

M. E. BLUME.
SHEET FEED APPARATUS FOR TYPOGRAPHIC STAMPING MACHINES.
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1,016,125.

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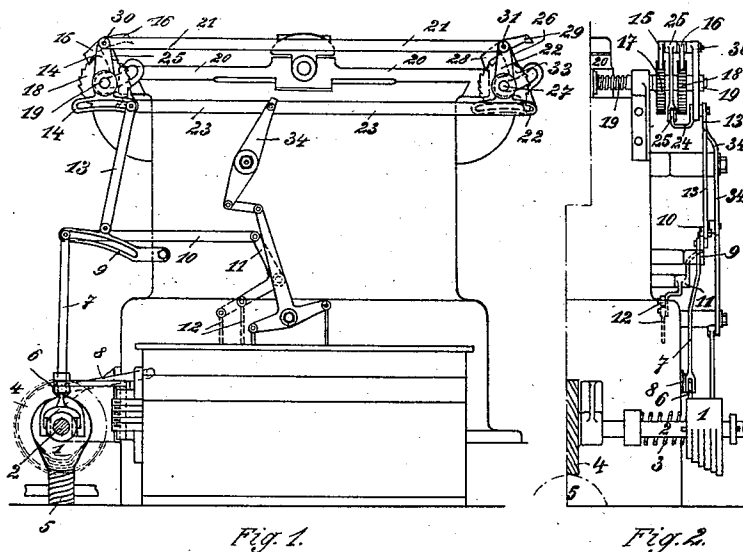


Fig. 1.

Fig. 2.

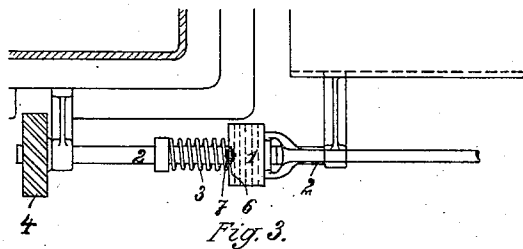


Fig. 3.

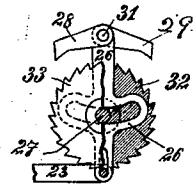


Fig. 4.

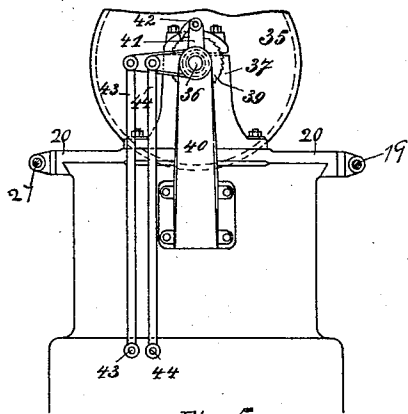


Fig. 5.

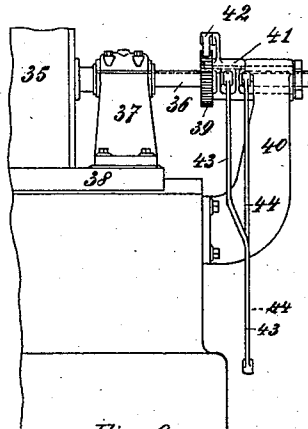


Fig. 6.

Witnesses
H. C. Barry
Amos W. Hart

Inventor
Max Erich Blume
By *Munn & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

MAX ERICH BLUME, OF LEIPZIG-CONNEWITZ, GERMANY.

SHEET-FEED APPARATUS FOR TYPOGRAPHIC STAMPING-MACHINES.

1,016,125.

Specification of Letters Patent.

Patented Jan. 30, 1912.

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To all whom it may concern:

Be it known that I, MAX ERICH BLUME, a subject of the King of Saxony, residing at Leipzig-Connewitz, in Germany, have invented a certain new and useful Improvement in Sheet-Feed Apparatus for Typographic Stamping-Machines, of which the following is a specification.

The present invention has for its object an improved feed device for use in connection with stamping machines for impressing raised type and the like in sheets or plates to be used for printing purposes.

The invention consists in mechanism for moving the metal sheet or plate for the spacing of the characters and for the length of the line.

The feed movements are not directly produced by means of record sheets or the like, but the feed is initiated by means of such devices, the action of which causes power to be applied to the drive of the feed mechanism, which must act with considerable precision.

The invention also provides means for enabling the feed movements to be varied, which is advantageous when characters varying considerably in size are employed.

The invention is illustrated in the accompanying drawing in which:—

Figure 1 is an elevation of that part of the stamping machine with which the present invention is concerned. Fig. 2 shows part of the machine, viewed perpendicularly to the plane of Fig. 1. Fig. 3 is a plan view of part of the mechanism. Fig. 4 shows a detail, drawn to an enlarged scale. Fig. 5 is a side view of the mechanism for moving the metal sheet for the purpose of spacing the lines; and Fig. 6 is a side view of this mechanism.

The types used in a typographic stamping machine may be divided into groups according to width and for the purpose of describing the invention it will be assumed that there are five groups, severally comprising, among others, the following characters and signs:—

- I. w—m—and the capitals.
 - II. c—a—g—h—k—etc.
 - III. q—e—f—etc.
 - IV. o—b—p—r—s—u—etc.
 - V. !—.—;—:—etc.
- and so forth or similar ones.

With the apparatus illustrated, mechanism

not forming part of the present invention is used for moving the cam 1, or other suitable device, to and fro according to the widths of the characters; this cam 1 is rotated by the shaft 2 on which it is slidable but not rotatable. This cam is in part cylindrical, there being at one end a wholly cylindrical section, and in part stepped, there being five steps which rise from the said cylindrical part, but do not occupy the entire circumference of the cam. This number of steps corresponds with the number of groups of type referred to. The cam 1 is acted on by a spring 3, which thrusts it back to normal position after the action of the cam-shifting mechanism, not illustrated. The shaft 2 is continuously driven by means of a worm wheel 4 and a worm 5. Resting in the periphery of the cam 1 is a roller 6 mounted in the forked end of a thrust-rod 7, which works in a guide 8, and is connected at its upper end to a link 9 pivoted to the frame of the machine. The slide-block connecting the rod to the link is connected by a rod 10 and bell-crank lever 11 to a plurality of rods 12; each rod 12 is connected to the mechanism for moving a particular set of type-levers into position for operation, so that the position of the lever 11 varies according to which set of type-levers is being used. Movement of the bell crank lever 11 alters the point of application of the rod 7 in the link 9, so that the rocking movement imparted to the latter by the rod varies accordingly. The link 9 remains stationary on the position shown in the drawing as long as the roller 6 remains on the cylindrical part of the cam 1. When, however, the cam is moved laterally so that one or other of the cam steps is placed under the roller 6, and lifts the same, the link 9 is rocked, the amount of throw depending on which step of the cam is operating the roller, and on the position of the lever 11.

The rocking movement of the link 9 is transmitted by the rod 13 to a lever 14, with which the rod is engaged by means of a block adjustable in a slot with which the lever is provided. The lever 14 carries at its upper end pawls 15 and 16 adapted to engage with ratchet wheels 17 and 18 respectively for the purpose of rotating a screwed spindle 19, which causes a slide or carriage 20 to be traversed backward and forward for the purpose of traversing the sheet dur-

ing the stamping process. The lever 14 is connected by a rod 21 with a similar lever 22 at the other side of the machine, likewise provided with pawls 28 and 29 acting in the same manner, for rotating a screwed spindle 27.

The block connecting the rod 13 to the link 14 is connected by a rod 23 with another block in the slotted part of the lever 22. These blocks are connected by rods 24 (Fig. 2) to levers 25 and 26, respectively, which have transverse slotted arms engaging prolongations of the spindles 19 and 27. The levers 25 and 26 are engaged at their upper ends with the spindles 30 and 31 of the pawls 15, 16, and 28, 29. The spindles 30 or 31 are so connected with their pawls that they allow the latter sufficient freedom of rotation to work on the ratchet wheels, the engagement being made by feathers working loosely in splines. By shifting the lower ends of the levers 14 and 22 by means of the rod 23 the spindles 30 and 31 can be rocked so as to bring either the pawls 15 and 28, or the pawls 16 and 29 into action.

The shifting of the blocks in the slotted parts of the levers 14 and 22 is effected by means of a lever 34 connected to the rod 23, the actuation of said lever 34 being initiated by the record sheet, or being produced by other suitable means.

Figs. 5 and 6 show the mechanism for moving the sheet or plate for the purpose of spacing the lines, the plate being mounted on a cylinder 35 adapted to be turned about its axis until in the position for the stamping of a new line. The amount of rotation to be imparted to the plate varies, of course, according to the size of the type used, and for this reason means must be provided for moving the cylinder to varying extents. The cylinder 35 rests with its shaft 36 in bearings 37 mounted on the aforementioned slide 20, which is capable of being moved in the direction of the line, by suitable mechanism. The shaft 36 is provided with a ratchet wheel 39, which is slidable on said shaft 36 but rotates with the same.

In order to enable the cylinder to be rotated in any position of the slide, the ratchet wheel 39 is mounted on a sleeve which is carried in a bearing 40 and has a collar outside said bearing to prevent the sleeve and the ratchet wheel from sliding toward the cylinder 35, sliding movement in the other direction being prevented by a lever 41 which is rotatable on the sleeve between the ratchet wheel 39 and the bearing 40. This lever 41 has an arm carrying a pawl engaging the ratchet wheel 39. The said lever is also provided with arms of different lengths, to which are connected rods 43, 44. The two rods 43 and 44 (there may, however, be more than two) are connected to a suitable

actuating device. Such device may be a perforated traveling sheet adapted to coact with a number of pins, so that when one of the perforations coincides with a pin, the latter initiates an operative movement in the stamping machine. Such pins are provided for producing the movements of the cylinder for spacing the lines, each of these pins giving rise to different degrees of movement. One of these pins, for instance, is connected by suitable means with the rod 43, and another with the rod 44. If the first pin comes into register with a perforation in the record sheet the cylinder is moved to an extent which will enable a fresh line of small type to be stamped. Movement of the pin connected to the rod 44 moves the cylinder to a greater extent, for a line of larger type. This is due to the different lengths of the lever arms, imparting movements of different lengths to the pawl 42. The number of lever arms and rods connected thereto depends of course on the number of different kinds of type used. A plurality of rods may be connected to different parts of one arm, instead of to different arms.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. Sheet-feed mechanism for a typographic stamping machine, comprising a rotatable sheet supporting cylinder, a carriage for said cylinder, pawl and ratchet mechanism for traversing said carriage, a laterally movable stepped cam for actuating said traversing mechanism with movements varying according to the cam-steps brought into action, pawl and ratchet mechanism for rotating said cylinder, and means for imparting variable movement to the pawl of the second-mentioned pawl and ratchet mechanism.

2. Sheet-feed mechanism for a typographic stamping machine, comprising a rotatable sheet supporting cylinder, a carriage for said cylinder, pawl and ratchet mechanism for traversing said carriage, link motion gear for actuating said pawl and ratchet, a rod for actuating said link motion gear, a laterally movable stepped cam for actuating said rod with movements varying according to the cam-steps brought into action, and means for rotating said cylinder.

3. Sheet-feed mechanism for a typographic stamping machine comprising a rotatable sheet supporting cylinder, a carriage for said cylinder, a screw spindle for traversing said carriage, two ratchet wheels with oppositely directed teeth on said spindle, a lever having a slotted transverse arm, a pawl spindle carried by said lever, two pawls engaged with said pawl spindle so that they can be alternately engaged with said ratchet wheels by rocking the pawl

spindle, a rocking lever fixed to said pawl
spindle, a block which can be moved to
either end of said slotted arm, a rod con-
nected to said block, means connecting said
5 block to said rocking lever, mechanism for
actuating said rod, a laterally movable
stepped cam for actuating the last-men-
tioned mechanism with movements varying
according to the cam-steps brought into op-

eration, and means for rotating said cyl- 10
inder.

In witness whereof I have signed this
specification in the presence of two wit-
nesses.

MAX ERICH BLUME.

Witnesses:

REINHOLD GALLUIZ.

RUDOLPH FRICKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."