

(No Model.)

2 Sheets—Sheet 1.

C. A. THOMSON.

ATTACHMENT FOR STONE PLANING MACHINES.

No. 560,871.

Patented May 26, 1896.

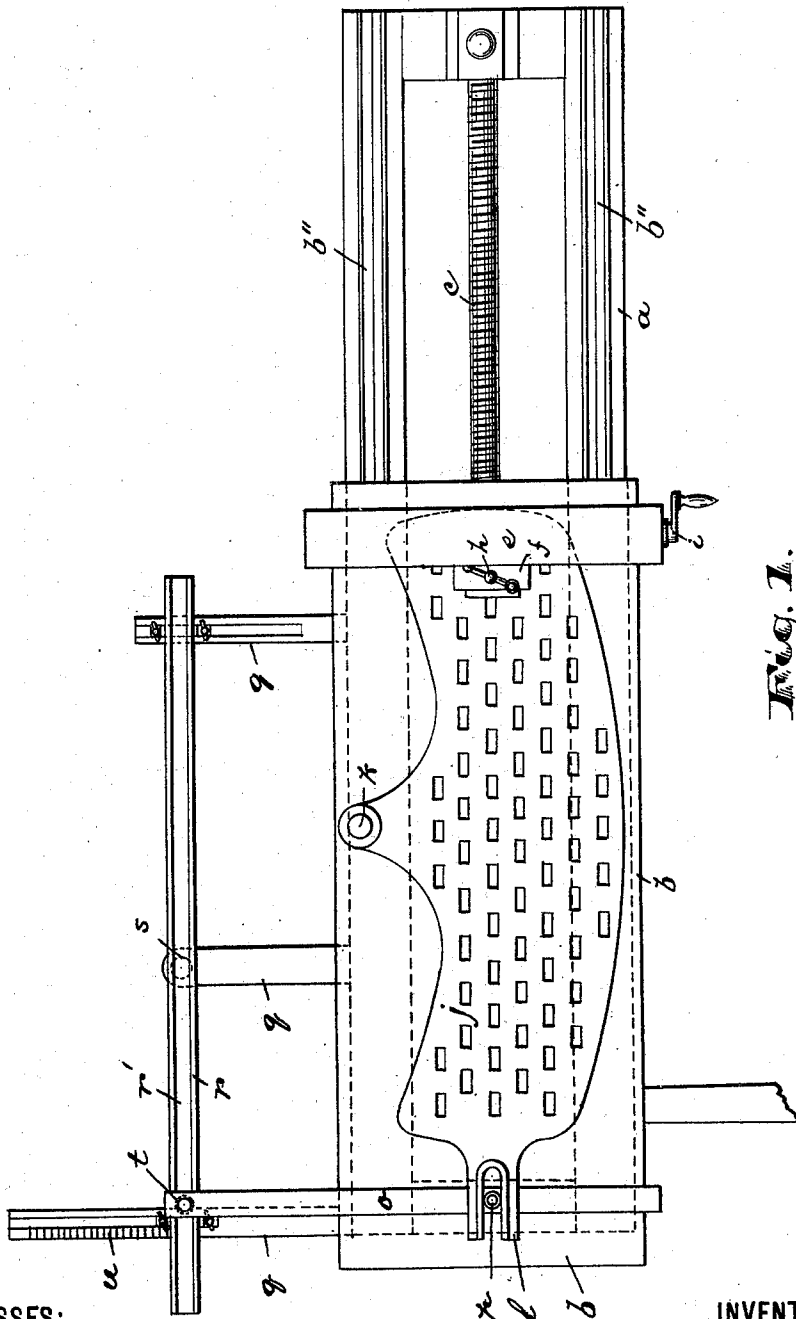


Fig. 1.

WITNESSES:

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Beatrice Charles

INVENTOR:

Charles A. Thomson,

BY *Drake & Co.* ATTY'S.

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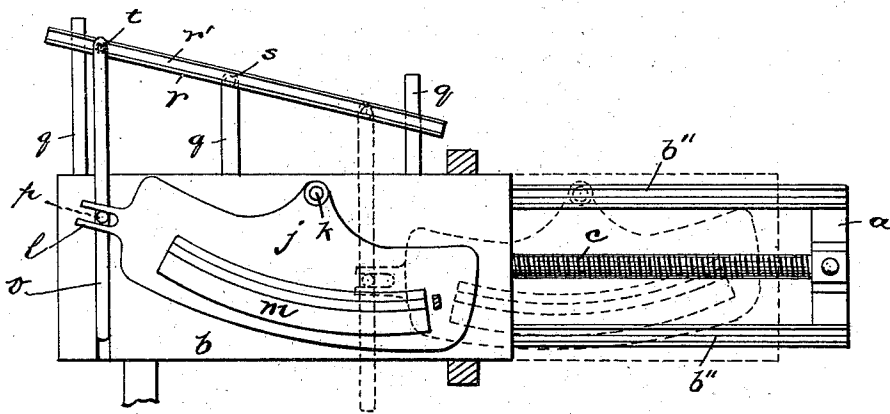


Fig. 2.

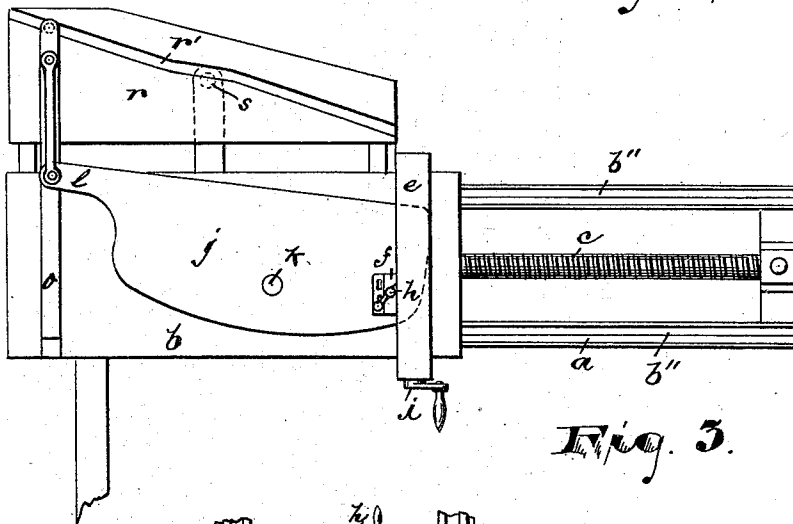


Fig. 3.

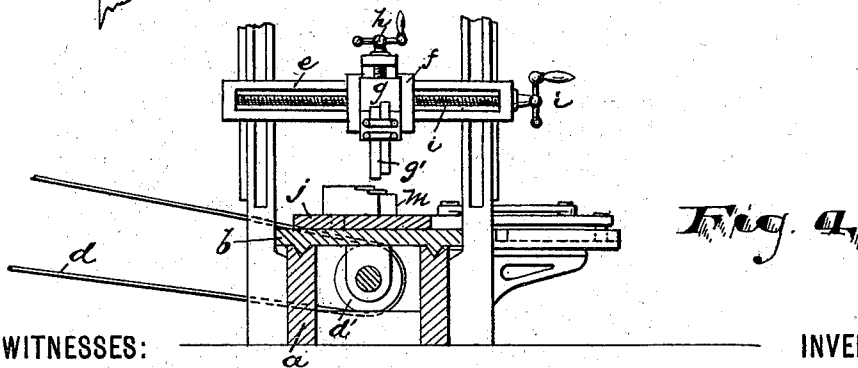


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES A. THOMSON, OF NEWARK, NEW JERSEY.

ATTACHMENT FOR STONE-PLANING MACHINES.

SPECIFICATION forming part of Letters Patent No. 560,871, dated May 26, 1896.

Application filed June 8, 1895. Serial No. 552,070. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. THOMSON, a subject of Her Majesty the Queen of England, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Attachments for Stone-Planing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to enable curves to be planed upon stone with greater facility, to reduce the space heretofore required in planing such curves, to enable curves of greater radius to be conveniently planed in stone, and to secure other advantages and results, some of which will be referred to in connection with the description of the working parts.

The invention consists in the improved stone-cutting machine and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the views, Figure 1 is a plan of the improved machine. Fig. 2 is a similar view showing the parts in different positions. Fig. 3 illustrates a modification of construction, and Fig. 4 is a vertical transverse section showing the relation of the parts more clearly.

In said drawings, *a* indicates a suitable bed or frame, upon which is arranged a table *b*, which slides on suitable ways or bearings, forced by a screw-shaft *c* and a belt and pulley *d d'* or other suitable gearing in any manner common in stone cutting or planing machines. Above the table is the usual transverse slideway *e*, on which are arranged the saddle *f* and tool carrier or holder *g*, which parts are operated by hand-screws *h* and *i*, also in any manner common in the art.

g' indicates the cutter.

Other suitable means for operating the ta-

ble and adjusting the cutter common in the stone-planing art other than those shown may be employed without departing from the invention.

Heretofore it has been common, in connection with such a sliding table as I have referred to, to employ means for producing curved lines in stone-cutting; but for various reasons such means have been open to objection, in that in some cases it was necessary to provide a center at a distance from the machine upon which the stone was turned when being planed. This involved the consumption of a large amount of yard-space. The results secured when long radial guide-bars were employed were also imperfect because of the vibrations of the bar and the consequent irregular movements of the stone when subjected to the cutter.

Other methods and means provided have each presented practical objections—such, for example, as in certain cases where the tool changed its angle to the curved line of the stone because of a straight movement of the stone and a straight transverse movement of the cutter, the change in the relation of the cutter to the curved surface being cut tended to produce a difference in the effect of the cutting edge on the stone. In other cases, again, the machines required the interchange of patterns or specific guides to produce the variations required in ordinary practice, so that a large variety of patterns or guides were required. These objections and others are avoided by my improved machine, by which by simply adjusting the guide-bar I may cut into the stone curvatures, whose concavities face in opposite directions, curves with radii of various lengths, and should plane surface be desired I can cut them by simply making the required parallel adjustment of the parts.

Again referring to the drawings, *j* indicates a supplementary table, which is pivoted upon the table *b* at *k* and is furnished at one end with a slotted arm or extension *l* and with suitable means on the face thereof whereby the block of stone *m*, Fig. 2, is fastened thereon. Adjacent to said extension the table *b* is provided with a transverse slot or other suitable ways or bearings for a sliding bar *o*, which latter is provided with a pin *p*, prefer-

ably having an antifriction-roller. Said pin and its roller work in the slot of the extension *l* of the supplementary table. Back of the table *b*, on suitable bearings of the frame
 5 *a*, such as *q q q*, is a longitudinally-grooved lever *r*, which is fulcrumed, as at *s*, and receives a pin and its roller *t* of the transversely-sliding bar *o*.

The guide bar or lever *r* may be adjusted
 10 so as to lie parallel with the line of movement of the sliding table *b* or be disposed at various angles thereto, the divergencies being either toward one end of the table or the other to change the curvature, so that the concavity
 15 will face in a reverse direction, if desired.

Means are provided for clamping or fixing the grooved bar, and its adjustment is facilitated by a scale *u*, Fig. 1, of graduation-marks upon one of the bearings *q* of the frame or on
 20 any other suitable member of the machine, by which scale the working parts may be adjusted to plane a curve of any desired radius upon the block of stone. On arranging the grooved bar *r* parallel with the direction of
 25 movement of the table *b* when said table and its supplemental table *j* are moved on the ways *a''*, the transverse arm *o* also moving with said table *a*, the roller *t* will simply travel through the groove *r'* without occasioning any secondary movements; but by inclin-
 30 ing said bar *r* more or less to said line or directions of movement of the table *a* the bar *o* is forced to move transversely in the groove of the table *a* and produce a secondary movement of the supplemental table *j* on its pivot
 35 or fulcrum. This movement is of course transmitted to the stone *m*, resting upon the table. The slot or groove in the arm or extension *l*, in which the pin or roller *p* of the trans-
 40 versely-moving bar works, allows the pivotal movement of the supplemental table and prevents any binding of parts. The greater the inclination of the bar *r* to the line of movement of the table the shorter will be the radi-
 45 us of the curve. By a slight inclination of said bar a curve of a long radius will be produced.

It will be evident that by means of the stationary cutter (stationary after being properly
 50 adjusted by the means described) and the pivotally-movable stone said cutter, when once brought to the inclination proper to produce the desired cutting or planing, will maintain a uniform inclination to the curved
 55 line, and the cutter will produce a uniform cutting effect and will not "bruise" the stone because of an improper relation of said tool to said stone.

In Fig. 3 I have shown a variation in the
 60 construction of the invention. Here the guide-bar is made wider, and the groove therein is not straight, but is more or less irregular to effect a desired variation in the curve. Here also I have shown the supplemental table
 65 linked to the transversely-movable bar.

Other changes may be employed of a me-

chanical nature without departing from the spirit or scope of the invention.

Having thus described the invention, what I claim as new is—

1. In a stone-cutting machine, the combination with the sliding and transversely-grooved table, *b*, and means for moving the same, a cutter and means for adjusting the same, of a supplemental table pivoted on said
 75 table, *b*, a guide-bar, *r*, adjustable in its relation to said table, *b*, a transversely-movable bar arranged in the groove of the table *b*, and engaging the guide-bar and movable longitudinally thereby and also engaging the sup-
 80 plemental table and turning the same pivotally when thus moved longitudinally, substantially as set forth.

2. In a stone-cutting machine, the combination with the horizontally-movable table *b*,
 85 and means for operating the same and a cutting-tool, of a supplemental table pivoted at one side of, and movable with the table *b*, and having at one end a slot in which a projection of a connecting bar or rod, *o*, may
 90 work, an adjustable guide-bar *r*, pivoted or fulcrumed at a point distant from said table *b*, and adapted to be changed in longitudinal relation to the line of movement of said table, so as to either lie parallel with said line of
 95 movement, or at angles thereto, the divergences being in either of the two opposite directions to produce either straight or curved planing cuts, the latter being any of a variety of radii or of either of the reverse di-
 100 rections, substantially as set forth.

3. In a stone-cutting machine, the combination with a frame and table, *b*, movable thereon, a screw for operating said table and means for turning said screw, a slotted sup-
 105 plemental table pivoted upon the first said table, a bar arranged transversely upon the first said table, and having rollers engaging said slotted table, and a guide-bar, and said guide-bar stationed back from the table, *b*,
 110 substantially as set forth.

4. The combination, in a stone-cutting machine, of the straight and pivotally-movable table, *j*, having a slotted extension, *l*, and means for securing the stone thereon, a bar,
 115 *o*, movable at right angles to the direction of straight movement of said table and having a pin or roller, *p*, working in the slot of said extension, an adjustable slotted or grooved guide-bar, *r*, and a pin or roller, *t*, arranged
 120 on the bar, *o*, and working within the slot or groove of said guide-bar, a cutter, and means for operating said parts, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I
 125 have hereunto set my hand this 5th day of June, 1895.

CHARLES A. THOMSON.

Witnesses:

OLIVER DRAKE,
 CHARLES H. PELL.