

(No Model.)

2 Sheets—Sheet 1.

S. P. STEEN, Jr.

METHOD OF AND APPARATUS FOR DIE PRINTING.

No. 584,965.

Patented June 22, 1897.

Fig. 2.

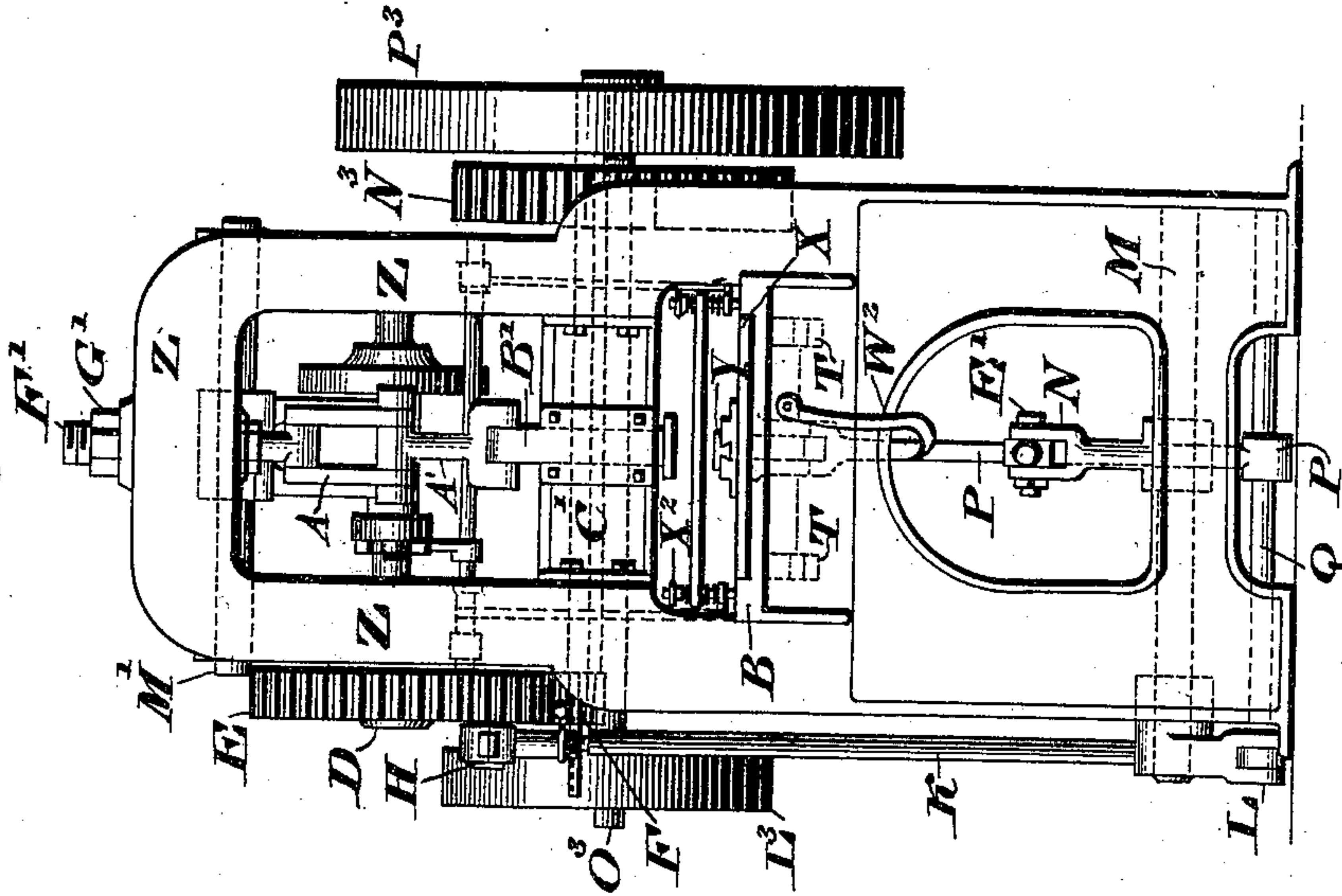
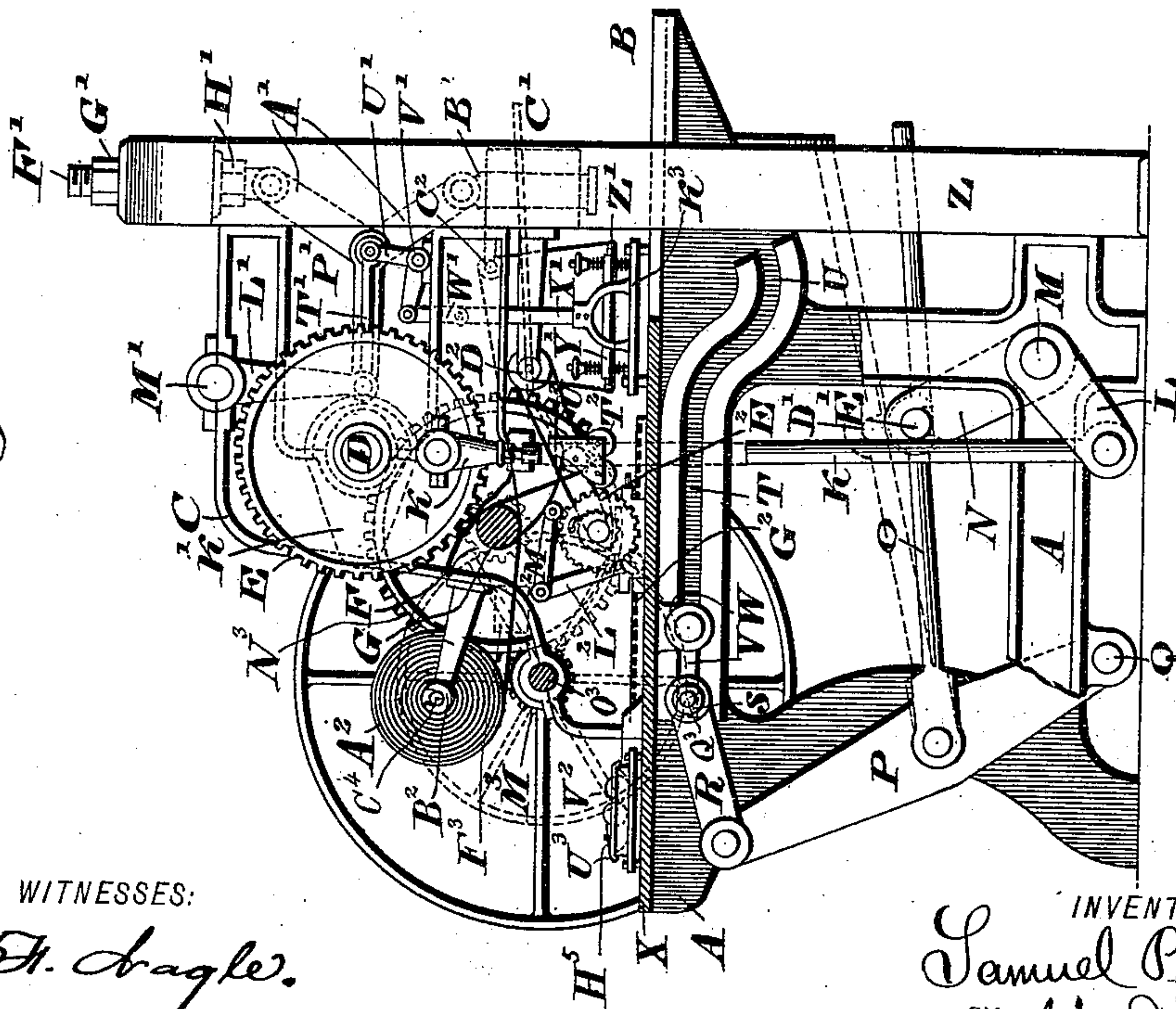


Fig. 1.



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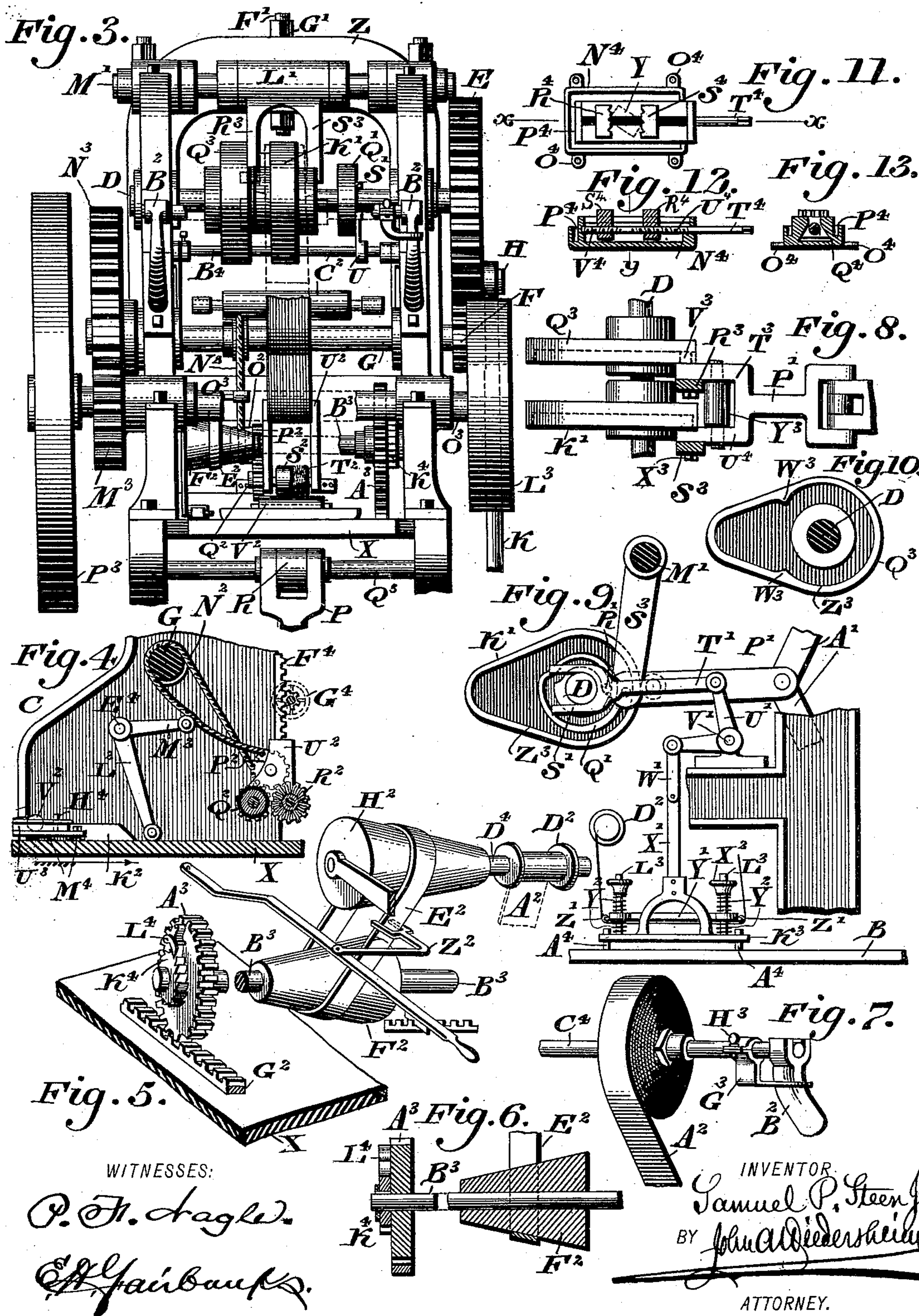
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METHOD OF AND APPARATUS FOR DIE PRINTING.

No. 584,965.

Patented June 22, 1897.



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METHOD OF AND APPARATUS FOR DIE-PRINTING.

SPECIFICATION forming part of Letters Patent No. 584,965, dated June '22, 1897.

Application filed April 30, 1894. Serial No. 509,521. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL P. STEEN, Jr., a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Methods of and Apparatus for Die-Printing, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to a novel method of die-printing; and it consists, first, in applying the ink in bulk to the face and deep parts of the die; second, wiping the ink out of the said deep parts of the die; third, cleaning or wiping the flat surface of the die, and, fourth, presenting the die to the impression device.

It further consists of a novel apparatus in which the above method can be effected, all as will be hereinafter set forth, and pointed out in the claims, said apparatus being designed in part as an improvement on the press shown in Letters Patent No. 471,723, granted to me March 29, 1893.

Figure 1 represents a side elevation of a press embodying my invention having a portion of the frame broken away. Fig. 2 represents a front elevation of the same. Fig. 3 represents a rear elevation of the same having the lower portion of the frame broken away. Fig. 4 represents, on an enlarged scale, a side elevation of the inking mechanism. Fig. 5 represents, on an enlarged scale, a perspective view of the wiper-winding mechanism. Fig. 6 represents a longitudinal section through a portion of the same. Fig. 7 represents in perspective a detail view of the tension-regulating device for the wiping-paper. Fig. 8 represents a plan view of the mechanism for actuating the plunger. Fig. 9 represents a side elevation of the same, showing also the device for raising and lowering the wiper-plate. Fig. 10 represents in elevation the inside cam by means of which the plunger is raised. Fig. 11 represents a plan view of the die-holder. Fig. 12 represents a longitudinal section on line *x x*, Fig. 11. Fig. 13 represents a transverse section on line *y y*, Fig. 12.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates the

supporting-frame of the press, and B the bed thereof.

C designates the arms of the frame, in which is journaled the shaft O^3 , on which is keyed or otherwise secured the belt-pulley L^3 , said shaft O^3 carrying at its other end the pinion M^3 , which meshes with the gear N^3 , from which power is transmitted by the shaft G to the pinion F, which meshes with the gear E. The gear E is suitably attached to the shaft D, which is journaled in the frame C.

H designates a crank-pin in the gear E, which carries one end of the connecting-rod K, the lower end of said rod K being pivotally secured to the arm L, which is attached to the rock-shaft M.

N designates a rock-arm which is secured to the shaft M.

O designates a link having the recess D' , which is adapted to be dropped over the pin E' , which passes through said arm N, so that the parts can be disconnected when desired, as will be hereinafter explained, the other end of the link O being pivoted to the lever P, which is adapted to rock freely on the shaft Q, which is suitably secured to the lower part of the frame A.

R designates a link which connects the upper end of the lever P with a rod Q^3 , each end of which carries blocks or rollers S, which are adapted to freely slide back and forth in the grooves T, which are located at either side of the frame and are depressed at their extreme right near the front of the press and terminate in the form of the arc of a circle U, the object of which will be hereinafter explained.

V designates a link by means of which a connection is made between the blocks or rollers S and a lug W, which depends from the sliding table X, which carries the lower die or plate Y. To the front of the frame A is attached the upright frame Z, cut out in front, as shown in Fig. 2.

A' designates the arms of a toggle-lever, the upper arm being suitably attached to a bolt F' , which passes through the frame Z and is held in place by nuts G' and H' , while the lower arm is pivotally attached to the plunger B', which slides freely in the guide C'. By loosening the nuts G' and H' the bolt F'

can be adjusted vertically, thereby varying the length of stroke of the plunger as may be desired.

I employ the following means to actuate the toggle lever and plunger: About midway of the shaft D, which carries the gear E, I key the cams K' and Q³. The cam K' revolves between the arms R³ and S³ of the downwardly-depending horseshoe L', which is suitably secured to the shaft M', which is journaled in the bearings on the top of the frame C. The arms R³ and S³ of the horseshoe L' are pivotally secured, as shown in Fig. 8, to the prongs T³ and U⁴ of the lever P', so that the pin V³, which pivots the arm R³ to the arm T³, can be extended so as to engage the inside of the cam Q³, whose inside working outline is shown in Fig. 10, the cam being cored out or recessed to the depth shown in Fig. 8 and having the slight projections W³. (Shown in Fig. 10.) The cam K' is recessed, as shown in Fig. 9, and the pin X³ passes through the arms S³ and U⁴.

Y³ designates a roller journaled in the arms T³ and U³, which receives the blow from the cam K' as the latter revolves between said arms. When the said cam K' revolves to a position opposite to that shown in Figs. 1, 8, or 9, the end of the cam will contact with the roll Y³ and will force the lever P' to the right, which movement will, through the medium of the arms A', cause the plunger B' to be moved downwardly in the guide C', this downward movement taking place at the instant when the die is under the plunger, and the parts will be brought back to the position shown in Fig. 1, on the further revolution of the shaft D, by the engagement of the pin V³ with the inside working portion Z³ of the cam Q³.

The shaft D carries another inside cam Q', whose working outline is shown in the detail view in Fig. 9. The cam Q' engages a pin R', which is located at the junction of the yoke S', which partially encircles the shaft D, and the link T', whose other end is pivoted to the bell-crank U', said bell-crank being journaled at V' in a suitable bearing in the frame of the machine.

W' designates a link pivoted to the other end of the bell-crank U', which is connected to the arm X', which is attached to the bar K³ of the wiper device, which slides up and down on the pins A⁴, which serve as guides, said bar K³ carrying the studs L³ and the springs Y², which are located above and below the wiper-plate Y', and thus support the same, cushioning the movement in either direction.

The connections just described for giving the wiper-plate K³ a slight vertical movement are the same on each side of the press, as shown in Figs. 2 and 3, the shaft B⁴, which carries the bell-crank U' at one end, having attached to it at the other end an arm which is pivotally connected to connections which are in all respects the same as in W' X' K³, &c. The said wiper-plate Y' is preferably

made of metal, faced with soft material, and has at each end the rollers Z'.

A² designates a wiper, made of paper or similar material, which is unwound from the shaft C⁴, which revolves in a bracket B² and which may pass under and in contact with the shaft G, thence over the roller C², which is suitably journaled in the frame of the press, thence over the rolls Z', and under the plate Y' to the spool D², which is caused to revolve by means of the belt E², leading from the cone-pulley F², actuated by the rack G² on its back stroke only, said rack engaging the gear A³, which is attached to the shaft B³, which carries said cone-pulley F², as will be hereinafter explained, and said belt E², leading to the cone-pulley H², which carries the spool D² upon its shaft D⁴, which is suitably supported within the frame of the press.

Referring now to the mechanism for actuating the inking device, upon the rear of the movable bed X, near the side of the same, is secured the cam K², having its front end inclined, so that when the bed moves forward the said cam will strike one arm L² of the belt-tightening device, which is pivotally supported at E⁴ inside the frame of the press, moving the same so that the other arm M² will come in contact with the belt N², which leads from the shaft G to the roll O², which actuates the gear P², which in turn actuates the gears Q² and R². Upon the same shaft which carries the gear Q² is the roll S², and upon the shaft which carries the gear R² is the wiping-out brush T², which makes possible the stamping of the deepest dies, since as it revolves it brushes the color from the deep part of the die just before the surface of the same is wiped, as will be hereinafter explained.

The frame U², which carries the gears P², Q², and R², and the rolls S² and T², is made adjustable vertically to accommodate dies of various thicknesses and may be actuated from the exterior of the press by means of a rack and pinion F⁴ and G⁴, as shown in Fig. 4.

U³ designates a color-box which is carried on the rear of the movable bed X, in which are placed the roll or rolls V². I may employ two rolls in the color-box, as shown in Fig. 1, or I may employ one roll and a scraper H⁴, located as in Fig. 4, the scraper being employed to remove from the wiping-out brush T² any ink which may be accumulated thereon before said brush passes over the die.

If desired, I may substitute in place of the brush T² another roll similar to the roll S².

W² designates a hook which is adapted to receive the end of the lever O when the same is disconnected or lifted from the pin E'.

X² designates thumb-screws which, in conjunction with the springs Y², are employed for varying the tension on the wiper-plate Y'.

The belt E², which connects the cone-pulleys F² and H², may be shifted on the said pulleys by means of the belt-shifter Z². (Shown in detail in Fig. 5.) The upper cone-pulley

H², which actuates the spool D², upon which the wiper is wound, can thus be made to run fast or slow, and this change of speed can be made by the pressman without stopping the press, thus allowing a greater or smaller amount of paper to unwind to suit the size of die in use and to prevent the waste-roll as it increases in size from drawing more paper from the supply-roll (shown in detail in Fig. 7) than will be necessary to properly wipe the die. Very little paper, therefore, need be used, since any die can be wiped on about its own length of paper.

The plate Y' is automatically raised and lowered at the proper intervals by the inside cam Q', and the link T', bell-crank U', and other intervening mechanism, so that the movement of the plate Y' is positive and can be adjusted by the thumb-screws X² to such a nicety that just enough pressure comes on the die to wipe it clean and not enough to cause undue friction or wear the die. The mechanism for actuating the wiper is substantially the same as that employed in a prior patent to me, No. 471,723, and consists of a rack G², suitably attached to the bed X, so as to move therewith, said rack engaging a cog wheel or gear A³, mounted on a shaft B³, suitably journaled in the frame of the press and carrying a cone-pulley F², which has the belt E² connecting with the cone-pulley H², which revolves in unison with the spool D², upon which the wiper is wound after it has done its work in removing the surplus ink from the face of the die Y, so as to continuously present a clean surface to the die, the pulley H² and spool D² being carried on the shaft D⁴. It will be seen that the movement of the table X in one direction, or to the rear, will cause the rack G² to engage the cog-wheel A³, causing it to rotate, together with the shaft B³ and pulley F², winding the paper on the spool D².

To prevent the unwinding of the wiper from the spool on the return movement of the table, the cog-wheel A³, which is loosely mounted on the shaft, is secured thereto by means of a ratchet-wheel K⁴, which is fastened to the shaft, so as to rotate therewith. The cog-wheel A³ carries a spring-pressed pawl L⁴, (shown in Fig. 5,) which engages the ratchet-wheel when the rack is moved backward or away from the plunger B', thereby turning the pulley F² and H² and revolving the spool D², on which the wiping-paper is wound, but rides over the teeth of the said ratchet-wheel when the rack is moved toward the said plunger, whereby the said cog-wheel runs free on the shaft B³ without rotating the same in the forward movement of the table and rack and the wiper remains tightly drawn and without any slack, so as to efficiently perform its work.

In some instances, when it is desired to stamp translucent or coated surfaces, I pass the wiper over or through a box F³ containing waste or similar material saturated with turpentine, whereby the surface of the card

will be prevented from sticking to the die or pulling off, said box F³ being shown in dotted lines in Fig. 1.

The color-box U³ rests on springs M⁴, which allow of a slight vertical movement when the ink-rolls pass over the same.

In Fig. 7, G³ designates a tension-regulating device for the wiper, consisting of a split sleeve carried on the shaft C⁴, a portion of which engages the arm B². By screwing up the thumb-screw H³, so that the split sleeve will tightly embrace the shaft, a friction will be exerted on the same, tending to retard its motion and keep the wiper always taut.

The die-holder N⁴ is preferably rectangular in shape and has the ears O⁴, through which it is bolted to the movable bed. P⁴ designates a groove in the die-holder to catch any surplus color. The die-holder is provided with the inverted-V-shaped recess Q⁴, in which slide freely the jaws R⁴ and S⁴, having their inner faces serrated, whereby a die can be held between them at any desired angle, as shown in dotted lines in Fig. 11.

The screw-threaded rod T⁴ is suitably journaled in the ends of the die-holder, and has a right-hand thread U⁴ cut on one portion thereof, so as to engage the jaws S⁴, while the other portion has a left-hand thread V⁴ to engage the jaw R⁴, so that by turning the rod T⁴ in one direction the jaws will be moved toward each other, tightly gripping the die, and by turning it in the other direction the said jaws will be moved away from each other.

The operation is as follows: Power is applied to the belt-pulley L³ and the same is transmitted by the shaft O³, which carries the fly-wheel P³, to the pinion M³, which actuates the gear N³, from which power is transmitted by the shaft G to the pinion F, which meshes with the gear E. The revolution of the gear E causes the connecting-rod K to work up and down, and through the intermediate connections—viz., arm L, shaft M, arm N, and link O—the lever P is caused to rock back and forth on the rod Q, and by means of the link R, rod Q³, and blocks S, which slide freely in the groove T, and the link V, which is pivotally attached to the lug W, which depends from the sliding table X, the said table is caused to move back and forth, carrying upon it the rack G², the color-box U³, the cam K², and the die Y. When the sliding block S has nearly reached its extreme forward position, it will enter the depressed portion U of the grooves or guides T, and while it is doing this the table X will for the time being remain stationary under the plunger B', this interval of time being occupied by the blocks S in traversing the distance from where the depression of the groove T begins to the extreme right-hand end of the groove U and back again to the junction of the straight portion T and the depressed portion U, thus giving ample time for the plunger B' to descend and imprint the device cut in the die on the paper. When the table X

has moved a short distance to the right of the position shown in Figs. 1 and 4, the cam K^2 will strike the arm L^2 of the belt-tightening device, tightening the belt N^2 and causing the gears P^2 , Q^2 , and R^2 and the roll S^2 and the wiping-out brush T^2 to revolve, which revolution will take place just before the rolls V^2 in the color-box U^3 reach the aforesaid roll and wiping-out brush S^2 and T^2 , respectively, whereby the color will be evenly distributed upon said roll S^2 and the wiping-out brush will contact with the scraper H^4 , which scrapes the surplus color from said brush, which latter on the return of the bed removes all but a thin film of ink from the deep parts of the die before the latter reaches the impression device, as is evident. It will be noticed that the rolls are driven only when taking color, the belt N^2 being loose while the die passes under them and allowing them at that period to revolve freely, which prevents the tearing of the roller-coverings and keeps the ink from adhering to the edges of the die.

The quantity of color the rollers take up can be regulated with great exactness by means of the adjustable doctor-blade II^5 , as shown in Figs. 1 and 4.

The function of the wiping-out brush T^2 is to brush the surplus color from the deep part of the die just before it is wiped and is an improvement of great importance, since it renders possible the stamping of the deepest dies.

As the die Y in the die-holder N^4 moves forward after being inked it passes under the wiping-plate Y' , which has passing under and in contact with it a strip of paper or similar material, which is unwound from the roll A^2 and wound upon the spool D^2 .

The split sleeve and thumb-screw on the spindle which carries the roll of paper A^2 keep the same from unwinding too fast and keep the wiper always taut.

The plate Y' is automatically raised and lowered at the proper intervals by an inside cam Q' , so set on the shaft D that at proper times, by means of the rod T' , bell-crank U' , and link W' , connected to the bar K^3 , which bears on the lower springs Y^2 , which support the plate Y' , the plate will be positively moved up and down, and just enough pressure will come on the die to wipe it clean, but not enough to cause friction or wear the same.

The rearward movement of the rack G^2 , as has been explained, causes the spool D^2 to revolve, thus causing the winding of the wiper thereon, while the table X moves back so that a clean surface of the wiper is presented to the die on its return movement.

The downwardly-depending forked rocker-arm L' , which is secured to the shaft M' , journaled on the frame C , has pivoted to its legs R^3 and S^3 the arms T^3 and U^4 of the link P' of the toggle-lever system in such a way that when the gear E has made half a revolution from the position shown in Fig. 1 the cam K' , which is keyed to the shaft D , will come in

contact with the roller Y^3 , journaled in the fork of said link, forcing the same to the right and thereby driving the plunger B' down, the arrangement of parts being such that this movement will take place at just the instant the die Y is stationary under the plunger B' . The above parts are returned to the positions shown in Fig. 1 by means of the recessed portions of the cam Q^3 , whose inner working outline Z^3 engages with the pin V^3 , which passes through the leg R^3 of the forked lever L and the arm T^3 of the link P .

It will thus be seen that the plunger is positively actuated by the toggle-lever device, whereby a uniform blow is given which cannot be attained where a spring is used, and for this reason all the impressions are bound to be alike, and the dies and other operative parts of the press will last much longer than when subjected to the uncertain and varying blows of a spring-plunger.

When it is desired to use the press for plain embossing or burnishing, I run the table to its forward position, so that the die Y will be directly under the plunger B' . The lever O is then unhooked from the pin E' and hung on the hook W^2 . The table X , as will be apparent, cannot then reciprocate, the only operative working part of the press being then the plunger B' , which moves up and down in the guide C' . The stroke of the plunger can be varied for dies of different thicknesses by means of the threaded bolt F' and nuts G' and H' .

The color-boxes U^3 , in which the rolls revolve, are simple in construction and can be changed in an instant when desired.

The die Y can be placed in any position, straight or diagonal, as shown in Fig. 11, and it is obvious that, if desired, two dies may be used. In practice a removable feed-board is employed, which rests on the table B and can be lifted off when desired, so as to set the dies.

I desire to call especial attention to the function of the wiping-out brush T^2 , since the said brush is employed solely for the purpose of removing all but a thin film of ink from the deep parts of the die at every forward movement of the latter and never to ink the die, so that there is no undue accumulation of ink in the deep parts of said die when the same comes to a state of rest under the plunger, and hence the device to be reproduced will be sharply and clearly impressed upon the paper and will not be blurred or indistinct, as will be the case when deep dies are used and the wiping-out brush or its equivalent is not employed.

I am aware that it has been heretofore proposed to wipe out and ink a die at one operation by means of a single brush, to the top of which the color is applied, but I have found that this double duty cannot be performed in practice by a single brush, since the latter will in a short time become charged with ink and will not wipe out the deep portions of the

die at all, all of which objections are obviated by my device, in which the ink is first applied in bulk to the die and then wiped out in a separate operation from the deep parts of said die, after which the flat surface of the same is wiped and then presented to the impression device. It will furthermore be evident that various changes may be made by those skilled in the art which will come within the scope of my invention, and I do not therefore desire to be restricted to the exact constructions I have herein shown and described.

I am also aware that it has been heretofore proposed to arrange an endless band in contiguity to a rotatable plate having shallow lines cut therein for the purpose of removing an excess of ink from said lines, but it is obvious that such an endless band would serve no useful purpose to wipe out a reciprocating die having different depths or a deep die having a depth of three-sixteenths of an inch or more, to dies of which character my rotatable wiping-out brush is especially adapted, and to none of the above-mentioned devices showing the prior art do I herein make any claim.

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

1. The method of die-printing which consists first, in applying ink in bulk to a die, second, wiping out from the deep parts of said die all but a thin film of ink, and third, presenting the die to the impression device.

2. The herein-described method of die-printing, which consists first, in applying ink in bulk to a die, second, wiping or brushing out the ink from the deep parts of said die, third, cleaning the flat surface of said die, and fourth, presenting said die to the impression device.

3. A printing-press having a die, mechanism for actuating and inking the latter, a movable brush for wiping out the deep parts of said die, means for actuating said brush, a surface-wiper, a plunger and means for actuating the same.

4. A printing-press having a die, mechanism for actuating and inking the latter, a device for wiping out the deep parts of said die, a surface-wiper, a plunger and means for actuating the same.

5. In a press, a table carrying a die, and a color-box having a roll therein, a roll and a wiping-out brush suitably journaled above said die, means for actuating said table, wiping-out brush, and said last-mentioned roll, the latter being driven only when taking color, a plunger, means for actuating the same, and a wiper.

6. In a press, a table carrying a die and a color-box, the latter being adapted to contain a roll and a doctor-blade, an inking device suitably supported above said die, means for adjusting said inking device and actuating said table, mechanism whereby said inking device is driven only when taking color, the same consisting of a belt normally loose, lead-

ing from a source of power and communicating motion to said inking device, a cam on said table and a belt-tightener intermediate said cam and belt, an impression device and a wiper.

7. In a press, a table carrying a die and a color-box adapted to contain a roll and a scraper, an inking device and a device for wiping out the deep parts of said die, suitably supported above the latter, means for actuating said table and said wiping-out device, and mechanism for driving said inking device when taking color, the same consisting of a belt leading from a source of power to suitable gearing, which actuates the ink-roll, a cam attached to said table, a bell-crank pivotally supported intermediate said cam and belt, and having one arm contacting with the latter, and the other adapted to be struck by said cam at proper intervals, an impression device and a wiper.

8. In a press, a table carrying a die, and a color-box having a roll and a scraper therein, an inking device and a brush for wiping out the deep parts of the die suitably supported above the latter, mechanism for actuating said table, wiping-out device and said inking device, an impression device, and a surface-wiper, substantially as described.

9. In an organized press having a table, a die, an inking device, a plunger and means for actuating the above parts, a surface-wiping device consisting of a roll of suitable material mounted on a shaft journaled in brackets, a tension device consisting of a split sleeve engaging said shaft and having a projecting portion contacting with one of said brackets, a plate Y' under which said wiping material passes, means for actuating the latter, studs L^3 passing freely through said plate, bars K^3 to which said studs are attached, said bars being located on each side of the press, pins A^4 for guiding said bars, springs above and below said plate, and means for adjusting their tension, a bell-crank pivotally mounted and having connections from one of its arms to said bars K^3 , and connections from the other arm to a source of power.

10. In an organized press, a table having a die thereon, a plunger, a guide therefor, means for actuating said plunger, consisting of the arms A' , A' , pivotally connected to each other and to an end of the forked lever P' , a depending horseshoe L' suitably supported and having its arms pivotally secured to the prongs of said lever, a roller Y^3 , and the elongated pin V^3 , the inside and outside cams Q^3 and K' , and means for actuating the same, said pin serving to pivot the horseshoe to the forked lever, and having its extremity engaging one of the said cams, the outer extremities of said arms A' being secured to the aforesaid plunger and to an adjusting device.

11. In a press, a table carrying a die, an inking device and a wiper, means for actuating the above parts, a plunger, mechanism for actuating the same consisting of outside and

inside cams, the pin V³, the forked lever P' and the depending horseshoe L', the arms A' having their inner ends pivoted to each other and to the lever P', while their outer ends
5 are attached to the plunger and bolt F' respectively, the latter passing through the top of the press, and being adjustably held in position by the nuts G' and H'.

12. In a press, a frame, a table having a
10 die thereon, an inking device therefor, a wiper, a plunger, mechanism for actuating the same consisting of a system of toggle-levers, and inside and outside cams which engage suitable portions of said system of toggle-levers,
15 a threaded bolt F' to which one of the levers of said system is pivotally attached, said bolt passing through the top of the frame Z, and having the nuts G' and H' engaging its threaded portion on either side of said frame, where-
20 by the stroke of the plunger may be readily adjusted.

13. In a press, a table carrying thereon a color-box and a die, an impression device, an inking device, a wiper, means for actuating
25 the same comprising a rack on said table, a shaft suitably journaled and having a cog-wheel, ratchet-and-pawl attachment and a cone-pulley thereon, a belt encircling said pulley, and a second cone-pulley whose shaft
30 carries a spool upon which the wiper material is wound after use, a belt-shifter engaging said belt, a wiper-plate under which said wiping material passes, said plate resting on springs above and below, which are held in
35 position by studs mounted on bars suitably guided, and means for moving said bars.

14. In a press, a table carrying thereon a die, means for actuating said table, an inking device, an impression device, a wiper,
40 means for actuating the same comprising a

rack on said table, a shaft provided with a suitable bearing and having a cog-wheel, a ratchet-and-pawl attachment, and a cone-pulley thereon, and a band connecting said pulley with another cone-pulley, whose shaft
45 carries a spool upon which the wiper is wound after use, a movable plate cushioned on springs above and below, under which plate said wiper is passed, a tension device for keeping the wiper taut, consisting of a splitsleeve
50 encircling the shaft from which the wiper is unwound, said sleeve having a portion thereof contacting with said fixed point.

15. In a press, a table carrying thereon a die, an inking device for the latter, a wiping-
55 out brush for removing all but a thin film of ink from the deep parts of the die, a surface-wiper, means for actuating the same consisting of a rack on said table, a shaft suitably journaled and having a cog-wheel, a ratchet-
60 and-pawl attachment and a cone-pulley thereon, a band connecting said pulley with another cone-pulley whose shaft carries a spool on which the wiper is wound after use.

16. In an organized press for die-printing,
65 embossing &c. a die, an inking device therefor, and a separate wiping-out device, whose function is to remove all but a thin film of ink from the deep parts of said die.

17. In a press, a table carrying a die there-
70 on, means for actuating said table, an inking device, an impression device, a surface-wiper, a wiping-out brush, means for actuating the latter, whereby all but a thin film of ink is removed from the deepest parts of the
75 die, and a scraper for said wiping-out brush.

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