J. OMAN.

Tools for Dressing Stone.

No. 128,899. Patented July 9, 1872.

Fig. 1

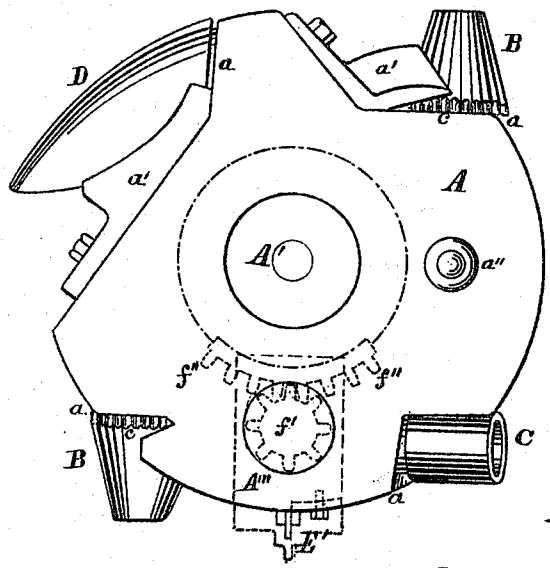


Fig. 3

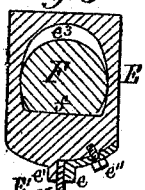


Fig. 4

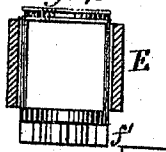


Fig. 5

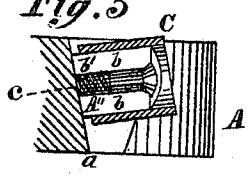
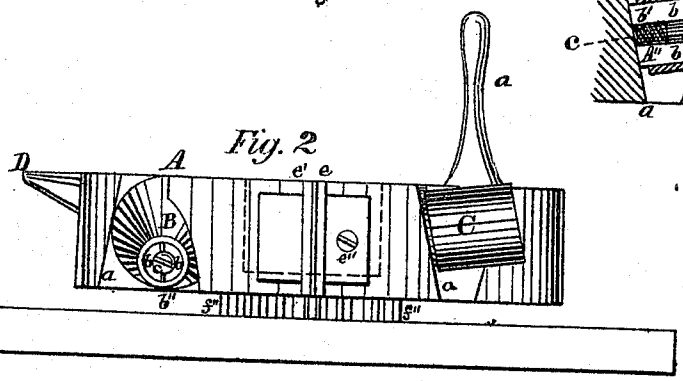


Fig. 2



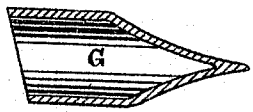


Fig. 6

Fig. 7

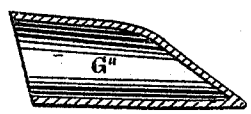


Fig. 8

Witnesses.

Jas. A. Landes

Harry Adams

Inventor.

John Oman

By A. Crawford

Attorney

UNITED STATES PATENT OFFICE.

JOHN OMAN, OF EDINBURGH, SCOTLAND.

IMPROVEMENT IN TOOLS FOR DRESSING STONE.

Specification forming part of Letters Patent No. 128,899, dated July 9, 1872.

I, JOHN OMAN, of the city of Edinburgh, Scotland, North Britain, in the Kingdom of Great Britain, have invented certain Improvements in Tools for Dressing Stone, of which the following is a specification.

The object of this invention is to introduce into use a cheap and effective means for the dressing of stone into any required shape or form; and it consists in the form of the cutting tools used, and their attachment to the disk or barrel with which they revolve, and it also consists in the construction and mode of operation of a scraper or wiper-tool, and the means of operating it, as will be more fully hereinafter described.

In the drawing, Figure 1 represents a disk, with cutters of different construction attached thereto. Fig. 2 an edge view of the same. Figs. 3 and 4 are details of some of the parts. Fig. 5 is a sectional view of holding a cutter on the disk; and Figs. 6, 7 and 8 are sectional views of differently-formed cutters that are employed in the dressing of stone.

A is a revolving disk, showing the cutting-tools attached. A′ represents the shaft which revolves the disk with its cutters. *a a* are inclined seats in the disk and against which the base of the cutting-tools abut. *a′ a′* are throat-clamps for assisting in holding the cutters firmly in place. *a″* is a winch for revolving the disk A. A″ is a core standing out from the shoulder *a* on disk A, and is split or cleft transversely with the disk and has a screw tapped into the split. A‴ is a mortise in the disk to receive a tool-block. B B are two hollow, conical-shaped cutters, having their small ends projecting to form the cutting-edges, with their bases or broad ends bearing firmly against the inclined or angular shoulders *a*, which set their cutting-edges to the opposite side of the disk A, or in opposite directions, like the setting of wood-saw teeth, so that one will not follow in the path of the one that precedes it. C is a hollow cylindrical cutter, attached to the disk A, and bearing against an angular shoulder *a* on said disk A, in the same manner as is described for cutters B. Cutters B and C are held firmly in contact with the disk and against shoulder *a*, by an internal core, A″, projecting from the shoulder *a*. This core or cleft is split at *b″*, and in which cleft is tapped a screw with a tapering head, so that when the cutter is pushed down over the core and against the shoulder, the screw *b′* is turned in until the taper part of the screw presses the two parts *b b* of the core A″ apart and against the inner sides of the hollow cutter, as seen in Fig. 5, and whereby the cutters are held from being removed or displaced while in use. If the core is to fit into the conical cutters B the core is cleft in the same way, and the taper-head screw will force the two sides outward and against the inner sides of the cutters just the same as in the cylindrical cutters. D is an elongated cutting-tool, hollow at the base and brought to nearly a point at its cutting-edge. E is a sliding tool block fitting and sliding freely in mortise A‴ in disk A. E′ is a scraper or wiper cutter, having a broad, straight face or edge, and is attached to the tool-block E, as seen in Fig. 3, and between the projecting-flanges *e′*, on block E′ and *e* on a removable clamp-holder, and held to the tool-block by the screw *e″*. F is a transverse cam-shaft passing through a mortise in the tool-block E, as seen in Fig. 3. One side of this shaft is made flat at *f* by filing away the central portion on one side, while the journals on each side of the tool-block are round, and fit and revolve in bearings in the disk on each side of the mortise. On one end of the shaft F is a toothed pinion, *f′*, which will freely revolve with the shaft. *f‴* is a segmental toothed rack, stationary, and placed concentric with the center of the shaft F, upon which the toothed pinion is made fast, and when the disk A is revolved, carrying with it in its revolution the pinion *f′*, the teeth of which gear into the teeth of the segmental rack-gear *f‴*, and revolve the pinion, together with the shaft F that passes through the mortise in tool-block E—and when the shaft F and the tool-block E are in the position seen in Fig. 3, the tool E′ will be in the position seen in full lines in Fig. 1; but as the pinion *f′* is revolved, by being in gear with the rack *f‴*, then the tool E′ will be forced outward by the round part of shaft F acting upon the end of the mortise in the block to force the block and tool outward, to project as seen in dotted line in Fig. 1, which will cause the cutting-edge of tool E′, in its revolution with the disk A for a short distance, to act on the stone in a hori-

zontal or right-line direction. As the round part of shaft F acts upon the end of the mortise in the tool-block having the straight side, it does not force the block outward to its full extent until it has revolved to the point opposite the flat side, when it begins to recede until the flat surface on the shaft meets the straight side of the mortise in the block, when the tool-block and tool are returned into the disk again. The cutting-tools B, as seen in Fig. 1, are discarded, and worn-out cutters of another machine that uses the larger end of the conical cutter only in cutting, and are utilized in this by reversing, to bring the small end to do the work, and can be changed as they wear by turning them upon their internal cones on the disk. The corrugations *c* on cutters B show the wear as it occurs in actual use where the larger end is used to cut the stone. G, Fig. 6, is a flat-edged sectional view of a cutter, which as such is useful in smoothing down the little irregularities left by cutters B or C. G′ is a modified form of cutter, and can be used in place of cutter C, when desired. G″ is a pointed hollow cutter similar in form to D. Cutters D, G, and G″ are made from gas-pipe, and into the shape represented, by welding and bringing into the proper form and solid at their cutting-edges, but when the solid part is worn off can still be used as cutters like cutter C. Cutters D and G″ are for the purpose of cutting in concavities in moldings where the cutters B and C could not be used. The disk A may be filled with cutters like B or C for ordinary stone-facings, with a single cutter, E′, for leveling off the uneven surfaces left by cutters B or C; or, if moldings are to be formed in stone, cutters D or G″, with small points will be used. The cutters B and C can be removed from the disk by removing the taper-screw *c* from the core A″, which allows the two parts of the core to assume their normal condition, and free them from the outwardly-clamping force exerted by spreading the two parts hard against the inner surfaces of the hollow cutters. The angular seats *a*, against which the bases of the cutters firmly rest, causing the points of the cutters to be wider at their cutting-points than at their bases, being at right angles with the axes or centers of the holding-cores, allows the changing of the position of the cutters by turning them partially around where the edges are partially worn, to present a new point or cutting-edge to the stone.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The internal core A″ in two parts, *b b*, whether conical or with parallel sides, and having taper-screw *c*, in combination with the cutter B or cutter C, substantially in the manner and for the purpose described.

2. The disk A having the cutter-seats *a* at an angle with the axial line of the disk, to throw the points or cutting-edges of the cutters to cut a path wider than the bases of the cutters or thickness of the disk, in combination with the cutters B, C, or D, in the manner substantially as described.

3. The sliding tool-block E with its tool E′, in combination with the revolving and cam-shaped shaft F, pinion *f′*, and stationary segmental toothed rack *f″*, operating in the manner described.

4. The intermitting sliding tool-block E, in combination with the revolving disk A, in the manner described.

5. The scraper or wiper cutter E′, constructed to operate as described, in combination with the cutters B, C, or D, all attached to and revolving with disk A, in the manner set forth.

6. The hollow-pointed and sharp-edge cutters D, G, G′, and G″, constructed to operate substantially as described.

JOHN OMAN.

Witnesses:
EDM. F. BROWN,
JAS. H. LOWNDES.