

M. E. BLUME.
 TYPOGRAPHIC STAMPING APPARATUS.
 APPLICATION FILED JULY 27, 1911.

1,018,233.

Patented Feb. 20, 1912.

3 SHEETS—SHEET 1.

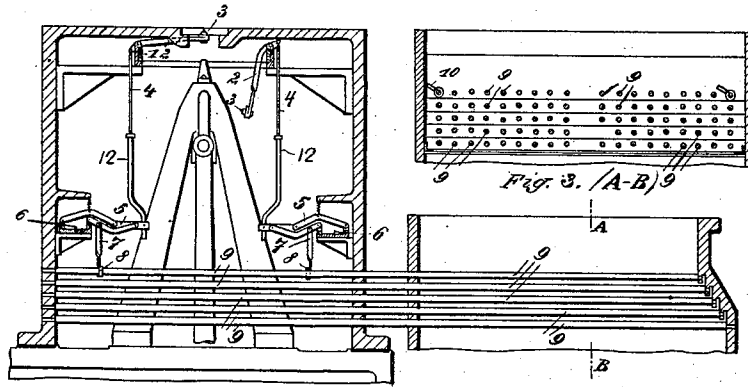


Fig. 1.

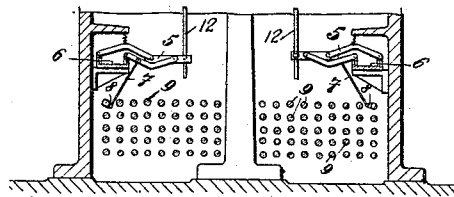


Fig. 2.

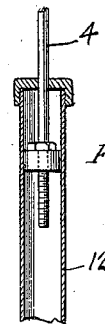


Fig. 2a.

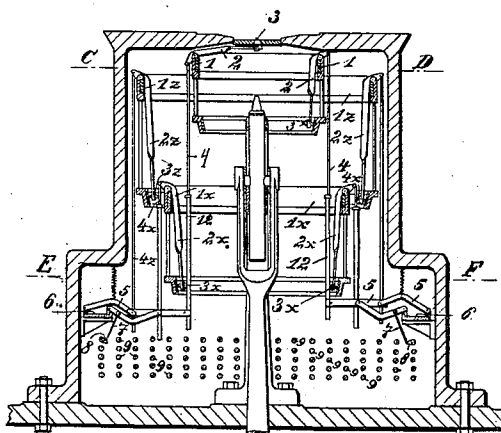


Fig. 4.

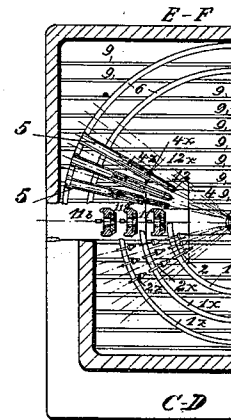


Fig. 5.

Witnesses.
 H. C. Barry
 Amos W. Hart

Inventor
 Max Erich Blume
 By M. W. Co.
 Attorneys

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Fig. 6.

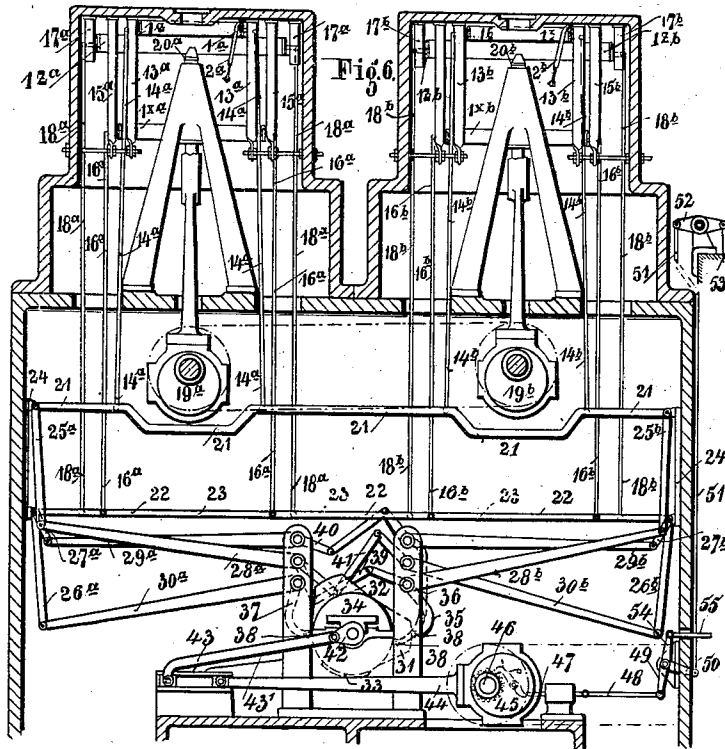
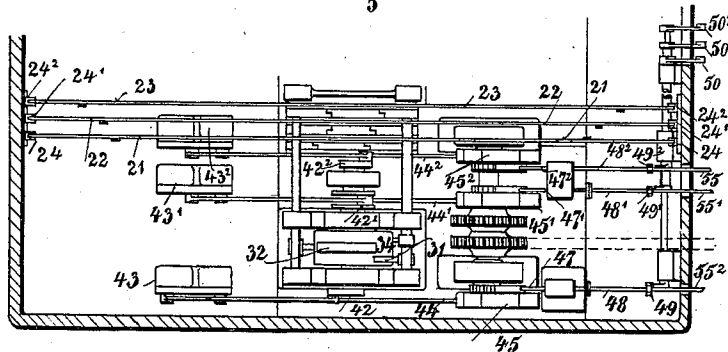


Fig. 7.



Witnesses
 F. C. Barry
 Amos W. Nash

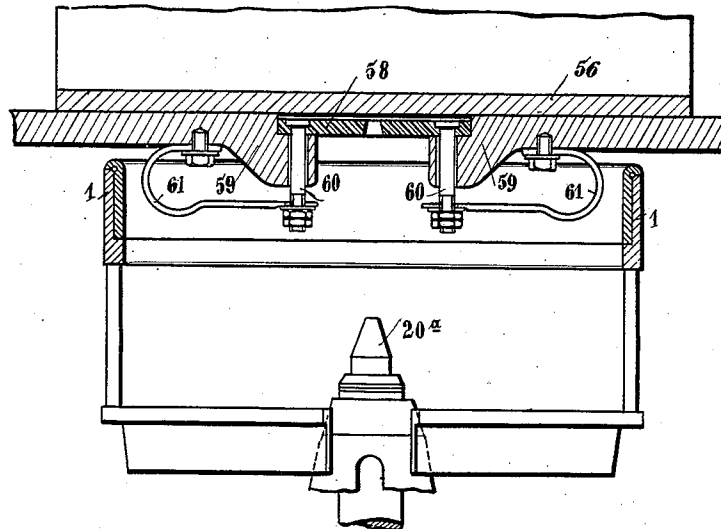
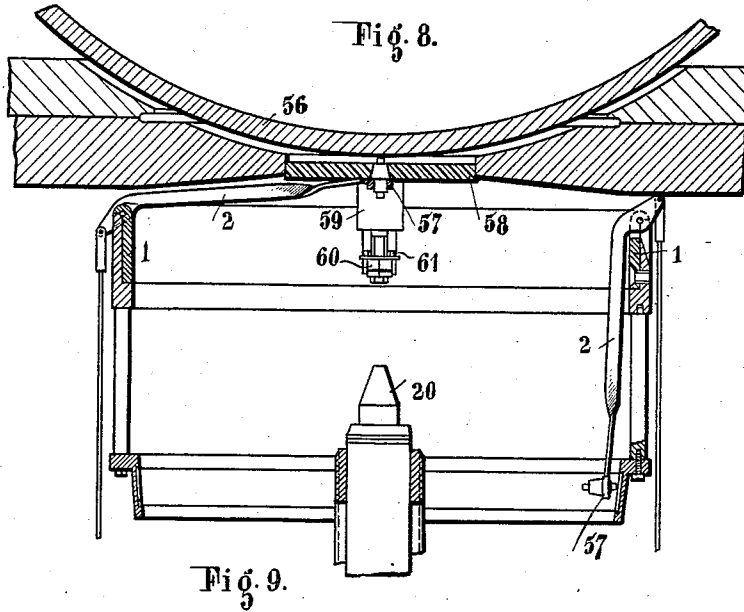
Inventor
 Max Erich Blume
 By *Munn & Co.*
 Attorneys

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3 SHEETS—SHEET 3.



Witnesses
H. Barry
Amos W. Hart

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

UNITED STATES PATENT OFFICE.

MAX ERICH BLUME, OF LEIPZIG-CONNEWITZ, GERMANY.

TYPOGRAPHIC STAMPING APPARATUS.

1,018,233.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed July 27, 1911. Serial No. 640,907.

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 Typographic Stamping Apparatus, of which the following is a specification.

The present invention relates to apparatus for producing impressions of type in metal plates or sheets, which can subsequently be used for printing. The stamps employed for this purpose are mounted on separate levers, which are mounted on a support, or there may be several complete sets, having separate supports which are adapted to be moved separately into the stamping positions, so that the several sets of type can be alternatively used. Guides for the stamps are provided, which insure each character or sign being placed in its correct position, with a view to the formation of straight lines of stamped characters.

The movements of the various stamping elements may be effected or initiated by means of a perforated record sheet, or by other suitable means. If a perforated record sheet is used, a number of pins may be arranged to coact with the moving sheet, the perforations of which correspond in position with the pins connected to the several type levers, so that whenever a perforation allows a pin to drop or to perform some other predetermined movement it causes a shaft to be rotated. Each of the shafts acts on a particular type lever and moves same into operative position, whereupon this lever is pressed by a stamping block to impress the character or the like, and then returns to its position of rest.

The invention is illustrated in the accompanying drawing in which—

Figures 1-3 show apparatus belonging to a stamping machine with one set of types, and Figs. 4 and 5 show apparatus for a machine with three sets of type. Fig. 1 is a vertical section of part of the stamping machine. Fig. 2 is a section, taken at right angles to Fig. 1, of the lower part of the machine. Fig. 2^a is a longitudinal section of an adjustable or telescopic connecting rod forming part of the apparatus. Fig. 3 is a section on the line A—B of Fig. 1. Fig. 4 is a section similar to Fig. 1, of the stamping machine with three sets of type. Fig. 5 is a sectional plan, the lower half being on the line C—D of Fig. 4, and the

upper half on the line E—F of Fig. 4. Fig. 6 is a section of a so-called twin stamping machine showing only those parts which are necessary for illustrating the present invention. Fig. 7 is a plan of Fig. 6. Fig. 8 shows the guiding device for the stamps in longitudinal section, and Fig. 9 is a cross section of the same.

The stamping machine shown in Figs. 1 to 3 has a single set of type levers mounted on a support 1, at the edge of which the type levers 2 are pivoted. These levers carry the type stamps 3. Each type lever 2 is connected to a rod 4 which is adjustable lengthwise and each rod 4 is connected to a system of levers 5 forming a so-called Watt's parallelogram, which is pivoted at two places to a ring 6. The levers 5, when actuated by rods 7 and cranks 8 on shafts 9, always impart the same movement to the connecting rod 4, at whatever part the rod 7 is connected to the lower lever 5 of the system, and this enables the actuating rods 7 to be conveniently distributed. Springs are provided to restore the levers 5 to normal position after actuation by the cranks 8. The shafts 9 are actuated by means of the aforesaid record sheet device, or by any other suitable mechanism, coacting with cranks 10, two of which are shown in Fig. 3. The shafts 9 are arranged parallel to one another in the lower part of the stamping machine, and the rings 6 carrying the systems of levers 5, are arranged above same so that each shaft 9 can actuate one of the type levers 2 by means of a rod 7, levers 5 and rod 4.

The machine shown in Figs. 4 and 5 has three sets of type and three type lever supports, but is otherwise similar to that described with reference to Figs. 1 to 3, and the same references are used to denote the respective parts, but the indices "x" and "z" respectively are added to the references applied to parts belonging to the second and third sets of type. In this machine the type supports 1 slide on bars 11 and can be separately brought into operative position by means of mechanism controlled by the record sheet or other device. In Fig. 4 the type lever support 1 is shown in its operative position and when this support is moved downward along the bars 11, the type support 1^x, slidable on the bars 11^x, or the type support 1^z, slidable on the bars 11^z, is raised into its operative position. In order

that only those rods 4, 4^x, or 4^z are actuated, which belong to the type lever support which is in its operative position, the following arrangement is provided. The rods 4 of the type levers on the supports 1 slide in tubes 12, the lower ends of the said rods 4 having enlargements or stops adapted to slide within the tubes, and the tubes 12 having at their upper ends screw caps bored to allow the rods to pass through but adapted to form stops for the said enlargements. When the type lever support 1 is in its operative position the rods 4 are withdrawn from the tubes, up to the enlargements. The tubes 12 are connected to levers 5 so that downward movement of the latter is in this position of the support 1 imparted to the rods 4, which actuate the type levers 2. If, however, the type lever support 1 is lowered into the inoperative position, the movement of the levers 5 only causes the tubes 12 to slide on the rods 4, since the enlargements do not touch the screw caps on the tubes. The type lever support 1^x is arranged in a similar manner, the tubular extensions 12^x sliding on the rods 4^x. In the case of the type lever support 1^z the levers 5 have holes or sockets which take the place of the tubes 12, and the rods 4^z working in said sockets have stops, the action being the same in principle as in the other cases. The stops on the rods 4, 4^x, 4^z, or else the screw caps on the tubes 12, 12^x, are adjustable in order to enable the movements to be varied. It will be understood that the above described mechanism is applicable to stamping machines with any number of sets of type and type lever supports. A plurality of machines may be combined and arranged for collective actuation by means of a single record sheet or other device, so that a plurality of impressed plates or "forms" may be simultaneously produced, for example for newspaper printing purposes. Twin and double twin machines may be used in this connection. With combined machines of this description, each having a plurality of type lever supports for different kinds of type, it is necessary to arrange for collective movement of the several type-lever supports to and from operative position, the control of this movement taking place from the record sheet or some other device.

Figs. 6 and 7 show a twin stamping machine which will now be described. The indices "a" and "b" are used to differentiate the reference numerals applied to the left hand and right hand parts of the machine respectively. The type lever supports 1^a and 1^b are slidable on bars 13^a, 13^b and are moved by rods 14^a, 14^b; the type lever supports 1^{xa} and 1^{xb} are guided by bars 15^a, 15^b and are moved by rods 16^a, 16^b; the type lever supports 1^{za} and 1^{zb} are guided by bars 17^a and 17^b and are moved by rods

18^a, 18^b. The mechanism for applying the required pressure to the type levers for stamping purposes comprises eccentrics 19^a and 19^b, which actuate the hammers 20^a, 20^b. The two rods for moving each type lever support must be actuated collectively with the rods of the corresponding twin type lever support, and for this purpose there are provided three horizontal transverse bars 21, 22, and 23, which are guided at their ends in vertical guides 24, 24¹, 24². The bar 21 carries the rods 14^a and 14^b, the bar 22 the rods 16^a and 16^b, and the bar 23 the rods 18^a and 18^b. The bar 21 can be moved up and down by two connecting rods 25^a and 25^b, the bar 22 by rods 26^a and 26^b and the bar 23 by rods 27^a and 27^b. The said connecting rods 25^a and 25^b are connected to double armed levers 28^a and 28^b, the rods 27^a and 27^b to double armed levers 29^a and 29^b, and the rods 26^a and 26^b to double armed levers 30^a and 30^b; said levers 28^a, 28^b, 29^a, 29^b and 30^a, 30^b are actuable by cam surfaces 31, 32 and 33 of a cylinder 34, which act upon rollers 38 mounted on extensions 35, 36, 37 of the levers 28^b, 29^b, 30^a. The levers 28^a and 28^b, 29^a and 29^b, 30^a and 30^b respectively are connected to each other by rods 39, 40, and 41. The cylinder 34 can be rotated by either of three cranks 42, 42¹ and 42² connected by rods 43, 43¹ and 43² to eccentric rods 44, 44¹ and 44² and eccentrics 45, 45¹ and 45². The latter can be coupled with the continuously rotating shaft 46 by means of pins 47, 47¹ and 47² which are controlled by the record sheet or other controlling apparatus by means of rods 48, 48¹ and 48² and levers 49, 49¹ and 49², the latter being connected to the motor mechanism by levers 50, 50¹ and 50², rods 51, 51¹, and 51², levers 52, 52¹ and 52², and rods or pins 53, 53¹ and 53². The spindles of the levers 49, 49¹ and 49² are concentric, and carry levers 54, 54¹ and 54² to which are connected rods 55, 55¹, 55². These rods are adapted to transmit the movements imparted to the spindles of the levers 49, 49¹ and 49² to the corresponding spindles of other stamping machines, so that one record or corresponding apparatus can operate two twin machines.

In order to insure the stamps being swung up to their work with perfect precision, so that the impressed lines of type are perfectly straight, the stamps are guided during their operative movement by the device shown in Figs. 8 and 9. The plate 56 of suitable metal to receive the impressions, for example for printing a newspaper column or page of a book, may be curved as shown in Fig. 8. This plate is held in position by suitable means and is moved transversely after each impression, and vertically for line spacing. Below the guide for this plate 56 there is the type lever

support 1 carrying around its edge the type levers 2, each of which carries a stamp fixed to a head 57 having an abutment surface exactly parallel with the plane of the type.

5 The guide for the plate 56 has an aperture into which fits a guide plate 58 resting on two projections 59, against which it is pressed down tightly by means of bolts 60 and powerful springs 61. The guide plate

0 58 has a central coned aperture into which the stamp type fits snugly, the head 57 resting against the perfectly straight under surfaces of the guide plate 58 when the type lever is up. When the hammer 20^a rises to

5 strike the stamp, the head 57 of the lever is pressed against the guide plate 58 and the latter ascends toward the plate 56. In the course of this operation the plate 58 is guided in a perfectly straight course, and

0 the stamp, fitting into it as described, is also accurately guided. The depth of the impression in the metal plate 56 is also accurately regulated, as the stamp can only project to a predetermined extent from the

5 upper surface of the guide plate 58. Upon the descent of the hammer 20^a the guide plate 58 is forced down by the springs 61 and the type lever is then free to swing downward.

0 Although the impression plate is shown and described as curved, a similar appliance can be used for stamping straight plates. It may be mentioned that the guide plate 58 is readily detachable and renewable when

5 necessary.

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

0 1. Typographic stamping apparatus comprising a plurality of type stamp lever supports, a plurality of sets of type stamp levers, the levers in each set being pivoted to one of said supports so that they can

strike at a common center, means for alternatively moving said supports to a prede- 45
termined position for action of the levers, means for imparting rectilinear guidance to the type stamp ends of said levers at said common center, when in said position for action, actuating services common to indi- 50
vidual units of the several sets of levers, telescopic rods connecting said levers to said actuating devices so that the latter are only operative in regard to the levers at said position for action, and means for impart- 55
ing pressure to the type stamp ends of the levers when under the influence of said rectilinear guidance.

2. Typographic stamping apparatus comprising a plurality of groups of type stamp 60
lever supports, a plurality of sets of type stamp levers, the levers in each set being pivoted to one of said supports so that they can strike at a common center, means for alternatively moving the supports belonging to 65
each group to a predetermined position for action of the levers belonging to that group, means for collectively actuating said support moving means so that coördinated lever supports belonging to the several groups are 70
collectively moved to and from their positions for action, means for imparting rectilinear guidance to the type stamp ends of the levers at the common centers in the positions for action, and means for imparting 75
pressure to the type stamp ends of the levers when under the influence of said rectilinear guidance.

In witness whereof I have signed this specification in the presence of two wit- 80
nesses.

MAX ERICH BLUME.

Witnesses:

REINHOLD GALLING,
RUDOLPH FRICKE.