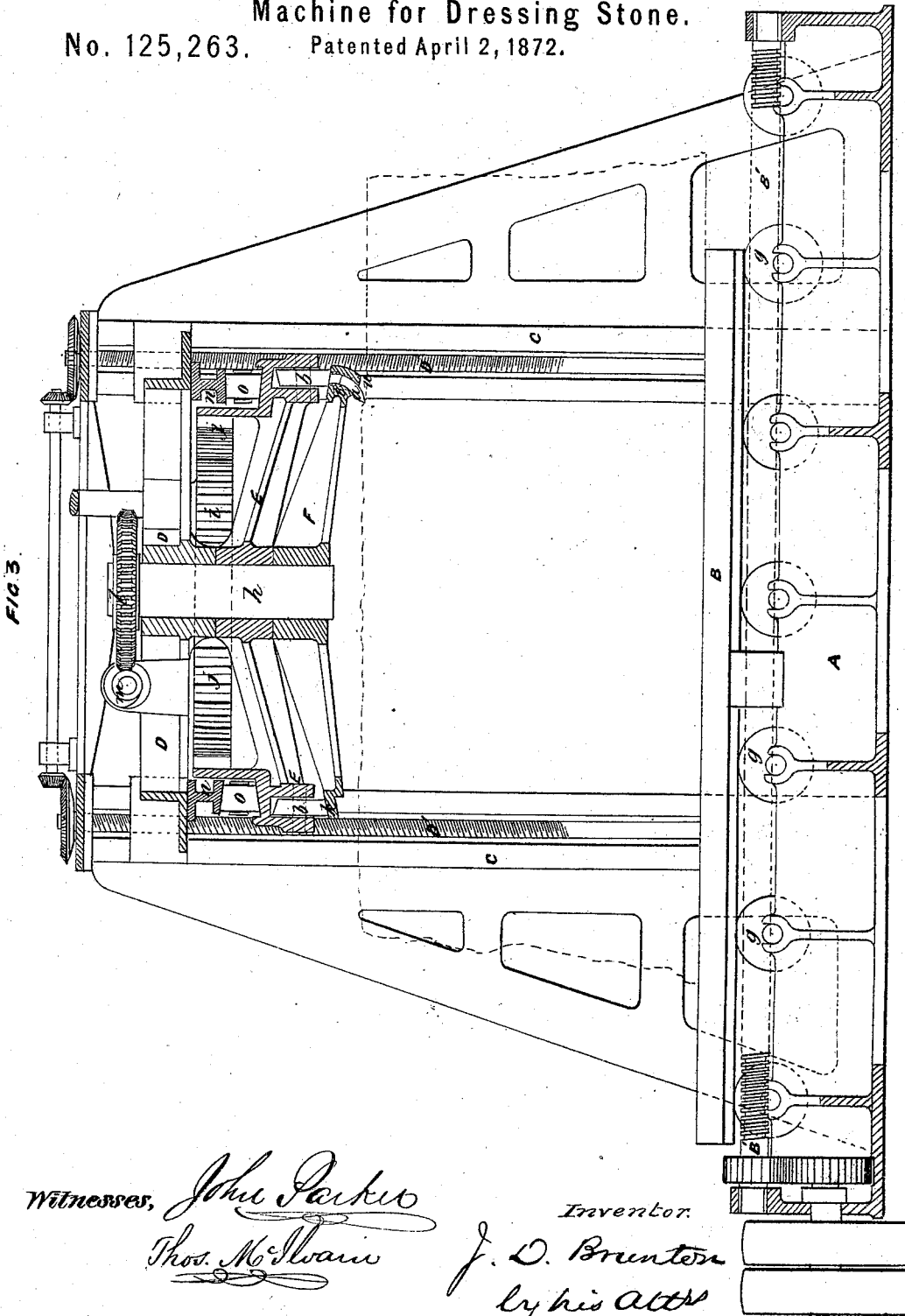


JOHN D. BRUNTON.
Machine for Dressing Stone.
No. 125,263. Patented April 2, 1872.



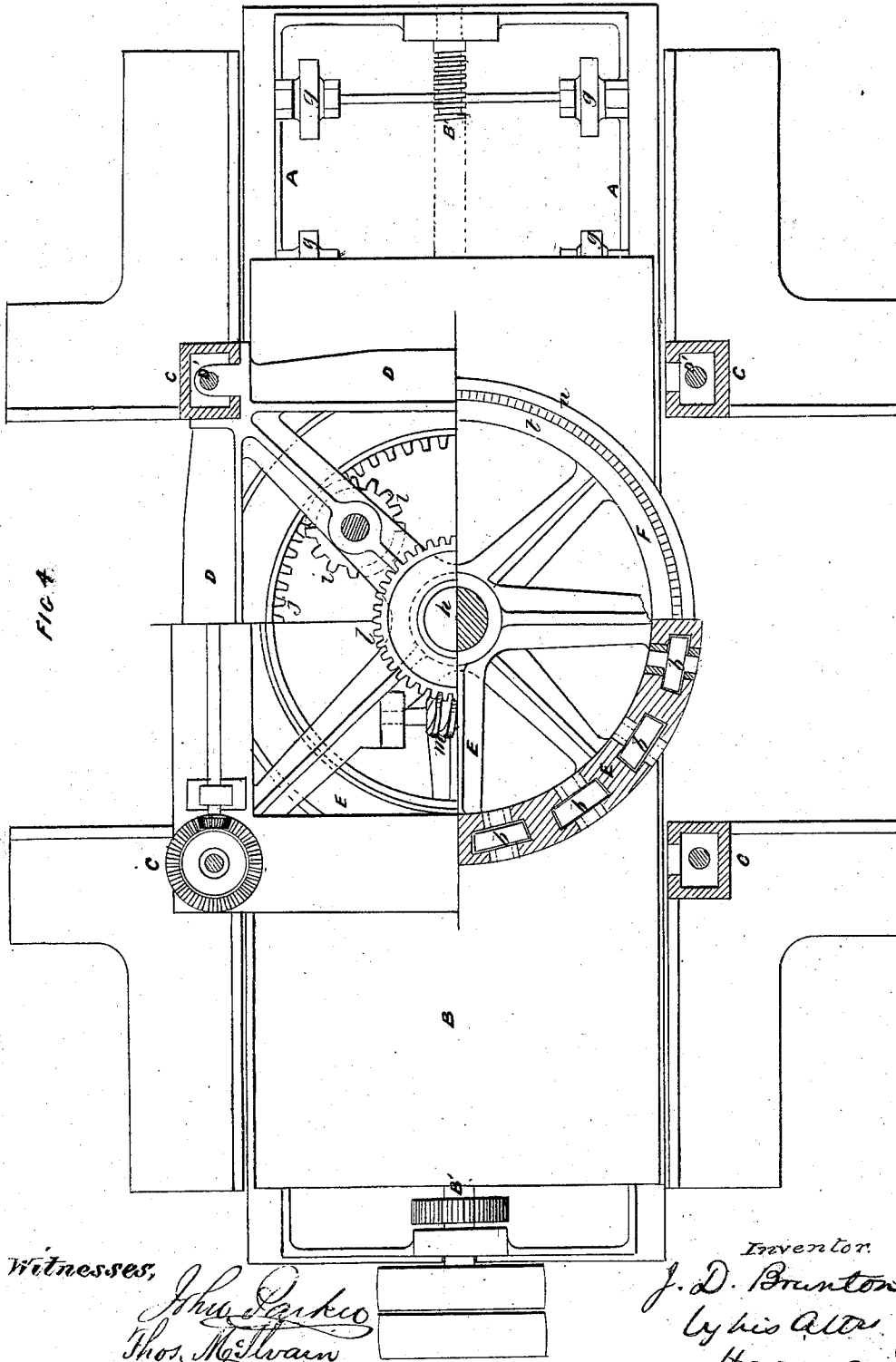
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Inventor.
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by his Attys
Hewson and Son

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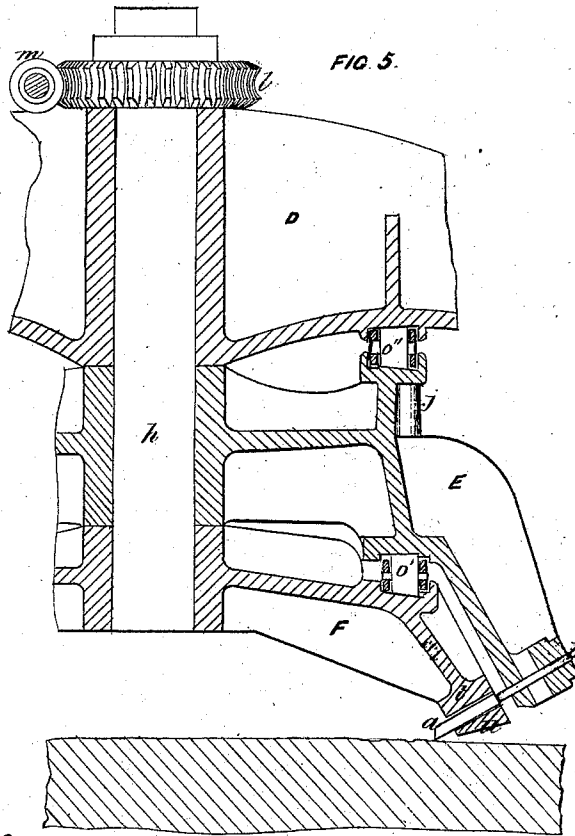


FIG. 6

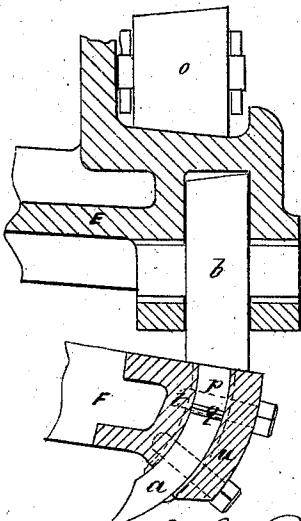


FIG. 7

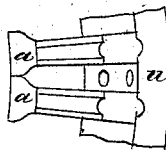
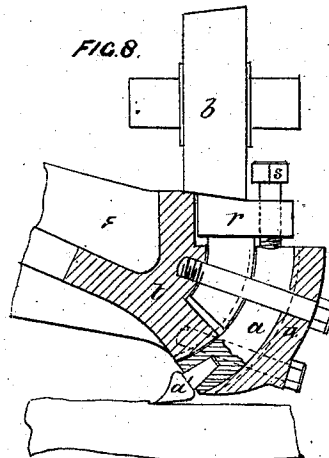


FIG. 8



Witness,
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Howman and Jones

UNITED STATES PATENT OFFICE.

JOHN DICKINSON BRUNTON, OF LEIGHTON CRESCENT, KENTISH TOWN,
ENGLAND.

IMPROVEMENT IN MACHINES FOR DRESSING STONE.

Specification forming part of Letters Patent No. 1:5,263, dated April 2, 1872.

SPECIFICATION.

I, JOHN DICKINSON BRUNTON, of Leighton Crescent, Kentish Town, in the county of Middlesex, England, civil engineer, have invented Improvements in Machinery Applicable to Tunneling, Shaft-Sinking, and Stone-Dressing, of which the following is a specification:

This invention relates to certain improvements applicable to machinery or apparatus for tunneling, shaft-sinking, and stone-dressing, and consists as follows: I substitute for the revolving disks, or for the sectors having beveled cutting-edges, described in the specifications of my former patent for the United States, No. 80,056, and dated 21st July, 1868, and also in the specification of a further patent for the United States, applied for contemporaneously herewith, a row or rows of cutting-tools of a chisel form, and I act upon these chisels by rollers or rotating disks, so as to cause them to chip pieces off the rock or stone. The chisels may be so placed or arranged side by side in a row or rows as that their edges shall form a circle either concave or convex, or so that their edges shall form a straight line, or any other figure that may be desired. The actuating rollers are to be fixed in the rim of a wheel suitably formed to receive them on a reciprocating bar, or they may be attached to the links of a chain, as may be found most suitable for the particular work required. In all cases each roller, as it fulfills its prescribed path, actuates each chisel, the several chisels being set in a firm and rigid holder.

Figure 1, Sheet No. 1, is an elevation, partly in section, of the cutter-holder and operating devices for actuating the cutters; Fig. 2, a plan view. Fig. 3, Sheet No. 2, is a transverse elevation, partly in section, of a stone-dressing machine with my improvements; Fig. 4, Sheet No. 3, a plan view, partly in section, of Fig. 3; Figs. 5, 6, 7, and 8, Sheet No. 4, detached views of parts of the machine.

a a a are the chisels, the edges of which form a circle in this case, though they may form a straight line or any other figure. *b b* are the rollers or rotating disks, which act upon the chisels *a a*, causing them to chip off the rock against which they act. *A B* are separate castings, bolted together by the bolts *c c c*, so as to constitute a holder for the chisels. This

holder does not revolve with the chuck *C*, but is held by the pins *d d* while the machine is working. It can, nevertheless, be moved round and set at different points, several holes being provided at the back of the casting *B*, into which the pins *d* will enter. *D* is the cross-head, as described in the specification of my British patent No. 1,784, A. D. 1866; and *E E* are the pivots or arbors on which revolve freely the chucks *C*, which are driven by means of teeth cast on their peripheries, and forming one piece with the chuck *C*, as shown in section at Fig. 1, and half in elevation at Fig. 2. *F* is a casing, made in two parts, surrounding the cross-head, and bolted securely to the flange *e* cast upon the cross-head, in which casing are the pins *d d*, before described. This casing incloses the two wheels of the chucks *C* and the central wheel *C'*, (as described in my specification No. 1,784, A. D. 1866,) which drives them both. As the cross-head moves slowly round the chisels *a* slide inward by their contact with the stone or other surface acted upon, and are constantly forced outward again by the rollers *b* as they pass over or behind them. I prefer to form the chisels of wrought-iron, having steel points welded on, as is common in ordinary tools used for boring in rocks. In order to prevent the grit getting into the interior of the holder, I surround the neck of each chisel with a band of India rubber or other suitable substance, as shown at *f* in Fig. 1, which, by stretching, can adapt itself to the movements of the chisel in the holder. When applying chisels actuated by rollers to stone-dressing machinery, I make the chisels *a a a* either straight, as shown in Figs. 1, 2, and 5, or curved, as shown in Figs. 3, 6, 7, and 8. Whether straight or curved, the chisels are actuated by rollers, which cause them to chip off the stone in front of their edges. *A*, Figs. 3 and 4, is the bed of a stone-dressing machine, provided with rollers *g g*, on which rests and moves the table *B*, carrying the stone to be operated upon. The table *B* is caused to traverse, by a screw, *B'*, in the manner well known in planing-machines. *C C* are standards, within the faces of which slides the frame *D*. In the center of this frame is the shaft or pivot *h*, around which revolves the wheel or chuck *E*, which carries the rollers *b*. The frame *D* is raised or lowered by screws *D* in the stand-

ards in the same way as the tool-holder of a planing-machine. The chuck E is driven by a toothed pinion, *i*, working into a wheel, *j*, either with external teeth, as in Fig. 5, or with internal teeth, as in Figs. 3 and 4. F, Figs. 3, 4, and 6, is the circular chisel-holder, in which the chisels are set with their points converging inward, so as to form, with their edges, a concave arc or semicircle. One-half of the circumference of the holder F is formed to receive the chisels, the other half, as shown at *k* in Fig. 3, to afford a surface on which the rollers may run during that portion of their revolution when they are not acting on the chisels. The half which contains the chisels has a rim, *t*, with a semi-ring, *u*, Figs. 3 to 8 inclusive, bolted around it, leaving a space between *t* and *u* to receive the chisels. The interior sides of this space are grooved, as shown in Fig. 7, to receive the projecting ribs formed on the wrought-iron, out of which I make the body of the chisels. The holder F is keyed upon the pivot *h*, and may be turned round by means of the worm-wheel *b* and worm *m*, so as to bring the chisels to bear upon either end of a stone placed upon the table B. *n*, Figs. 3 and 4, is a flanged ring bolted under the frame D, against which the friction-rollers O press. The object of these rollers is to present a direct resistance to the force employed in chipping the stone, and to avoid any spring in the parts marked E or F. The same

purpose is served by the two series of friction-rollers, *o' o''*, shown in Fig. 5. I form the chisels of wrought-iron rolled to the shape shown in Fig. 7, and I either weld steel points upon them, or I form internal sockets in them, into which are fitted movable points *a*, shown in Fig. 8. Between the head of the chisel and the rollers I place a short piece of hardened steel, *p*, Fig. 6, and when the chisels become shorter by wear I make up the proper lengths by intermediate pieces, *q*; or I fit to each chisel a piece, *r*, shown in Fig. 8, upon which the rollers *b* act, and which, by means of the set-screw *s* upon the head of the chisel, impart their motion to the chisels. By means of these set-screws the chisels can be set to any desired point, and their shortening by wear may be compensated for.

I claim as my invention—

A stone-dressing machine, in which a series of sliding chisels or cutting-tools are operated by rollers or their equivalents, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN DICKINSON BRUNTON.

Witnesses:

FRED. WALKDEN,
CHAS. MILES.