

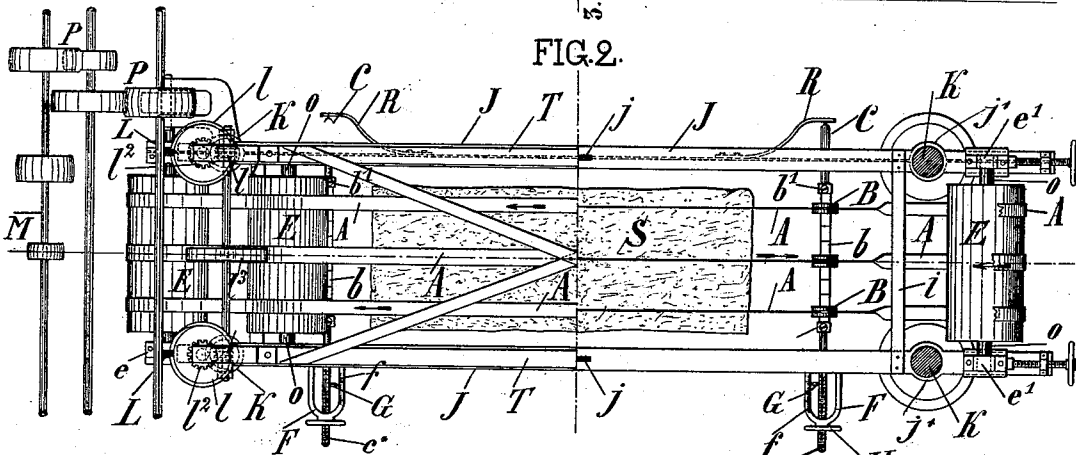
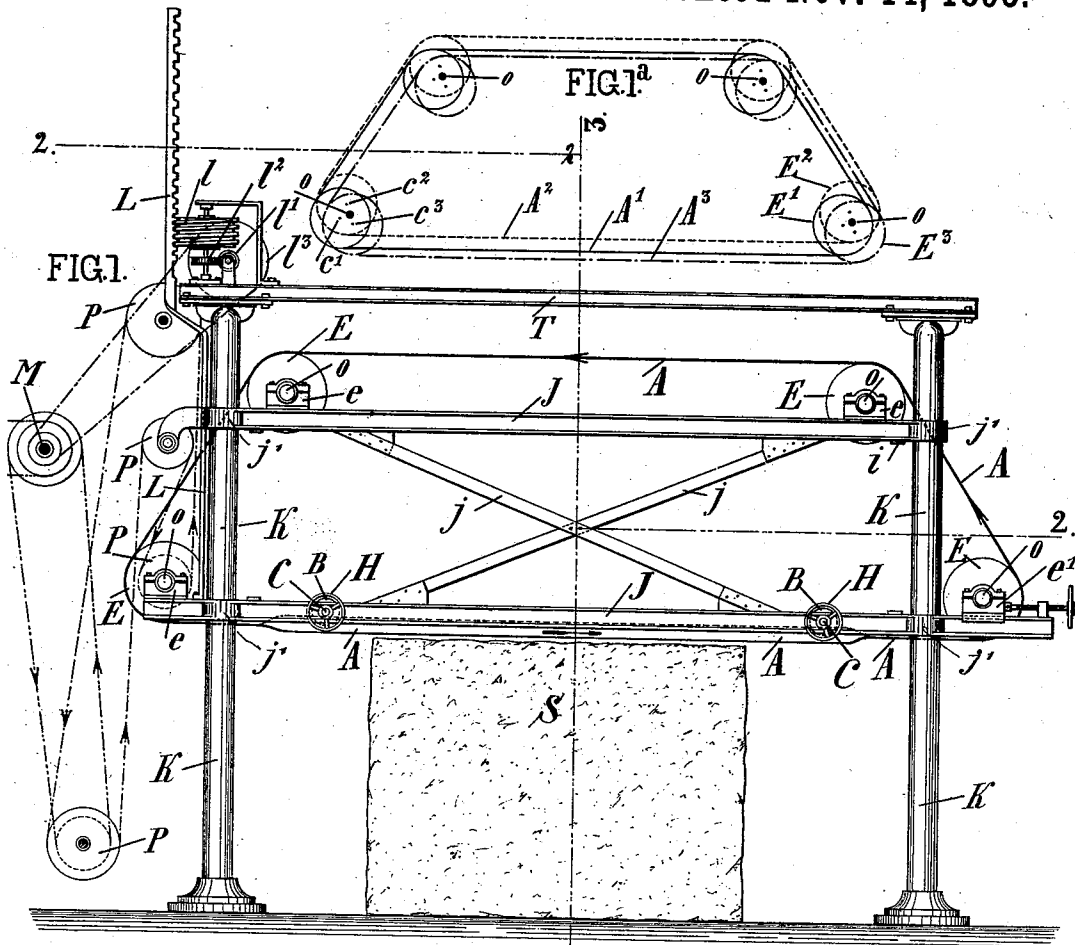
(No Model.)

2 Sheets—Sheet 1.

A. JEANSAUME.
MACHINE FOR SAWING BLOCKS OF STONE.

No. 508,825.

Patented Nov. 14, 1893.



WITNESSES:

Edgar Tate
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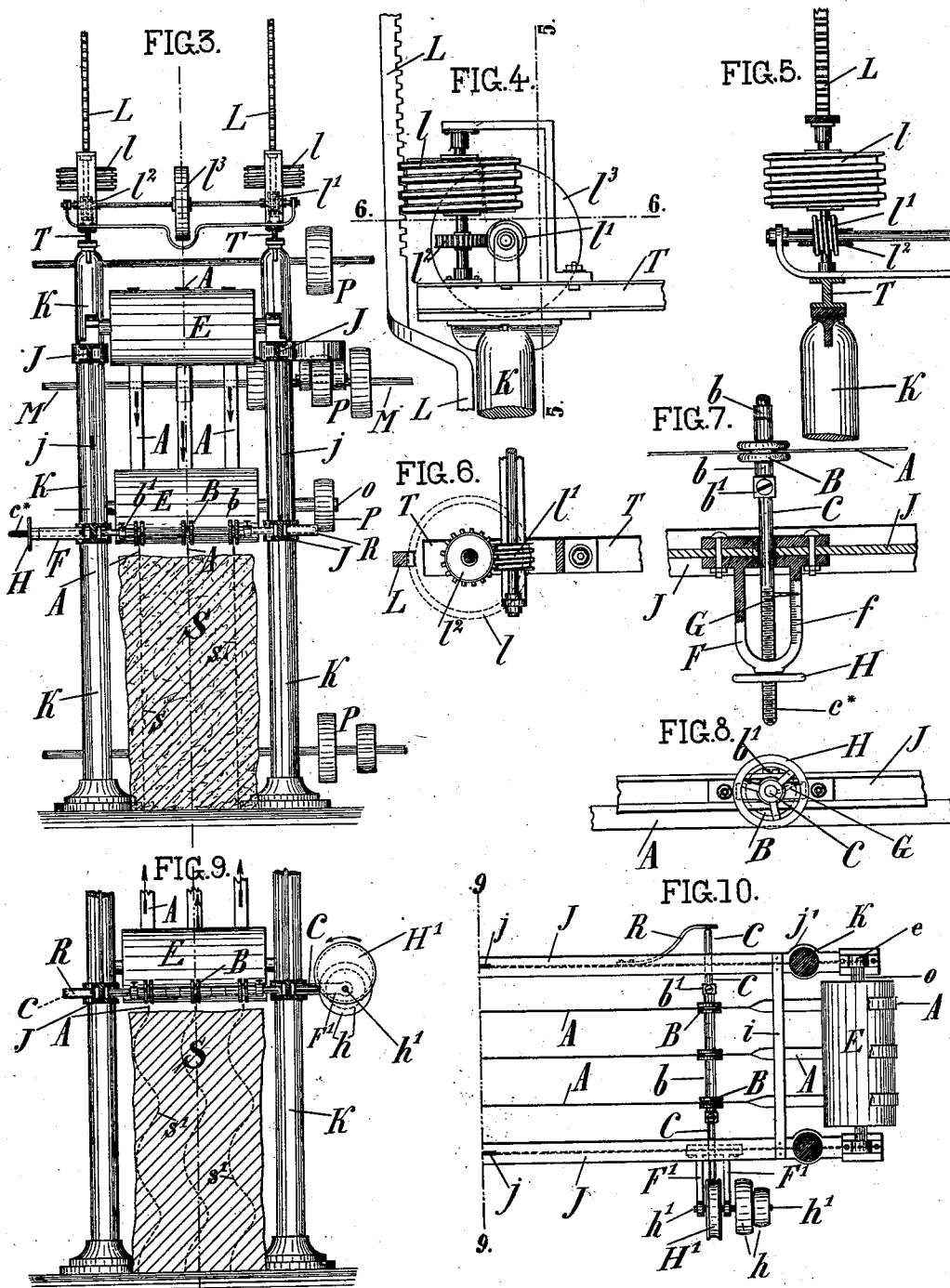
INVENTOR
A. Jeansaume
BY *Munn & Co*

ATTORNEYS.

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MACHINE FOR SAWING BLOCKS OF STONE.

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WITNESSES:

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Edgar Tate

INVENTOR

A. Jeansaume
BY Munn & Co

ATTORNEYS,

UNITED STATES PATENT OFFICE.

ANTOINE JEANSAUME, OF PARIS, FRANCE.

MACHINE FOR SAWING BLOCKS OF STONE.

SPECIFICATION forming part of Letters Patent No. 508,825, dated November 14, 1893.

Application filed March 18, 1892. Serial No. 425,493. (No model.) Patented in France December 12, 1891, No. 218,009.

To all whom it may concern:

Be it known that I, ANTOINE JEANSAUME, of Paris, France, have invented a new and Improved Machine for Sawing Blocks of Stone, (for which I have obtained Letters Patent in France, No. 218,009, dated December 12, 1891,) of which the following is a full, clear, and exact description.

The object of my invention is to provide improved stone saws for expeditiously sawing blocks of stone, especially marble, into slabs of any desired thickness.

My invention also consists of means whereby slabs of various profiles can be cut.

That my invention may be better understood, I annex to this description two sheets of drawings in which—

Figure 1 shows, in elevation, the arrangement of the several parts of my machine. Fig. 1^a is a diagram, intended to show, visibly, the slightly eccentric mounting of the drums. Fig. 2 represents the machine, the right side being a view from above, the left side a horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a vertical section on the line 3—3 of Fig. 1. Fig. 4 is an enlarged front view of the parts by which the movement of the saw-carrying frame is obtained. Fig. 5 is a cross section on the line 5—5 of Fig. 4. Fig. 6 is a horizontal section on the line 6—6 of Fig. 4. Fig. 7 is an enlarged plan view, with partial horizontal section, of the mechanism for displacing the saws horizontally, with the displacement indicator. Fig. 8 is a front view of the parts represented in Fig. 7. Fig. 9 is a transverse section on the line 9—9 of Fig. 10, illustrating the mechanism for displacing the saws laterally, automatically and continuously. Fig. 10 is a plan view, partially in section of the part of the machine to which the above mechanism is fitted.

Corresponding letters indicate corresponding parts.

Two upright posts K are provided at each side of the machine, at the ends, and a saw-carrying frame is provided consisting of longitudinal bars J, arranged in pairs at each side of the machine, each pair being connected by diagonal cross pieces *j* which also brace the frame. Cross bars *i* serve the same purpose. The bars J, at their ends are formed into bands or eyes *j'*, that embrace the uprights K, whereby the frame may be moved verti-

cally on said posts by means of a rack L. The posts K, and the frame are the same at both sides of the machine. The racks L mesh with the worms *l*, and the worm wheels *l'* mounted on the spindles of the worms *l*, engage with the worms *l'*, adapted to be rotated from the driving shaft M by means of a belt passing over the pulley *l''*. Four drums E are mounted on the frame, the shaft *o* of the drums turning in blocks *e e'*. The bearings *e* are fixed, while the bearings *e'* are movable, being adapted to be displaced and adjusted by means of screws working in fixed female threaded bearings, as shown. This arrangement permits of stretching the saws A which pass over the drums.

The shafts *o* of the drums E are not located exactly in the centers of the drums; the eccentricity however is only about an eighth to a quarter of a line, and will not be noticeable in the drawings; but in order that the arrangement may be understood, I have illustrated it in a diagram, in Fig. 1^a.

o, o, o, o, are the shafts on which the four drums rotate.

c', c'', c''', represent, by way of example, three different positions occupied by the geometrical centers of the drums during their rotation on their shafts *o*; in practice, the distance between the point *o* (center of rotation of the drum) and the geometrical center (shown in three different positions *c', c'', c'''*) is only, as stated above, about an eighth to a quarter of a line. It will be understood that the eccentricity is the same for each of the drums.

The lower bars J carry two shafts C, on which are mounted grooved rollers B, which are loose on the shaft. On one side of the machine the shafts C extend beyond the frame J and are screw-threaded as shown at C*. A hand-wheel H, which is also threaded, is mounted on the screw of the shaft beyond a yoke F through which the threaded end of the shaft projects, and the turning of the wheel serves to move the shaft horizontally. A small needle G fixed on the end of the shaft indicates, by sliding on the graduations *f*, the amount of horizontal movement of the shaft and permits of regulating it with absolute exactitude.

A series of endless saw blades A are placed flat on and extend over the drums E. Movement is imparted to these saws by the drums

E, and the eccentricity of the latter impart, besides the longitudinal movement, a slight rising and falling movement. These saw blades placed flat on the drum pass in the 5 grooves of the rollers B which brings them to the vertical position.

One of the drums E is driven by means of a transmission belt passing over a series of pulleys P, one of which derives its motion 10 from the driving shaft M. I may of course employ other means for rotating the drums.

After having thus described the machine in detail I will explain the operation. The block of stone to be sawed is placed on the 15 machine with its surface to be attacked close to the lower, vertically disposed portions of the saws. The drums, set in operation by any known means, carry the saws along. The frames are simultaneously lowered by the 20 movement of the worms $l'l'$, worm-wheels l^2 , and racks L, and all the saw blades attack the stone at the same time. The frames are lowered slowly and the saws cut their way more and more into the stone, having, besides 25 the longitudinal movement, slight up-and-down movements owing to the eccentricity of the drums; $A^1 A^2 A^3$ (Fig. 1^a) indicate three positions of the saws, corresponding to the positions $E^1 E^2 E^3$ of the drums. The object 30 of these reciprocating vertical movements is to permit the grains of sand which are in the kerfs to fall each time that the saws rise in order to attack the stone when the saws again come in contact therewith. When the saws 35 are at the bottom, having passed through the stone, the latter is divided into slabs having a thickness corresponding to the distance between the blades. In order to be enabled to vary the distance between the saw-blades A, 40 I mount sleeves b loosely on the shafts C, between the grooved rollers B so as to keep them apart; two sleeves b' , provided with set-screws, serve to hold the rollers B and sleeves b on the shafts C. By varying the length of 45 the said sleeves b , or by using a greater or less number of them, the rollers B and consequently the saw-blades A can be kept any distance apart, and thus slabs of any thickness desired can be cut. In Fig. 3, s indicates the lines on which the stone is divided. 50 If it is desired to obtain slabs thinner than the width apart of the saws, one complete cut is made and the frames J with the saws A are then raised above the stone S and the shafts 55 C with the rollers B are displaced horizontally a distance equal to the desired thickness of the slabs; this is effected by turning the wheels H, and a very exact adjustment is obtained by means of the indicators f G.

60 When employing the modified mechanism shown in Figs. 9 and 10, I am enabled to saw slabs of an undulating or any other curvilinear cross-section. The cam H' , mounted eccentrically on the spindle h' , which revolves 65 in bearings provided in the brackets $F' F'$, receives a continuous rotary motion from the pulleys h ; the shaft C abuts with one end

against the periphery of the cam H' , the other end of the shaft being under the influence of the spring R. Fig. 9 shows the undulating 70 lines or kerfs s' obtained when employing the cam H' . The saw blades A must of course be very narrow to permit of their lateral displacement while passing through the stone, but it will be understood that the cam H' rotates very slowly, in comparison with the rotary speed of the shaft C. It will be further obvious that by employing other forms of 75 cams, slabs of various cross sections can be produced, for instance like the profile of balusters, &c. 80

I claim as my invention and desire to secure by Letters Patent—

1. A stone sawing machine, comprising a frame and rotatable drums mounted there- 85 on, these drums being secured eccentrically upon their shafts, endless saw blades passing flat over the said drums, shafts arranged on the frame transversely to the direction in which the saw blades travel, grooved rollers 90 mounted on said shafts and adapted to bring the saw blades into a position perpendicular to that portion of the blades which is adjacent to the drums, means for rotating the drums, and means for continuously advancing 95 the frame with the saws during the operation of the machine, substantially as described.

2. A stone sawing machine, comprising a frame and rotatable drums mounted there- 100 on, these drums being secured eccentrically upon their shafts, endless saw blades passing flat over the said drums, shafts arranged on the frame transversely to the direction in which the saw blades travel, grooved rollers 105 mounted on said shafts and adapted to bring the saw blades into a position perpendicular to that portion of the blades which is adjacent to the drums, means for displacing the said shafts longitudinally, means for rotating 110 the drums, and means for continuously advancing the frame with the saws during the operation of the machine, substantially as described.

3. In a stone sawing machine of the kind 115 described the combination with the traveling frame, the drums mounted thereon, the endless saw blades passing over the drums, the transverse shafts likewise mounted on the said frame, and the grooved rollers secured 120 to the said shafts, of springs bearing against one end of the said shafts, cams in continuous contact with the other ends of the said shafts and adapted to displace the same longitudinally, and means for rotating said cams, 125 substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ANTOINE JEANSAUME.

Witnesses:

ROBT. M. HOOPER,
J. MOMHARD.