

No. 724,707.

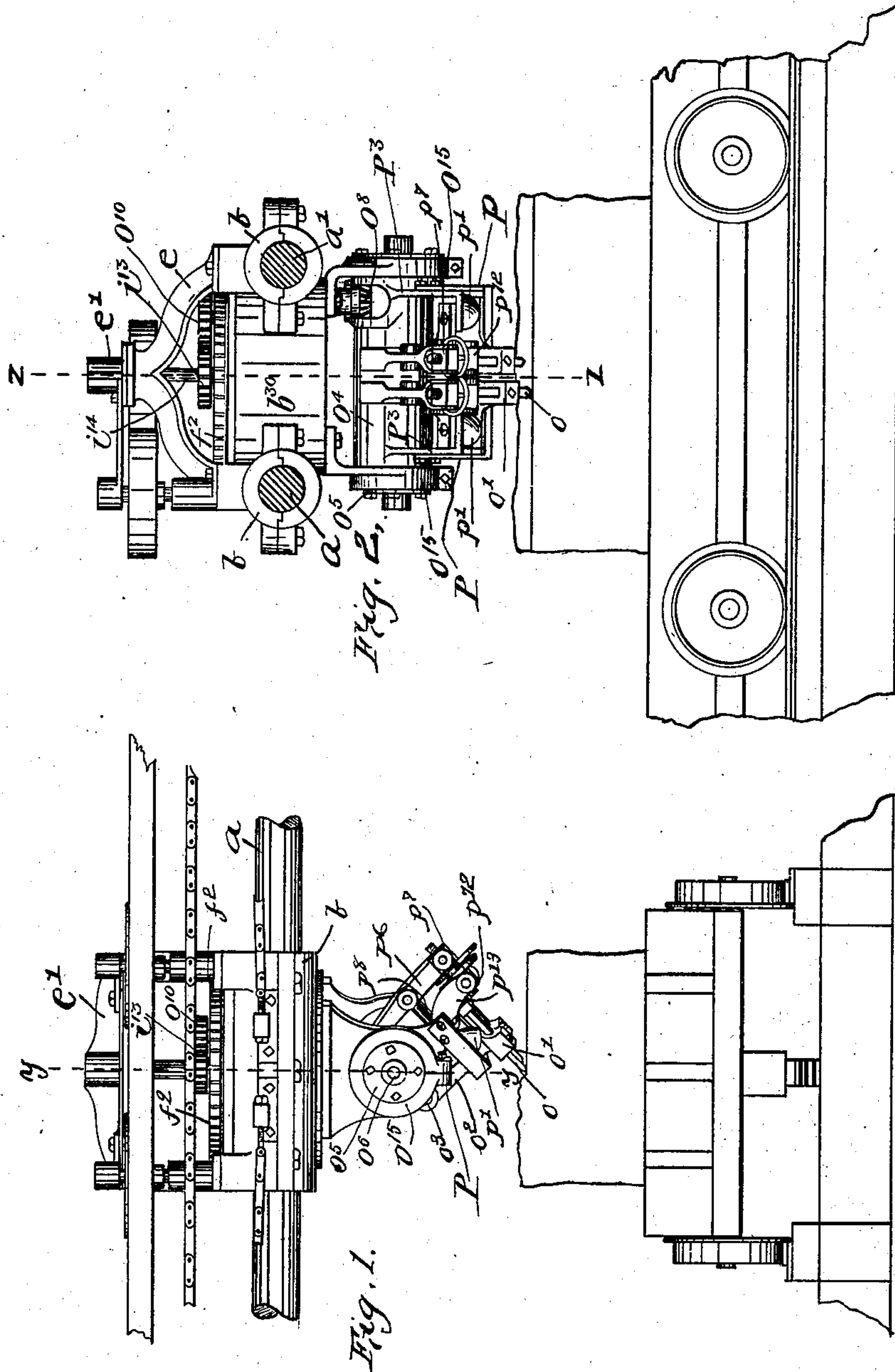
PATENTED APR. 7, 1903.

A. F. JONES.
STONE DRESSING MACHINE.

APPLICATION FILED JUNE 6, 1900.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

Frederic A. Parkhurst.
H. B. Davis.
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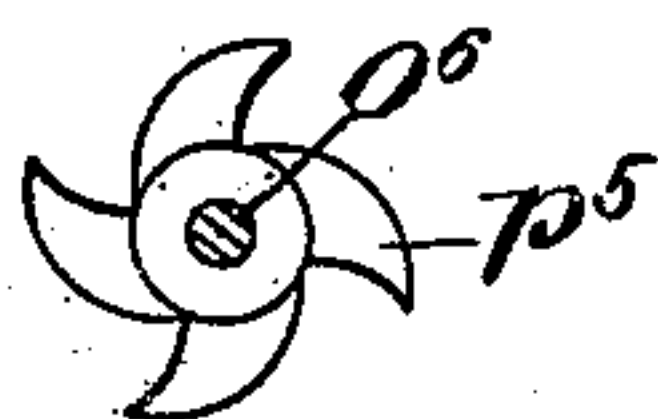
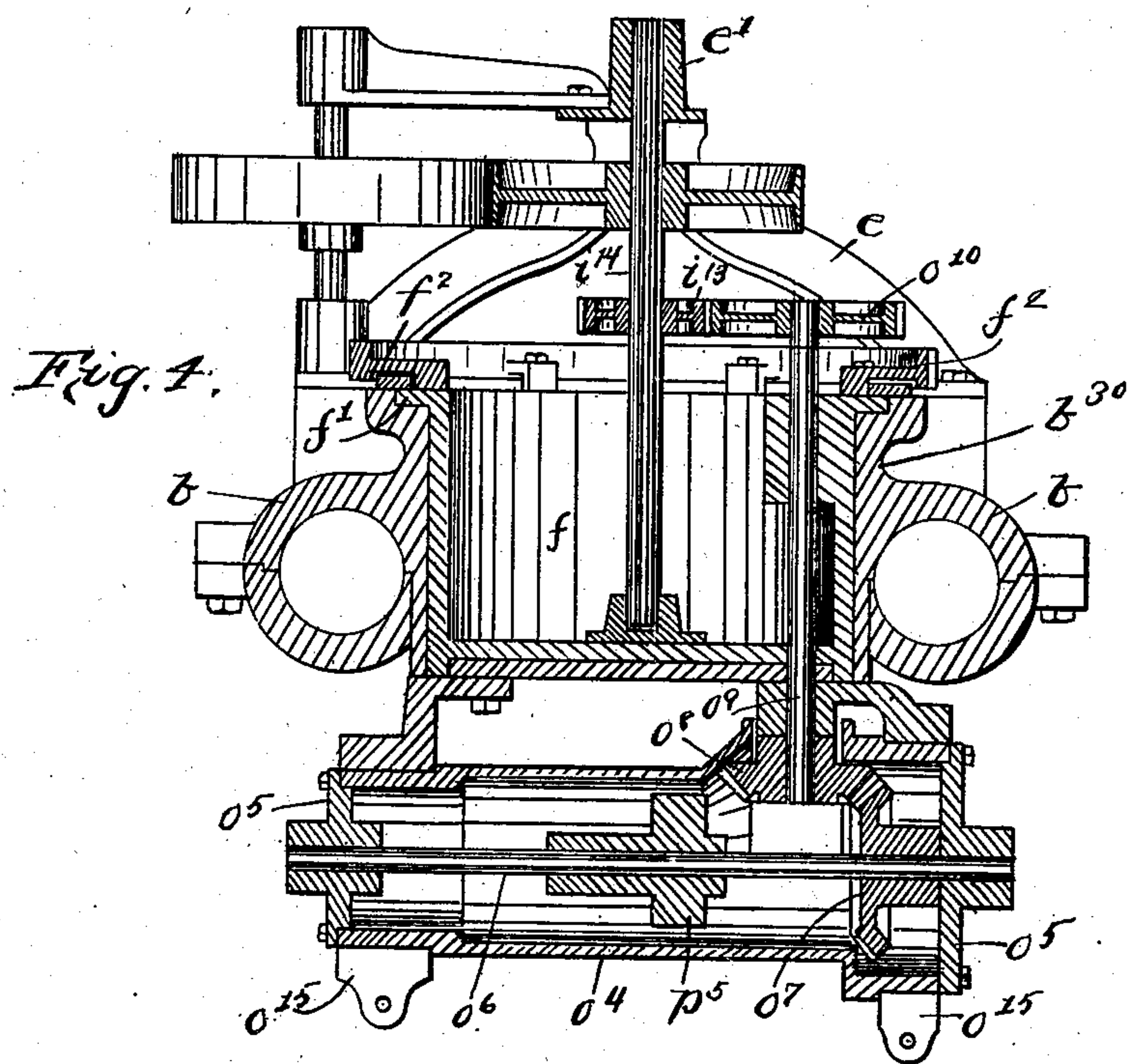
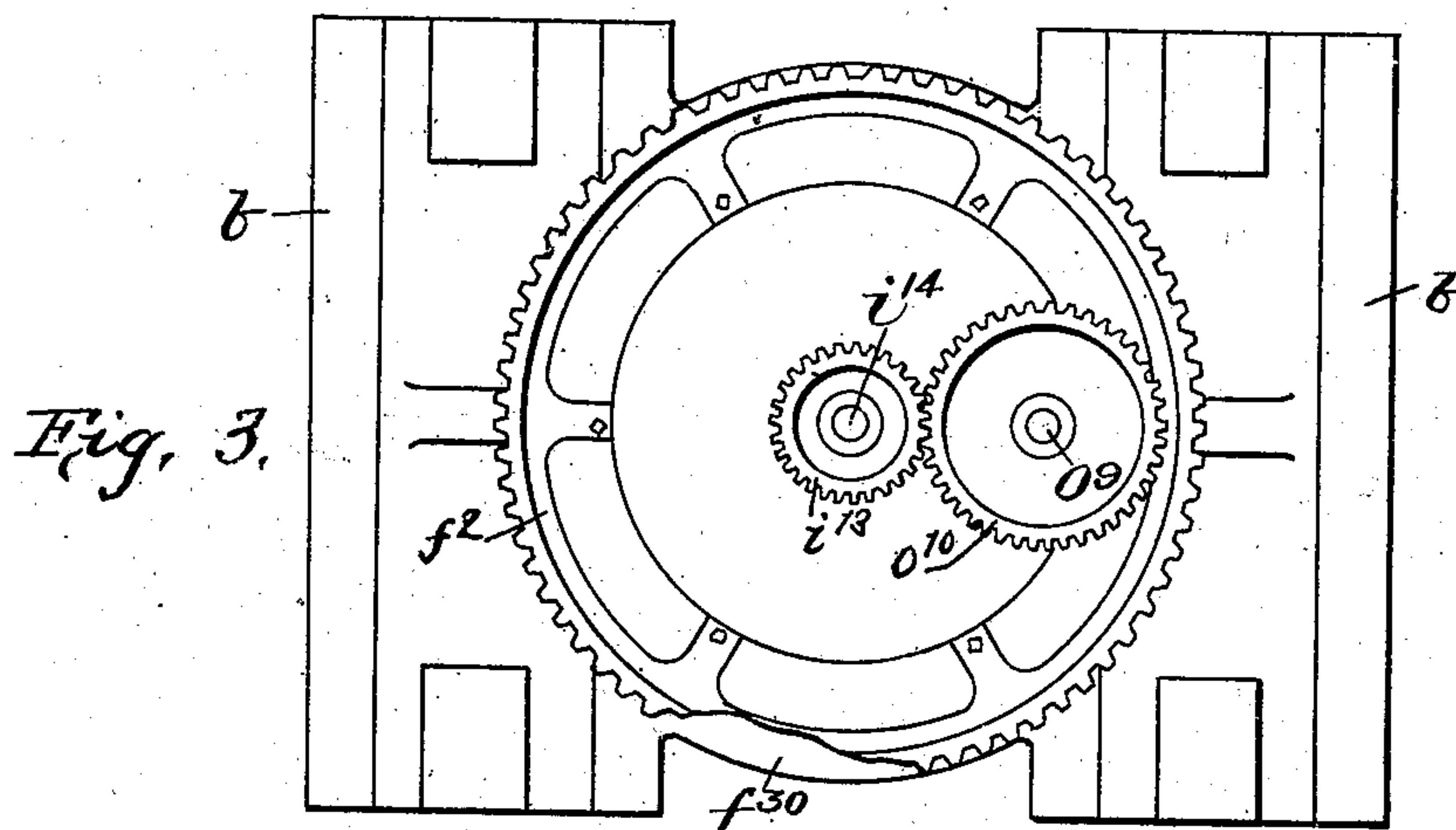
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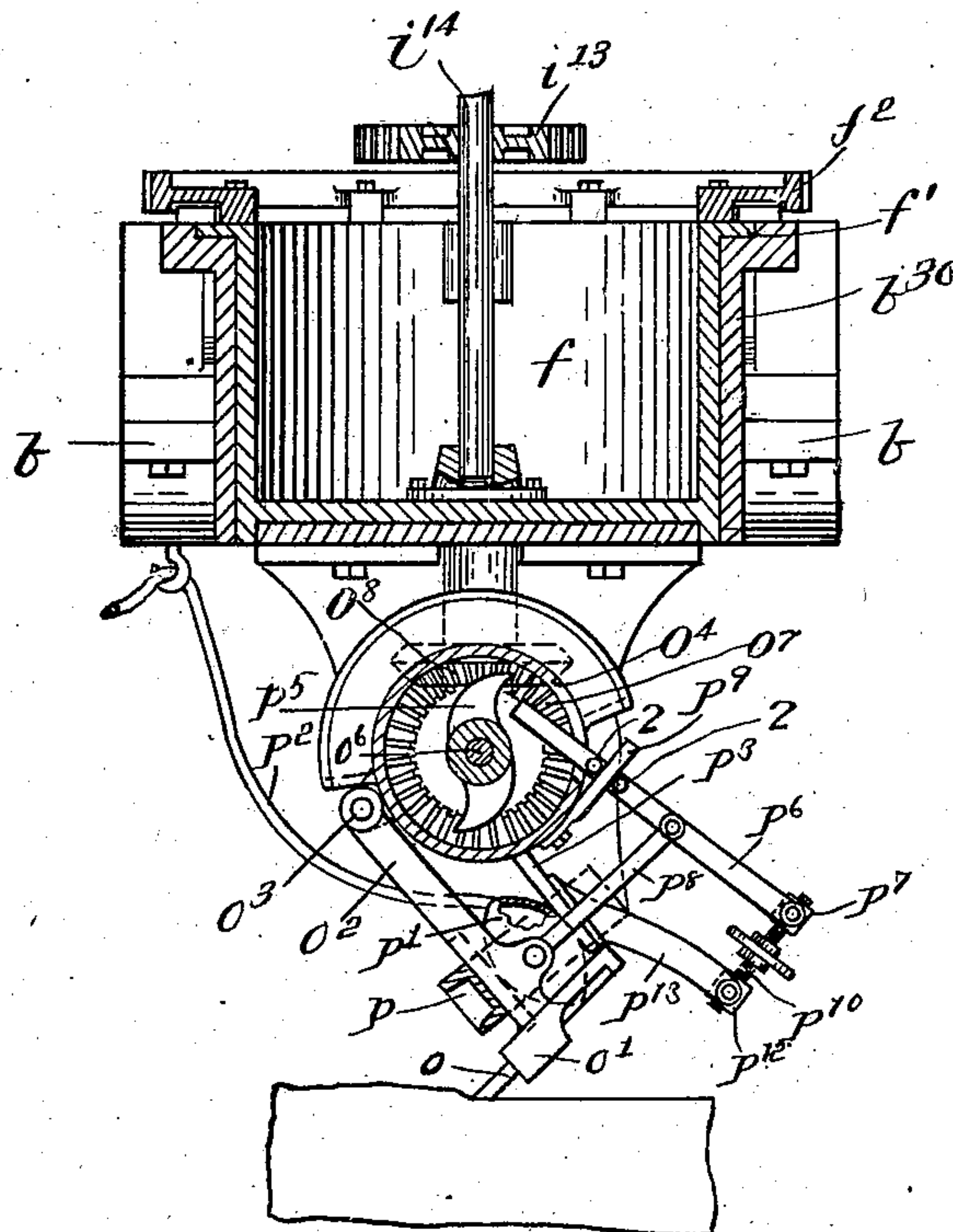


Fig. 6.

Witnesses:

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Inventor:

Albert F. Jones,
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No. 724,707.

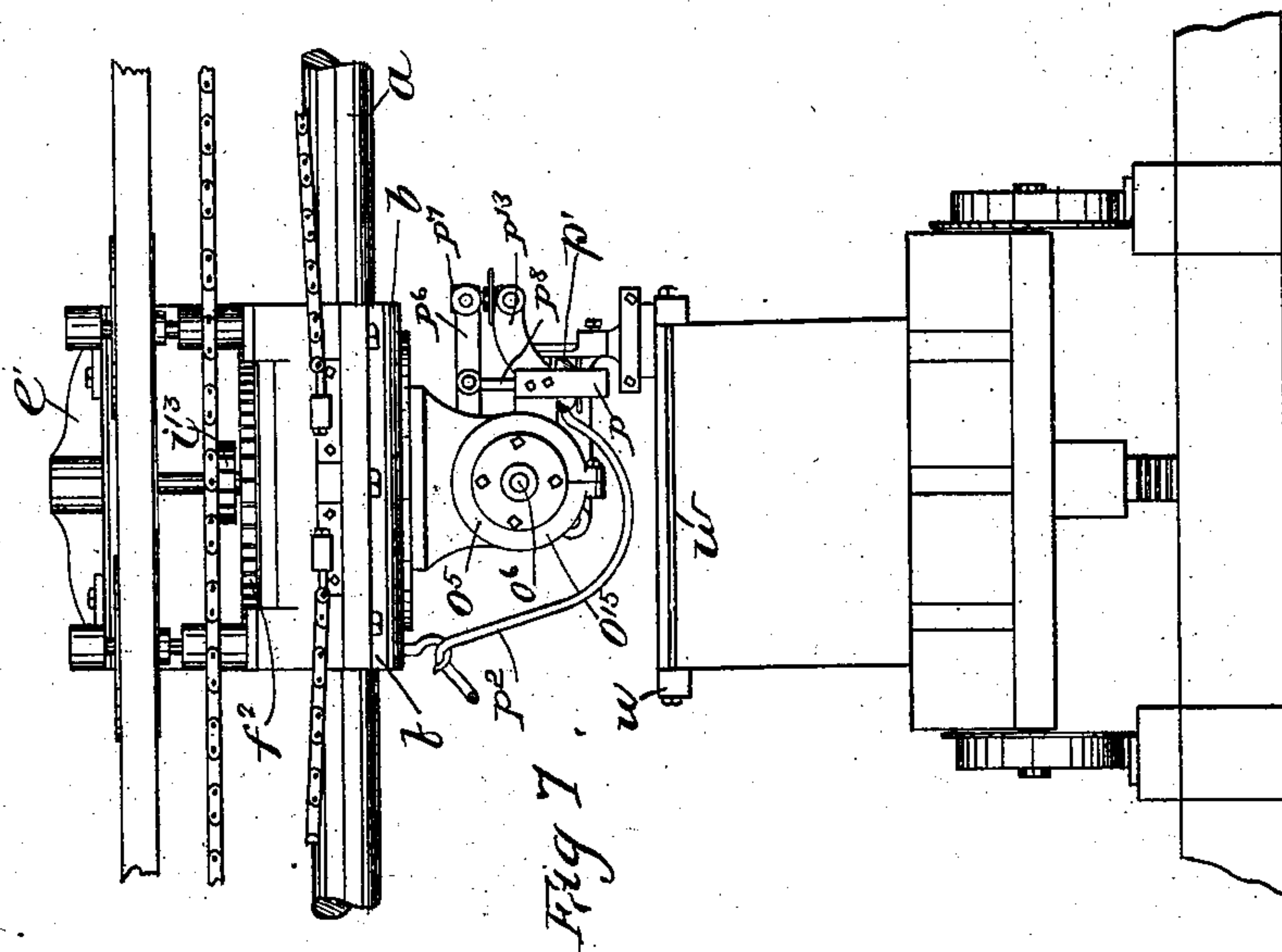
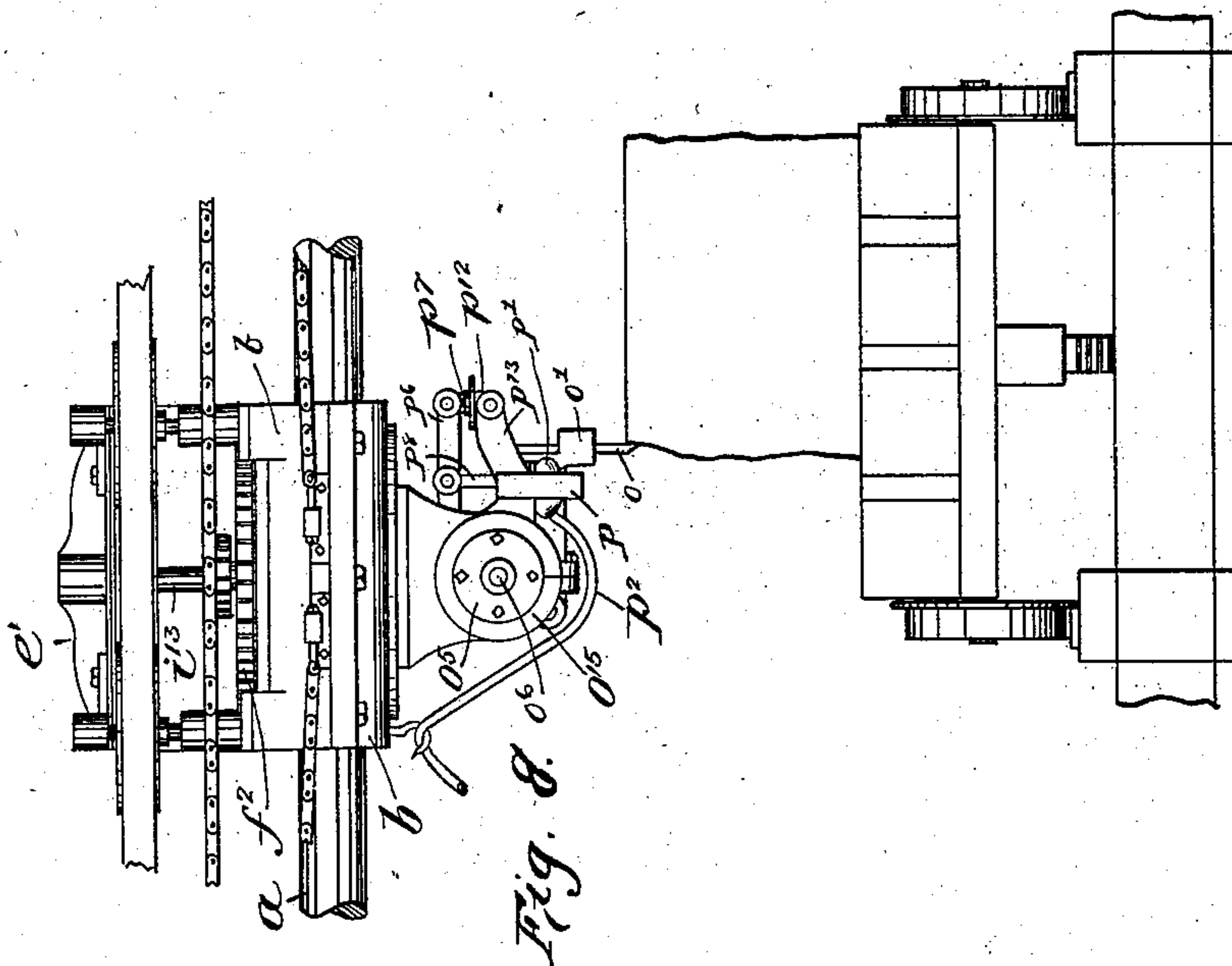
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NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES:
Frederic W. Parkhurst.
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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. 724,707, dated April 7, 1903.

Application filed June 6, 1900. Serial No. 19,271. (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 characters 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. 18,584, filed May 31, 1900.

The invention has for its object to improve and simplify the construction of the tool-carrying head or turret-support; and it consists, essentially, in providing an oscillating frame beneath the revoluble turret which is carried by the turret-support, said oscillating frame being constructed, arranged, and supported so as to be turned on a horizontal axis at right angles to the movement of the turret and to suitably support a tool or tools, so that by turning said frame on its horizontal axis the tool or tools carried by it may be caused to occupy any different angle in the cycle in which said frame is rotated.

The invention also consists in providing means for varying the angle of the tool relative to the tool-carrying arm which is supported by said oscillating frame, also in an improved form of elastic actuator for the tool which is adapted to hold said tool in its lowermost position against a fixed stop and which operates to suddenly thrust downward the tool whenever said tool is raised against the action of said actuator and released, also in an improved form of operating device for raising said tool against the action of the elastic actuator which is constructed and arranged to operate in any position that the oscillating frame may be disposed relatively to the turret, and also in any position that the turret may be set relative to the turret-support bearing it.

Figure 1 shows in front elevation a turret-support embodying this invention, the turret bearing the tools being swung on its vertical axis so that the tools which occupy a position

oblique to a horizontal plane also occupy a position oblique to the travel of said turret-support. Fig. 2 is a right-hand end view of the turret-support, showing the turret swung so that the obliquely-disposed tools occupy a position directly in line with the travel of said turret-support. Fig. 3 is a view showing in plan a portion of the frame of the turret-support and also showing a plan view of the turret. Fig. 4 is an enlarged vertical section of the turret-support shown in Fig. 1, taken on the dotted line *y*, the tools being removed. Fig. 5 is a detail showing the cams on the cam-carrying shaft for raising the tools against the action of an elastic actuator. Fig. 6 is a vertical section of the turret-support shown in Fig. 4, taken on the dotted line *z* of Fig. 2. Fig. 7 is a side view of a turret-support similar to Fig. 1, showing a bushing-tool provided in lieu of a pointing-tool. Fig. 8 is a side view of the turret-support similar to Fig. 7, showing the frame bearing the tools turned on its horizontal axis into position whereby the tools may operate as chiseling-tools in a vertical direction on the side of a stone.

The frame of the turret-support comprises, essentially, a pair of parallel boxes *b b*, which embrace horizontal bars *a a'*, on which said turret-support travels back and forth, a cylindrical shell *b³⁰*, cast integral with the upper members of said boxes *b b*, a pair of yokes *e e*, bolted to the opposite ends of said boxes, and a yoke *e'*, bolted at its ends to the yokes *e e*.

The turret *f* is made as a cylindrical shell, which fits and is free to rotate within the shell *b³⁰*, 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 *b³⁰*.

The turret *f* turns on a vertical axis and supports the operating-tools.

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 *f²* is secured to the upper end of the turret, which is engaged by a pinion (not shown) adapted to be operated by any suitable means.

The parts thus far described are substantially the same as the corresponding parts of the application above referred to, and so far as this invention is concerned the same means
5 may be provided for moving the turret-support back and forth on the horizontal bars $a a'$ as is illustrated in said application.

Beneath the turret f an oscillating tool-supporting frame is located which is carried by
10 said turret, and, as herein shown, said frame consists, essentially, of a hollow cylinder o^4 , made larger in diameter at one end than at the other to provide ample space within it for the operating parts to be described and having
15 its opposite ends closed by circular disks o^5 . This frame is disposed in a horizontal position beneath the turret f and is supported at its opposite ends by clamps o^{15} , which are formed as brackets or hangers secured to the
20 under side of the turret f . When the clamps o^{15} are loosened, the frame may be turned on its horizontal axis freely; but when said clamps are tightened said frame will be held in fixed position.

25 The oscillating frame o^4 contains within it a shaft o^6 , which passes lengthwise through it from end to end, having its bearings in the circular disks o^5 at the ends of said frame, and said shaft has secured to it a beveled
30 gear o^7 , which is engaged by a beveled gear o^8 , secured to the lower end of an upright shaft o^9 , which passes up through said turret f and which has secured to its upper projecting end a toothed wheel o^{10} , which is engaged
35 and driven by a toothed wheel i^{13} , secured to the upright shaft i^{14} , which is disposed coincident with the vertical axis of the turret and which is driven by any suitable means so far as this invention is concerned. As the shaft
40 i^{14} is rotated the horizontally-disposed shaft o^6 will be correspondingly rotated.

By disposing the shaft i^{14} coincident with the vertical axis of the turret and connecting the upright shaft o^9 with it by gears, as described, it will be seen that the horizontal
45 shaft o^6 may be rotated regardless of the position of the turret and even as said turret is being revolved. The horizontal shaft o^6 is disposed on the frame o^4 also coincident with
50 the horizontal axis of said frame, and by so disposing the shaft and connecting it by gears with the upright shaft o^9 it will be seen that said shaft may be rotated regardless of the position of the oscillating frame bearing
55 it and also regardless of the position of the turret.

A cutting-tool o , which may be a pointing-tool, is suitably supported by a tool-holder o' , which is attached to the extremity of an
60 arm o^2 , pivoted at o^3 to an ear projecting from the outside of the rotatable frame o^4 . A strap p is attached at its ends to ears projecting from the frame o^4 and passes beneath the tool-carrying arm, and said strap serves
65 as a fixed stop, which limits the downward thrust of the tool. The tool-carrying arm o^2 is normally held pressed into engagement

with said strap p by means of an elastic actuator, which in this instance consists of a flexible bulb p' , adapted to be connected by a pipe
70 p^2 with a cylinder (not shown) containing compressed air, and said bulb being in open communication with said cylinder it will be seen that said bulb will likewise contain compressed air. An abutment p^3 is provided
75 just above the flexible bulb p' , which is made as an L-shaped ear on the frame o^4 , and the flexible bulb p' is interposed between said fixed abutment and the tool-carrying arm, and said flexible bulb thereby serves to nor-
80 mally press the tool-carrying arm down onto the stop p .

To raise the tool-carrying arm o^2 against the action of the compressed air contained in the bulb, a cam p^5 is secured to the horizontal
85 shaft o^6 , which is adapted to engage the end of a lever p^6 , pivoted to a block p^7 and connected by a link p^8 with the arm o^2 .

The movement of the pivoted arm p^6 is guided by pins 2 2 on the arm working astride
90 a fixed bar p^9 .

The block p^7 has a screw-threaded hole through it which receives one end of a right and left threaded screw p^{10} , provided with a hand-wheel for turning it, the opposite end
95 of said screw passing through a block p^{12} , pivotally connected to an arm p^{13} , which is rigidly secured to the frame o^4 —as, for instance, it may be secured to the fixed abutment thereon.

It will be seen that as the shaft o^6 is revolved the cam p^5 will be revolved and will engage the arm p^6 and lift the tool-carrying arm o^2 against the action of the compressed
105 air contained in the bulb p' , and whenever the cam releases or disengages said arm the compressed-air bulb will operate to suddenly thrust downward the tool-carrying arm.

Referring to Fig. 7, the oscillating frame o^4 is swung to a position whereby the tool car-
110 ried by the tool-carrying arm occupies a vertical position, and a bushing-tool is provided in lieu of a pointing-tool.

Referring to Fig. 8, the oscillating frame o^4 is swung into substantially the same position
115 as illustrated in Fig. 7 and a chiseling-tool provided, and with the parts in this position said chiseling-tool may operate upon the side of the stone.

When bushing the stone near the edge,
120 there is danger of the edges or corners chipping off, and to obviate this a frame is provided, (see Fig. 7,) which embraces the stone and holds the edges intact. This frame consists of four bars w secured together.

I claim—

1. In a stone-dressing machine, a traveling turret-support, a turret carried by it revolvable on a vertical axis, a frame located beneath and carried by said turret and adapted to
130 oscillate on a horizontal axis at right angles to the movement of the turret, means for securing said oscillating frame in whatever position it may be set, a tool carried by said os-

- cillating frame, a stop carried by said oscillating frame which limits the downward movement of the tool, an elastic actuator for thrusting said tool downward against said stop, a cam for raising said tool against the action of said elastic actuator and means for rotating said cam in any position of adjustment of said oscillating frame and turret, substantially as described.
2. In a stone-dressing machine, a turret-support, a turret carried by it revoluble on a vertical axis and bearing a tool, a stop for limiting the downward thrust of said tool, an elastic actuator for holding said tool in its lowermost position resisted by said stop consisting of a flexible bulb containing compressed air, a cam for raising said tool against the action of said flexible bulb and means for rotating said cam, substantially as described.
3. In a stone-dressing machine, a turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and carried by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, means for securing said frame in whatever position it may be set, a tool-carrying arm pivoted to said oscillating frame, a tool carried by said arm, a stop for limiting the downward thrust of said tool, an elastic actuator for holding said tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of said elastic actuator, and means for rotating said cam, substantially as described.
4. In a stone-dressing machine, a traveling turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, means for securing said oscillating frame in whatever position it may be set, a tool-carrying arm borne by said oscillating frame, a tool carried by said arm, a stop for limiting the downward movement of said tool-carrying arm, an elastic actuator borne by said oscillating frame for thrusting said tool-carrying arm downward, a cam for raising said tool-carrying arm against the action of said elastic actuator, a horizontal shaft bearing said cam having its bearings in said oscillating frame coincident with its axis, a driving-shaft connected therewith for operating it which passes up through the turret, and means for rotating said driving-shaft, substantially as described.
5. In a stone-dressing machine, a traveling turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, means for securing said oscillating frame in whatever position it may be set, a tool-carrying arm pivoted to said oscillating frame, a tool carried by said arm, a stop for limiting the downward movement of said tool-carrying arm, an elastic actuator borne by said oscillating frame for thrusting said tool-carrying arm downward, a cam for raising said tool-carrying arm against the action of said elastic actuator, a horizontal shaft bearing said cam having its bearings in said oscillating frame coincident with its axis, a driving-shaft connected therewith for operating it which passes up through the turret and means for rotating said driving-shaft, substantially as described.
6. In a stone-dressing machine, a turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, a tool-carrying arm pivoted to said oscillating frame, a tool carried by said arm, a stop for limiting the downward movement of said tool-carrying arm, a flexible bulb containing compressed air for normally holding said tool-carrying arm in engagement with said stop, a cam for raising said tool-carrying arm against the action of said flexible bulb and means for rotating said cam, substantially as described.
7. In a stone-dressing machine, a turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, a tool-carrying arm pivoted to said oscillating frame, a tool carried by said arm, a stop for limiting the downward movement of said tool-carrying arm, a flexible bulb interposed between said tool-carrying arm and a fixed abutment for holding said tool-carrying arm in engagement with the stop, a cam for raising said tool-carrying arm against the action of said flexible bulb and means for rotating said cam, substantially as described.
8. In a stone-dressing machine, a traveling turret-support, a turret carried by it revoluble on a vertical axis and bearing a tool, a stop for limiting the downward thrust of said tool, an elastic actuator for thrusting said tool downward consisting of a flexible bulb containing compressed air, a cam for raising said tool against the action of said flexible bulb and means for rotating said cam, substantially as described.
9. In a stone-dressing machine, a traveling turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to oscillate on a horizontal axis at right angles to the movement of the turret, a tool carried by said oscillating frame, a stop for limiting the downward thrust of said tool, an elastic actuator for thrusting said tool downward consisting of a flexible bulb containing compressed air, a cam for raising said tool against the action of said flexible bulb and means for rotating said cam, substantially as described.
10. In a stone-dressing machine, a traveling turret-support, a turret carried by it revoluble on a vertical axis, a frame located beneath and supported by said turret adapted to os-

5 cillate on a horizontal axis at right angles to
 the movement of the turret, means for secur-
 ing said oscillating frame in whatever posi-
 tion it may be set, a tool-carrying arm pivot-
 10 ed to said oscillating frame, a tool carried by
 said arm, a stop for limiting the downward
 movement of said tool-carrying arm, a flexi-
 ble bulb containing compressed air for thrust-
 ing said tool downward, a cam for raising said
 15 tool-carrying arm against the action of said
 flexible bulb and means for rotating said cam,
 substantially as described.

11. In a stone-dressing machine, a traveling
 turret-support, a turret carried by it revolu-
 15 ble on a vertical axis, a frame located beneath
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 ed to said oscillating frame, a tool carried by
 said arm, a stop for limiting the downward
 movement of said tool-carrying arm, a flexi-
 ble bulb interposed between said tool-carry-
 ing arm and a fixed abutment for thrusting 25
 said tool-carrying arm downward, a cam for
 raising said tool-carrying arm against the ac-
 tion of said flexible bulb and means for ro-
 tating said cam, substantially as described.

In testimony whereof I have signed my 30
 name to this specification in the presence of
 two subscribing witnesses.

ALBERT F. JONES.

Witnesses:

B. J. NOYES,

H. B. DAVIS.