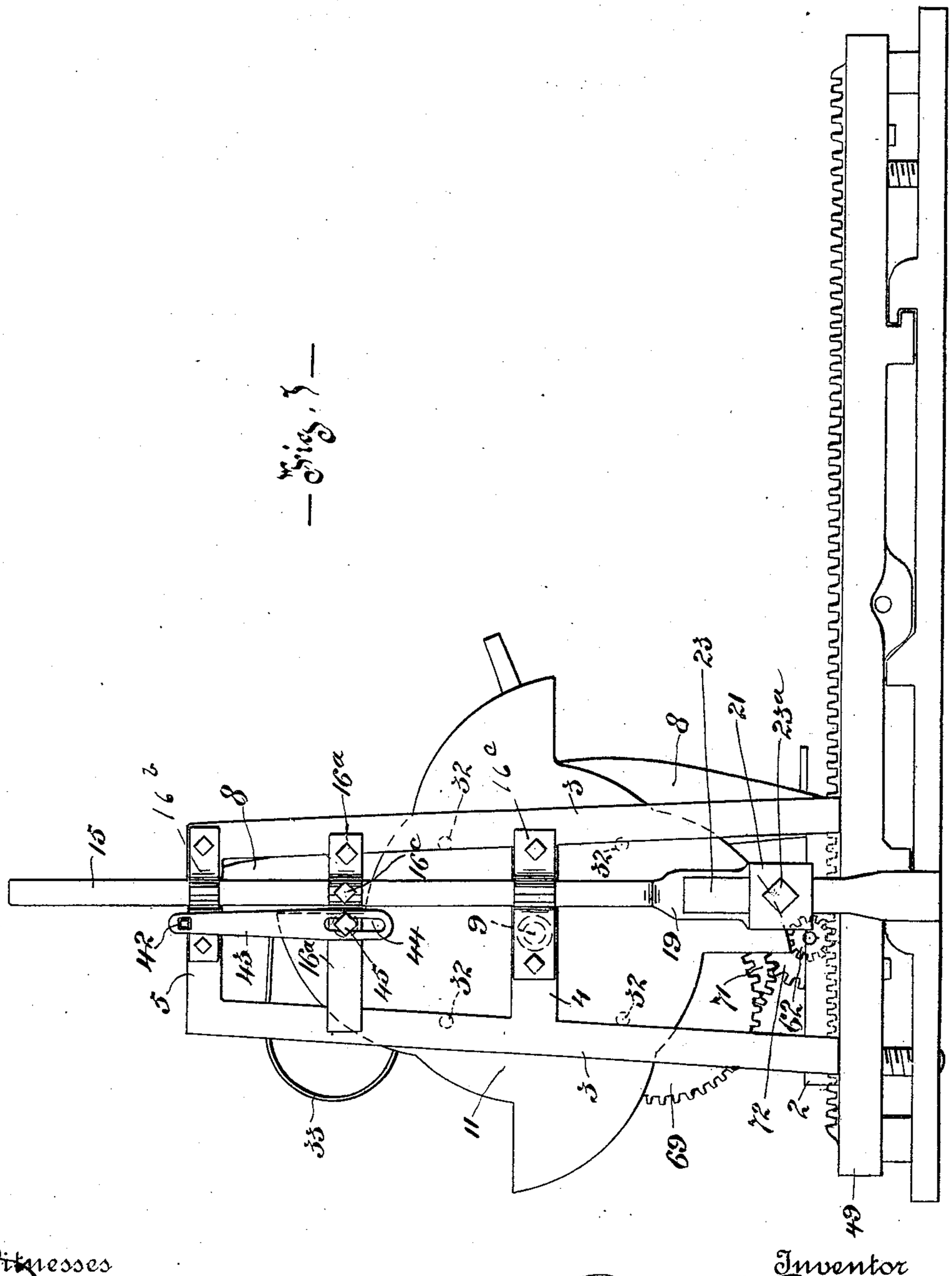
(No Model.) 3 Sheets—Sheet 1.

F. X. LANDRY.

STONE CUTTING MACHINE.

No. 565,468. Patented Aug. 11, 1896.



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(No Model.) 3 Sheets—Sheet 2.

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STONE CUTTING MACHINE.

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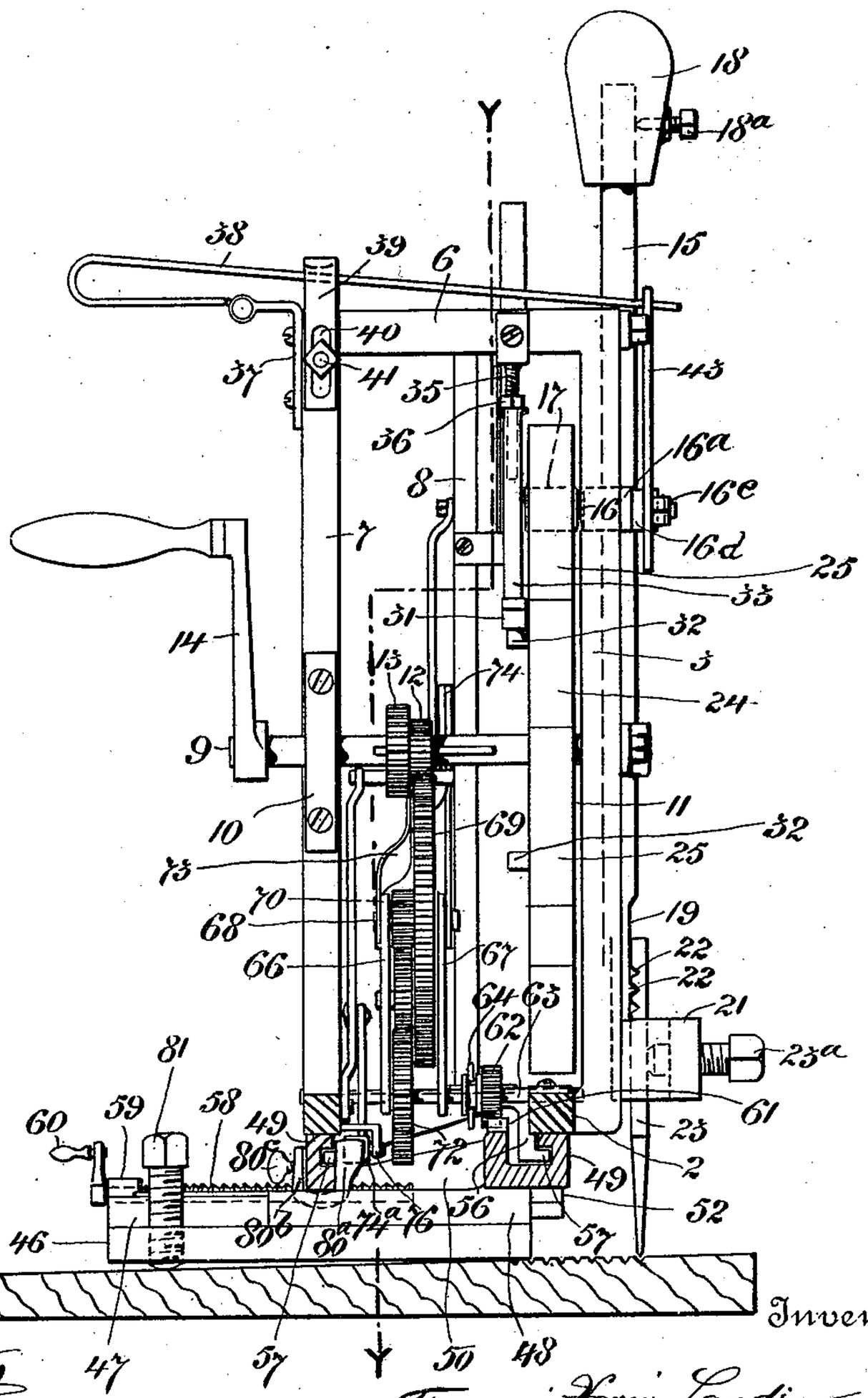
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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STONE CUTTING MACHINE.

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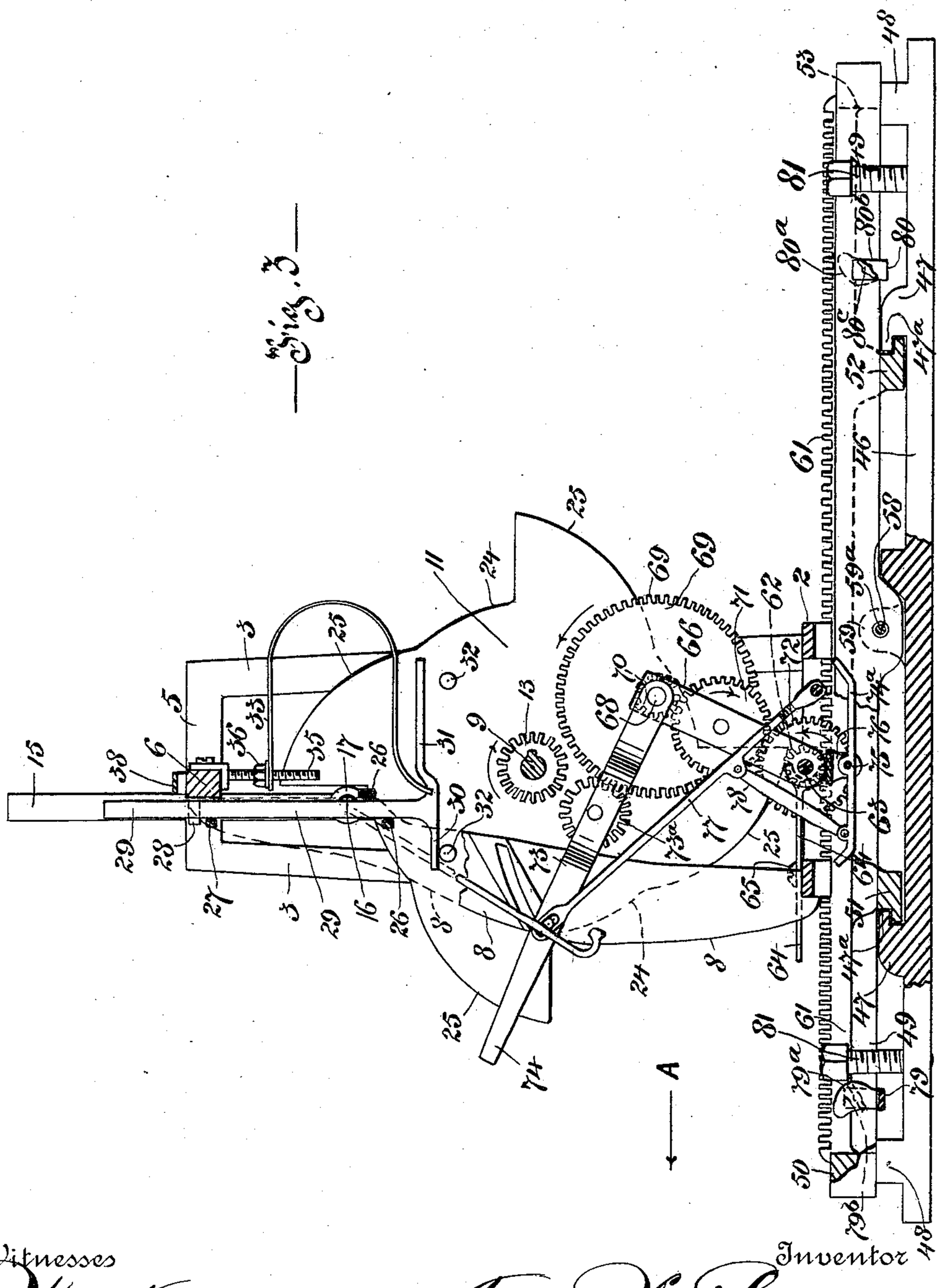

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UNITED STATES PATENT OFFICE.

FRANCOIS XAVIER LANDRY, OF SHERBROOKE, CANADA, ASSIGNOR OF ONE-HALF TO JEAN BAPTISTE BIRON, OF STOKE, CANADA.

STONE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,468, dated August 11, 1896.

Application filed June 22, 1895. Serial No. 553,746. (No model.)

To all whom it may concern:

Be it known that I, FRANCOIS XAVIER LANDRY, of the city and county of Sherbrooke, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Stone-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my invention is to provide a power-driven machine that will be capable of doing the work of cutting stones either in dressing, channeling, or any other operation in a more accurate and uniform manner and with greater speed than can be done by hand.

The invention may be said to consist in the combination and arrangement of parts set forth in the following description and pointed out in the claims, although the construction of such parts may be varied to a considerable extent without departing from the spirit of my invention.

The preferred construction of my invention is briefly as follows:

The carrying mechanism comprises a vertical frame adapted to travel along a table portion which is placed upon the surface of the stone to be cut, and the front side of the frame has guideways for a vertically-sliding rod which is formed at its lower end with a socket to receive the cutting-tool, its upper end being adapted to have weights placed thereon.

To impart the required movement to the tool—*i. e.*, to raise it and allow it to fall by its own weight—I prefer to use a "wiper-wheel," which I mount in the frame in a position to act upon and operate the vertically-sliding rod through a lateral projection therefrom, with which the cams of such wiper-wheel engage.

To secure a continuously even or uniform rotation of the wiper-wheel, I provide a yielding resistance which will exert its force first to assist the wheel in its operation of raising the tool and then to interfere with or resist its rotation from the time it releases the tool to allow such tool to drop until the wheel again commences to raise it. I also provide an improved automatically-reversible feed mechanism which is variable as to speed, for full comprehension of which, however, and my invention in its entirety reference must be had to the annexed drawings, forming a part of this specification, wherein like symbols indicate corresponding parts.

Figure 1 is a front elevation of a stone-cutting machine constructed according to my invention; Fig. 2, an end elevation of the machine, partly in section; and Fig. 3 a longitudinal vertical sectional view taken on line *y y*, Fig. 2.

The carrier-frame is composed of an open rectangular base 2, two standards 3 3, projecting upward from the front thereof, slightly inclined toward each other and joined about midway of their height by a cross-bar 4 and at the top by a cross-bar 5. A rearwardly-extending bar 6 connects the center of this cross-bar 5 with the top of a third standard 7, projecting upwardly from the rear of base 2, and a fourth standard 8 connects bar 6 with one side of the base about midway between standards 3 3 and standard 7.

In the rear face of cross-bar 4 a socket is formed to receive one end of a horizontal shaft 9, also bearing in a recess on the side of standard 7, in which it is held by retaining-plate 10. Upon this shaft a wiper-wheel 11 is rigidly mounted in close proximity to standards 3 3. Midway between such wiper-wheel and rear standard 7 two pinions 12 and $13^{\times}$ of small and large diameter, respectively, are loosely mounted and connected to the shaft by feather and groove, and upon the rear end of the shaft either a driving-pulley or, as I consider preferable, a crank 14 is rigidly mounted.

A rod 15 slides vertically in guideways formed in the faces of cross-bars 4 and 5, in which it is held against displacement by retaining-plates 16^{b} and 16^{c}, and about one-third distance from the top of such rod is adjustably secured a spindle 16, upon which is mounte da roller 17, adapted to project rearwardly between the radial projections of the wiper-wheel 11.

The tool-carrying rod 15 is preferably round, so as to allow of its being turned in its cross-head, to be presently described, and thereby adjust the cutting edge of the tool to any angle relatively to the stone to be cut.

The cross-head in which the rod is set is

preferably composed of a plate 16ª of sufficient length to extend across the face of the standards 3 3, being formed in one with spindle 16 and recessed to fit such rod 15 on one side and retained loosely thereon by plate 16ᵈ, also fitting such rod on the opposite side, a set-screw 16ᵉ serving to secure or set the rod against rotation in the cross-head formed by such plates, and the cross-head itself in turn being held against rotation by bearing upon the face of the standards 3 3. The upper end of the rod has set upon it a weighted cap 18, secured in place by set-screw 18ª, which cap is interchangeable with other caps of greater or less weight, and the lower end of the rod is flattened, as at 19, has an engaging dog 20 on its front face, and is formed with a socket 21 to receive the body or upper portion of the cutting-tool 23, which is notched, as at 22, to receive the engaging dog 20 and is held rigidly in place by set-screw 23ª, a channeling-chisel being shown as the cutting-tool for purposes of illustration.

I prefer to construct the wiper-wheel 11 with rests 24 between the radial projections or cams 25 thereof, and as it is desirable for such wiper-wheel to have a continuously-uniform rotation it is necessary to diminish the resistance of such rotation while the wheel is operating to raise the weighted tool and give resistance to the rotation when there is comparatively none from the tool, as will be the case when a cam has released the tool and before the following cam commences to raise it. To effect this, I have devised the following means: Upon the forward face of standard 8 are projections 26 26 and 27, and upon the side of cross-bar 6, in close proximity to such projection 27 on standard 8, is a projection 28, these projections forming a guideway to retain a vertically-sliding rectangular bar 29 loosely in position.

The bar 29 is in the form of an inverted T, with one half 30 of its cross-arm horizontal and the other half offset, as at 31. Upon the rear side of the wiper-wheel 11 are four pin projections 32, each set rigidly at a point intersected by a radial line extending from the axis of the wheel to the point on the periphery thereof where the rests terminate and cams commence, and the cross-arm 30 31 is caused to bear upon the left-hand one (see Fig. 3) of the two uppermost pin projections 32, preferably by a bow-spring now to be described.

The upper end 33 of the bow-spring is perforated to take over a downwardly-projecting bolt 35, and its lower end bears upon the upper side of the half 31 of the cross-arm of the vertically-sliding bar 29, where it is located in the recess formed by the offset portion.

To regulate the pressure of the bow-spring, the bolt 35 is screw-threaded and a nut 36 set thereon, against which the upper end of such bow-spring bears, and by the lowering or raising of the nut the resistance of the spring can be increased or diminished at will.

As an auxiliary force, to assist the weighted cap 18, a bracket 37 is rigidly secured to the top of the rear face of standard 7, and to this bracket is pivotally connected one end of a flat spring 38, which extends first rearwardly for a short distance and is then bent to extend forward under an arch 39 and thence a sufficient distance to project through an opening 42 in the upper end of a standard 43, the arch having its ends slotted, as at 40, and secured to the sides of standard 7 by bolt 41, so as to be adjusted vertically thereon. The standard 43 is also preferably made vertically adjustable by having its lower end longitudinally slotted, as at 44, to receive a set-screw 45, passing therethrough and taking into the cross-head.

I will now describe the table and feed device that I prefer to use and the means for automatically reversing the direction of travel imparted by such feed device and for adjusting the carrier-frame transversely of its line of travel.

The table 46 has guides 47 and supporting-ledges 48 formed upon its surface, the adjacent edges of the guides being each provided with a lateral extension 47ª at the top. Upon these guides and ledges slide a pair of flanged rails 49, connected rigidly together by four cross-pieces 50, 51, 52, and 53, two of which, 51 and 52, are each provided with a groove to receive the extensions 47ª of the guides. From the under side of the base 2 of the frame are downwardly-projecting pieces 56, provided with flanges 57 to take under the flanges of the rails 49, this arrangement guarding effectively against vertical displacement of the several parts relatively to each other and at the same time allows the carrier-frame to slide along the rails and the whole be adjusted transversely of the table. This lateral adjustment is preferably effected by means of a screw-bolt 58, which, while free to rotate, is held against longitudinal movement by integral portion 59 of the table, and takes into a screw-threaded opening 59ª in the rear rail, so that by the rotation of the screw-bolt by crank-handle 60 thereon the frame, with the rails, can receive any required adjustment transversely to the line of travel of the tool-carrying frame.

The feed device consists of a rack 61, formed integral with the cross-pieces 50, 51, 52, and 53, that connect the rails together, its toothed face projecting slightly above the surface of the rails. With this rack engages a pinion 62, mounted on and connected by a feather and groove to a horizontal shaft 63, carried loosely in bearings formed in the front and rear sides of open base 2 of the frame. This pinion can, when desired, be shifted by lever 64, pivoted at 65 to the base, out of engagement with rack 61.

By the rotation of pinion 62 while in engagement with rack 61 the frame and with it the cutting-tool will be caused to slide along the rails 49. To impart the necessary rota-

tion to the pinion by the same power and from the same shaft by which the tool-lifting mechanism is operated, a pair of pinions 12 13 (already mentioned) are mounted upon the shaft 9 and with either of these pinions an operative connection is made from the shaft upon which pinion 62 is mounted. This connection is made, preferably, by a train of gears, so as to accommodate the speed at which the tool-operating mechanism rotates to the comparatively slow travel required for the feed. The train of gears are carried in a bracket composed of two side pieces 66 67, mounted loosely at one end upon shaft 63 and at the other end connected together by a short spindle 68, extending between them. Upon this spindle a large gear-wheel 69 and small one 70 are loosely mounted, the small one being made in one with the large one and intermeshing with an idler-wheel 71, mounted upon a stub-spindle carried by the one 66 of the side pieces, this idler 69 in turn intermeshing with a gear-wheel 72 about twice the size of gear-wheel 70 and mounted rigidly upon the shaft 63.

A lateral extension 73, terminating in a handle 74, extends approximately at right angles from one, 66, of the side pieces, and carries a gear-wheel 73^a in a position to continually intermesh with gear-wheel 69.

When it is desired to cause the carrier-frame to travel in the direction indicated by arrow A in Fig. 3, the bracket will have to be turned on shaft 63 till the gear-wheel 69 intermeshes with the pinion 13 if comparatively high speed is required, and should less speed be required the pinions 12 and 13 are moved along the shaft 9 till the one 12 will be in a position to intermesh with gear-wheel 69. When it is desired to reverse the direction of travel, the bracket is tilted till gear-wheel 73^a intermeshes with either of the pinions 12 or 13. This reversal of the direction of travel of the carrier-frame I prefer to effect automatically as follows: A rocker 74^a is pivoted inside the open base 2, upon a short spindle 75, extending from a support 76 therefor on the rear side of such base. A rod 77 is connected at one end to the extension 73, at the other end to the base 2, and about midway of its length to one end of the rocker 74^a by a link 78.

Two stops 79 and 80 are carried by and adjustable along the rear rail. They are constructed in U form, the respective legs 79^a 79^b and 80^a 80^b of each extending upward on either side of such rail, the ones 79^a and 80^a being each extended in width sufficiently to cross the line of travel of the rocker 74, and the other legs, 79^b and 80^b, each having a screw-threaded opening therethrough to receive clamping-screws 79^c and 80^c, whereby the stops can be secured firmly upon the rail after having been adjusted along same to the points where it is required that the direction of travel be reversed.

In order to allow the table of the machine to rest steadily upon an uneven or slanting surface, I provide adjusting devices or levelers in the form of screw-threaded bolts 81, adapted to take through vertical screw-threaded openings in the table and bear upon the surface of the stone being operated upon.

To cut the surface of a stone with a machine constructed according to the preceding description, the tool is first set in place in the socket of rod 15, the set-screw 16^c loosened, the rod turned to adjust the edge of the tool to the required angle, and weights added to the top of the rod to increase the weight or strength of the blow to be delivered, according to the hardness of the stone or depth to which it is to be cut. The stops 79 and 80 are then adjusted to a distance apart equal to the length of the surface to be operated upon and the frame moved toward one end, say, looking at Fig. 4, the right-hand end, till the rocker 74^a is engaged by stop 80, which will tilt the rocker, and through it and its connection the gear-wheel 69 will be thrown into mesh with, say, pinion 12. The pinion 62 should then be moved into engagement with rack 61, when, upon crank 14 being rotated, such pinion will be caused, through shaft 9, train of gears 69 70 71 72, and shaft 63, to revolve in the necessary direction to cause the carrier-frame to travel in the direction indicated by arrow A. At the same time the wiper-wheel, being rotated with shaft 9, upon which it is rigidly mounted, will be raising the tool and allowing it to drop as the cams 25 and rests 24 alternately come in line with the roller of rod 15. The rotation of the wiper-wheel is made continuously uniform, notwithstanding the ever-varying strain upon it, by means of the spring-actuated T-bar 29 of the equalizing device, already described, bearing upon and resisting the rotation of the wiper-wheel through one of the pin projections 32 thereon, which of course rises as one of the rests 24 is passing the roller of rod 15, and, after such pin projection has passed the vertical, assisting the rotation of the wiper-wheel by bearing upon such pin projection in its downward course while the following cam is raising the tool.

It is obvious that by mounting the stone upon a movable carrier and securing the table of the machine thereto that the tool carrying and operating mechanism could be stationary and the same work done without changing any of the parts of either the table or the carrier-frame or their relation to one another.

Having now described the nature and what I believe to be the best embodiment of my invention, I claim as new—

1. In a machine for cutting stones, the combination of a frame, a rod carried freely in bearings in such frame, a wiper-wheel with projections upon one face thereof, such wiper-wheel being suitably mounted in the frame and having an operative connection with such rod, a yielding-resistance device carried by the frame and having one end adapted to bear

upon such projection from the wiper-wheel as such wiper-wheel rotates, for the purpose set forth.

2. In a machine for cutting stones, the combination of a frame, a rod carried freely in bearings in such frame, a wiper-wheel with projections upon one face thereof, such wiper-wheel being suitably mounted in the frame and having an operative connection with such rod, a yielding-resistance device, consisting of a bar of inverted-T form, such bar being guided in such frame and having its cross-arm adapted to bear upon one of such projections from the wiper-wheel as such wiper-wheel rotates, and a bow-spring having one end connected to the frame and its other end bearing upon said bar, for the purpose set forth.

3. In a machine for cutting stones, the combination of a frame, a rod carried freely in bearings in such frame, a wiper-wheel with projections upon one face thereof, such wiper-wheel being suitably mounted in the frame and having an operative connection with such rod, a yielding-resistance device consisting of a bar of inverted-T form with one half of its cross-arm horizontal and the other half offset, such bar being guided in such frame and having its cross-arm adapted to bear upon one of such projections from the wiper-wheel as such wiper-wheel rotates, and a bow-spring having one end connected to the frame and its other end bearing upon said bar, for the purpose set forth.

4. In a machine for cutting stones, the combination of a frame, a rod carried freely in bearings in such frame a wiper-wheel with projections upon one face thereof, such wiper-wheel being suitably mounted in the frame and having an operative connection with such rod, a yielding-resistance device consisting of a bar of inverted-T form guided in such frame and having its cross-arm adapted to bear upon one of such projections from the wiper-wheel as such wiper-wheel rotates, and a bow-spring having one end adapted to bear upon said cross-arm and its other end perforated to take over a screw-threaded bolt, carried rigidly by said frame, and bear against a nut movable upon said bolt, for the purpose set forth.

5. In a machine for cutting stones, the combination of a frame, a tool-carrying rod carried by such frame a wiper-wheel suitably mounted in the frame, an operative connection between such wiper-wheel and rod, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such rod when it is raised, and means for operating such wiper-wheel for the purpose set forth.

6. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, such pinion adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

7. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, such pinion adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, consisting of a flat spring connected at one end to such frame, an arch adjustably connected to such frame so as to straddle such spring the free end of such spring being located in a position to bear upon such rod when it is raised, means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

8. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of

a yielding resistance carried by the frame, adapted to bear upon a projection from such wiper-wheel a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, such pinion adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

9. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame adapted to bear upon a projection from such wiper-wheel a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, such pinion adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, consisting of a flat spring connected at one end to such frame, an arch adjustably connected to such frame so as to straddle such spring the free end of such spring being located in a position to bear upon such rod when it is raised, means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

10. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame, adapted to bear upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, such pinion adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such rod when it is raised, means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

11. A machine for cutting stones, consisting of a stationary table portion having two guides, two or more supporting-ledges, and a vertical bearing all of which being formed integral with the upper surface of said table portion; a screw-bolt carried rotatably in said bearing; adjustable flanged rails and a rack resting upon said supporting-ledges and connected rigidly together by two or more cross-bars, two of which are adapted to have a sliding connection with such guides; a frame having a sliding connection with such rails, and a pair of downward projections, from the under side of the base thereof, provided with flanges adapted to take under the flanges of said rails; a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, and means for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

12. A machine for cutting stones, consisting of a stationary table portion having two guides, two or more supporting-ledges, and a vertical bearing, all of which being formed integral with the upper surface of said table portion; a screw-bolt carried rotatably in said bearing; adjustable flanged rails and a rack resting upon said supporting-ledges and con-

nected rigidly together by two or more cross-bars, two of which are adapted to have a sliding connection with such guides; a frame having a sliding connection with such rails, and a pair of downward projections, from the under side of the base thereof, provided with flanges adapted to take under the flanges of said rails; a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, consisting of a flat spring connected at one end to such frame, an arch adjustably connected to such frame so as to straddle such spring, the free end of such spring being located in a position to bear upon such rod when it is raised, and means for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

13. A machine for cutting stones, consisting of a stationary table portion having two guides, two or more supporting-ledges, and a vertical bearing, all of which being formed integral with the upper surface of said table portion; a screw-bolt carried rotatably in said bearing; adjustable flanged rails and a rack resting upon said supporting-ledges and connected rigidly together by two or more cross-bars, two of which are adapted to have a sliding connection with such guides; a frame having a sliding connection with such rails, and a pair of downward projections, from the under side of the base thereof, provided with flanges adapted to take under the flanges of said rails; a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame, adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, means for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

14. A machine for cutting stones, consisting of a stationary table portion having two guides, two or more supporting-ledges, and a vertical bearing, all of which being formed integral with the upper surface of said table portion; a screw-bolt carried rotatably in said bearing; adjustable flanged rails and a rack resting upon said supporting-ledges and connected rigidly together by two or more cross-bars, two of which are adapted to have a sliding connection with such guides; a frame having a sliding connection with such rails, and a pair of downward projections, from the under side of the base thereof, provided with flanges adapted to take under the flanges of said rails; a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame, adapted to bear upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such shaft by a feather-and-groove connection, a horizontal shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such latter shaft, a train of gears connecting one of the gears on the former shaft with the gear on the latter shaft, a pinion mounted upon and connected to such latter shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of such rod, consisting of a flat spring connected at one end to such frame, an arch adjustably connected to such frame so as to straddle such spring the free end of such spring being located in a position to bear upon such rod when it is raised, and means for adjusting such rails with relation to the table and for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

15. In a machine for cutting stones, the combination of a stationary table portion carrying rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of

such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft, such train of gears being mounted in a bracket mounted loosely upon such lower shaft, and adapted to be adjusted to cause such train of gears to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod, means for adjusting such rails with relation to the table, for adjusting the pinion into and out of engagement with the rack, and for adjusting said bracket, for the purpose set forth.

16. In a machine for cutting stones, the combination of a stationary table portion carrying rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device adapted to act upon such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft such train of gears embodying two gear-wheels of different diameters and being mounted in a bracket mounted loosely upon such lower shaft, and adapted to be adjusted to cause either of such gear-wheels of different diameters of such train of gears to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod, means for adjusting such rails with relation to the table, for adjusting the pinion into and out of engagement with the rack, and for adjusting said bracket, for the purpose set forth.

17. In a machine for cutting stones, the combination of a stationary table portion carrying adjustable rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance, carried by the frame, and adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft, such train of gears embodying two gear-wheels of different diameters and being mounted in a bracket mounted loosely upon such lower shaft, and adapted to be adjusted to cause either of such gear-wheels of different diameters, of such train of gears to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such rod when it is raised, means for adjusting such rails with relation to the table, for adjusting the pinion into and out of engagement with the rack, and for adjusting said bracket, for the purpose set forth.

18. In a machine for cutting stones, the combination of a stationary table portion carrying rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance, carried by the frame, and adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft, such train of gears embodying two gear-wheels of different diameters and being mounted in a bracket mounted at its lower end loosely upon such lower shaft, and being adapted to be adjusted to cause either of such gear-wheels of different diameters, of such train of gears, to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such

rod when it is raised, means for automatically adjusting such bracket, consisting of a rocker pivoted to the base of said frame, a rod having a sliding connection at one end to said bracket and being pivotally connected at its other end to said base, a link connecting said rod and rocker and a pair of engaging stops carried by one of such rails and with which said rocker is adapted to engage and means for adjusting the pinion into and out of engagement with the rack, for the purpose set forth.

19. A machine for cutting stones, consisting of a stationary table portion having two guides, two or more supporting-ledges, and a vertical bearing formed integral with the upper surface of said table portion; a screw-bolt carried rotatably in said bearing; adjustable flanged rails and a rack resting upon said supporting-ledges and connected rigidly together by two or more cross-bars, two of which are adapted to have a sliding connection with such guides; a frame having a sliding connection with such rails, and a pair of downward projections from the under side of the base thereof, provided with flanges adapted to take under the flanges of said rails; a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame and adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft such train of gears embodying two gear-wheels of different diameters and being mounted in a bracket mounted at its lower end loosely upon such lower shaft, and being adapted to be adjusted to cause either of such gear-wheels of different diameter, of such train of gears, to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such rod when it is raised, means for automatically adjusting such bracket, consisting of a rocker pivoted to the base of said frame, a rod having a sliding connection at one end to said bracket and being pivotally connected at its other end to said base, a link connecting said rod and rocker and a pair of engaging stops carried by one of such rails and with which said rocker is adapted to engage, and means for adjusting the pinion into and out of engagement, with the rack, for the purpose set forth.

20. In a machine for cutting stones, the combination of a stationary table portion carrying rails and a rack, a frame having a sliding connection with such rails, a rotatably-adjustable vertical rod carried freely in bearings in such frame, a cross-head secured upon such rod, a wiper-wheel mounted rigidly upon a horizontal upper shaft carried loosely in bearings in such frame about midway of its length, an equalizing device consisting of a yielding resistance carried by the frame and adapted to act upon a projection from such wiper-wheel, a feed device consisting of two pinions of different sizes mounted upon and connected to such upper shaft by a feather-and-groove connection, a horizontal lower shaft mounted near the base of such frame, a gear-wheel mounted rigidly upon such lower shaft, a train of gears connecting one of the gears on the upper shaft with the gear on the lower shaft, such train of gears embodying two gear-wheels of different diameters and being mounted in a bracket mounted at its lower end loosely upon such lower shaft, and being adapted to be adjusted to cause either of such gear-wheels of different diameters, of such train of gears to engage one of the pinions carried upon such upper shaft, a pinion mounted upon and connected to such lower shaft by a feather-and-groove connection, and adapted to be adjusted into and out of engagement with the rack, a device for assisting the fall of the rod consisting of a flat spring curved at one end, pivotally connected at its curved end to the top of the frame, an arch adjustably connected to such frame and adapted to straddle such spring near such curved end, and the straight end of such spring bearing upon such rod when it is raised, means for automatically adjusting such bracket, consisting of a rocker pivoted to the base of said frame, a rod having a sliding connection at one end to said bracket and being pivotally connected at its other end to said base, a link connecting said rod and rocker, a pair of engaging stops constructed of **U** form, one leg of each stop being extended in width and the other leg bored and screw-threaded to receive a thumb-screw, and said stops being located with one leg of each on either side of one of said rails the leg of extended width being upon the inside thereof in order to be engaged by said rocker and means for adjusting the pinion into and out of engagement with the rack for the purpose set forth.

Sherbrooke, Quebec, 7th day of June, 1895.

FRANCOIS XAVIER LANDRY.

In presence of—

T. A. BOURQUE,

ALFRED PARADIS.