T. REYNOLDS.

MACHINE TOOL.

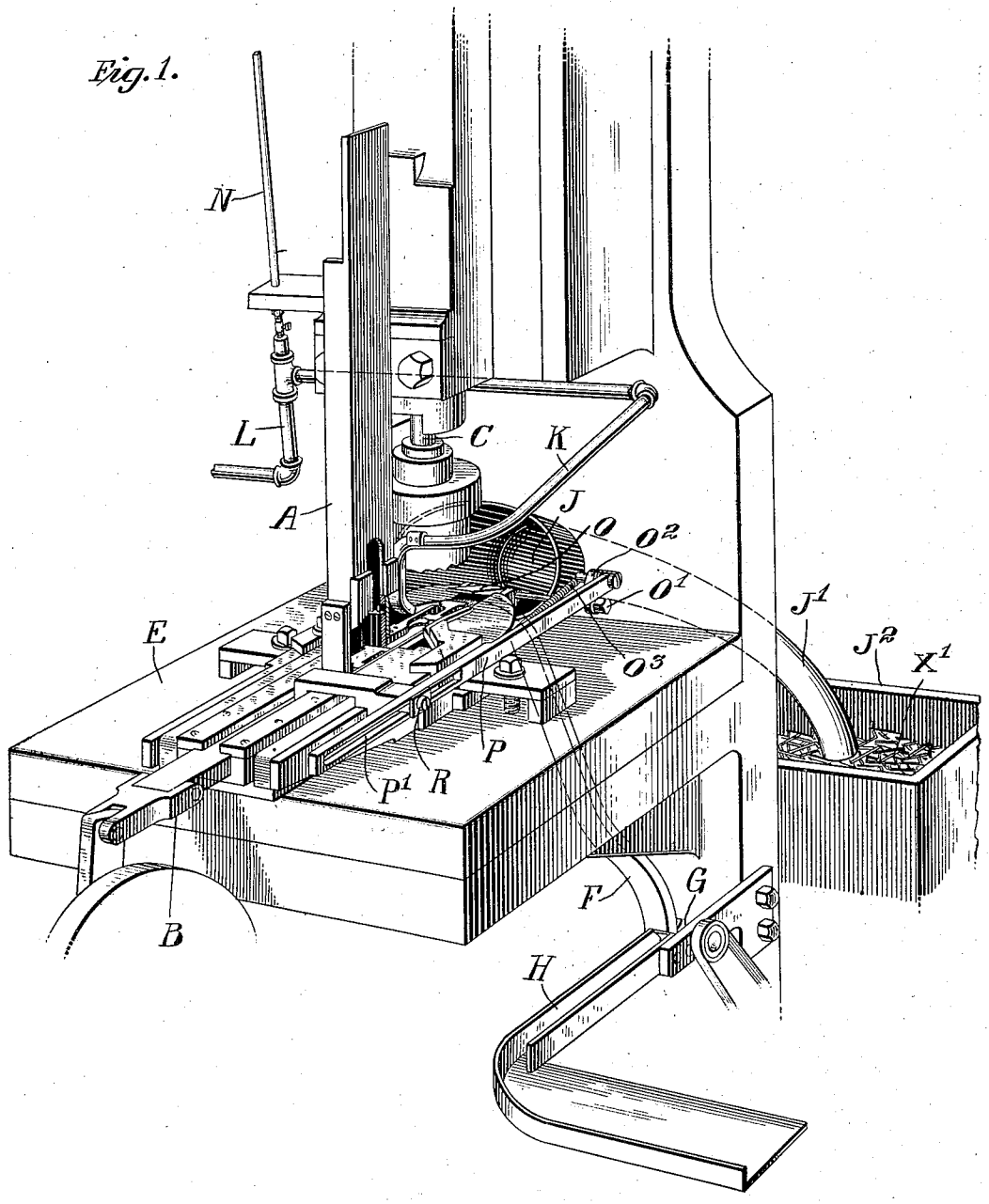
APPLICATION FILED NOV. 27, 1912.

1,174,349.

Patented Mar. 7, 1916.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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Inventor

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By his Attorney

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3 SHEETS—SHEET 2.

Fig. 2.

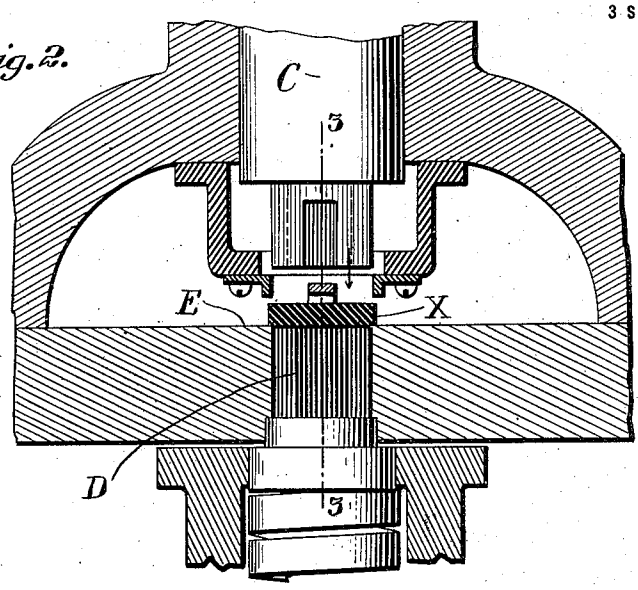


Fig. 3.

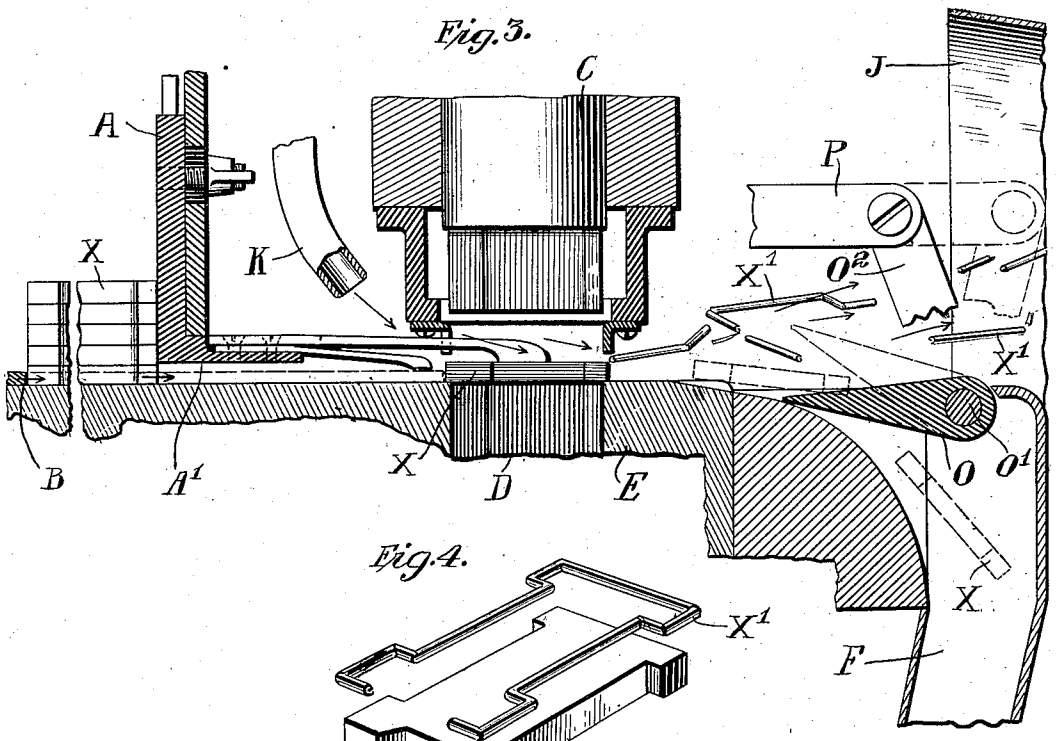


Fig. 4.

WITNESSES:

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3 SHEETS—SHEET 3.

Fig. 5.

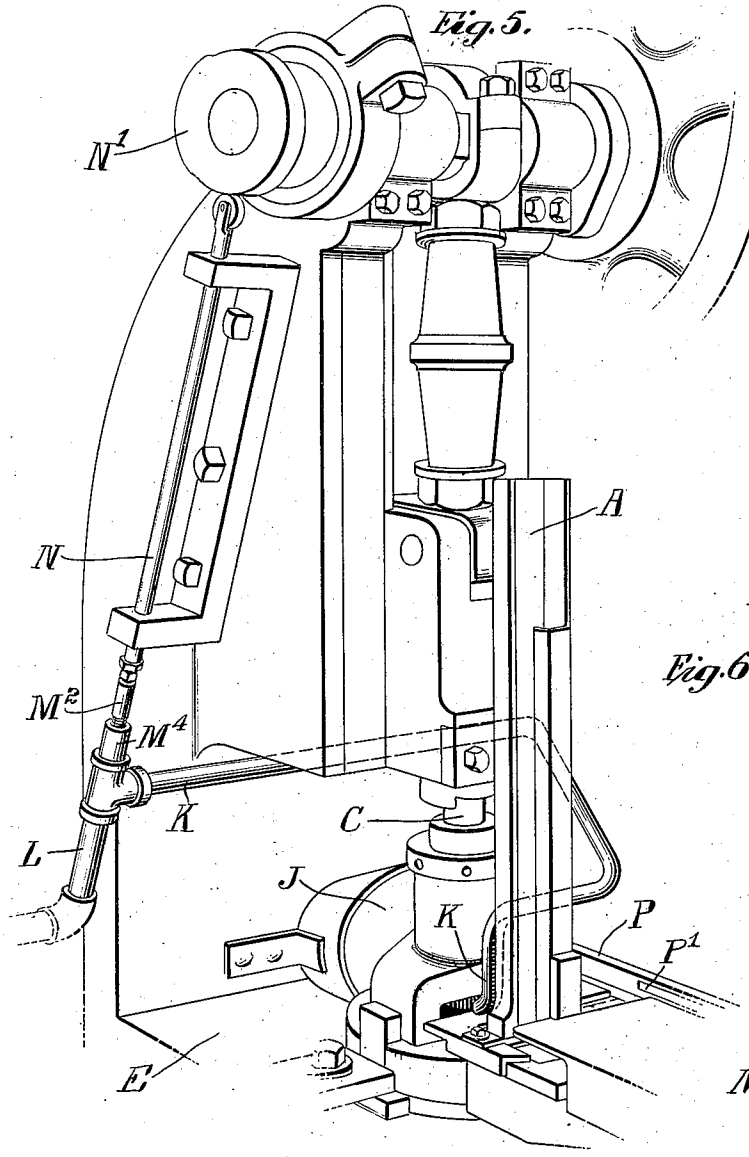


Fig. 6.

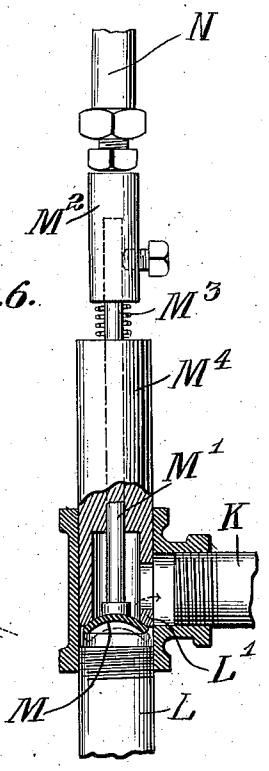
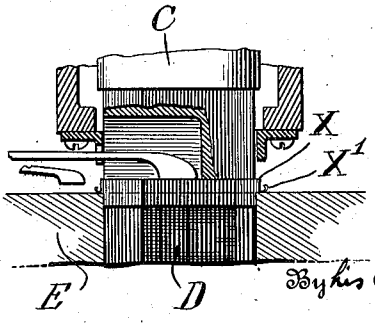


Fig. 7



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS REYNOLDS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

MACHINE-TOOL.

1,174,349. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed November 27, 1912. Serial No. 733,800.

To all whom it may concern:

Be it known that I, THOMAS REYNOLDS, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Machine-Tools, of which the following is a specification.

My invention relates to machine tools, such as presses, lathes, milling machines and the like, wherein it is desirable to convey the product thereof to one destination, and the dust, shavings, beadings, etc., to another destination, and to insure their complete separation. Obviously, various means and devices may be employed for this purpose, although in my preferred form I employ an intermittent blast of air or the like to blow the dust, etc., to one receptacle, and a cut-off in connection with the product conveying means, which cut-off is opened only when the blast is discontinued.

In the accompanying drawings, I have illustrated my invention in connection with a form of press employed for finishing or shaving the sides of matrix blanks and the like, after they have been otherwise formed, in order to bring them to the exact size required; but it will be apparent that the invention is similarly applicable to many other kinds of machines, wherein it is desirable to secure similar results. Generally speaking, I desire it to be understood that I do not limit myself to any specific form or embodiment, except in so far as such limitations are specified in the claims.

Referring to the drawings: Figure 1 is a perspective view of a portion of the machine, having my invention applied thereto; Fig. 2 is a transverse vertical section, on an enlarged scale, through the plunger, etc.; Fig. 3 is a section, taken substantially on the line 3—3 in Fig. 2; Fig. 4 is a perspective view of the blank, which is the product of the machine and designed for a linotype matrix; Fig. 5 is a partial perspective view of the machine; Fig. 6 is a detail, partly broken away, of the valve controlling means; and Fig. 7 is a sectional detail, illustrating the operation of the plunger on the blank.

Referring to the drawings, the blanks X are as usual stacked in a magazine A, and are fed one by one therefrom under its foot A^1 along the plate E by the reciprocating slide B, into position between the reciprocating plunger C and the supporting member D. When the plunger C descends and engages the blank X, the member D yields beneath it, and the blank is forced through a suitable opening in the plate E (see Fig. 7), and its edges are brought to the exact size required, this being effected by the removal therefrom of the beading or shaving X^1 (see also Fig. 4). The member D is ordinarily resiliently mounted, so that when the plunger C again ascends, the blank X will be moved above the plate E and in position to be moved from under the plunger by the next blank that is brought into operative position by the slide B.

The features and operations so far described are old in the art and constitute no part of my present invention.

As the finished blanks X are moved in the manner described, they ordinarily pass downward one by one through a tube F and in front of an advancing and compacting device, such as the star wheel G, whereby they are assembled in the trough or way H. In the past, considerable inconvenience has been experienced by the delivery with the blanks X of the shavings or beadings X^1, and it is one of the purposes of my invention to correct this difficulty. To that end, I provide the tube F with a cut-off, preferably in the form of a pivoted flap O, which is periodically opened in any desired manner. In the form shown, it is mounted on the rock shaft O^1, which carries also an arm O^2 connected to the operating link P. The link P is formed with an elongated slot P^1, which is engaged by the stud R connected to the reciprocating slide B, it being noted that the slot P^1 is of sufficient length to permit considerable lost motion in relation to the stud R. Through the connections described, the flap O will be opened each time the slide B advances, and will fall to its closed position when the slide recedes. To render the closing action more certain, a spring O^3 is employed, which spring is connected to the frame work and to the arm O^2. The shavings X^1 are blown by an intermittent blast of air, or the like, from a pipe K into the

funnel J, and thence through a tube J^1 into the receptacle J^2. The blast is automatically controlled, so that it acts only when the cut-off or flap O is closed, and in this way the shavings or beadings are prevented from following the blanks X into the tube F.

The blast apparatus comprises the piping K, from which it is directed onto the work in proximity to the plate E and member D, and also the piping L, through which the air is delivered from any suitable source of supply. The blast is controlled and rendered intermittent by the valve M (see Fig. 6) located at the extremity of the piping L and normally held against the seat L^1. The valve M is connected to the stem M^1, which passes through the stationary sleeve M^4 and is connected at its outer end to the abutment M^2, between which and the sleeve M^4 is located the spring M^3, tending to hold the valve normally in its closed or inoperative position. Suitably mounted in the framework is the longitudinally movable actuating rod N, one end of which contacts with the abutment M^2, and the other end of which is arranged in engagement with the cam N^1 on the main shaft, the cam being so shaped that at periodical intervals the rod N will be depressed, to open the valve M and permit the passage of the blast from the piping L to the piping K. When the cam N^1 has turned sufficiently to allow the return of the rod N, the valve M is closed against its seat L^1 by the pressure thereon, the spring M^3 also serving to hold the parts in this position even when the pressure is relieved in the piping L.

Due to the construction and arrangement already described, and due to the relative timing of the slide B which opens the cut-off O, and the rod N which controls the valve M, the cut-off will be closed when the blast is in operation, and consequently the shavings or beadings X^1 will be excluded from the tube F; and the cut-off will be opened when the blast is discontinued, and the blanks X will be advanced, so that they will be delivered one by one into the tube F and the other devices previously mentioned.

As previously stated, I have herein shown my invention in preferred form and by way of example, and as applied to a specific type of machine, but obviously many variations and alterations therein, and in its mode of application, will suggest themselves to those skilled in the art and still be comprised within the scope of the appended claims.

Having thus described my invention, its construction and mode of operation, what I claim and desire to secure by Letters Patent of the United States is as follows:

1. In a machine of the class described, the combination of a receptacle for the finished product, a cut-off therefor, a blast apparatus to convey the waste material in the direction of the receptacle, means for rendering said apparatus active and inactive alternately, and means for closing and opening the cut-off as the blast apparatus is rendered active and inactive, respectively; whereby the receptacle for the finished product will be closed whenever the blast apparatus is in operation.

2. In a machine of the class described, the combination of means for conveying the product thereof to one destination, and a blast apparatus to convey the waste material in the same direction and comprising a controlling valve to convey the waste material to another destination, the said product conveying means and valve being operated at different times.

3. In a machine of the class described, the combination of means for conveying the product thereof in one direction, and a blast apparatus to convey the waste material in the same direction, the said product-conveying means comprising a conductor, and a cut-off to close the conductor, together with means for closing and opening the cut-off as the blast apparatus is connected and disconnected respectively; whereby the conductor will be closed whenever the blast apparatus is in operation.

4. In a machine of the class described, the combination of means for conveying the finished product in one direction, and a blast apparatus adapted to deliver intermittent blasts of air to convey the waste material in the same direction, the said product conveying means comprising a conductor, a transfer device to carry the product thereto and operated between the intermittent blasts of air, and a cut-off to close the conductor and connected to the transfer device so as to be opened by its advancing movement and closed by its retreating movement; whereby the conductor will be closed when the blast apparatus is in operation.

5. In a machine of the class described, the combination of means for conveying the product thereof to its proper destination, the said means comprising a cut-off; a blast apparatus to convey the waste material to another destination, the said apparatus comprising a controlling valve; and means connected to the operating machine elements whereby the cut-off is closed when the controlling valve is opened, and vice versa.

6. In a machine of the class described, the combination of blank trimming means, a device to discharge the blanks from the machine, a conductor to receive the discharged blanks, a cut-off for the conductor adapted to be closed and opened periodi-

cally, a blast apparatus to eject the waste material in the direction of the conductor, and mechanism to insure the closing of the cut-off while the blast apparatus is in operation.

7. In a machine of the class described, the combination of a receptacle for the finished product, a cut-off therefor, periodically-operated means to convey the waste material in the direction of the receptacle, and means for opening and closing the cut-off after and before the operation of said conveying means respectively; whereby the receptacle will be closed whenever the conveying means are in operation.

In testimony whereof I hereunto set my hand this 23rd day of November, 1912, in the presence of two attesting witnesses.

THOMAS REYNOLDS.

Witnesses:
EDGAR H. ALLEN,
C. C. JONES.