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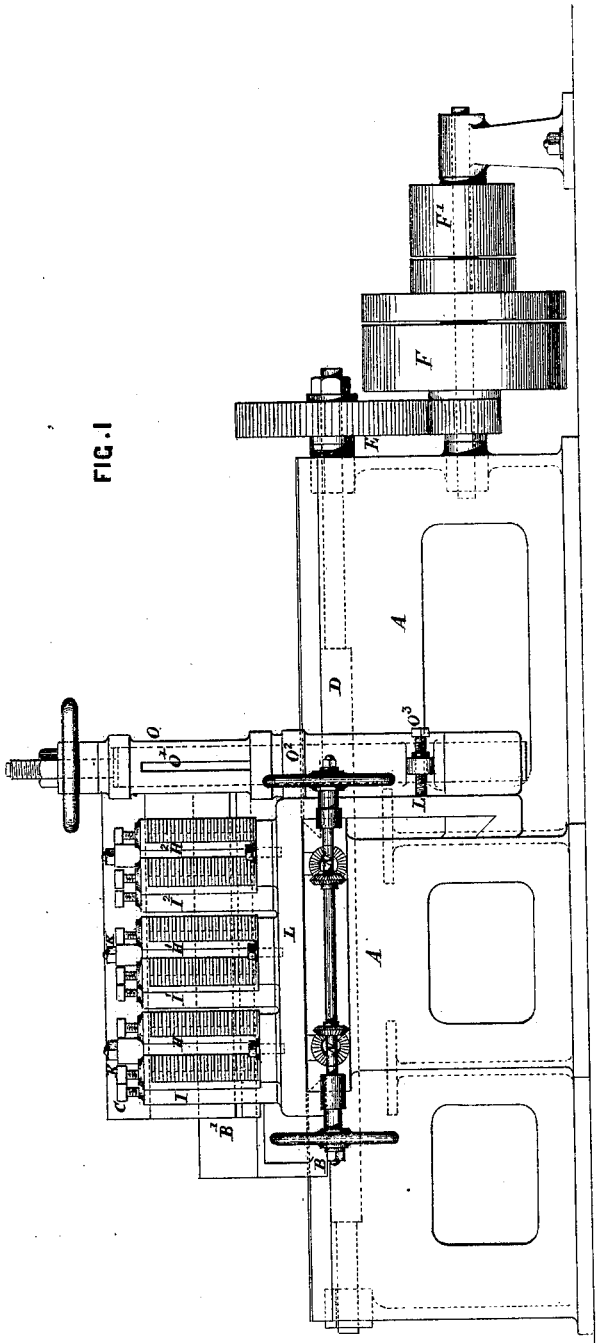
J. HAMILTON & F. FRASI.

Stone-Planing Machines.

No. 196,087. Patented Oct. 16, 1877.

FIG. 1



Witnesses.
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FIG. 7.

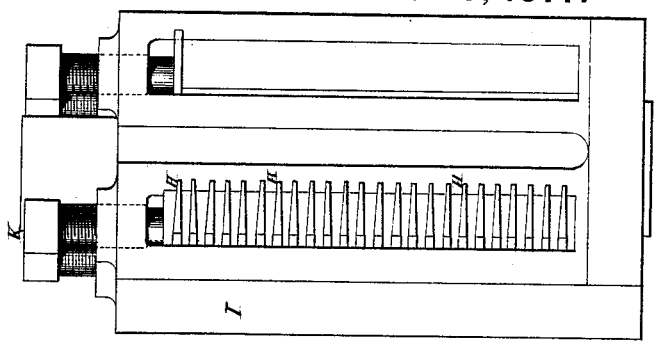


FIG. 6.

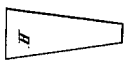


FIG. 4.

FIG. 5.

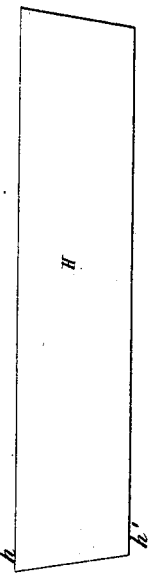
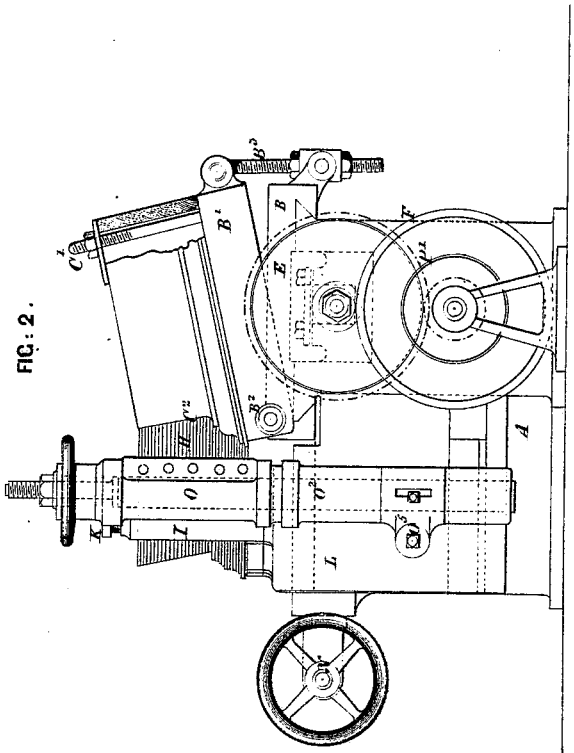


FIG. 2.



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Stone-Planing Machines.

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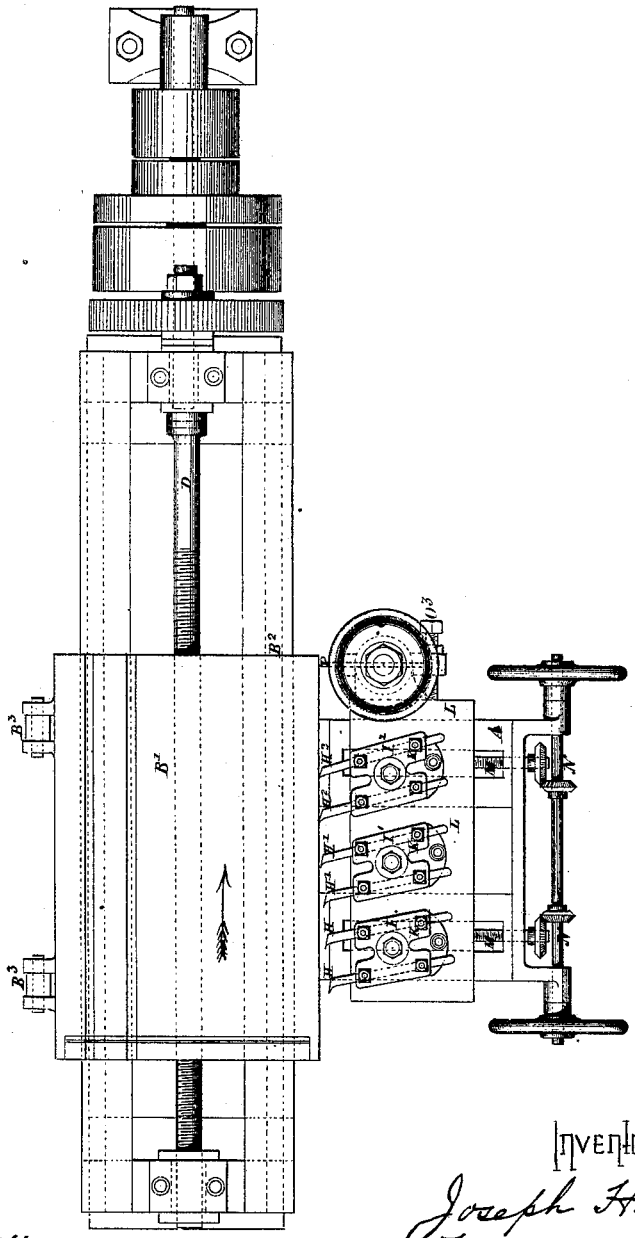
FIG. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH HAMILTON, OF BATTERSEA, AND FREDERICK FRASI, OF WOOLWICH, ENGLAND.

IMPROVEMENT IN STONE-PLANING MACHINES.

Specification forming part of Letters Patent No. **196,087**, dated October 16, 1877; application filed May 16, 1877; patented in England, June 7, 1876, for fourteen years.

To all whom it may concern:

Be it known that we, JOSEPH HAMILTON, of Falcon Road, Battersea, England, and FREDERICK FRASI, of Brewer street, Woolwich, England, have invented an Improved Stone-Working Machine and tools therefor; and do hereby declare that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said improvement, by which our invention may be distinguished from others of a similar class, together with such parts as we claim and desire to secure by Letters Patent—that is to say:

Our invention relates to machinery for planing stone to a flat or molded face, and to the tools employed for that purpose.

We mount on a framing a table, on which the stone is fixed, and we give the table a to-and-fro movement, as in a planing-machine. We also make the table capable of adjustment laterally to various degrees of inclination, so that the stone can have its edge or face inclined according to the pattern of the molding to be cut on it. At one side of the table we mount a rest, carrying a set of tool-holders, which rest can be slid to and fro transversely to the movement of the table; or there may be several of such tool-holders, which can be so moved independently of one another.

The tools which we employ consist of pieces of bar-steel, of a trapezoidal section—that is to say, the one edge of the bar is somewhat wider than the other edge.

The construction of the said machine will be readily understood on reference to the accompanying drawings, in which—

Figure 1 shows a front elevation, Fig. 2 an end elevation, and Fig. 3 a plan, of the machine.

On the framing A is a sliding table, B, carrying the stone block, C, to be molded, and made to travel backward and forward by means of the screw-spindle D, rotated by gearing E and driving-pulleys F F′. The stone C is clamped, by a screw-bolt and plate at C^1, onto a slab, B^1, which is hinged to the table at B^2, and is supported at its back by raising and lowering screws B^3, by which the slab and stone can be adjusted to any required angle to enable the face C^2 of the stone to be presented in the most convenient position to the several sets of cutting-tools H H^1 H^2. For some classes of work the hinging of the table may be dispensed with. The tools H H^1 H^2 are mounted in front of the stone in tool-holders I I^1 I^2, a number of the tools corresponding to the height of the face of the stone, being arranged one above the other, each tool-holder with packing-pieces between them, as shown more clearly in the enlarged view at Fig. 7, so that a small space intervenes between each two cutters. They are secured by the pinching-screws K.

The tools H are shown to an enlarged scale in back view, plan, and cross-section, respectively, at Figs. 4, 5, and 6. They are made of bar-steel, tapering in thickness from the front face *h*, furnishing the cutting-edge to the back face *h′*. For some kinds of work these tools may be made with a beak, as shown at Fig. 3. Each tool-holder I contains two sets or piles of such tools, the second set being arranged with their cutting-edges in line with the space between the tools of the first set, so as to operate upon the portions of the stone that are not acted on by these. The cutting-edges of the two sets H^1 are somewhat in advance of those of the two sets H, and the sets H^2 are in advance of H^1, so that on the stone being made to travel in the direction of the arrow, Fig. 3, each two sets will be made to cut the face of the stone already acted on by the preceding two sets.

The tool-holders are mounted on a table, L, which can be set forward on the framing A by means of screw-spindles M and gearing N, so as to bring the cutting-edges of the tools forward to make a fresh cut on the face of the stone after this has been passed in the direction of the arrow under the action of all the cutters, and is brought back by the reversed motion of the screw D, in order to be again submitted to their action.

In commencing operations with the machine, the cutting-edges of each pile of tools are set to a templet, so as to correspond to the configuration of the molding to be cut, as indicated at Fig. 2, after which they are clamped securely in position by the screws K.

In a slot, O^1, of the rest O, carried by the

table L, is fixed a scraper, P, having the configuration of the molding, and serving to finish the surface of the stone after it has been operated upon by the cutters H. The rest O can be turned in its socket O^2 and adjusted by the screw O^3, so as to cause the scraper to act at any desired angle on the stone. The forward motion of the table A is effected at a slow speed by the pulley F, while the back motion is effected at a quicker speed by the pulley F′, having a crossed strap.

Although we have shown in the drawings and described a construction of machine wherein the table has a to-and-fro motion past the tools, which are relatively stationary, it is obvious that the relative movement might be inverted by keeping stationary the table carrying the stone, and moving past it a table or framing carrying the cutting-tools.

Having thus described the nature of our invention, and in what manner the same is to be performed, we claim—

1. A machine for working stone, wherein a sliding table adapted to be inclined to any desired angle for carrying the stone to be operated upon is made to travel past one or more piles of cutting-tools, carried in tool-holders that can be adjusted in position to and from the face of the stone, the tools being capable of adjustment in their holders, so as to conform with their cutting-edges to the configuration of the surface to be produced, substantially as herein described.

2. In stone-working machinery, such as is above referred to, the slab or table, constructed substantially as specified, for carrying the stone, so that it can be adjusted to various degrees of inclination relative to the cutters, substantially as and for the purpose herein described.

3. In stone-working machinery, with a sliding table adapted to be inclined at any angle, the several sets of cutters, arranged so that the cutting-edges of one set project somewhat beyond those of the preceding set, substantially as and for the purpose herein described.

4. The tool-holder I, provided with a series of tools, H, arranged substantially as specified, and capable of separate adjustment, as and for the purpose specified.

5. A machine for working stone, wherein a sliding table, adapted to be inclined to any desired angle, for carrying the stone to be operated upon, is made to travel past one or more piles of cutting-tools, carried in tool-holders that can be adjusted in position to and from the face of the stone, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses this 21st day of April, 1877.

JOSEPH HAMILTON.
FREDERICK FRASI.

Witnesses:
CHAS. D. ABEL,
JNO. P. M. MILLARD.