

G. Morgan.

Sheet 1, 2 Sheets.

Stone Dressing Mach.

N^o 22,569.

Patented Jan 11, 1859.

Fig. 1.

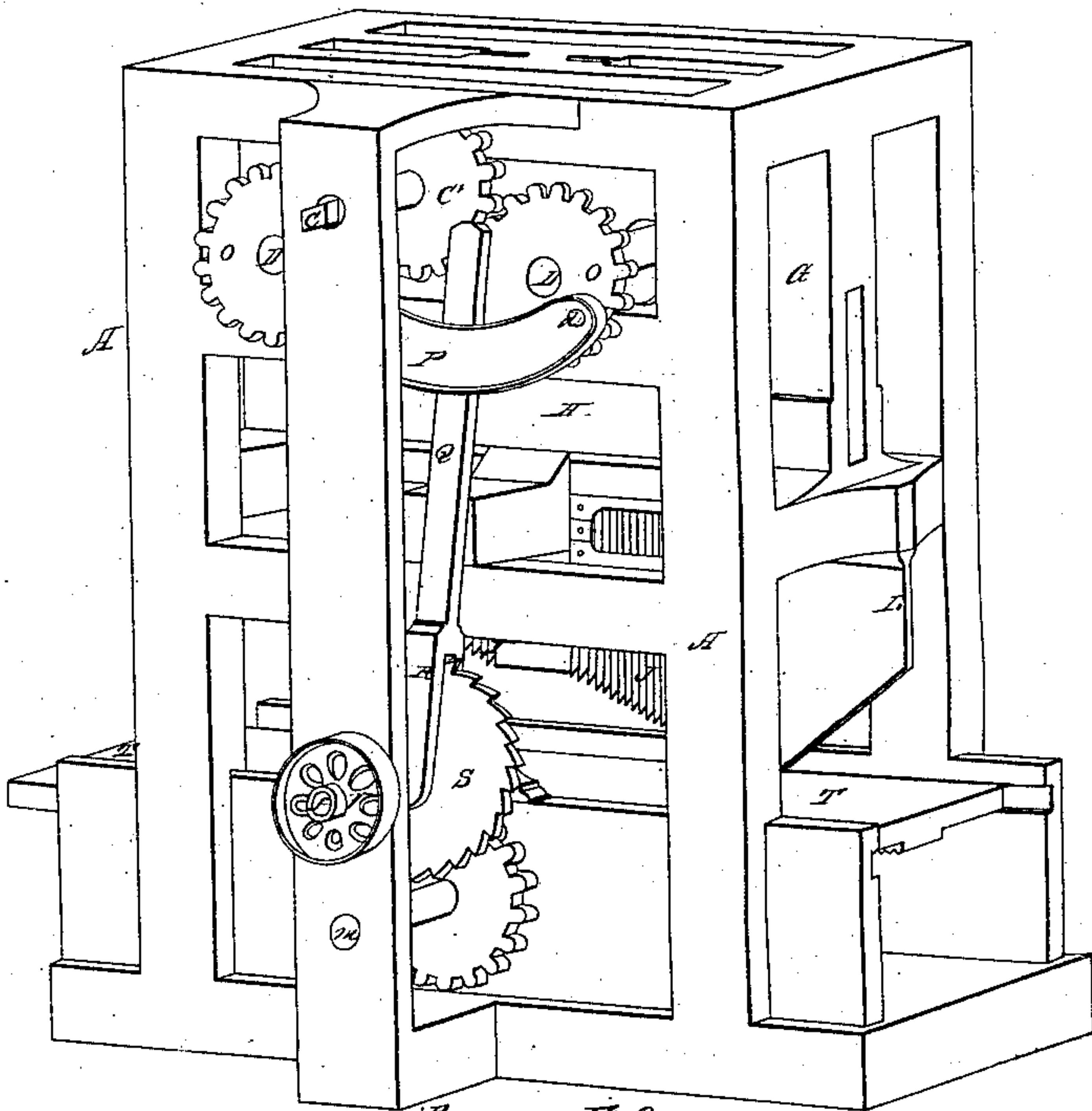
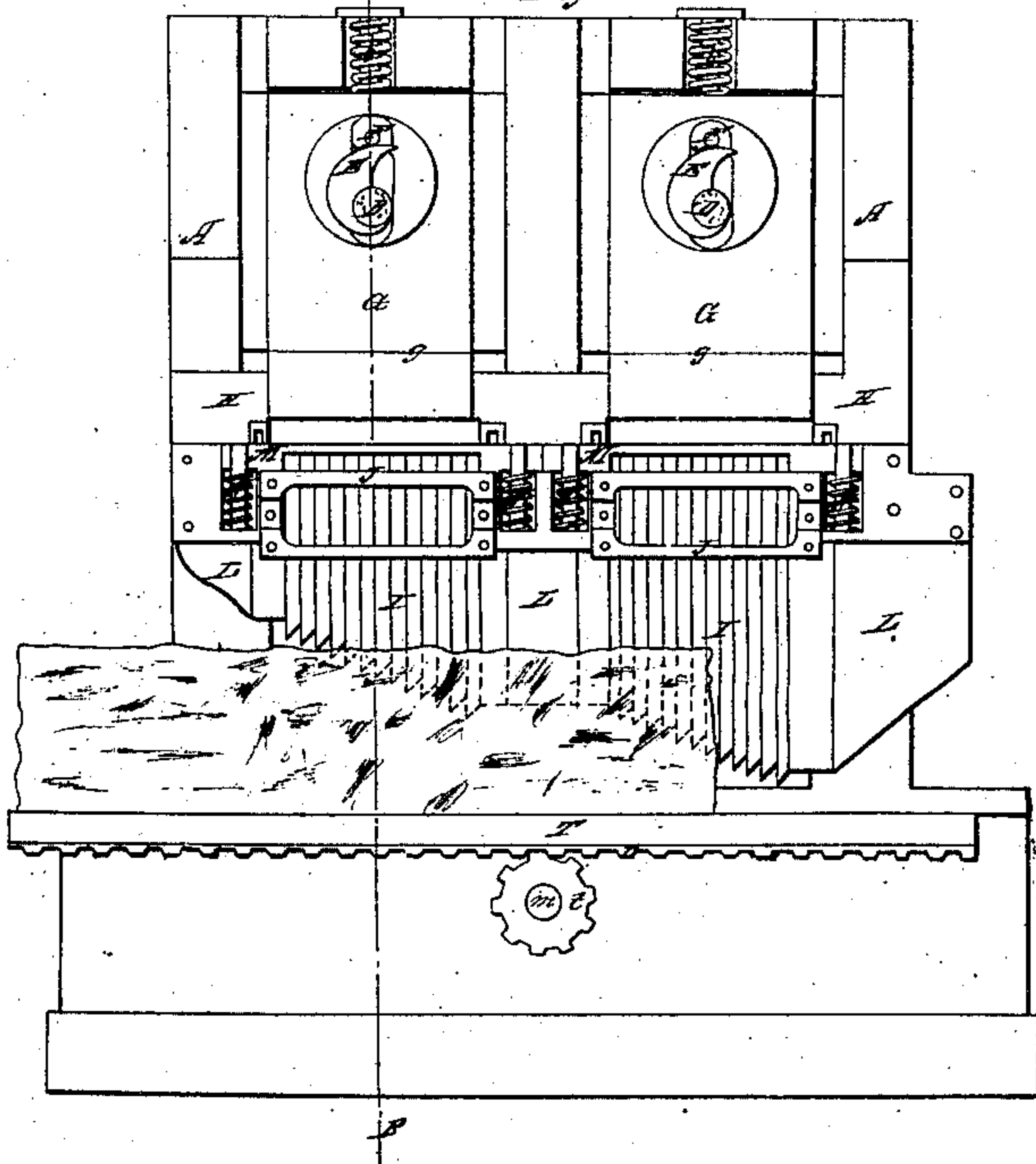


Fig. 2.



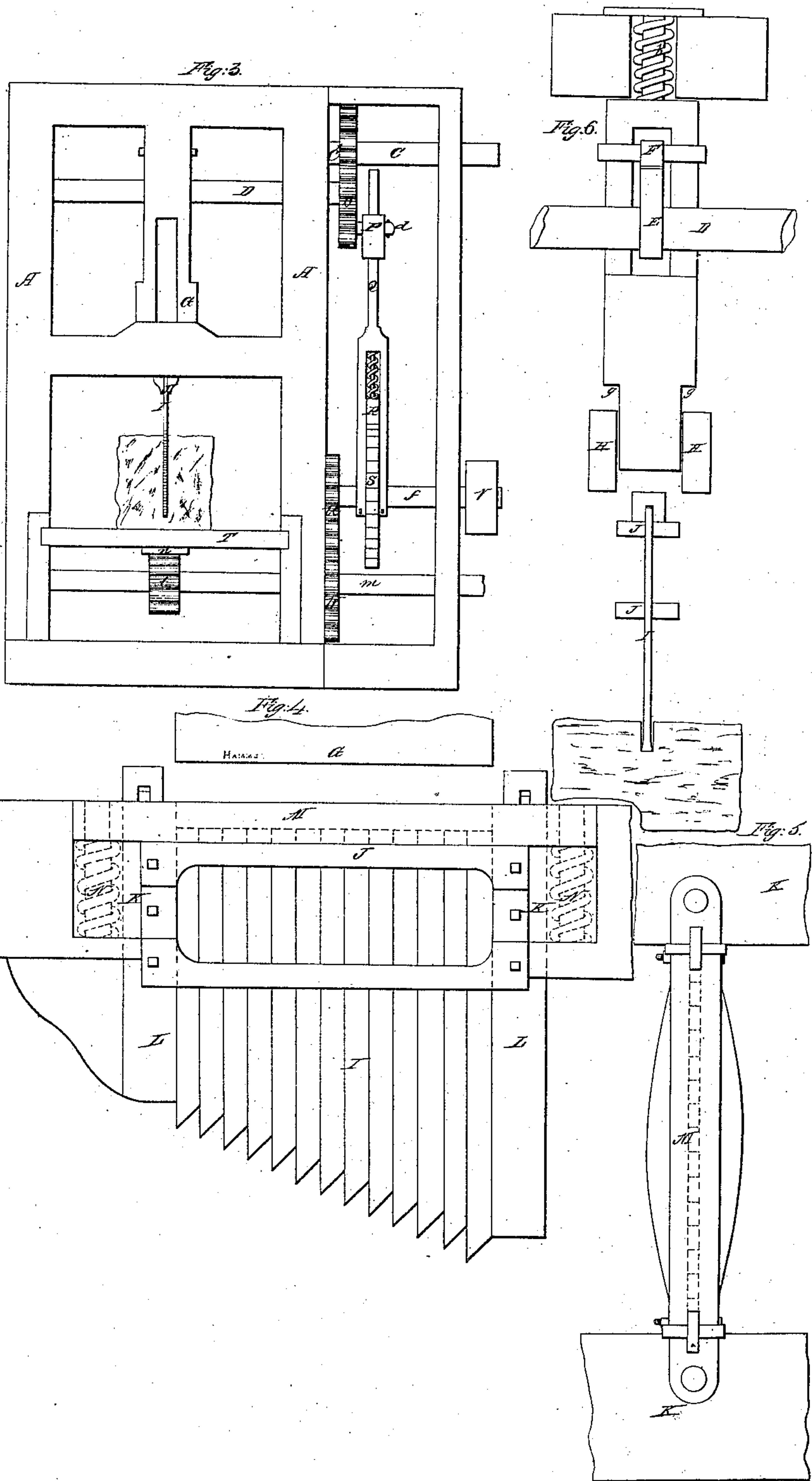
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UNITED STATES PATENT OFFICE.

GEORGE MORGAN, OF BROOKLYN, NEW YORK.

STONE-CUTTING MACHINE.

Specification forming part of Letters Patent No. 22,569, dated January 11, 1859; Reissued February 14, 1871, No. 4,263.

To all whom it may concern:

Be it known that I, GEORGE MORGAN, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Machine for Cutting Stone; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, represents a perspective view of my machine. Fig. 2, is a longitudinal vertical section of the same. Fig. 3, is a front elevation of ditto. Fig. 4, is a longitudinal section of the cutter frame on a larger scale. Fig. 5, is a plan or top view belonging to Fig. 4. Fig. 6, is a transverse section of my machine, the line B, B, Fig. 2, indicating the plane of section.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in arranging cutters or chisels of gradually increasing lengths of the cutting edge in frames under hammers, in such a manner that by the action of the hammers on the cutters, a rip is made through the whole length of a block of stone which is fed against the cutters, and of the depth of the longest and last or lowest one of the cutting edges, said cutters being so graduated that each edge increases the depth of the rip made by the next preceding cutter by each blow of the hammer.

To enable others skilled in the art to fully understand and construct my machine, I will proceed to describe it.

A frame A, supports the carriage T, which slides in ways *a*, and which forms the support for a block of stone which is to be operated upon by the cutters. The cutters I, are arranged in frames J, J, one behind the other and their cutting edges are serrated, the edge being at an angle of about 30°, in relation to the plane of the bed so that they assume the appearance of inverted stairs. The frames J, J, work up and down in guides K, which are supported by stays L, and they are attached to cross bars M, which rest on spiral springs N, so that after each blow, the cutter frames are raised up to their original position.

Above the cross bars M, and guided by the frame A, are the hammers G, which are lifted and dropped by the action of wipers E, which are attached to the shafts D, and

which act on friction rollers F, which are attached to the hammers. At the upper end of these hammers spiral springs *b*, are arranged in such a manner that they are compressed when the hammers are raised, so as to increase the force of the blows. At their lower ends these hammers are provided with shoulders *g*, which act against cushions H, (Fig. 6) so that any surplus force is intercepted.

Motion is conveyed to the shafts D, from the driving shaft C, by means of gear wheels C*, and O, and the feed motion of the carriage T, is effected by means of a ratchet wheel S, which is operated upon by a pawl R, which is connected to an arm P, by a rod Q, and the arm P, is pivoted at one end to the frame A, while its other end is carried up and down by an eccentric wrist pin *d*, which is attached to one of the wheels O. The ratchet wheel S, is attached to a shaft *f*, which carries a cogwheel U, at one end, and a pulley V, at the other. The cog wheel U, gears into another cog wheel W, which is attached to a shaft *m*, which extends under the carriage T, and a pinion *t*, is fastened to this shaft which gears into a rack *n*, which is attached to and which extends under the carriage through its full length.

The operation is as follows. The stone is placed on the carriage in such a position that the cutters are in line with that place through which a rip is intended to be made, and the machine is started. As the stone is fed against the cutters by the action of the pawl R, and the ratchet wheel S, its end comes in contact with the shortest end of the serrated cutter and at each successive blow of the hammer the bed advances so as to bring an additional tooth of the cutter in contact with the stone, until the entire series or number of teeth of the cutter blade is brought into operation as represented in Fig. 2, of the drawing, and each tooth takes off from the stone just as much as it projects beyond the next preceding tooth, and as the cutters are raised up after each blow by the action of the springs N, their cutting edges are preserved and they offer no obstruction to the feed motion. By the time the full length of the stone has passed under the cutters an incision is made through the same, see Figs. 3 and 6, just as deep as the longest one of the cutters permits and if the cutters are long enough the thickest block of stone

may thus be severed. By raising the pawl R, the carriage is brought back to its original position by means of the pulley V, which is driven by a belt from a fast and loose pulley.

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

The arrangement of cutters I, of gradually increasing length in such relation to

hammers G, and to a sliding carriage T, that by the action of the hammers on the cutters an incision is made through the whole length of a block of stone which is placed on the carriage, substantially as and for the purpose specified.

GEORGE MORGAN.

Witnesses:

WM. TUSCH,
J. W. GORMLY.

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