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PRESS.

No. 563,122 Patented June 30, 1896.

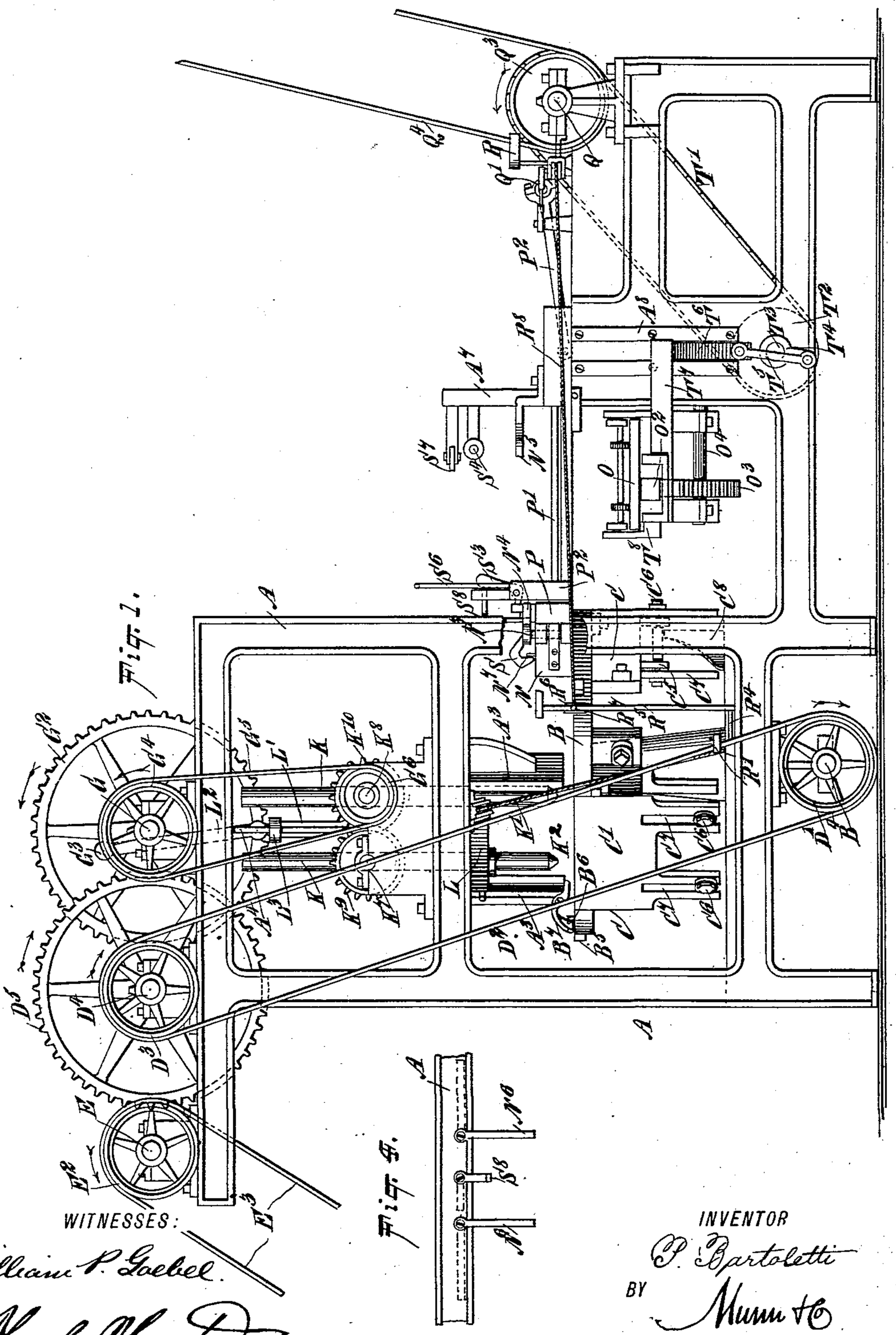

Fig. 1.

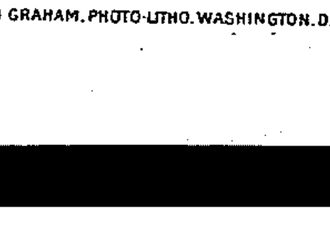

Fig. 4.

WITNESSES:

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PRESS.

No. 563,122. Patented June 30, 1896.

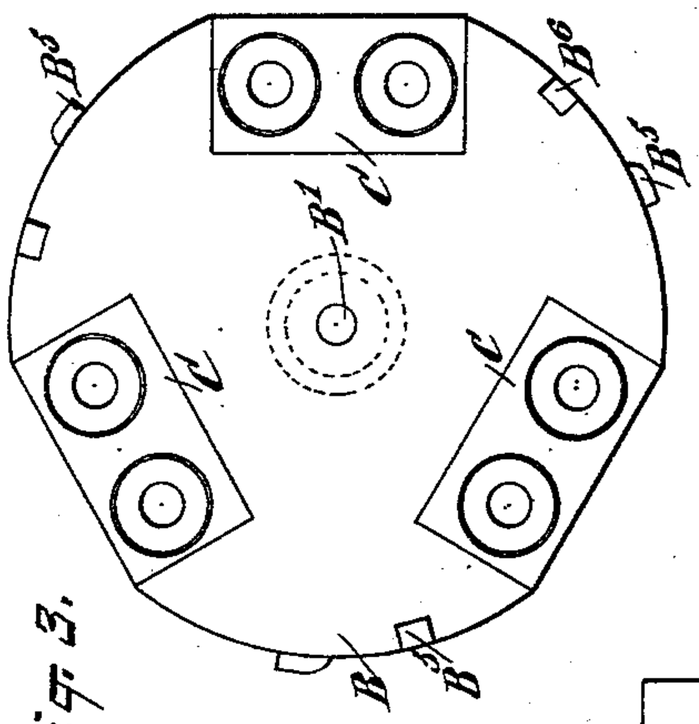

Fig. 3.

Fig. 2.

WITNESSES:

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P. BARTOLETTI.

PRESS.

No. 563,122. Patented June 30, 1896.

Fig. 5.

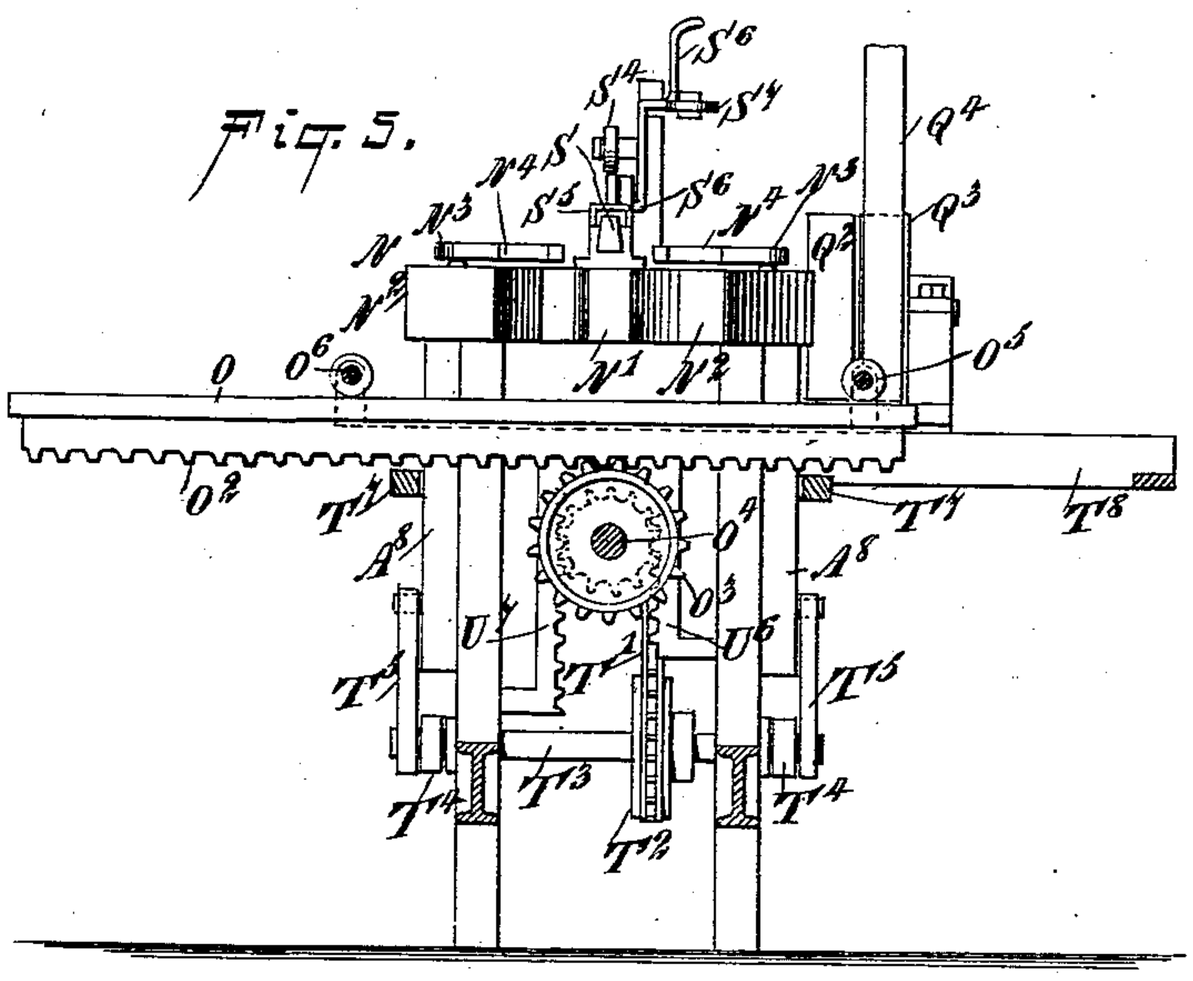


Fig. 6.

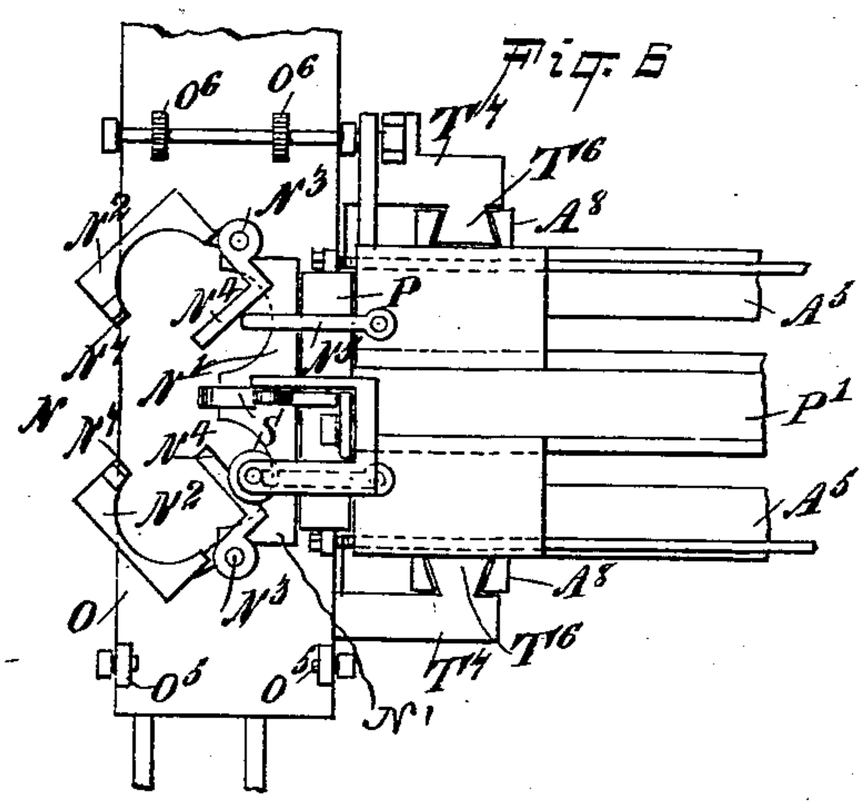
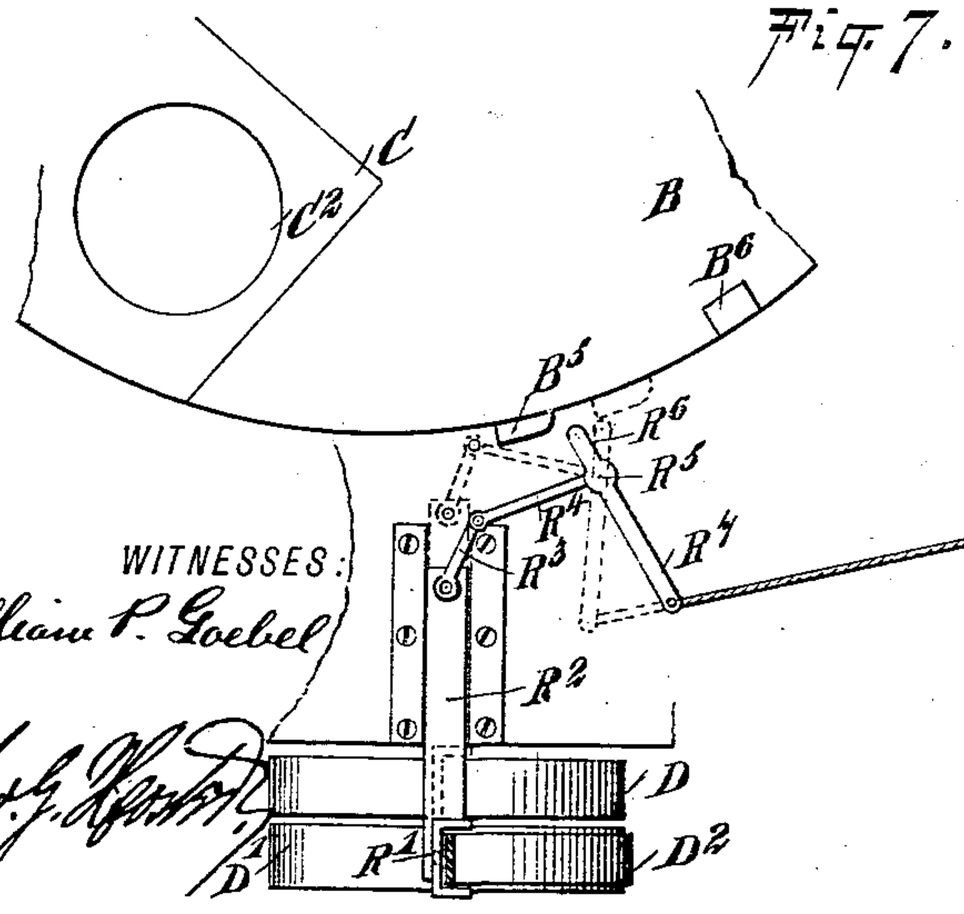
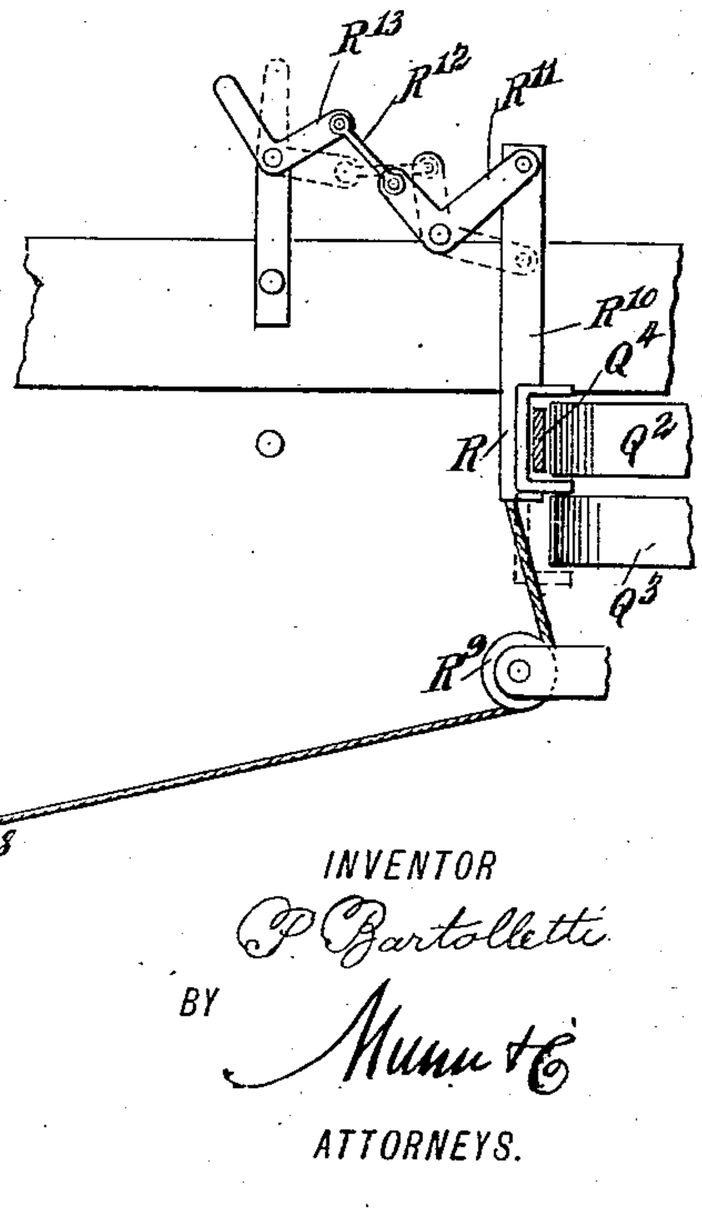


Fig. 7.





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P. BARTOLETTI.

PRESS.

No. 563,122. Patented June 30, 1896.

Fig. 8.

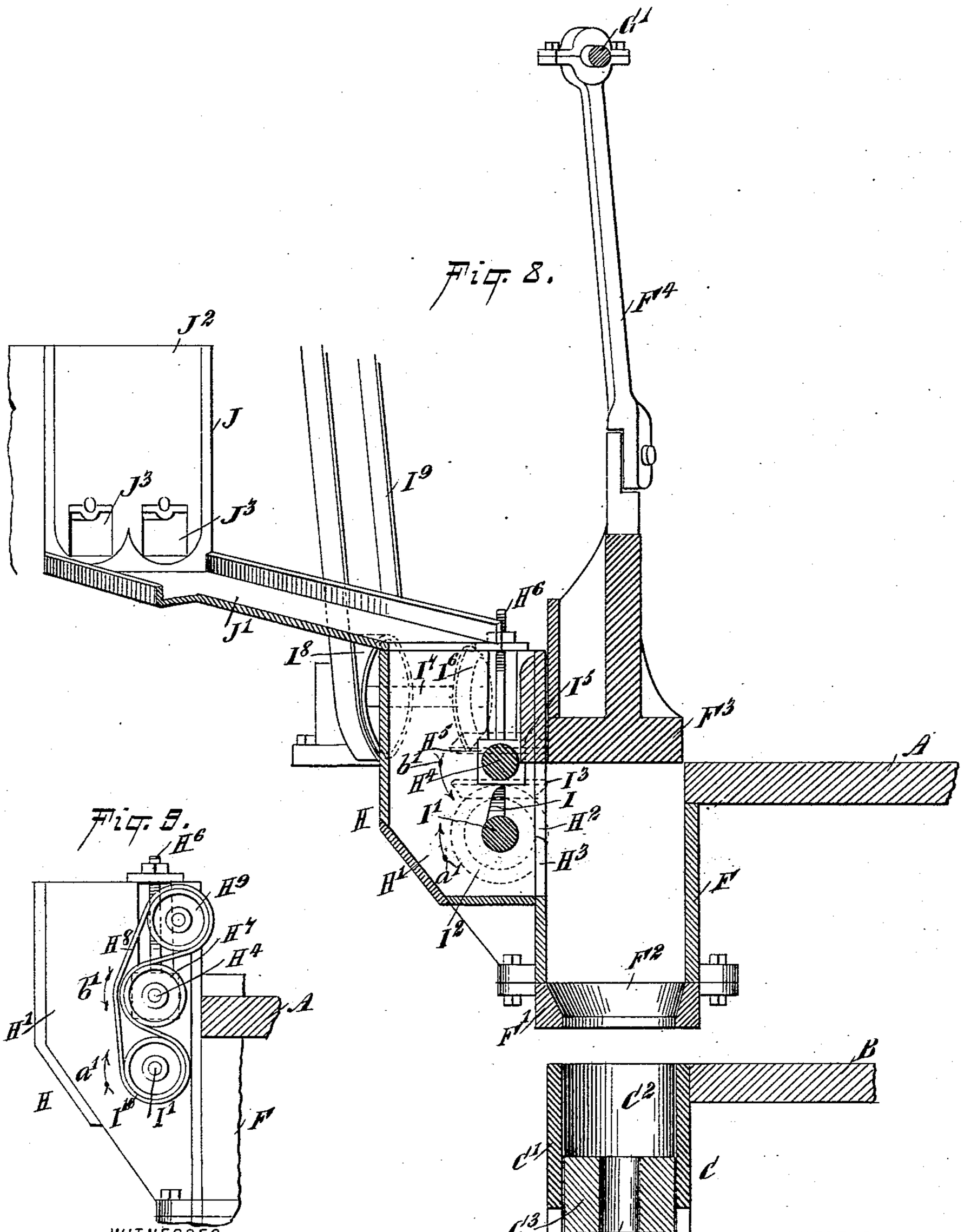

Fig. 9.

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Fig. 10.

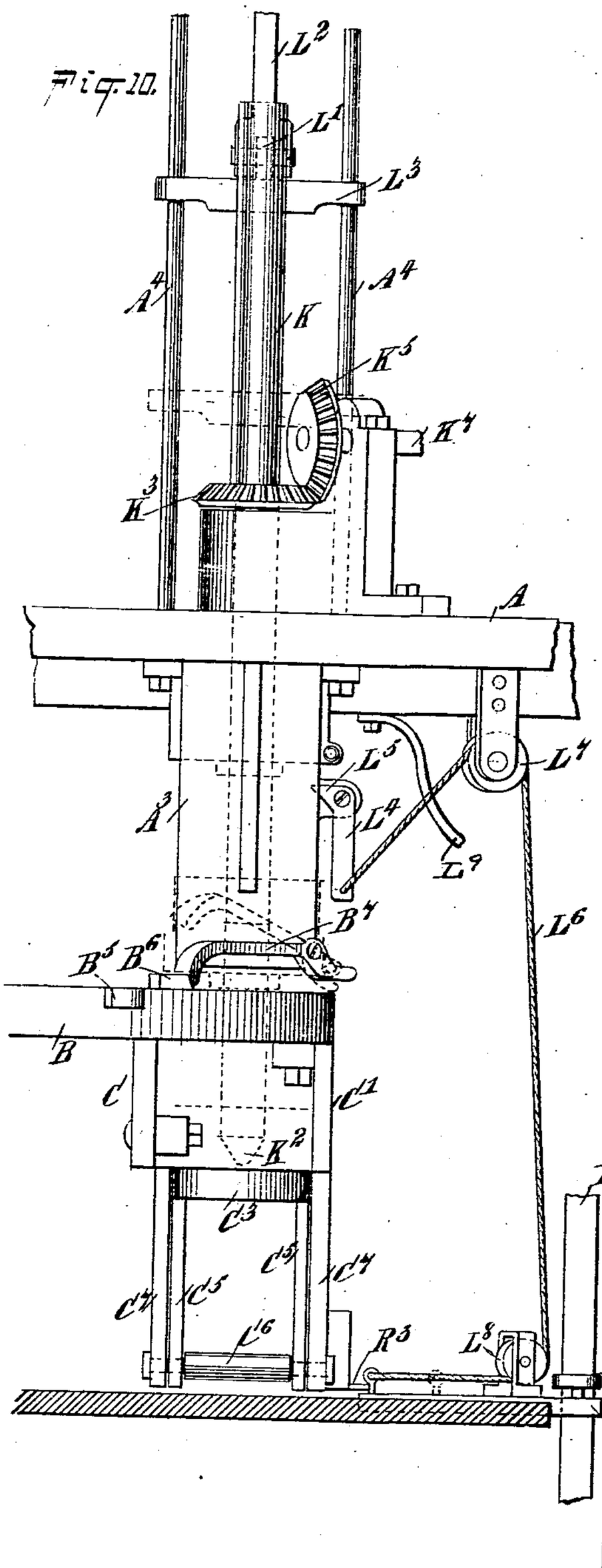


Fig. 11.

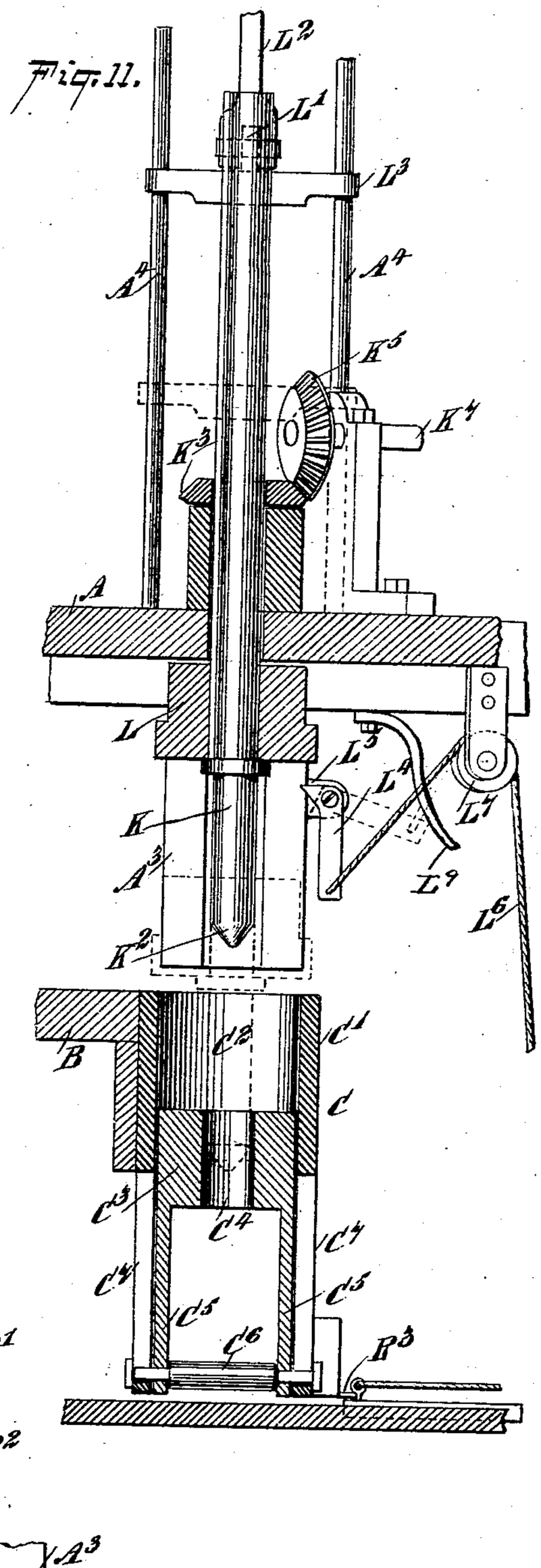
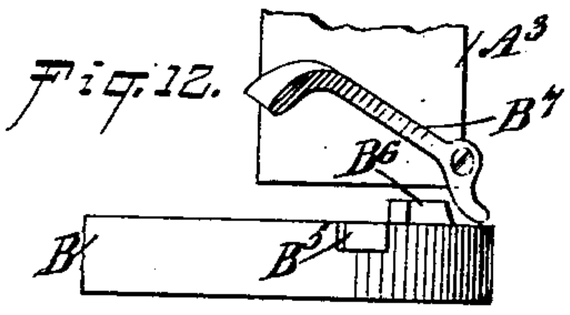


Fig. 12.



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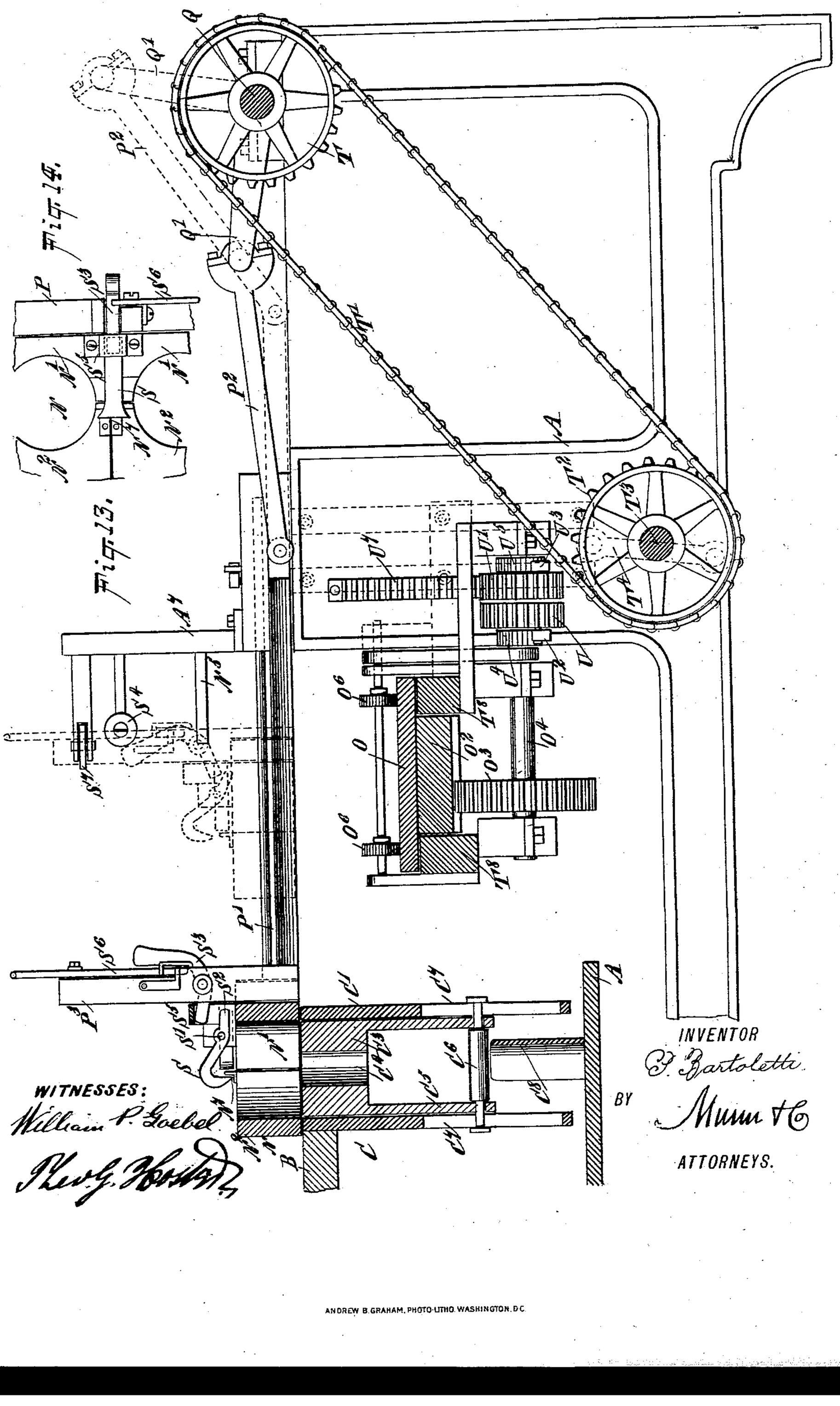

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Fig. 15.

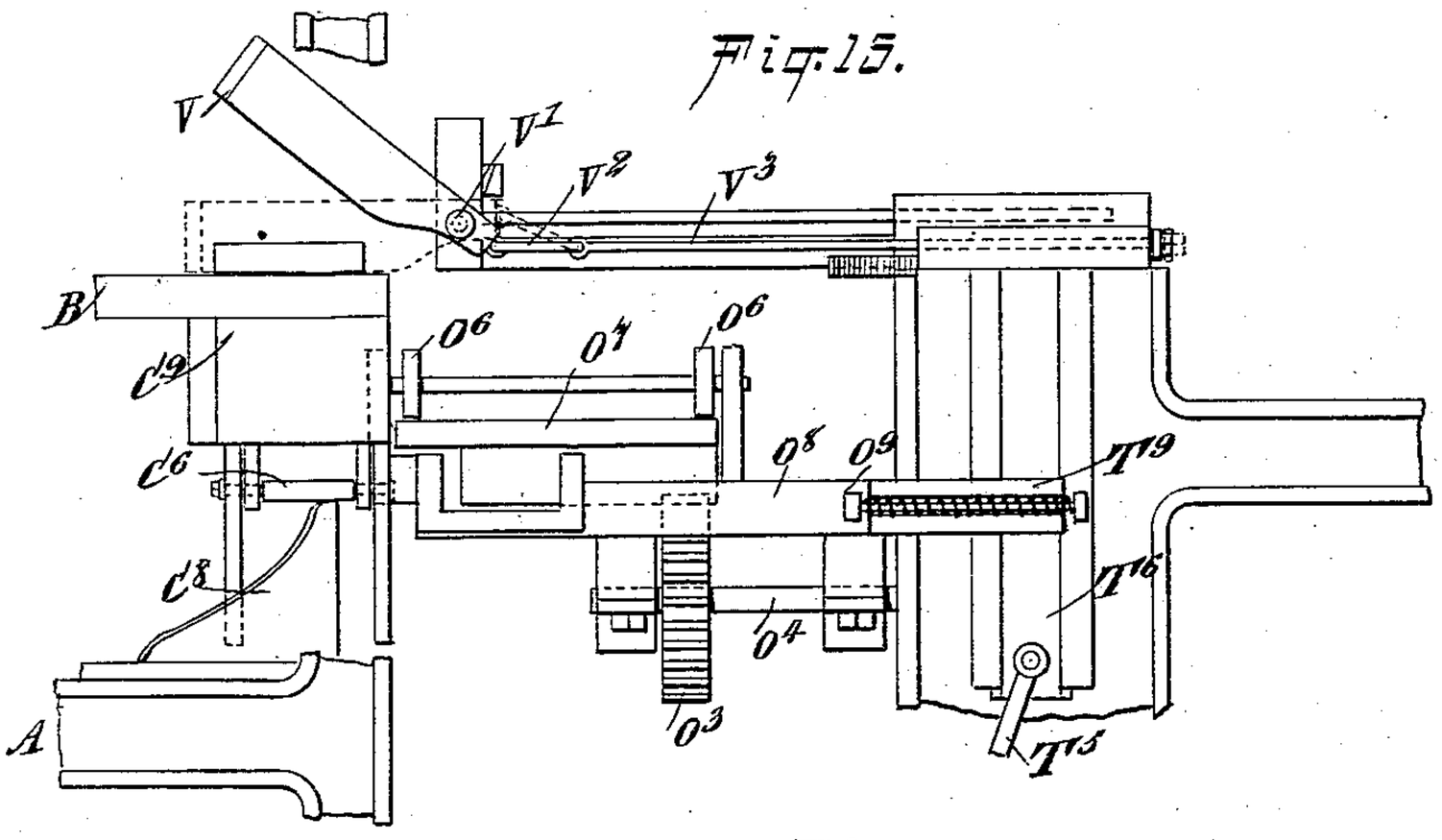


Fig. 16.

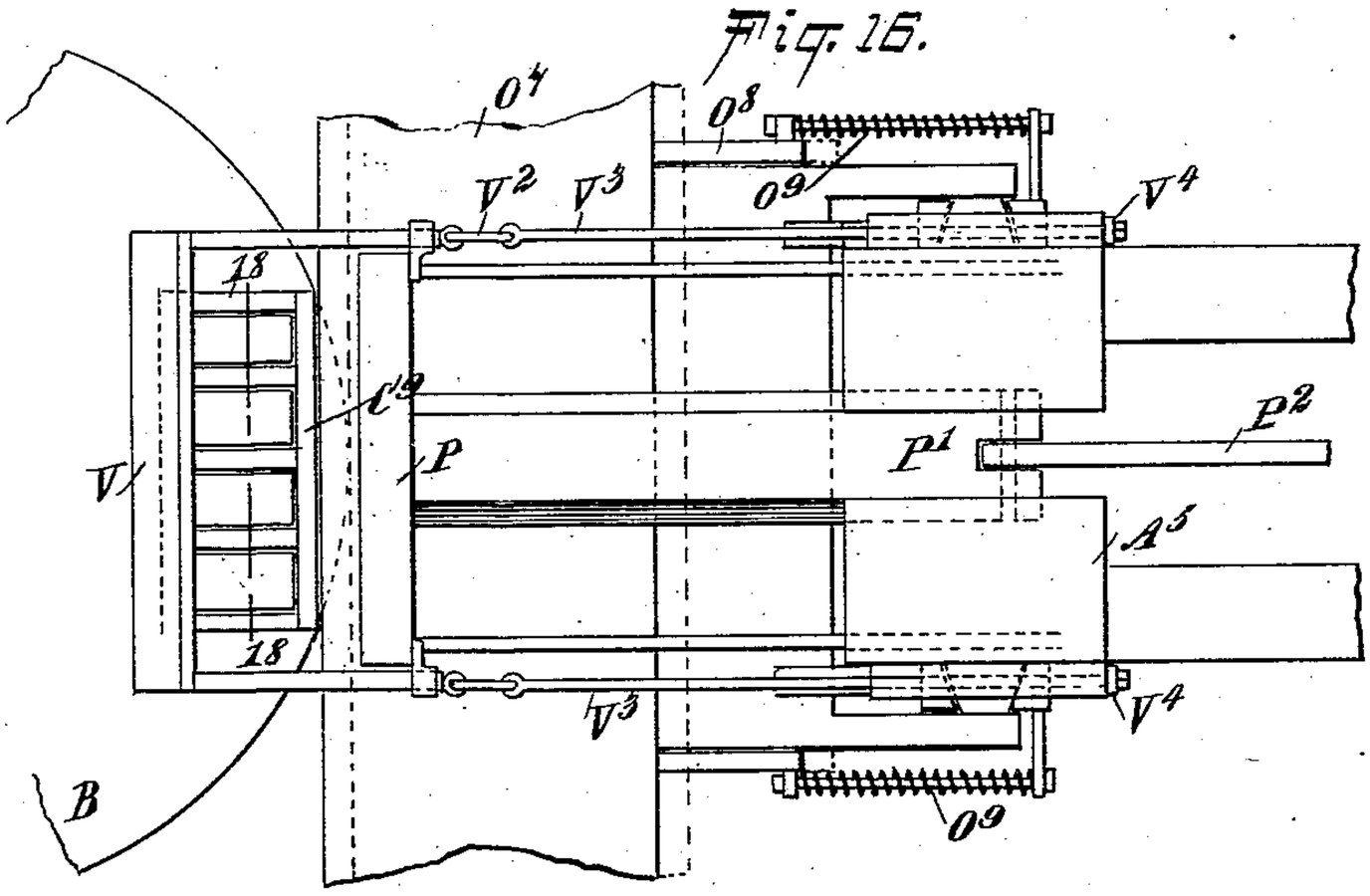


Fig. 18

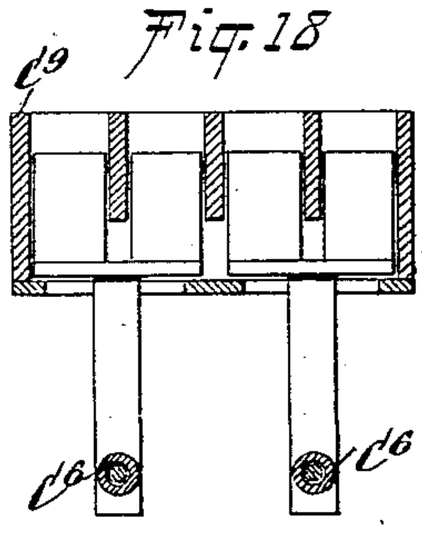
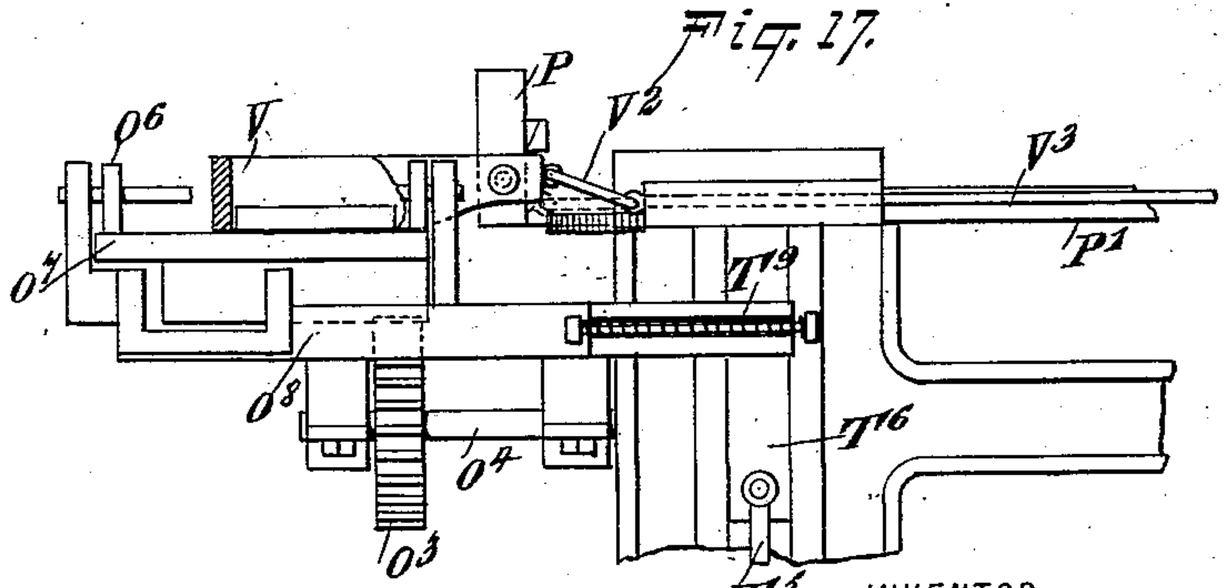


Fig. 17.



WITNESSES:

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Henry Hoostin

INVENTOR

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UNITED STATES PATENT OFFICE.

PETER BARTOLETTI, OF MONONGAHELA CITY, PENNSYLVANIA.

PRESS.

SPECIFICATION forming part of Letters Patent No. 563,122, dated June 30, 1896.

Application filed October 18, 1895. Serial No. 566,137. (No model.)

To all whom it may concern:

Be it known that I, PETER BARTOLETTI, a subject of the King of Italy, at present residing in Monongahela City, in the county of Washington and State of Pennsylvania, have invented a new and Improved Press, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved press for forcing plastic material into molds, to form articles of various shapes, the press being, however, more especially designed for rapidly making ordinary clay cylinders.

The invention consists principally of an intermittently-revolving table carrying molds having movable bottoms, a box arranged over said table and provided with a reciprocating plunger for pressing the material into the molds, and a fixed cam for moving said mold-bottoms, to push the pressed article out of the mold.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the revoluble mold-table. Fig. 4 is a front elevation of the fixed stops for actuating part of the carrier mechanism. Fig. 5 is a transverse section of the carrier for removing the finished article from the mold-table, the section being on the line 5 5 of Fig. 2. Fig. 6 is a plan view of part of the same. Fig. 7 is an enlarged plan view of the double belt-shifting device. Fig. 8 is an enlarged sectional side elevation of the mixing and pressing device, the section being on the line 8 8 of Fig. 2. Fig. 9 is a side elevation of the driving mechanism for the mixing device. Fig. 10 is an enlarged front elevation of the device for forming the circular opening in the article. Fig. 11 is a sectional side elevation of the same. Fig. 12 is a side elevation of the stop-dog for the mold-table. Fig. 13 is an enlarged sectional side elevation of the carrier for removing the pressed article from the mold-table, the section being on the line 13 13 of Fig. 2. Fig. 14 is a plan view of the jaws for holding the cylindrical article while being removed from the mold to the carrier-table. Fig. 15 is a side elevation of the carrier and part of the mold-table as arranged for ordinary bricks. Fig. 16 is a plan view of the same. Fig. 17 is an elevation of the same with part in section and with parts in a different position, and Fig. 18 is a transverse section of the mold for the ordinary bricks on the line 18 18 of Fig. 16.

The improved press is mounted in a suitably-constructed frame A, in which is arranged a horizontally-disposed mold-table B, carrying a number of molds C, arranged in a circle and formed according to the shape desired to be given to the article. The mold-table B receives an intermittent revolving motion, and is for this purpose provided on the lower end of its shaft B' with a beveled gear-wheel B^2, in mesh with a beveled gear-wheel B^3, (see dotted lines in Fig. 2,) secured on the inner end of a transversely-extending shaft B^4, journaled in suitable bearings on the frame A and carrying at its outer end a loose pulley D and a fast pulley D', engaged by a belt D^2, controlled by an automatic shifting device, hereinafter more fully described, said belt extending upwardly and passing over a pulley D^3, secured on a shaft D^4, journaled in the upper portion of the frame A and carrying a gear-wheel D^5, in mesh with a pinion E', secured on a driving-shaft E, carrying a pulley E^2, connected by a belt E^3 with other machinery for imparting a rotary motion to the said shaft E. The motion of the latter is transmitted by the pinion E' to the gear-wheel D^5, so that a constant rotary motion is given to the shaft D^4, and the latter, by the belt D^2 engaging the pulley D', rotates the shaft B^4 to impart one-third of a revolution to the mold-table B, after which the shifting device for the belt D^2 moves the latter from the fast pulley D' to the loose pulley D, so that the rotary motion of the shaft B^4 and the revolving of the table B ceases.

When the table B is at a standstill, one of the molds C is directly under a box F, supported in the frame A (see Fig. 8) and preferably made rectangular in shape, as indicated in Fig. 2. The box F is provided at its lower

end with a bottom F′, formed with two openings F^2, corresponding to the shape to be given to the article to be formed. For instance, if clay cylinders are to be made, the said openings are circular, with their mouths flaring outwardly, as plainly shown in Fig. 8. In the box F reciprocates a correspondingly-shaped plunger F^3, fitted to slide vertically in guideways A′, forming part of the frame A, and the upper part of the plunger F^3 is connected by a pitman F^4 with a crank-arm G′, formed or secured on a shaft G, extending transversely and journaled in the upper part of the frame A next to the shaft D^4 previously mentioned.

On the shaft G is secured a gear-wheel G^2, in mesh with a pinion D^6, secured on the shaft D^4, so that the rotary motion of the latter is transmitted by the pinion D^6 and gear-wheel G^2 to the shaft G, whereby the latter imparts a reciprocating motion to the plunger F^3 by the crank-arm G′ and pitman F^4. The material passing into one side of the box F by means of a mixing and feeding device H at the time the plunger is in an uppermost position, is pressed downward by the said plunger and forced through the openings F^2 in the bottom F′, to pass into the molds C of a shape corresponding in cross-section to that of the openings F^2. The plunger F^3 on its downward movement compresses the material contained in the box F, it being understood that only part of the material is forced out at the bottom through the openings F^2 into the molds, whereby the material passes into the molds in a firmly-pressed state.

The feeding device H is provided with a box H′, secured to one side of the box F, and provided in the wall dividing the interior of the boxes F and H′ with a feed-opening H^2, extending throughout the length of the boxes, and a slotted partition H^3 for the passage of feed-arms I, secured on a revolving shaft I′, journaled in suitable bearings in the sides of the box H′. Directly above the arms I is arranged a feed-gate H^4, made in the form of a shaft mounted to turn in suitable boxes H^5, fitted to slide vertically in the sides of the box H′. The boxes H^5 are held on screw-rods H^6, to permit of raising and lowering the boxes, and consequently the gate H^4 to increase or decrease the distance between the arms I and the bottom of the gate. By this arrangement more or less material can be pushed by the arms I from the box H′ through the opening H^2 into the box F.

A rotary motion is given to the shaft I′ and the arms I carried thereby, and for this purpose the outer end of the shaft I′ is provided with a gear-wheel I^2, in mesh with a beveled gear-wheel I^3, secured on a short shaft I^4, disposed vertically, and journaled in suitable bearings in the frame A, the upper end of said shaft I^4 being provided with a beveled gear-wheel I^5, in mesh with a beveled gear-wheel I^6, secured on a shaft I^7, journaled in suitable bearings on the frame A, and provided with a pulley I^8, over which passes a belt I^9, extending upwardly and passing over a pulley D^7, secured on the shaft D^4, as previously mentioned. Thus when the machine is in motion and the shaft D^4 is rotated then the rotary motion of the latter is transmitted by the pulleys D^7 I^8 and belt I^9 to the shaft I^7, and the latter by the beveled gear-wheels I^6 and I^5 causes the shaft I^4 to rotate, whereby the beveled gear-wheels I^3 and I^2 are set in motion and the shaft I′ is revolved in the box H′ in the direction of the arrow *a′*. (See Figs. 8 and 9.)

In order to rotate the gate H^4, I provide one outer end thereof with a pulley H^7, over which passes a belt H^8, also passing over a pulley H^9 and a pulley I^{10}, secured on the outer end of the shaft I′. Thus when the latter is rotated in the direction of the arrow *a′*, as previously described, a rotary motion is given to the pulley I^{10} and by the belt H^8 to the pulley H^7 and gate H^4 in the direction of the arrow *b′*, and the said gate can be adjusted vertically, so as to regulate the feeding of the material from the box H′ to the box F, without interfering with the device for causing the rotary motion of the said gate.

The upper end of the box H′ of the feeding device H is connected by a trough J′ with a kneading device J, provided with a box J^2, having gates J^3, leading to the upper end of the trough J′, as indicated in Figs. 2 and 8. The box J^2 is also provided with revoluble kneading-arms J^4, and the material is discharged into said box from a crushing device J^5, having crushing-rollers J^6, the said kneading and crushing devices being both of ordinary construction, so that further description is not deemed necessary.

Each of the molds C is provided with a casing C′, having two openings C^2, adapted to register with the openings F^2 in the box F, and in the said openings C^2 are arranged movable bottoms C^3, which may be solid when ordinary bricks are to be formed, or formed with central apertures C^4 in case clay cylinders are made by this machine. The movable bottoms C^3 are each provided with downwardly-extending arms C^5, in which is journaled an antifriction-roller C^6, having its outer ends guided in vertically-disposed guideways C^7, formed in the casing C′. (See Figs. 8, 10, and 11.) The antifriction-roller C^6 is adapted to engage a fixed cam C^8, secured on the frame A at one side thereof, as plainly shown in Figs. 1 and 13, to cause the said antifriction-roller C^6 to travel up the inclined side of the cam, and thus move the bottom C^3 upwardly, to push the brick, cylinder, or other article made in the mold out of the casing C′ to the level of the table B.

In case clay cylinders are made, I press the material solidly into the molds from the box F at the time the bottoms C^3 are in a lowermost position, and at the next third revolution of the table B the molds thus filled are brought under vertically-disposed revoluble

and slidable shafts K and K′, adapted to move downward centrally into the material in the mold-openings C^2, to form a central opening in the material to produce cylinders. The extreme lower ends of the shafts K and K′ are pointed as at K^2, and these points are adapted to pass into the central openings C^4, formed in the movable bottoms C^3, as previously described. The shafts K and K′ are mounted to turn in a cross-head L, having a vertically-reciprocating motion, so as to move the said shafts up and down into or out of the material, to form the cylinders, as above explained.

The cross-head L is fitted to slide in suitable bearings A^3, forming part of the frame A, and the said cross-head is attached to the lower end of a rod L′, connected at its upper end by a pitman L^2 with a crank G^3, carried on the shaft G, previously described, so that when the said shaft is rotated an up-and-down sliding motion is given to the rod L′ and cross-head L, to move the shafts K and K′ up and down. The crank G^3 is in alinement with the crank G′ for operating the plunger F^3, as previously described, so that both the plunger F^3 and the shafts K and K′ are simultaneously moved up and down, it being understood that two of the molds in the table are then in respective alinement with the said plunger and shafts. In order to guide the rod L′, I provide the same with a guide-arm L^3, fitted to slide on vertically-disposed guide-rods A^4, forming part of the frame A.

The shafts K K′ are rotated at the time that they move up and down, and for this purpose the said shafts are provided with beveled gear-wheels K^3 and K^4, respectively, connected by feather and groove with said shafts, to permit the latter to slide up and down in the gear-wheels and the gear-wheels to turn the said shafts. The gear-wheels K^3 and K^4 are in mesh with gear-wheels K^5 and K^6, respectively, secured on shafts K^7 and K^8, respectively, journaled in suitable bearings in the frame A, and connected with each other by spur-wheels K^9 and K^{10}, so that when one of the shafts is rotated a like motion is given to the other, and consequently a simultaneous turning motion is given to both shafts.

The shaft K^8 is driven from the shaft G, and for this purpose the outer end of the latter is provided with a pulley G^4, connected by a belt G^5 with a pulley G^6, secured to the outer end of said shaft K^8. Thus, when the machine is in motion and the shaft G rotates, then an up-and-down motion is given to the shafts K K′, as previously explained, and at the same time a rotary motion is given to the said shafts by the pulleys G^4 and G^6, belt G^5, shafts K^8 K^7, and beveled gear-wheels K^6, K^5, K^4, and K^3.

It is understood that when the molds C are under the box F they are empty and are filled during the time the table B is stationary, and the filled molds on the next third revolution of the table B are brought under the shafts K K′, to form clay cylinders in the molds, as previously explained, and upon the withdrawal of the shafts K K′ another third revolution is given to the table B, to bring the friction-roller C^6 in engagement with the cam C^8, to push the bottom C^3 upward and raise the article to the level of the table B. At this time a carrier, provided with a pair of jaws N, engages the finished article, to remove it from the table and molds and place it on a transversely-reciprocating carrier-table O for moving the finished article to one side for removal by any suitable means. It will also be understood that the plungers F^3 operate both to fill the molds and to compress the material in the same.

The pair of jaws N (see Figs. 2, 5, 6, and 14) are provided with a double fixed section N′, the two parts of which are rigid with each other, and pivoted sections N^2, which when closed on the fixed section N′ firmly engage or grasp the finished article pushed out of the molds C. The fixed section N′ of the jaws N is removably held on a cross-head P, attached to the inner end of a slide P′, fitted to move in suitable bearings A^5, forming part of the main frame A. The outer end of the slide P′ is connected by a pitman P^2 with a crank-arm Q′, formed or secured on a transversely-extending shaft Q, journaled in suitable bearings in the main frame A, and provided with a loose pulley Q^2 and a fast pulley Q^3, adapted to be engaged by a belt Q^4, connected with suitable machinery for imparting a rotary motion to the shaft Q whenever the said belt Q^4 is on the fast pulley Q^3. The belt Q^4 is shifted from one pulley to the other by a belt-shifter R, operating in conjunction with a belt-shifter R′ for the belt D^2, adapted to engage the pulleys D D′ previously described.

By reference to Fig. 7 it will be seen that when the shifter R has the belt Q^4 on the loose pulley Q^2 the shifter R′ has the belt D^2 on the fast pulley D′, and when said shifters change positions the belt Q^4 moves onto the fast pulley Q^3 and the belt D^2 moves onto the pulley D. Thus, when the table B makes one-third of a revolution, the carrier is inactive, and when the table B is stationary the carrier is in action, to remove the finished article from the top of the table by the jaws N.

The movable sections N^2 of the jaws N are provided on their vertically-disposed pivots N^3 with arms N^4, adapted to be engaged by fixed arms N^5 on the outward stroke of the cross-head P, to open the pivot-sections N^2 of the jaws and release the article on the table O. The arms N^4 are also adapted to be engaged by depending arms N^6, pivoted on the frame A, as shown in Fig. 4, so that the sections N^2 close upon the fixed sections N′ after the open jaws are in position over the articles pushed out of the molds upon the top of the table B. The pivot-sections N^2 are adapted to be locked at their free ends to the fixed section N′ during the time the jaws

move away from the table with the articles inclosed between the jaws, and for this purpose the free ends of the pivoted sections N^2 are provided with lugs N^7, adapted to be engaged by a catch S, fulcrumed at S′ on the fixed section N′. The inner end S^2 of this catch S is adapted to be engaged by one end of a lever S^3, fulcrumed in a bracket P^3, forming part of the cross-head P, and this lever S^3 is adapted to be engaged by a friction-roller S^4, held on a bracket A^7, forming part of the frame A.

The lever S^3 is locked in place by a locking-lever S^6, pivoted on the bracket P^3, and adapted to be engaged by a friction-roller S^7, extending from the bracket A^7 in advance of the antifriction-roller S^4. Thus, when the slide P′ moves outward, the lever S^6 is first engaged by the friction-roller S^7, to unlock the lever S^3, and then the latter is engaged by the friction-roller S^4 to act on the rear end S^2 of the catch S, so as to swing the same upward out of engagement with lug N^7, to unlock the pivot jaw-sections N^2 (see dotted lines in Fig. 13) previous to the arms N^4 striking the fixed arms N^5 to open the sections N^2. When the pivot-sections N^2 are closed over the molds C, as previously explained, the lever S^3 strikes with its upper, free end on a stop S^8, held between the arms N^6 on the main frame A, so that the said lever releases the inner end S^2 of the catch S, to permit the latter to drop upon the lugs N^7 and lock the pivot-sections N^2 in a closed position. The swinging motion of the lever S^3 is limited by the casing S^5, held on the fixed section N′ of the jaws, as indicated in Figs. 13 and 14. The table O, for receiving the finished article from the pair of jaws N and for carrying the article to one side of the machine, has an up-and-down sliding motion as well as a transverse reciprocating motion, and the table is actuated from the shaft Q by mechanism presently to be described.

On the shaft Q is secured a sprocket-wheel T, (see Figs. 1, 2, and 13,) over which passes a sprocket-chain T′, also passing over a sprocket-wheel T^2, secured on a transversely-extending shaft T^3, journaled in suitable bearings in the main frame A, and carrying to each outer end a crank-arm T^4, respectively connected by pitmen T^5 with slides T^6, fitted to slide vertically in guideways A^8 on the sides of the main frame A. On the slides T^6 are secured horizontally-extending arms T^7, supporting a framework T^8, on which the table O is mounted to slide transversely.

Now it will be seen that when the shaft Q is rotated a rotary motion is transmitted by the sprocket-wheels T T^2 and chain T′ to the shaft T^3, which, by the crank-arms T^4 and pitmen T^5, imparts an up-and-down sliding motion to the slides T^6, so that the table-support T^8 with the table O is moved vertically up and down. A transverse sliding motion is given to the table O by the up-and-down movement of the table-support T^8, and for this purpose I provide the under side of the table O with a longitudinally-extending rack O^2, in mesh with a gear-wheel O^3, secured on a shaft O^4, extending longitudinally and journaled in suitable bearings attached to the table-support T^8.

On the shaft O^4 are held loosely two gear-wheels U U′, connected by pawls U^2 U^3, respectively, with ratchet-wheels U^4 U^5, respectively, secured on the shaft O^4. The gear-wheels U and U′ are in mesh with racks U^6 U^7, arranged on opposite sides of the gear-wheels, so that on the upward motion of the table-support T^8 one of the gear-wheels, in rolling off on the rack, transmits its rotary motion through the corresponding pawl and ratchet-wheel to the shaft O^4, and on a downward movement of said table-support T^8 the other gear-wheel transmits its rolling-off motion to said shaft O^4, but in an opposite direction, whereby a forward-and-backward reciprocating motion is given to the table O by the gear-wheel O^3, in mesh with the rack O^2 of the table.

When the jaws N′ and N^2 engage and grasp the article pushed out of the mold C, the table O is in a lowermost position, as indicated in Fig. 13, and when the jaws N move outward by action of the crank-arm Q′ to the position shown in dotted lines in Fig. 13 then the table O is shifted vertically, so as to be in position to receive the finished article from the jaws when they arrive in their innermost position. The pivoted jaw-sections N^2 then open by the arms N^4 coming in contact with the stop-arms N^5, to release the finished articles, and then the table O moves downward and at the same time travels outwardly by the action of the corresponding gear-wheel rolling off its rack U^6 or U^7. Thus the finished article upon the table O descending is taken out of the jaws and then carried sidewise to one side of the machine. A return movement of the table O takes place on the next upward stroke of the slides T^6, so that the table is again in position to receive the next finished article.

In order to hold the table O on the top of the table-support T^8, I provide friction-rollers O^5 and O^6, journaled in suitable bearings attached to the support T^8 and adapted to engage the top surface of the table, as plainly illustrated in Figs. 2 and 5.

The double belt-shifting device of the belts D^2 and Q^4 is arranged as follows: The belt-shifter R′ is held on a transversely-extending slide R^2, fitted to slide in suitable bearings in the main frame A, (see Fig. 7,) and the inner end of the slide R^2 is connected by a link R^3 with an arm R^4, extending radially from a vertically-disposed shaft R^5, journaled in suitable bearings in the frame A. Near the upper end of this shaft R^5 is arranged a projection R^6, adapted to be engaged by one of three lugs B^5, arranged on the periphery of the table B, between successive molds C, as

plainly illustrated in Fig. 3. On the shaft R^5 is also arranged an outwardly-extending arm R^7, connected by a rope R^8, passing over a pulley R^9, with an arm R^{10}, to which the belt-shifter R is secured. The inner end of the arm R^{10} is pivotally connected with a bell-crank lever R^{11}, fulcrumed on the main frame A, and pivotally connected by a link R^{12} with a second bell-crank lever R^{13}, adapted to be engaged by a pivoted catch R^{14}, fulcrumed on the slide P′ (see Fig. 2) and having a limited swinging motion in one direction by coming in contact with a stop-pin R^{15}, held on the said slide. The cross-head L in its upward movement causes a movement of the belt-shifter R′, whereby the belt D^2 is shifted from the loose pulley D to the fast pulley D′, and causes a turning of the table B at the time the said cross-head moves into an uppermost position, and the shafts K K′ are completely withdrawn from the molds below. For accomplishing this movement of the shifter R′ I provide a lever L^4, pivoted on the guideway A^3 and provided with a projection L^5 in the path of one side of the cross-head L. (See Figs. 10 and 11.) The free end of the lever L^4 is connected with a rope L^6, extending upward and passing over a pulley L^7, journaled on the frame A. The rope L^6 then extends downward and under a pulley L^8, and finally connects with the slide R^2. (See Figs. 10 and 11.) Now, when the cross-head L moves upward the shifter R′ holds the belt D^2 on the loose pulley D, and the lever L^4 is then in the position shown in dotted lines in Fig. 11. When the cross-head on its upward movement engages the projection L^5 of the lever L^4, it imparts a swinging motion to the latter, and a pull is exerted on the rope L^6, whereby the slide R^2 is moved outwardly and the belt D^2 is shifted to the fast pulley D′ and thus rotates the table B. A spring L^9, held on the frame A, presses on the free end of the lever L^4 when the latter swings upward, and in the recoil quickly starts the lever on a downward movement after the cross-head has released the lever by passing the projection L^5. Now, when the belt-shifters R and R′ are in the position shown in Fig. 7, the belt D^2 is in engagement with the fast pulley D′, and consequently a rotary motion is given to the table B, as previously explained, until one of the lugs B^5 comes in contact with the projection R^6 and imparts a swinging motion to the shaft R^5, so that the arm R^4 swings inward and pulls the link R^3 on the slide R^2, whereby the belt-shifter R′ moves inwardly and shifts the belt D^2 from the fast pulley D′ onto the loose pulley D. The rotary motion of the table B now ceases—that is, at the time an empty pair of molds is under the box F and a filled pair of molds is under the shafts K K′ and the bottoms C^3, then the molds carrying the finished articles are pushed up, to bring the article to the top of the table B opposite the carrier. The swinging movement of the lever R^5 also causes a swinging of the arm R^7, so that the latter exerts a pull on the rope R^8, whereby the belt-shifter R is pushed outward, to move the belt Q^4 from the loose pulley Q^2 onto the fast pulley Q^3 and cause a rotary motion of the shaft Q, to actuate the slide P and the table O, as previously explained; that is, bring the open jaws N in engagement with the pushed-up article upon the table B, closing the jaws and moving the same outward, to deliver the finished article onto the table O, now in its uppermost position, and release the jaws and move the table downwardly and transversely, to carry the finished article to one side.

When the slide P′ moves back into its outermost position, the catch R^{14} engages the bell-crank lever R^{13} and imparts a swinging motion to the latter and a like motion to the bell-crank lever R^{11}, whereby the arm R^{10} is pulled inwardly and the belt Q is again shifted by the belt-shifter R from the pulley Q^3 back onto the loose pulley Q^2. A transverse movement of the arm R^{10} causes a pull on the rope R^8, so that the arm R^7 turns the shaft R^5 in the inverse direction to that previously received, by the projection R^6 being moved by the lug B^5. This movement of the shaft R^5 causes an inward pull on the slide R^2, so that the belt-shifter R′ moves the belt D^2 from the loose pulley D back onto the fast pulley D′, to again impart a rotary motion to the table B, as previously explained.

In order to prevent an accidental return movement of the mold to the table B, I provide the latter on the top with lugs B^6, adapted to be engaged by a stop-dog B^7, fulcrumed on one of the guideways A^3, as is plainly shown in Figs. 1 and 12.

When it is desired to make ordinary bricks instead of clay cylinders, as above described, the shafts K K′ are entirely dispensed with, and the molds C in the table B are formed correspondingly, so that four or more bricks can be formed at one and the same time, as indicated in Figs. 15, 16, 17, and 18. The movable bottoms of the molds are similar to those above described in reference to Figs. 3 and 11, and are actuated by the friction-rollers C^6 coming in contact with the cam C^8 and pushing the finished bricks out of the molds onto the top of the table B.

The carrier for moving the bricks from the table is differently arranged from the one previously described—that is, the jaws are dispensed with, and instead a U-shaped frame V is employed, pivoted at V′ to the slide P, and adapted for limited downward movement and engagement with the inner ends of the bricks, as indicated in Figs. 16 and 17, a sliding motion being then given to the frame, to push the bricks onto the table O^7, moved upward with its top surface in alinement with the top surface of the table B.

The table O^7 is mounted to travel transversely in the manner previously described, but the table-support O^8 is fitted to slide longitudinally in the arms T^9, held on the slides

T^6, receiving a reciprocating motion in the manner above mentioned. Springs O^9 press on the table-support, so as to bring the table O^7 in contact with the flat outer side of the molds C (see Fig. 16) and permit of conveniently moving the bricks to the table O^7.

In order to impart a swinging motion to the frame V, I connect the rear end of the frame by links V^2 with rods V^3, which are incapable of movement in a direction lateral to themselves and which are fitted to slide in the rigid bearings A^5 of the slide P', said rods being provided at their outer ends with nuts V^4, so that when an inward motion is given to the slide P' and cross-head P the outer ends of the rods V^3, in striking the bearings A^5, cause the links V^2 to act on the outer ends of the frame V, so as to swing the same upward into the position shown in Fig. 15 and in dotted lines in Fig. 17, since the slide will continue its downward movement after the rods V^3 are stopped and thus tend to aline the pivot of the frame V with the two ends of the respective links V^2. The frame is thus raised, as shown by full lines in Fig. 15, so that it may subsequently (and upon the outward movement of the slide P) fall to embrace the bricks, as shown by dotted lines in Fig. 15 and full lines in Figs. 16 and 17. As the frame V and slide P move outward carrying the former toward the table O^7 the table O^7 will be raised to the level of the table B and the bricks may be moved upon the former table, which finally moves downward and from under the frame V, such frame V being incapable of following the table O^7, since the lowest position of the frame is level with the table B.

The operation of the machine is as follows: When it is desired to make clay cylinders, then the material is first put in proper condition for pressing in the crushing device J^5 and kneading device J, so that the material when passing into the box H' of the feeding device H is in such a plastic state as to permit its being properly fed into the box F and pressed therein and forced through the bottom F' in the mold-openings C^2. When the plunger F^3 is on the upstroke, the table B revolves, so as to move the filled mold under the shafts K K', which are now descending, and form a hole in it, to produce a cylinder, and upon the withdrawal or upward movement of the shafts K and K' the next third revolution is given to the table B, to bring the friction-roller C^6 in contact with the cam C^8 and push the finished article out of the mold by the movable bottom C^3. When the mold is in this third position, the finished article on the top surface of the table B is engaged by the jaws N and moved outward onto the table O, after which the jaws open and the table descends and is moved to one side, to carry the article to one side of the machine. The article is now removed from the table and treated further by drying in the usual manner.

When ordinary bricks are made, the shafts K K' are dispensed with and the jaws are replaced by the frame V, as previously explained, but otherwise the operation is the same with the exception of forming a hole in the material.

It will be understood that the driving of the belts E^3 and Q^4 is to be effected synchronously, and it will be observed that having once been arranged with the necessary relation the same may be preserved by the constant and perfect character of the machinery employed to embody the invention. It will also be understood that this synchronous driving of the belts E^2 and Q^4 may be effected by connecting them with the same source of driving movement.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a press, the combination of an intermittently-revolving table, molds having movable bottoms and held on said table and placed equidistant apart, a plunger-box over the said table, a feed-plunger for pressing the material out of the box and into the molds, a revoluble and vertically-sliding core-shaft capable of passing centrally into the molds, means for operating the feed-plunger and core-shaft, and a cam for moving the mold-bottoms to push the molded material out of said molds, substantially as described.

2. A press, provided with a plunger-box having a reciprocating plunger, a feeding device provided with a casing opening into said box, a revoluble shaft having arms or fingers moving in said casing for pushing the material out of the latter into said box, and a vertically-adjustable gate held in said casing over said fingers, the said gate being made in the shape of a shaft having a revolving motion, substantially as shown and described.

3. A press, provided with a plunger-box having a reciprocating plunger, a feeding device provided with a casing opening into said box, a revoluble shaft having arms or fingers moving in said casing for pushing the material out of the latter into said box, a vertically-adjustable gate held in said casing over said fingers, the said gate being made in the shape of a shaft having a revolving motion, and means, substantially as described, for imparting a rotary motion to said gate from the shaft carrying said arms, as set forth.

4. A press, provided with a carrier having a reciprocating cross-head, a pair of jaws on said cross-head and comprising a fixed jaw-section, and hinged jaw-sections adapted to open and close, to hold and release the article, substantially as shown and described.

5. A press, provided with a carrier having a reciprocating cross-head, a pair of jaws on said cross-head and comprising a fixed jaw-section, hinged jaw-sections adapted to open and close, to hold and release the article, and fixed arms for opening and closing said jaws upon a reciprocation of the cross-head, substantially as shown and described.

6. A press, provided with a carrier having a reciprocating cross-head, a pair of jaws on said cross-head and comprising a fixed jaw-section, hinged jaw-sections adapted to open and close, to hold and release the article, and means, substantially as described for locking said jaws in a closed position, as set forth.

7. A press, provided with a carrier having a reciprocating cross-head, a pair of jaws on said cross-head and comprising a fixed jaw-section, hinged jaw-sections adapted to open and close, to hold and release the article, a catch for engaging lugs on said pivoted jaw-sections, to lock the latter in a closed position, and means, substantially as described for manipulating said catch, to engage with and disengage the same from said lugs, as set forth.

8. A press, provided with a table adapted to receive the finished article, and fitted to slide transversely on a support, a rack held on said table, a gear-wheel in mesh with said rack, ratchets secured on the shaft of said gear-wheel, a set of gear-wheels held on said shaft and connected by pawls with the said ratchets, and oppositely-arranged racks in mesh with the said set of gear-wheels, so that on the upward-and-downward movement of said table-support a forward-and-backward rotary motion is given to said shaft and a like motion to said table, substantially as shown and described.

9. A press, provided with a table adapted to receive the finished article and fitted to slide transversely on a support, a rack held on said table, a gear-wheel in mesh with said rack, ratchets secured on the shaft of said gear-wheel, a set of gear-wheels held on said shaft and connected by pawls with the said ratchets, oppositely-arranged racks in mesh with the said set of gear-wheels, so that on the upward-and-downward movement of said table-support, a forward-and-backward rotary motion is given to said shaft and a like motion to said table, and means, substantially as described, for imparting an up-and-down sliding motion to said table-support, as set forth.

10. A press, provided with a table mounted to turn, a shaft connected with said table for imparting an intermittent rotary motion to the same, said shaft carrying a fast and loose pulley, a belt-shifter for said pulleys, a slide carrying said belt-shifter, and a vertically-disposed shaft provided with a projection and connected with the said slide, said projection being adapted to be engaged by a lug on said table, so as to operate said belt-shifter, substantially as shown and described.

11. A press, provided with double reversing mechanism, comprising two sets of fast and loose pulleys each set adapted to coöperate with a driving-belt, two belt-shifters for the said pulleys, a connection between said shifters, and alternately-operating actuating devices respectively for the shifters, to cause one belt to be alternately shifted from a fast to a loose pulley and the other belt simultaneously shifted from a loose to a fast pulley, and vice versa, substantially as shown and described.

12. In a press, the combination with a frame, of a shaft having two cranks, a revolubly-mounted table, molds carried on the table, gearing driven with the crank-shaft and connected to the table to impart a rotary movement thereto, feed mechanism located above the table and connected to one of the cranks of the crank-shaft, a core-shaft also located above the table and connected to the remaining crank of the crank-shaft, and means for periodically intercepting the movement of the table, substantially as described.

13. In a press, the combination with a frame, of a rotatable table, a mold carried on the table, driven feed mechanism, a driven core-shaft, means for removing the molded article from the table, gearing for driving the table, said gearing comprising a fast and loose pulley, and a belt-shifter coöperating with the gearing, said belt-shifter being periodically operated from the core-shaft, the table and the means for removing the molded article, substantially as described.

14. In a press, the combination with a frame, of a revoluble table, a mold carried on the table, means for feeding and compressing the material, a driven core-shaft, gearing for driving the table, a shifter for interrupting the operation of the gearing, a connection between the shifter and the core-shaft, means for removing the molded article, gearing for driving said means, a shifter for intercepting the operation of the last-named gearing, and a connection between the two shifters, substantially as described.

15. In a press, the combination with a frame, of a mold mounted to have orbital movement, driven means for feeding and compressing the material, a driven core-shaft, gearing for intermittently moving the mold, means for delivering the molded article, gearing for driving said means, said gearing being out of positive connection with the mold-driving gearing, and a regulating connection between the two gearings, substantially as described.

16. In a press, the combination with a frame, of a mold mounted to have orbital movement, means for driving the mold, a box juxtaposed to the mold, a feed-plunger operated within the box, a feed-box adjacent to the first box and communicating therewith, a vertically-movable shaft forming a gate and located within the feed-box, a rotating feed-shaft also within the feed-box, and gearing for driving said shafts, substantially as described.

17. In a press, the combination with a frame, of a mold mounted to have orbital movement, means for feeding and compressing the material molded, gearing for driving the mold, a shifter capable of interrupting the operation of the gearing, an operated reciprocal core-shaft, and a connection between the core-shaft and the shifter, substantially as described.

18. In a press, the combination with a frame, of a table, a mold carried on the table, operated feed and compressing mechanism, gearing for driving the table, a shifter capable of interrupting the operation of the gearing, a device for removing the molded article, gearing for driving said device, a shifter for interrupting the operation of the gearing, and a connection between the two shifters, substantially as described.

19. In a press, the combination with a frame, of molding mechanism, a table, means for transferring the article molded from the molding mechanism to the table, a frame carrying the table, a rotating shaft carried on the frame and geared with the table whereby the table is reciprocated, two gears oppositely movable on the rotating shaft, two fixed racks respectively engaging the oppositely-movable gears, and means for rotating the shaft, substantially as described.

20. In a press, the combination with a frame, of molding mechanism, a table, means for transferring the molded article from the molding mechanism to the table, a frame carrying the table, a rotary shaft carried with the frame, a pinion on the shaft, means for driving the rotary shaft, and a stationary rack with which the said pinion meshes, substantially as described.

21. In a press, the combination with a frame, of operated molding mechanism, a table adapted to receive the molded article, an operated and reciprocal slide, a double fixed jaw carried on the slide, two independent jaws coöperating with the fixed jaw, and means for operating said jaws, substantially as described.

22. In a press, the combination with a frame, of a shaft having two cranks, a revolubly-mounted table, molds carried on the table, gearing driven with the shaft and connected to the table to impart a rotary movement thereto, feed mechanism located above the table and connected with one of the cranks of the crank-shaft, a core-shaft also located above the table, a cross-head connected to the core-shaft and to the remaining crank of the crank-shaft, and means for periodically intercepting the movement of the table, substantially as described.

23. In a press, the combination with a frame, of a revoluble table, a mold carried on the table, means for feeding and compressing the material, a core-shaft, a cross-head connected to the core-shaft, means for driving the cross-head, gearing for driving the table, a shifter for interrupting the operation of the gearing, a connection between the shifter and the cross-head, means for moving the molded article, gearing for driving said means, a shifter for intercepting the operation of the last-named gearing, and a connection between the two shifters, substantially as described.

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