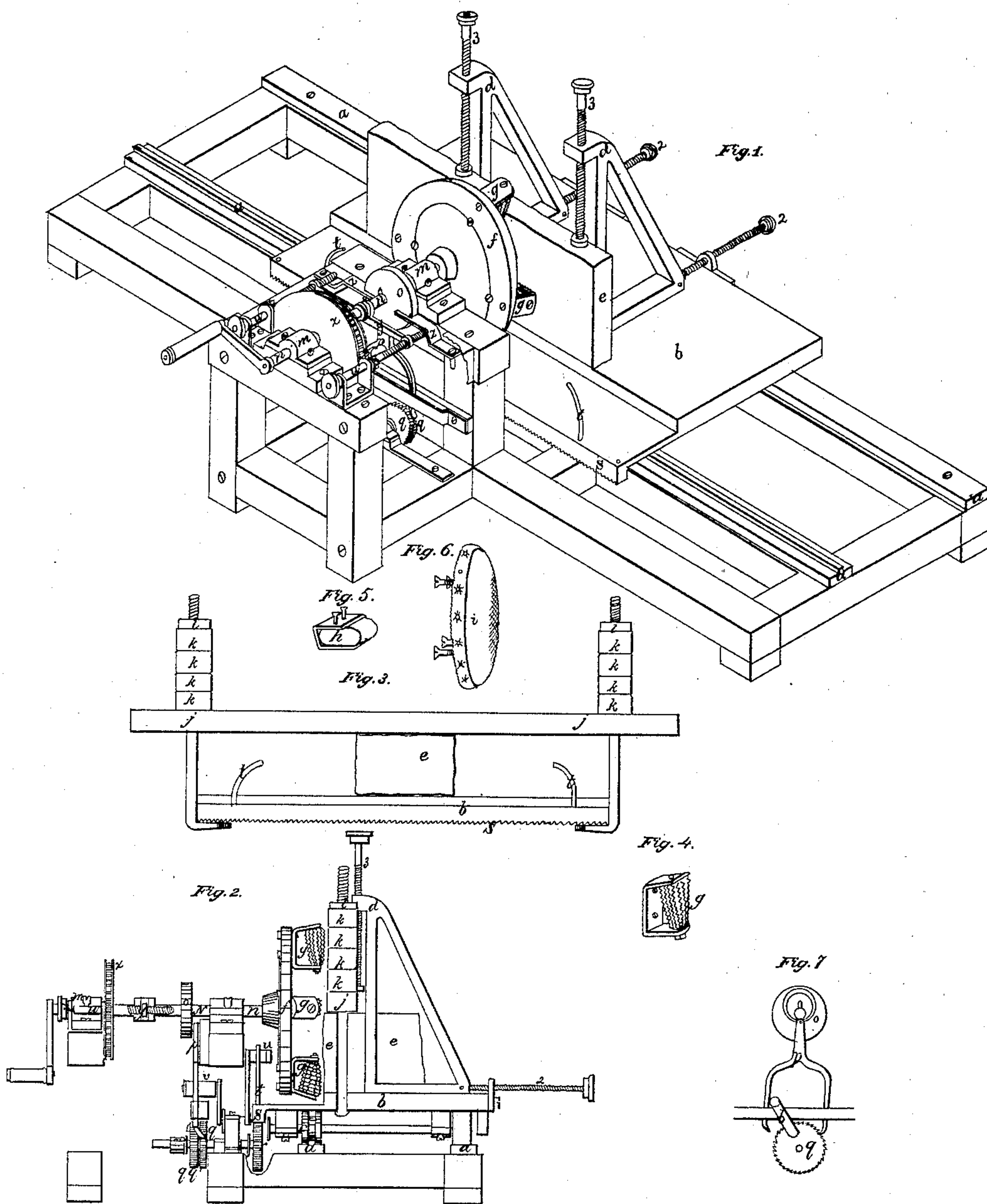


*J. P. Avery,
Dressing Stone.*

N^o 11,921.

Patented Nov. 7, 1854.



Witnesses.

*John J. Moore
J. B. Brindley*

Inventor.

John P. Avery

UNITED STATES PATENT OFFICE.

JOHN P. AVERY, OF NORWICH, CONNECTICUT, ASSIGNOR TO JOSEPH B. BROMLEY.

STONE-DRESSING MACHINE.

Specification of Letters Patent No. 11,921, dated November 7, 1854.

To all whom it may concern:

Be it known that I, JOHN P. AVERY, of the town of Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Machinery for Cutting and Dressing Stone; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of these specifications, in which—

Figure 1 is a perspective view with a slab secured to the platform by the brackets; Fig. 2, a central transverse section; Fig. 3, a view of a block of stone fastened to the platform by means of a clamp; Fig. 4, a view of the cutter or endless pick; Fig. 5, a view of the gritter; Fig. 6, the polisher, and Fig. 7 the double ratchet and eccentric wheel and catch.

The same letters of reference indicate like parts in all the figures.

The letters *a, a*, represent the rails upon which the platform *b* is moved, one of which is tongued for a groove in the wheel *c* to guide the platform *b*.

d, d are brackets by means of which the slab *e* is secured firmly to the platform *b* by the perpendicular screws, *3, 3* and moved toward or from the plate *f* by means of the screws *2, 2*. The slab or block is thus secured to the platform on a line with revolving face plate *f*, fastened to which by means of screws are the revolving conical cutters or endless picks, the gritters, or the polisher.

The cutter *g* reduces or faces the stone, and prepares it for the operation of the gritter *h*, with which by the application of water the surface is smoothed and prepared for the polisher or high finisher *i*. Thus taking the stone through all the stages from cutting to high finishing.

Letters *j, k, l*, are the clamps, washers, and nuts for securing blocks to the platform *b*. *m, m*, are the boxes for the shaft *n* along which is a groove, by which with a key is fastened the eccentric wheel *o*. In connection with the eccentric wheel *o* is the catch *p* acting upon the double ratchet wheels *q, q'*, which gives to the platform *b*, through the cog wheel *r* and the rack *s*, the feed motion.

As the platform *b* moves with the stone

beyond the face-plate *f*, the curved pins *t t* or their equivalents, throw the cranks *u* and *v* upon the opposite catch of the ratchet *q* thereby reversing the motion of the platform *b*.

The screws *w w* acting with the cog wheels *x* and in the arms *y* move the face plate *f* to or from the stone, thereby gaging the surface removed.

z z are guards to hold in place the eccentric wheel *o*.

The subsequent processes of gritting and polishing are substantially the same as above described, with the substitution for the cutters on the face plate *f*, of the rough gritter, fine gritter, Scotch bone and polisher in the different stages of the process.

Now, it will be observed, that the cutting and facing tools (*g*), by their taper or conical form and arrangement with the revolving face-plate as shown and specified, prepare or face the stone to a much more accurate level and even finish, for the after action of the gritter (*h*) and polisher (*i*) by the same machine, than if the said facing cutters (*g*) were of cylindrical form; and herein exists the difference between the action of these cutters (*g*) and the action of cylinder cutters, also rotating on their axis and attached to radial arms or brackets projecting from a revolving face plate, as is now used by other machines for boring stone, inasmuch as the whole length of the cutter (*g*)—when it is of conical construction as in my machine and set as represented, the smaller end inward and the axis of the cutter arranged obliquely to the face plate so that the outer line lengthwise of the cutter's rotation is parallel to the plane in which the face plate moves,—cuts with the same degree of force or pressure on the stone, by reason of its tapering diameter conforming to the varied velocity to which it throughout its length is exposed by the varied distances of the several cutting points from the center of the revolving face plate which carries and drives it, and whereby the cutter (*g*) is not only made to turn easier and more freely on its axis, but its wear is reduced and rendered more uniform. Cylinder cutters, so arranged, would ridge or furrow the surface of the stone by reason of their outer periphery or end being alone

made the driving point or points of the cutter's rotation by the stone, causing also unequal and excessive wear to that portion of the cutter and giving a quicker back movement, or rotation, to the center part and inner end of the cutter, than it should have to cut well or smooth and keep free from clogging and chipping the edges of the stone.

Thus by my arrangement of the taper facing cutters on the revolving face-plate, not only is the durability and action of the cutters themselves improved, but the stone is prepared to a more even and regular surface for the after action of the gritter and polisher as specified, and thus the operation of stone dressing generally is improved.

I do not claim as new, in cutting stone, the mere arrangement of rotating cutters affixed radially to a revolving face-plate, as

such has before been used in stone boring machines; but

I do claim as new and useful, and desire to secure by Letters Patent,

The combination and arrangement herein specified with the revolving face-plate, or its equivalent, of the rotating taper or conical picks or cutters (*g*) operating throughout their length, on the stone to face it, with a velocity or movement on their axis proportioned to the varied velocity given them by the revolving face-plate which carries and drives them, substantially as specified and whereby the advantages herein set forth are obtained.

JOHN P. AVERY.

Witnesses:

JOHN J. MAREY,

ALFRED BOARDMAN.