No. 724,706. PATENTED APR. 7, 1903.

A. F. JONES.

STONE DRESSING MACHINE.

APPLICATION FILED MAY 31, 1900.

NO MODEL. 7 SHEETS—SHEET 1.

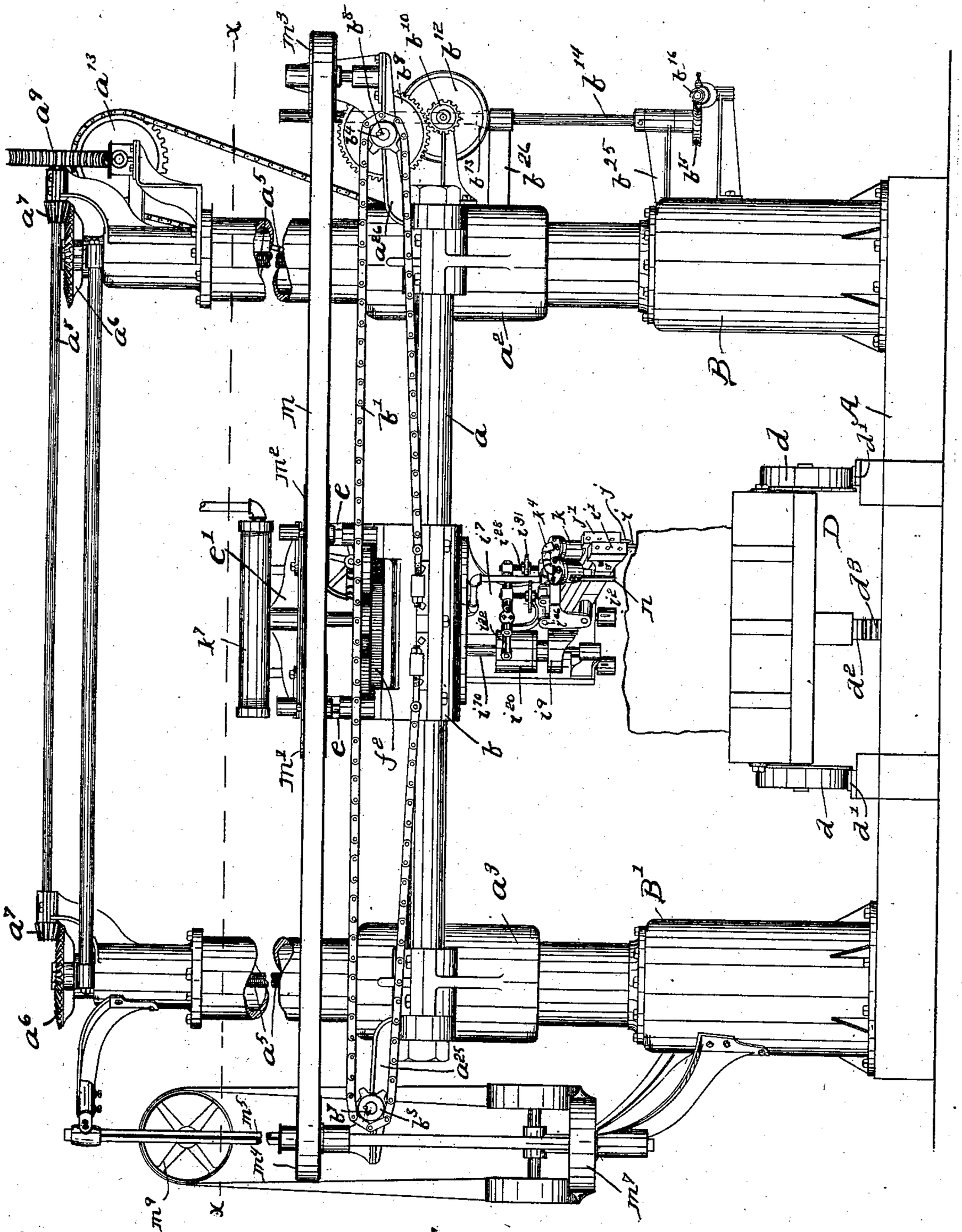

Fig. 1.

Witnesses:
H. B. Davis.
F. H. Hayes.

Inventor:
Albert F. Jones
by B. J. Hayes.
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No. 724,706. PATENTED APR. 7, 1903.

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NO MODEL. 7 SHEETS—SHEET 2.

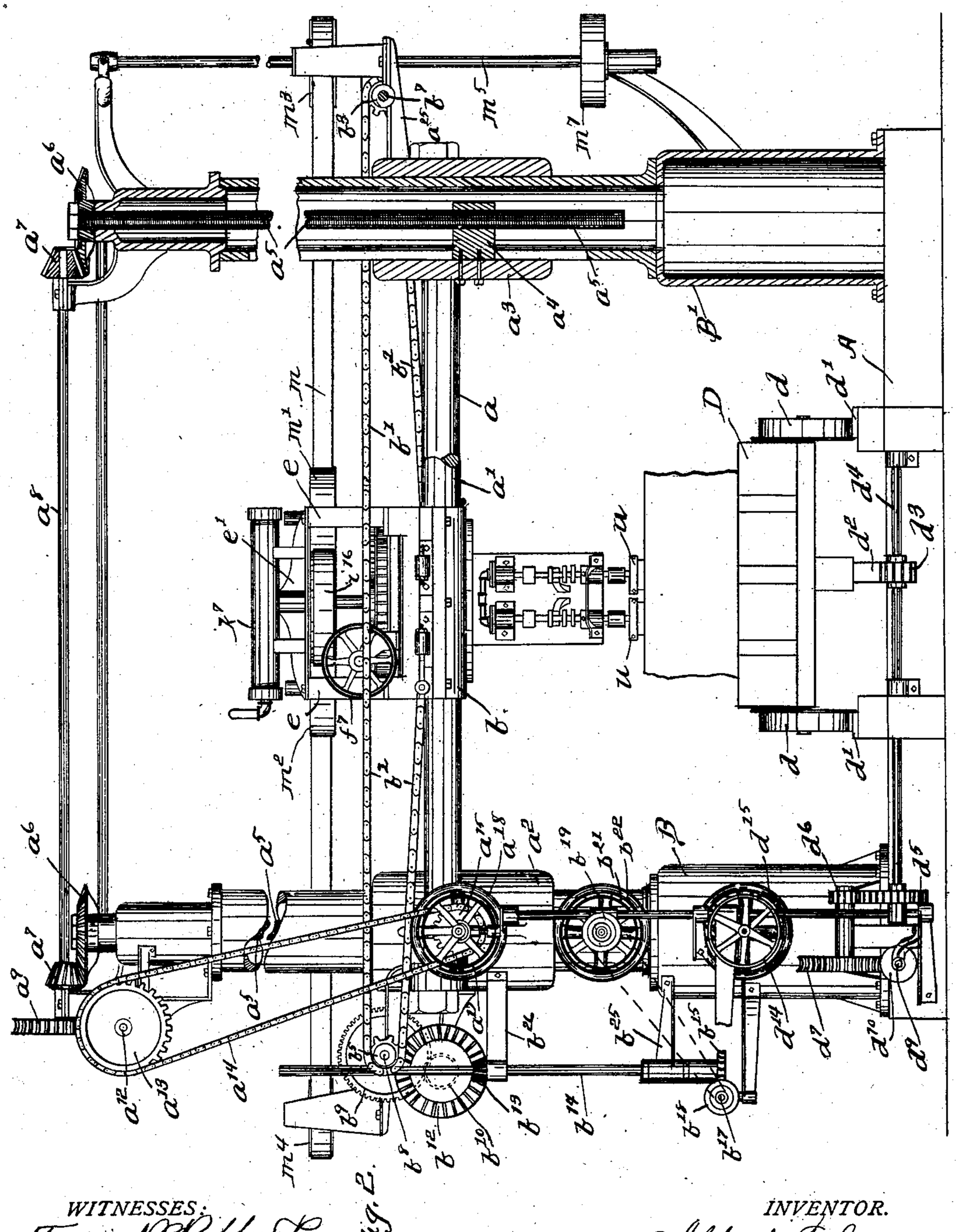

Fig. 2.

WITNESSES:
Frederic A. Parkhurst.
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No. 724,706.. PATENTED APR. 7, 1903.

A. F. JONES.

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NO MODEL.

7 SHEETS—SHEET 3.

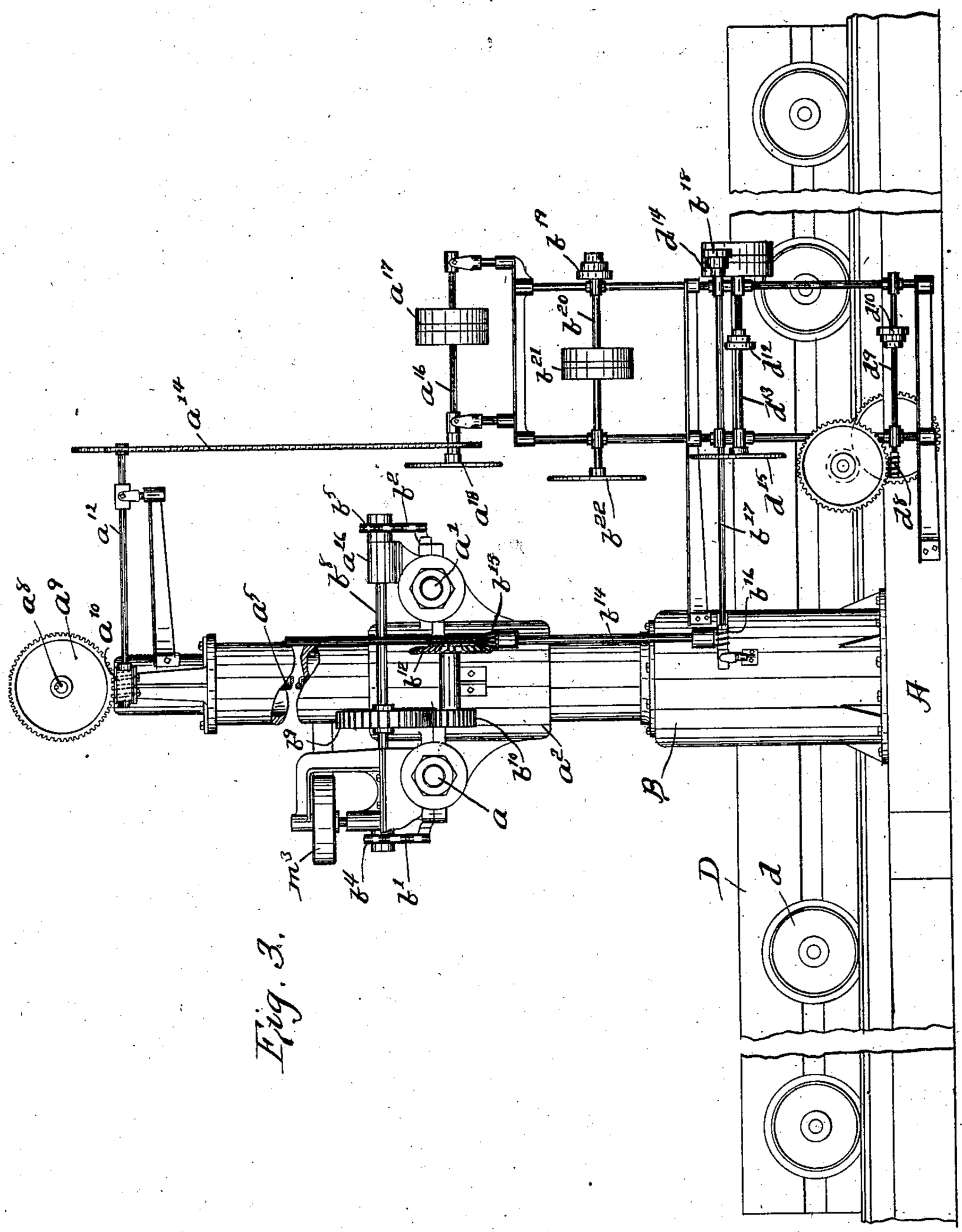

Fig. 3.

WITNESSES:

Frederic A. Parkhurst.

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No. 724,706. PATENTED APR. 7, 1903.

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STONE DRESSING MACHINE.

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NO MODEL. 7 SHEETS—SHEET 4.

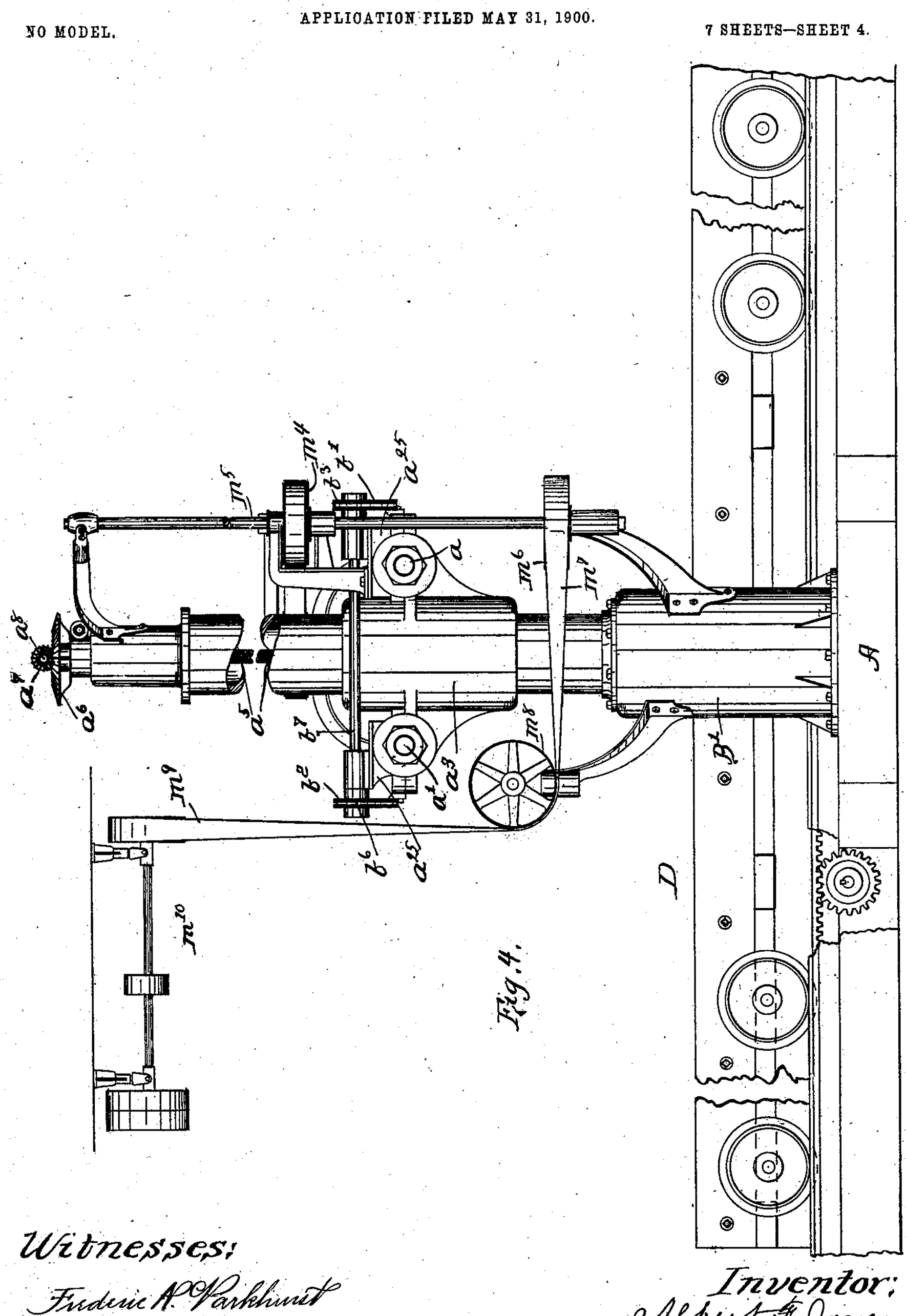

Fig. 4.

Witnesses:
Frederic A. Parkhurst
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STONE DRESSING MACHINE.

APPLICATION FILED MAY 31, 1900.

NO MODEL

7 SHEETS—SHEET 5.

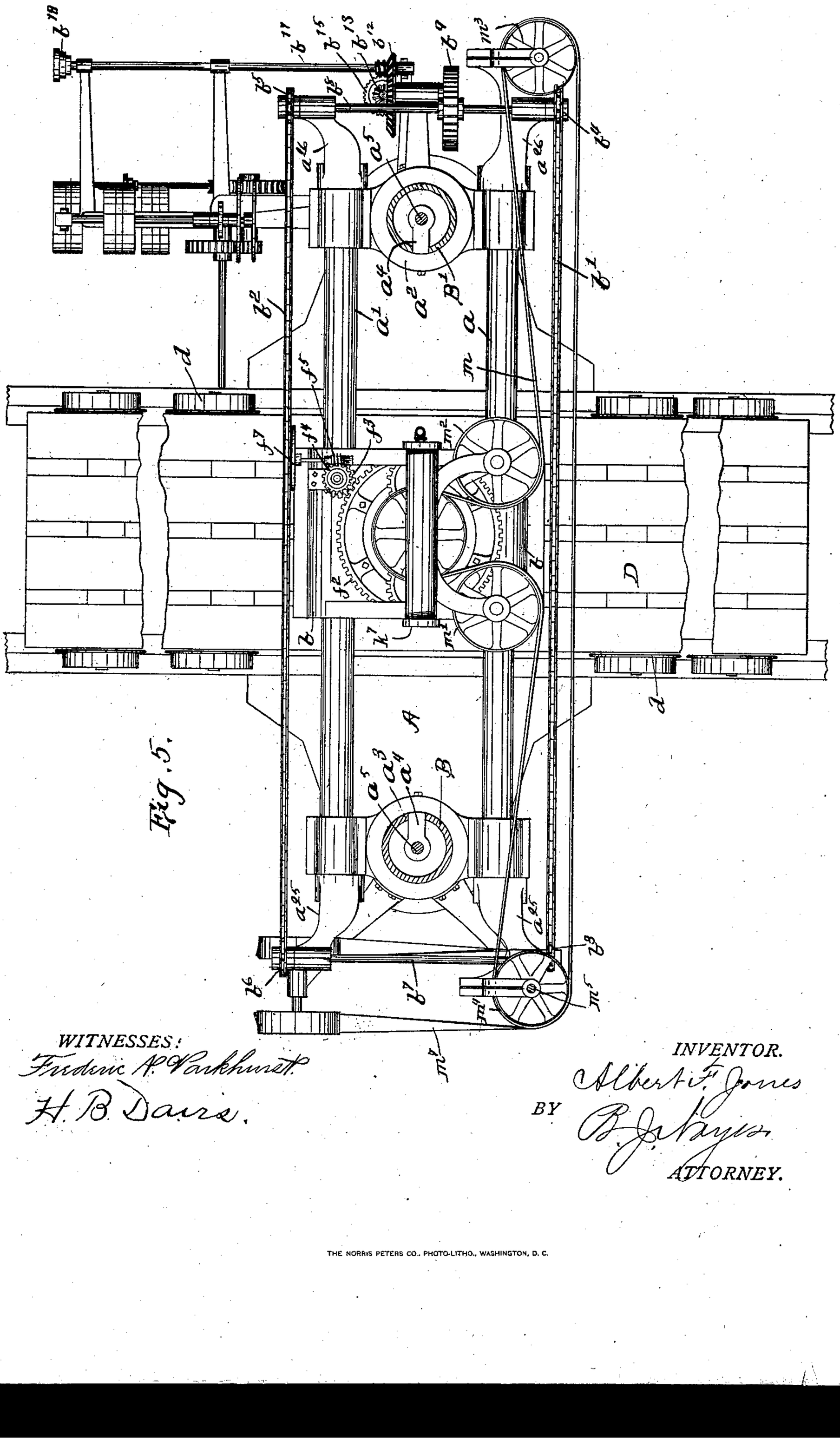

Fig. 5.

WITNESSES:

Frederic A. Parkhurst.

H. B. Davis.

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No. 724,706. PATENTED APR. 7, 1903.

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STONE DRESSING MACHINE.

APPLICATION FILED MAY 31, 1900.

NO MODEL. 7 SHEETS—SHEET 6.

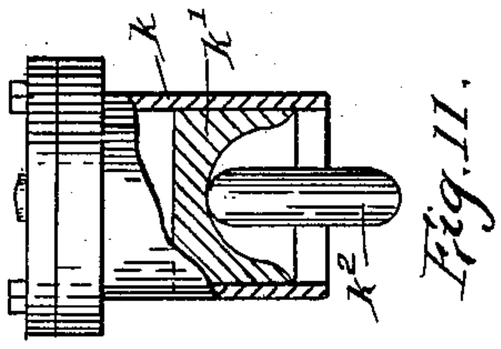

Fig. 11.

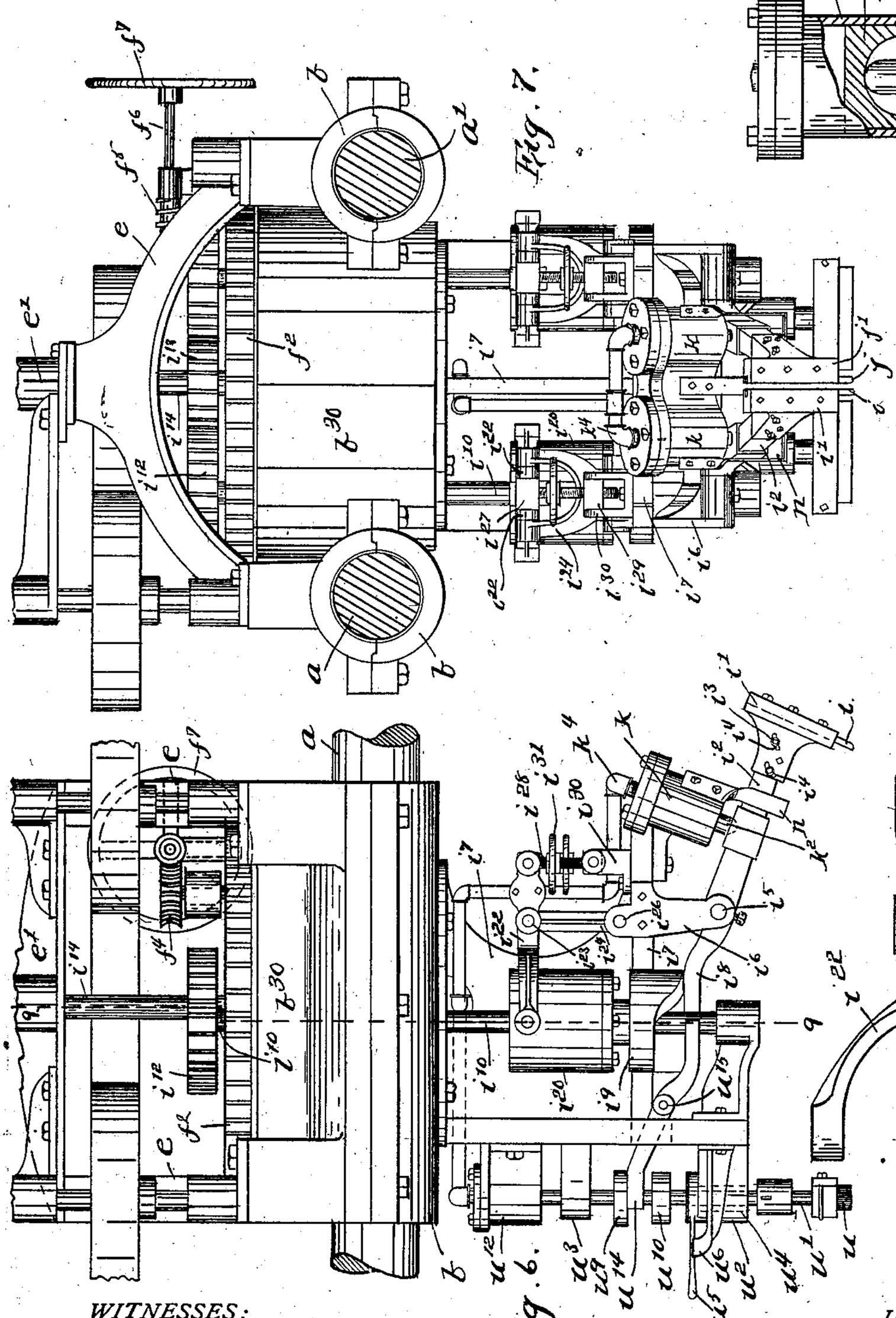

Fig. 7.

Fig. 9.

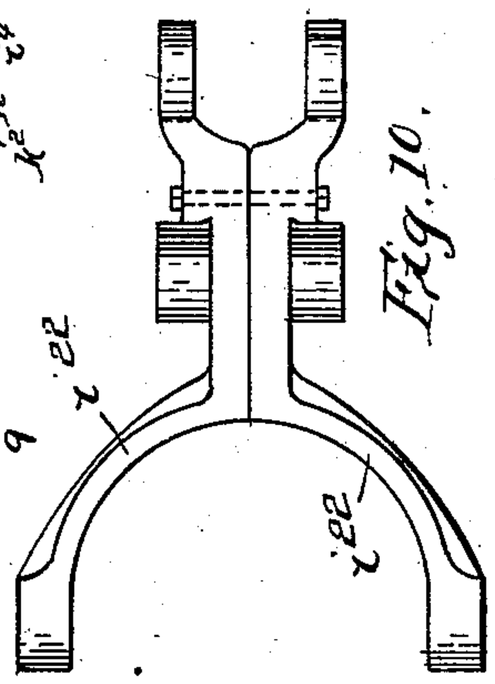

Fig. 10.

WITNESSES:
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H. B. Davis.

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No. 724,706. PATENTED APR. 7, 1903.

A. F. JONES.

STONE DRESSING MACHINE.

APPLICATION FILED MAY 31, 1900.

NO MODEL. 7 SHEETS—SHEET 7.

Fig. 8.

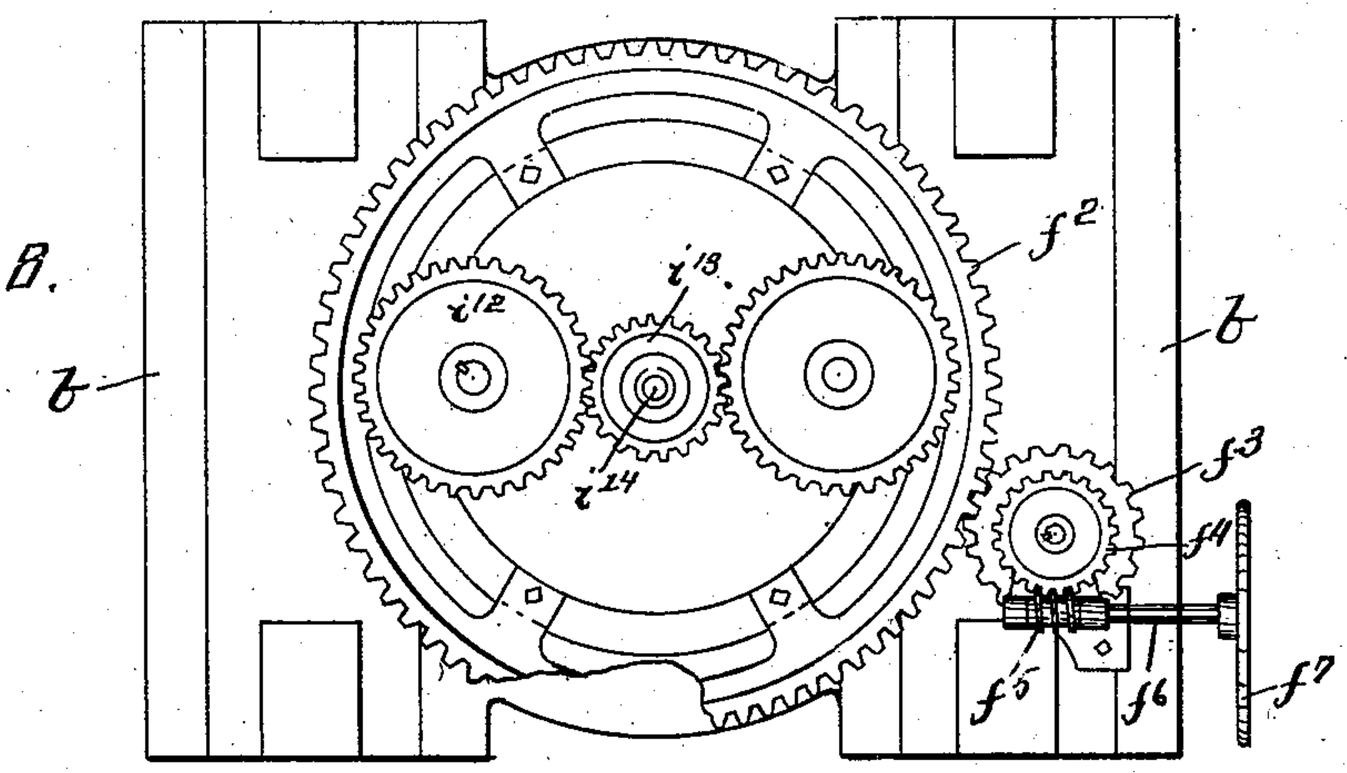
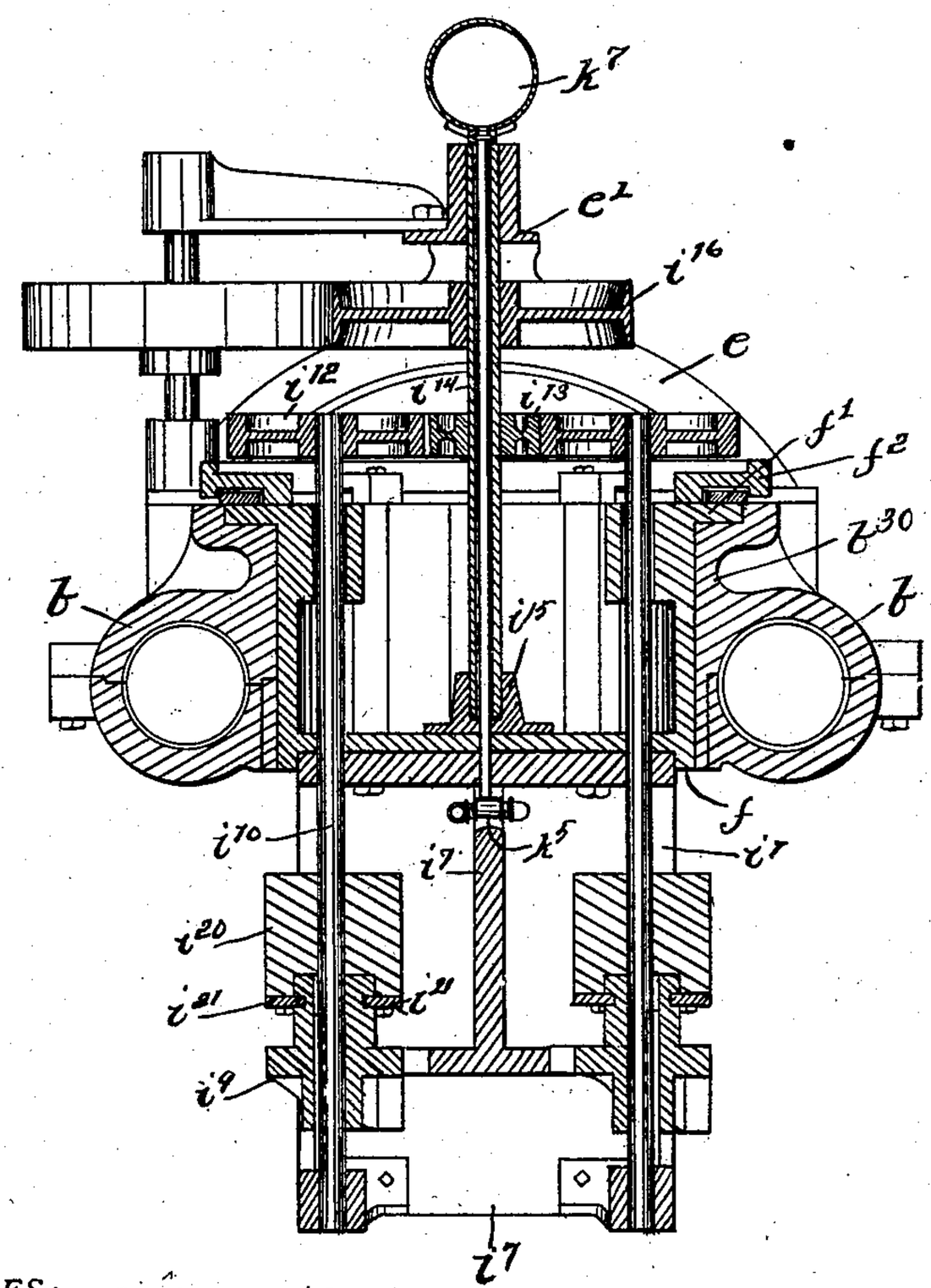


Fig. 9.



WITNESSES:
Frederic A. Parkhurst.
H. B. Davis.

INVENTOR.
Albert F. Jones
BY B. J. Hayes
ATTORNEY.

UNITED STATES PATENT OFFICE.

ALBERT F. JONES, OF SALEM, MASSACHUSETTS, ASSIGNOR TO AMERICAN GRANITE MACHINE COMPANY, OF SALEM, MASSACHUSETTS, A CORPORATION OF MAINE.

STONE-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,706, dated April 7, 1903.

Application filed May 31, 1900. Serial No. 18,584. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. JONES, of Salem, county of Essex, and State of Massachusetts, have invented an Improvement in Stone-Dressing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to stone-dressing machines, and is intended as an improvement upon the stone-dressing machine shown and described in my application for Letters Patent, Serial No. 730,715.

My improvement herein consists, essentially, in providing a compressed-air receiver and means operated by the compressed air for holding the tool in its lowermost position, resisted by a suitable stop, a cam for raising said tool against the action of the compressed air, and means for operating said cam, the tool being suddenly thrust downward by the action of the compressed air whenever the cam releases it. I find in practice that by providing suitable means whereby compressed air may be utilized as the elastic actuator for thrusting the tool downward to its work a very severe blow may be suddenly delivered, which is very effective.

The invention also consists in constructing and arranging the parts whereby compressed air may be used as the elastic actuator for the tool and a revoluble turret employed, bearing the tool or tools, which may be held at any different position in the cycle in which said turret revolves.

The invention also consists in many details of construction, as will be hereinafter described and claimed, whereby the machine is simplified in many particulars.

Figure 1 is a front elevation of a stone-dressing machine embodying this invention. Fig. 2 is a rear elevation of the machine shown in Fig. 1. Fig. 3 is a right-hand side elevation of the machine shown in Fig. 1. Fig. 4 is a left-hand side elevation of the machine shown in Fig. 1. Fig. 5 is a horizontal section of the machine, taken on the dotted line $x\ x$, Fig. 1. Fig. 6 is an enlarged side view of the tool-carrying head or turret-support. Fig. 7 is a front view of the tool-carrying head or turret-support shown in Fig. 6. Fig. 8 is a view showing a plan of a portion of the frame of the turret-support, a plan of the turret, and the means for operating the turret. Fig. 9 is a vertical section of the turret-support, taken on the dotted line 9 9, Fig. 6, the bushing-tool being omitted; and Figs. 10 and 11 details to be referred to.

The base A of the machine has erected upon it two upright hollow columns B B′, which for simplicity of construction are each composed of several superimposed sections secured together by bolts or otherwise. The frame bearing the tool-carrying head or turret-support is supported by these columns B B′ and is adapted to rise and fall, so that said tool-carrying head or turret-support may occupy any elevation desired, and, as herein shown, said frame consists, essentially, of a pair of horizontal bars $a\ a'$, disposed in parallelism and also disposed so as to occupy the same horizontal plane, and a pair of cross-heads $a^2\ a^3$, to which said horizontal bars are connected at their ends. The cross-heads a^2 a^3 are mounted, respectively, on the columns B B′ to slide up and down thereon, and each cross-head has a projecting portion a^4, (see Figs. 2 and 5,) provided with a screw-threaded hole through it, which projects through a vertical slot provided in the hollow column on which it is mounted, and said projection a^4 receives an upright screw a^5, which is contained within the hollow column, said projection a^4 thereby serving as a nut on said screw, so that as the screw is turned the nut and cross-head to which it is attached will be moved up and down according to the direction of rotation of the screw. Each screw a^5 projects up through the top of the hollow column containing it and has secured to its upper end a bevel-gear a^6, (see Fig. 2,) the hub of which rests upon a seat provided at the top of the column, and each bevel-gear a^6 is engaged by a bevel-pinion a^7, and both bevel-pinions a^7 a^7 are secured to a horizontal shaft a^8, so as to be turned simultaneously. To one end of said shaft a^8 a worm-wheel a^9 is secured, (see Figs. 2 and 3,) which is engaged by a worm a^{10}, secured to a shaft a^{12}, to which is secured a sprocket-wheel a^{13}, over which passes a

sprocket-chain a^{14}, which passes over a sprocket-wheel a^{15}, secured to a shaft a^{16}, to which the belt-pulleys a^{17} and also a hand-wheel a^{18} are secured. By rotating the shaft a^{16} it will be seen that the shaft a^{8} will be driven and both of the screws a^{5} a^{5} turned simultaneously to thereby raise or lower the frame bearing the tool-carrying head or turret-support, and as said frame is raised and lowered said tool-carrying head or turret-support will be held in different elevations. The belt-pulleys a^{17} will be belted to any continuously-driven operating-shaft by a straight and a crossed belt in any usual manner in order that the shaft a^{16} may be turned in either direction. The tool-carrying head or turret-support, to be hereinafter described, which is mounted on said vertically-adjustable frame, is adapted to be moved back and forth from end to end of the machine at right angles to the movement of the truck, which is located beneath it, and said tool-carrying head or turret-support has boxes b b, which embrace the horizontal bars a a', and thereby adapt it to be moved by sliding it along on said bars. To move said tool-carrying head or turret-support along on the bars a a', two sprocket-chains b' b^{2} are provided, which extend practically from end to end of the machine and which are located one in front and the other at the rear side of the tool-carrying head or turret-support, and the sprocket-chain b' passes over the sprocket-wheels b^{3} b^{4} and is attached at both of its ends to one of the boxes b of the tool-carrying head or turret-support, and the sprocket-chain b^{2} passes over the sprocket-wheels b^{5} b^{6} and is attached at both of its ends to the other box b of the tool-carrying head or turret-support. The sprocket-wheels b^{3} b^{6} are secured to a rod or shaft b^{7}, having its bearings in suitable brackets a^{25}, attached to the cross-head a^{3}, and the sprocket-wheels b^{4} b^{5} are secured to a rod or shaft b^{8}, having its bearings in suitable brackets a^{26}, attached to the cross-head a^{2}. The shafts b^{7} b^{8} being thus supported by the cross-heads a^{2} a^{3}, it will be seen that the sprocket-chains b' b^{2} will be bodily moved up and down with the frame bearing the tool-carrying head or turret-support.

The rod or shaft b^{8} has secured to it a toothed wheel b^{9}, which is engaged by a pinion b^{10}, secured to a shaft which has secured to it a bevel-gear b^{12}, which is engaged by a beveled pinion b^{13}, splined on an upright shaft b^{14}, so as to slide up and down thereon. The upright shaft b^{14} has a bearing at its lower end in a fixed bracket b^{25} on the column B and at a point midway its length is loosely embraced by a bracket b^{26} on the cross-head a^{2}. A worm-wheel b^{15} is secured to the lower end of the upright shaft b^{14}, which is engaged by a worm b^{16}, (see Fig. 3,) secured to a horizontal shaft b^{17}, to which is secured a belt-pulley b^{18}, over which a belt passes, (see dotted lines, Fig. 2,) which also passes over a belt-pulley b^{19}, secured to a horizontal shaft b^{20}, bearing belt-pulleys b^{21} and also bearing a hand-wheel b^{22}. The belt-pulleys b^{21} are adapted to be belted to any suitable continuously-driven operating-shaft by a straight and a crossed belt, so that said shaft b^{20} may be rotated in either direction at will. As said shaft b^{20} is rotated it will be seen that the horizontal shaft b^{8} will also be rotated in one or the other direction, according to the direction of rotation of said shaft b^{20}, and by means of the sprocket-chains b' b^{2} the tool-carrying head or turret-support will be moved along on the horizontal bars a a' in one or the other direction.

The main frame of the tool-carrying head or turret-support comprises, essentially, two boxes b b, disposed in parallelism, a cylindrical shell b^{30}, cast integral with the upper members of said boxes, a pair of yokes e e, bolted to the opposite ends of said boxes, and a yoke e', disposed at right angles to the yokes e e and bolted at its ends to said yokes e e, and said main frame supports a turret f, which is made as a cylindrical shell which fits and is free to rotate within the shell b^{30}, and said turret has an outwardly-projecting annular flange f' at its upper end, which rests upon a seat formed at the upper end of the shell b^{30}. The turret f turns on a vertical axis and supports the operaring-tools to be described. The turret f is adapted to be turned on its vertical axis a complete revolution and to be held in any position of the cycle in which it revolves, and to thus adjust said turret f a toothed ring f^{2} is secured to the upper end of the turret f, which is engaged by a pinion f^{3}, (see Fig. 8,) secured to a shaft bearing a worm-wheel f^{4}, which is engaged by a worm f^{5}, secured to a shaft f^{6}, to which a hand-wheel f^{7} is attached. By turning said hand-wheel f^{7} in one or the other direction the turret f will be correspondingly rotated.

The turret f is herein shown as carrying two cutting-tools i j, which are made substantially alike, so one only will be described. The cutting-tool i, which is herein represented as a pointing-tool, is held securely by the tool-holder i', which is pivotally connected to the outer end of an arm i^{2} and made adjustable on its pivot, so as to occupy different oblique positions. The pivoted tool-holder i' is herein shown as having bolts i^{3}, which pass through curved slots i^{4}, which provide for such adjustment of the tool-holder i' on the arm i^{2} in order that it may occupy different oblique positions. The tool-carrying arm i^{2} is pivoted at i^{5} to the lower end of an arm or bracket i^{6}, bolted to a frame i^{7}, which is bolted or otherwise secured to the lower end of the turret f. The tool-carrying arm i^{2} projects rearwardly beyond its pivot i^{5}, and said rearward extension i^{8} occupies a position in the path of movement of a cam i^{9}, secured to an upright shaft i^{10}. As said shaft i^{10} is revolved the cam i^{9} will be rotated and the arm i^{2} repeatedly operated to raise the tool i away from the work. The shaft i^{10} has its bearings in the turret f and passes entirely through

said turret f, and it has secured to its upper projecting end a toothed gear i^{12}, which is engaged by a toothed gear i^{13}, secured to an upright shaft i^{14}. The upright shaft i^{14} is disposed coincident with the axis of the turret f, and its lower end has a bearing in a step i^{15}, (see Fig. 9,) secured to or upon the bottom of the turret f, and its upper end has a bearing in the yoke e'. The shaft i^{14} has secured to it a belt-pulley i^{16}, by which it may be rotated by means to be hereinafter described. As the shaft i^{14} is rotated the cam i^9 will be revolved to repeatedly operate the tool. The cam i^9 is splined onto the shaft i^{10}, so that while it may be positively revolved by said shaft it may be raised and lowered thereon for the purpose of varying the stroke of the arm i^2 and also for the purpose of receding out of engagement with the arm i^2, so that said shaft i^{10} may continue to revolve without operating the tool.

To raise and lower the cam i^9 on the shaft i^{10} a collar i^{20} is mounted loosely on said shaft i^{10}, the lower end of which is recessed to receive the hub of the cam i^9, (see Fig. 9,) and said hub has formed on it a circumferential groove, and a two-part plate i^{21} is secured to the bottom of said collar i^{20}, which enters said groove in the hub of the cam, so that the cam is free to be revolved independent of the collar, yet by raising and lowering said collar said cam will be correspondingly moved. The collar i^{20} is pivotally engaged at opposite sides by two arms i^{22} i^{22}, which are bolted together to form a yoke, (see Fig. 10,) and said two-armed yoke is pivoted at i^{23} to the upper ends of two arms i^{24} of another yoke, the lower end of which is pivoted at i^{20} to ears on the stationary bracket i^6. The arms i^{22} i^{22} are extended forward beyond the pivot i^{23} and pivotally support between them at their forward ends a block i^{27}, into which one end of a right and left threaded screw i^{28} is turned, the opposite end of said screw turning in a block i^{29}, pivoted to a pair of ears i^{30}, erected on the frame i^7. A hand-wheel i^{31} is secured to said right and left threaded screw i^{28}, which serves as a means of turning it, and as it is turned the parts will be moved on their respective pivots and the collar i^{20} raised or lowered on the upright shaft i^{10} and the cam i^9 correspondingly moved. The screw i^{28} is made long enough to enable the collar to be raised high enough to remove the cam from engagement with the arm i^8.

The tool-carrying arm i^2 is raised against the action of an elastic actuator, which is herein represented as a cylinder k, (see Figs. 6 and 11,) carried by the turret and containing a piston k' and a pintle or pin k^2, bearing at its upper end against a seat formed in the upper side of said piston in a universal manner and bearing at its lower end upon a seat formed on the upper side of the tool-carrying arm i^2, also in a universal manner. The piston k' will be held in its lowermost position by compressed air under the required pressure, and as the cam raises the tool-carrying arm i^2 the piston will be moved upward against the compressed air in the cylinder k, and as soon as the cam releases said arm the piston will suddenly drive or thrust downward the arm and tool carried by it. A severe thrust is thus given to the tool. A pipe k^4 is connected to the cylinder k, which passes up to a T-coupling k^5, and an upright pipe k^6 is connected to said T-coupling, which passes up through a hole in the step i^{15} and also through a hole in the shaft i^{14}, and said upright pipe k^6 is rotatably connected at its upper end to a cylinder k^7, which is stationarily mounted upon and carried by the tool-carrying head or turret-support. The cylinder k^7 is connected with a suitable air-compressor, (not shown,) by which compressed air under any required degree of pressure will be produced and maintained. The cylinder k thus serves as an air-receiver and the piston a moving member, which is connected with the tool-carrying arm, yet I do not desire to limit my invention specifically to the use of a cylinder and piston. A loop-like strap n is attached to the cylinder k, or it may be otherwise supported, which serves as a stop to limit the downward thrust of the tool. The tool-carrying arm i^2 is normally held pressed into engagement with said stop n by the action of the compressed air, and the tool-carrying arm is raised against the action of the compressed air by the cam, and the stroke of said arm will be varied by the adjustment of the cam, as aforesaid.

A belt m passes around the belt-pulley i^{16} and also around idle pulleys m' m^2, which are supported by brackets on the tool-carrying head or turret-support, and also around an idle pulley m^3, secured to a shaft having its bearings in a bracket secured to the cross-head a^2 at one end of the machine, and also around a belt-pulley m^4, which is secured to a bushing or sleeve having its bearings in a bracket secured to the cross-head a^3 at the opposite end of the machine, and said bushing or sleeve bearing said belt-pulley m^4 is splined on an upright shaft m^5, having its bearings in brackets secured to the column B', and to the lower end of said upright shaft m^5 a belt-pulley m^6 is secured, around which passes a belt m^7, which passes around idle pulleys m^8 m^8, and thence over or around a belt-pulley m^9, which is secured to the continuously-driven operating-shaft m^{10}. By means of these belt-pulleys and belts the driving-pulley i^{16} will be operated regardless of the position of the tool-carrying-head or turret-support on the horizontal bars a a and also regardless of the elevation of said tool-carrying head or turret-support.

The truck D is made as a platform supported on axles bearing wheels d, which run on rails d', and said truck has on its under side a rack-bar d^2, which is engaged by a pinion d^3, secured to a horizontal shaft d^4, to one end of which is secured a toothed wheel d^5, en-

gaged by a pinion d^6, secured to a shaft bearing a worm-wheel d^7, which is engaged by a worm d^8, secured to a horizontal shaft d^9, bearing a belt-pulley d^{10}, over which a belt passes, which also passes over a belt-pulley d^{12}, secured to a horizontal shaft d^{13}, bearing the belt-pulleys d^{14} and also bearing a hand-wheel d^{15}, and said belt-pulleys d^{14} are adapted to be belted to a continuously-driven operating-shaft by a straight and a crossed belt, whereby said shaft d^{13} may be rotated in opposite directions. As the shaft d^{13} is thus rotated the truck D will be moved back and forth at right angles to the movement of the tool-carrying head or turret-support.

In the rear side of the frame i^7 the bushing-tools are located, (see Fig. 6,) there being two such tools herein shown, and as they are made alike but one will be described.

u represents one of the bushing-tools which is attached to the lower end of a rod or bar u', which is disposed vertically and slides up and down in brackets u^2 u^3, secured to the rear side of the frame i^7. A sleeve u^4 (see dotted lines, Fig. 6) is splined onto the rod or bar u', which fits a hole in the bracket u^2, and said sleeve is free to turn in said bracket, the rod or bar u' turning with it; yet said rod or bar is free to slide up and down independently of the sleeve and regardless of its position. An arm u^5 projects rigidly from the sleeve u^4, which is provided with a handpiece by which said sleeve may be turned, and said arm u^5 engages any one of a series of teeth formed or provided on an arm u^6, projecting from the frame i^7. By swinging the arm u^5 it will be seen that the rod or bar u' will be turned on its vertical axis a limited distance. A collar u^{10} is secured to said rod or bar, which by striking against the upper end of the sleeve u^4 limits the downward movement of said rod or bar, and above said collar u^{10} another collar u^9 is secured to said rod or bar. The upper end of the rod or bar is secured to a piston working in a cylinder u^{12}, and said piston is normally held in its lowermost position by compressed air contained in said cylinder u^{12}. The cylinder u^{12} is connected by a pipe with the cylinder k^7. The rod or bar bearing the bushing-tool is raised against the action of the compressed air by the cam i^9, before referred to, which operates upon one end of a lever u^{14}, pivoted at u^{15} to the frame, the opposite end of said lever working between the collars u^9 and u^{10}.

I claim—

1. In a stone-dressing machine, the combination of a turret-support movable back and forth, a turret carried by it adapted to be turned a complete cycle, a tool, an elastic actuator for said tool consisting of a receiver containing compressed air having a movable member which acts upon said tool, a cam for raising the tool against the action of said movable member, a shaft bearing said cam supported by the turret, means for operating said shaft and means for adjusting the cam on the shaft to vary the stroke of the tool while the tool is being operated, substantially as described.

2. In a stone-dressing machine, the combination of a turret-support movable back and forth, a turret carried by it adapted to be turned a complete cycle, a tool, an elastic actuator for said tool consisting of a receiver containing compressed air having a movable member which acts upon said tool, a cam for raising the tool against the action of said movable member, a shaft bearing said cam supported by the turret, means for operating said shaft and means for moving said cam into and out of position to operate said tool, substantially as described.

3. In a stone-dressing machine, a tool, tool-carrier, and a stop which resists the downward thrust of the tool, combined with an elastic actuator for said tool consisting of a compressed-air receiver having a movable member for normally holding the tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of the compressed air, means for operating said cam, a turret bearing said tool and its operating devices adapted to turn on a vertical axis a complete revolution, means for rotating said turret and for holding it fixed in any position in the cycle in which it revolves and a support for said turret, substantially as described.

4. In a stone-dressing machine, a tool, tool-carrier, and a stop which resists the downward thrust of the tool, combined with an elastic actuator for said tool consisting of a compressed-air receiver having a movable member for normally holding the tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of the compressed air, means for operating said cam, a turret bearing said tool and its operating devices adapted to turn on a vertical axis a complete revolution, means for rotating said turret and for holding it fixed in any position in the cycle in which it revolves, a support for said turret and means for moving said turret-support back and forth, substantially as described.

5. In a stone-dressing machine, a tool, tool-carrier, and a stop which resists the downward thrust of the tool, combined with an elastic actuator for said tool consisting of a compressed-air receiver having a movable member for normally holding the tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of the compressed air, means for operating said cam, a turret bearing said tool and its operating devices adapted to turn on a vertical axis a complete revolution, means for rotating said turret and for holding it fixed in any position in the cycle in which it revolves, a support for said turret, a truck bearing the stone to be operated upon and means for moving it back and forth, substantially as described.

6. In a stone-dressing machine, a tool, tool-

carrier, and a stop which resists the downward thrust of the tool, combined with an elastic actuator for said tool consisting of a compressed-air receiver having a movable member for normally holding the tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of the compressed air, means for operating said cam, a turret bearing said tool and its operating devices adapted to turn on a vertical axis a complete revolution, means for rotating said turret and for holding it fixed in any position in the cycle in which it revolves, a support bearing said turret and means for moving said turret-support back and forth, a truck bearing the stone to be operated upon and means for moving said truck back and forth at right angles to the movement of said turret-support, substantially as described.

7. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, an upright shaft passing through said turret, a cam mounted thereon, a driving-shaft disposed coincident with the axis of said turret, and gearing connecting it with said cam-carrying shaft, means for rotating said driving-shaft, a pivoted tool-carrying arm located in the path of movement of said cam, and a tool carried by said arm, substantially as described.

8. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, an upright shaft passing through said turret, a cam mounted thereon, a driving-shaft disposed coincident with the axis of said turret and gearing connecting it with said cam-carrying shaft, means for rotating said driving-shaft, a pivoted tool-carrying arm located in the path of movement of said cam, a tool carried by said arm and means for moving said cam up and down on the shaft bearing it, substantially as described.

9. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, an elastic actuator for said tool consisting of a receiver containing compressed air having a movable member which acts upon said tool, a cam for raising the tool against the action of said movable side wall, a shaft bearing said cam supported by said turret and means for operating said shaft, substantially as described.

10. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, an elastic actuator for said tool consisting of a receiver for compressed air carried by the turret and having a movable member which acts upon said tool, another compressed-air receiver stationarily supported on the turret-support connected with the aforesaid compressed-air receiver, a cam for raising said tool against the action of said movable member, a shaft bearing said cam supported by said turret, and means for operating said shaft, substantially as described.

11. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, an elastic actuator for said tool consisting of a receiver containing compressed air having a movable member which acts upon said tool, a stop which limits the downward thrust of the tool and which normally resists the action of said elastic actuator, a cam for raising the tool against the action of said movable member, a shaft bearing said cam supported by said turret and means for operating said shaft, substantially as described.

12. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, an elastic actuator for said tool consisting of a receiver for compressed air carried by said turret and having a movable member which acts upon said tool, a stop which limits the downward thrust of the tool and which normally resists the action of said elastic actuator, another compressed-air receiver stationarily supported on the turret-support which is connected with the aforesaid compressed-air receiver, a cam for raising the tool against the action of said movable member, a shaft bearing said cam supported by said turret and means for operating said shaft, substantially as described.

13. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, a pivoted tool-carrying arm, an elastic actuator for said tool consisting of a compressed-air cylinder carried by the turret and containing a piston, a pin interposed between said piston and the tool-carrying arm, a cam for raising said tool-carrying arm against the piston, a shaft bearing said cam supported by the turret and means for operating said shaft, substantially as described.

14. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret supported by it, a tool, a pivoted tool-carrying arm, an elastic actuator for said tool consisting of a compressed-air cylinder carried by the turret and containing a piston, a pin interposed between said piston and the tool-carrying arm, a compressed-air receiver stationarily supported by the turret-support connected by a pipe with said cylinder, a cam for raising said tool-carrying arm against the piston, a shaft bearing said cam supported by the turret and means for operating said shaft, substantially as described.

15. In a stone-dressing machine, the combination of a turret-support movable back and forth, a revoluble turret carried by it, a tool, a pivoted tool-carrying arm, an elastic actuator for said tool consisting of a compressed-air cylinder supported by the turret and containing a piston, a pin interposed be-

tween said piston and the tool-carrying arm, a stop which limits the downward thrust of the tool and which normally resists the action of said elastic actuator, a cam for raising said tool-carrying arm against the piston, a shaft bearing said cam supported by the turret and means for operating said shaft, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT F. JONES.

Witnesses:
B. J. NOYES,
H. B. DAVIS.