

May 26, 1931.

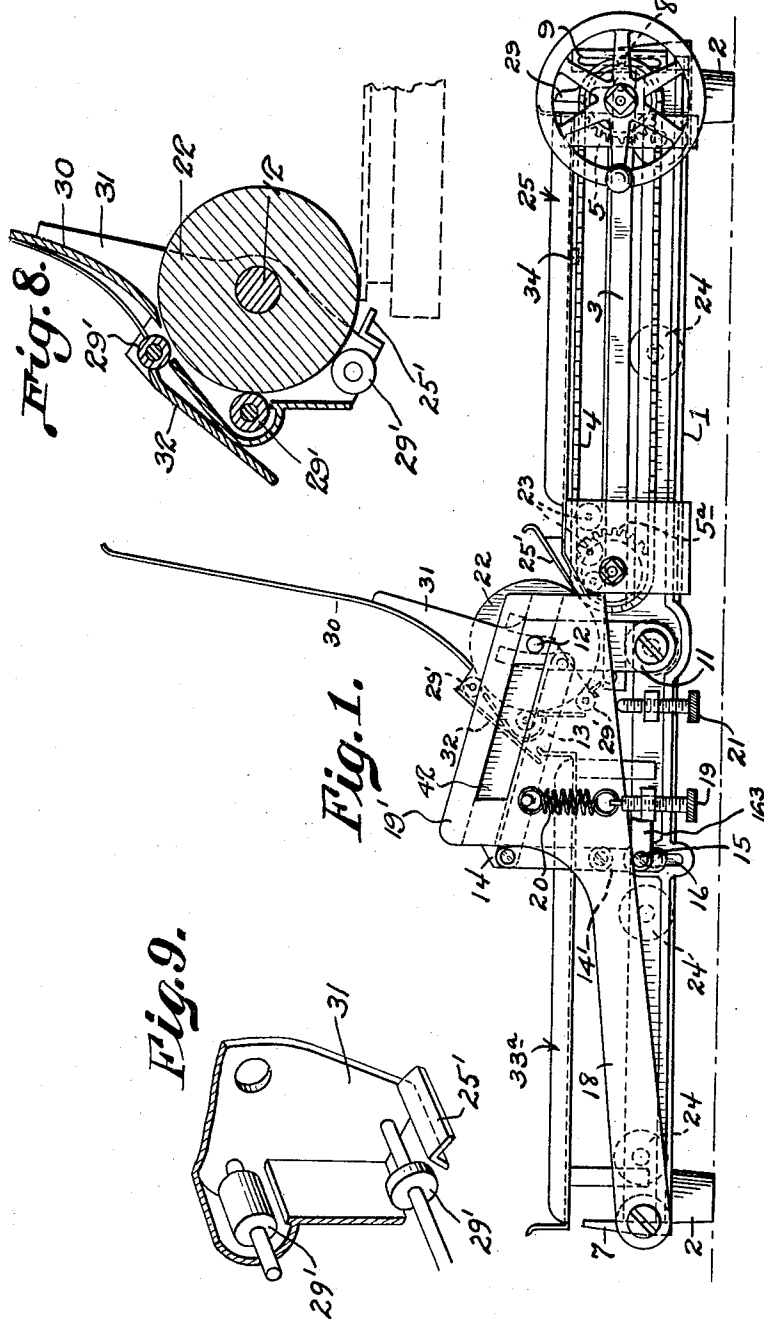
P. W. ALLEN

1,806,591

PRINTING PRESS

Original Filed March 30, 1928

3 Sheets-Sheet 1



Paul William Allen
INVENTOR

BY Victor J. Evans

ATTORNEY

WITNESS:

John Denovan

May 26, 1931.

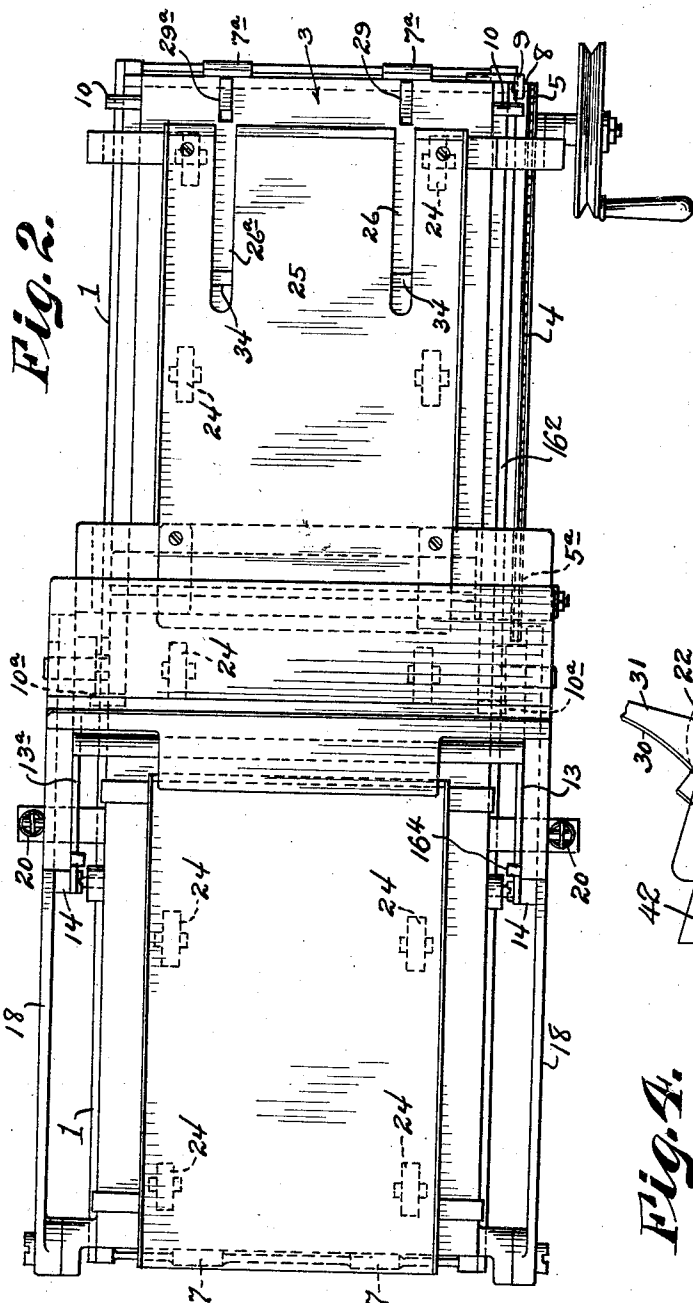
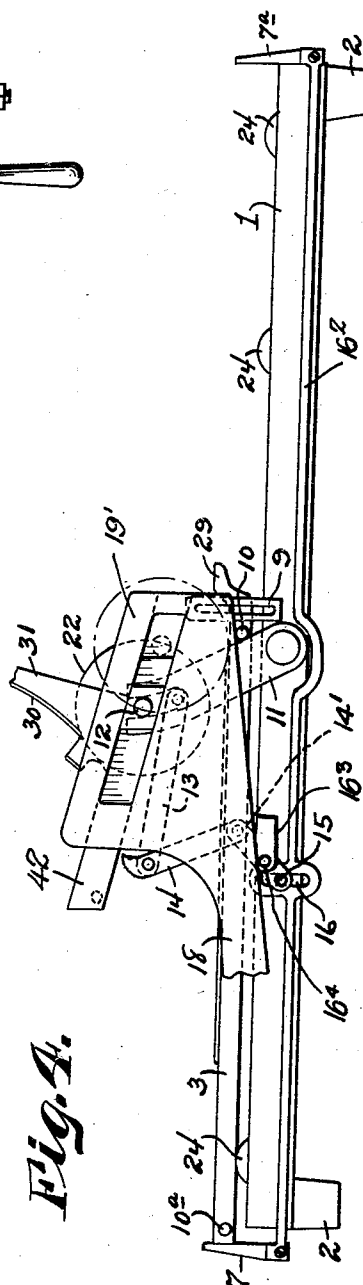
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3 Sheets-Sheet 2



WITNESS

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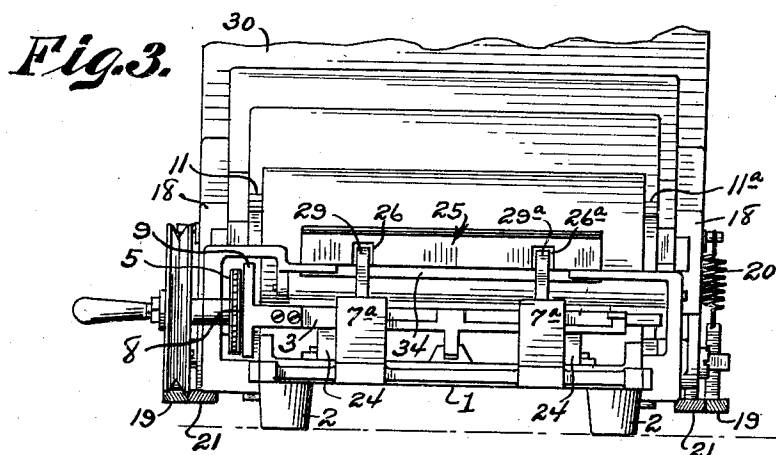
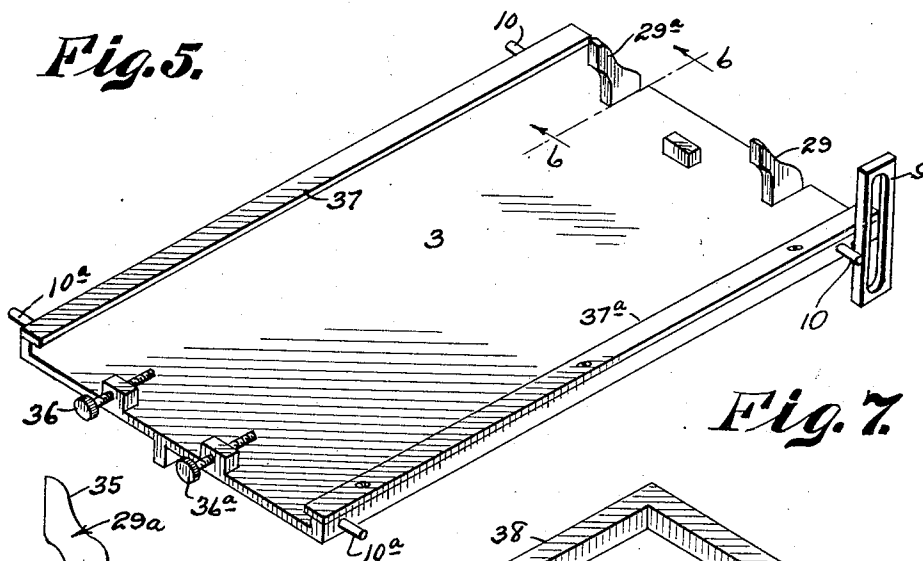
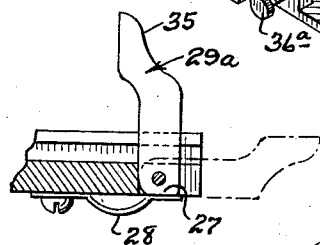
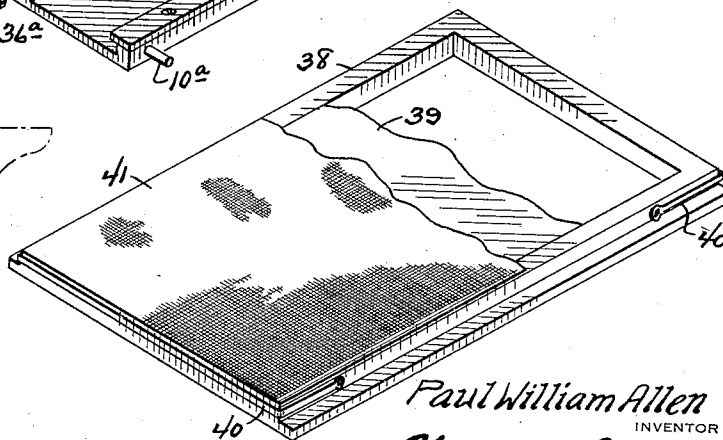
P. W. ALLEN

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PRINTING PRESS

Original Filed March 30, 1928

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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PRINTING PRESS

Application filed March 30, 1928, Serial No. 265,977. Renewed April 15, 1931.

This invention relates to a machine for making multiple copies as in printing, the object being to produce a machine, which may be exchangeably employed in the production of multiple copies as in printing by type-printing, stencil printing and lithographic printing. The invention is adapted to carry out any of these processes by employment of an interchangeable form, mounted on a reciprocable bed-plate by which the several forms carrying the matter to be illustrated may be rapidly and effectively copied.

In carrying out the invention I employ a reciprocable bed operated by hand or power, in which the forms are properly locked in place and passed to and fro under a stationary weighted roller for effecting an impression and means for translating a sheet of paper automatically fed up to the roller and carried in guides around its contour for delivery. The bed plate or platen is reciprocated by a sprocket gear and chain, the latter carrying a lateral pin engaging a slotted upright post on the platen, and the varied frame or chase carrying the matter to be printed is properly secured on the platen or bed plate and passes under a plurality of inking rolls to ink the flat relief surface of the exchangeable form carrying type or other printing surface to retain the ink. The paper is fed over a thin slotted platform fixed above the plane of the inking rolls, and maintained in position by a pair of tiltable translating fingers to transfer it to the impression roll and the latter is mounted in a slotted frame automatically rocked to raise or lower by the reciprocatory movement of the bed plate. The invention embodies means for effecting these results by the movement of the bed plate feeding the paper and making an inked impression for any kind of printing surface whether lithographic stone, a zinc plate, a type surface or a mimeographic surface.

The several features of novelty will be more fully hereinafter described and will be definitely indicated in the claims appended to the specification.

In the accompanying drawings illustrating the invention:—

Figure 1 is a side elevation of a press adapted to carry out the invention—

Figure 2 is a plan of the same;

Figure 3 is an end elevation;

Figure 4 is a side elevation;

Figure 5 is an isometric view of the bed plate;

Figure 6 is a sectional detail of paper feed device taken on line 6—6 of Figure 5.

Figure 7 is a form adapted for mimeograph work.

Figure 8 is a horizontal sectional view taken through the impression roller.

Figure 9 is a fragmentary detail perspective view of the paper guiding means.

Referring more particularly to the drawings:—1 represents the base of the machine and is provided with a plurality of rubber supports 2. 3 represents a reciprocable bed plate movable to and fro on the supporting base and guided by pairs of transverse rollers 24, driven by a sprocket chain 4, engaging a pair of sprocket gears 5—5a, actuated by a hand wheel or pulley for power. One of the links of the sprocket chain is provided with a lateral pin 8 engaging the slot in a vertical post 9, secured to the platen or bed plate. Laterally projecting from the sides of the bed plate at each end is a pair of pins 10—10a, which on their translative movement engage the opposite side edges of a pair of pivoted slotted arms 11 housing a pair of journals 12, of a roller 22 to effect an impression. The arms 11 and 11a are connected with links 13 and 13a and the latter in turn are likewise joined at their opposite ends with toggles 14. The toggles being rockingly mounted upon pivoted links 14' mounted for oscillating reciprocating movement through the instrumentality of a floating fulcrum in the nature of transverse pins, such as indicated at 15, projecting within the vertical slots 16 disposed at appropriate points in the lengths of longitudinal bars 16'. The extremities of the latter mentioned bars are connected with terminal vertical posts 7 and 7a. Fixed plates 16' carried by the base 1 carry trunnions 16' having eccentric pivotal connection with the links 14'. On the rearward movement of the bed plate the post 7 is

engaged and shifts to the left, the bars 16² carrying slot 16 thus collapsing the toggles and allowing the impression roller 22 to drop in the slotted arms 11—11a and the pins 10 striking the arms tilting them to the left and causing roller to rise on the inclined frame and to the raised dotted position shown in Figure 4 of the drawings to free the roller from the printing surface. As best illustrated in Figures 1 and 4 of the drawings, a sliding bearing support 42 is provided for the journals 12 by means of which the impression roller 22 supported thereby may be shifted toward and away from the inking rollers 23 and the paper respectively and locked in the latter position as against vibratory motion created by the springs 20 by the links 14 located in the paths of movement thereof.

A pair of pivoted bars 18 mounted at the rear of the machine permits the frame 19 carrying the roller 22 to shift vertically and may be yieldingly and accurately adjusted by a set screw 19, putting tension on the spring 20 connected to the roller frame. The set screws 21, restrict downward movement of the frame 19 and permit accurate registry of the roll to effect a proper impression. On alternate movements the engraved or illustrative surface is carried under a train of inking rolls 23 in gear with the operating mechanism by which the rolls are supplied with ink for surfacing the particular form locked in the bed plate and guided in a true rectilinear motion by means of the symmetrical rollers 24 mounted and supported on the base of the press. At one end of the machine is provided a thin rigid platform 25 slotted at 26 on which the paper on which the impression is to be made is placed and guided by a pair of fingers 29—29a, carrying flat rectangular edges 27 engaged by springs 28 which are automatically operated by the moving bed plate to a vertical position as indicated in full lines in Figure 6, or in position indicated in dot therein. On shifting of the bed plate to the printing position the fingers engage a fixed transverse bar 34 and are folded to a horizontal position and on return movement of the bed plate a sloping face 35 of the fingers comes into engagement with the posts 7a and are shifted to vertical positions, thereby raising said fingers in a plane to engage the next succeeding sheet of paper and carry it forward thru the slots 26—26a of the paper support. As it is shifted forward the edge of the paper traverses an inclined guide 25' by which it is led beneath the roller 22 and guided by a plurality of roller guides 29', engaging the face of the roller 22 and delivered to a series of slats 30 mounted on arms 31 carried by the roller frame 19, at the end of the platen movement to the right it engages the posts 7a and shifts link 16 raising the toggle and the pin 10a engages

frame 11 and shifts the roller to a lower plane to effect printing the paper.

As evidenced from the illustration of my invention in Figures 8 and 9 of the drawings, it is clearly apparent that the sheets being printed are guided upwardly by the guides 25' carried upon the arms 31 and subsequently introduced or otherwise interposed between the roller 22 and the succession of roller guides 29' rotating against the face of the roller 22. The printed sheets upon being shifted upwardly and outwardly above the points of connection between the roller 22 and the uppermost of the roller guides 29' has the unprinted side thereof momentarily reposing against the slats 30. The roller 22 during progressive revolutions in a counter-clockwise direction causes the uppermost of the roller guides 29' to rotate in a counter-clockwise direction whereby the lower edges of the sheets will be elevated and the unprinted backs or faces of the sheets will then skid downwardly and outwardly upon the inclined shelf 32 for subsequent disposition and stacking within a fixed paper support 33a. The fingers 29 and 29a will materially coact with the inclined guides 25' and the guide rollers 29' operating against the face or surface of the roller 22 in the discharge of the sheets and in view of the fact that the roller 22 engages the sheet in advance of the inclined guides 25', it is to be noted that the roller effects an impression on the paper against the ink surface of the form. The reciprocable bed plate is provided with a pair of set screws 36—36a for locking any form of the printing chase containing type matter for which may be held by a pair of projecting plates 37—37a overlapping the form. In place of the printing chase may be a frame 38 supporting a mimeograph stencil or a sheet of zinc 39 locked by a pair of bails 40, covered by a layer of permeable material 41 and thus varied type matter may be applied to the bed plate and different forms of printing reproduction may be exchangeably carried out in a single printing press.

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

1. A printing press comprising a reciprocable bed, a slotted paper feed platform over its rearward position, an impression roller forward of the platform, foldable fingers carried by the bed to engage the paper through the slotted platform, means on the printing frame for automatically raising the fingers upon rearward movement to lift and feed the paper on the forward movement of the bed, a traverse bar above the bed to lower the fingers on forward movement of the bed, and means for shifting the impression roller into and out of printing position on the forward and back movement of the bed respectively.

2. A printing press having a reciprocable bed, a chain and sprocket in gear therewith to shift the same over ink rolls to ink the printing surface, a vertically movable impression roller, a paper feed therefor, and posts on the bed for shifting the roller into printing position on forward movement of the bed, and lifting it out of printing position on backward movement.

3. A printing press comprising a reciprocable bed, adapted to support a relief printing surface, means for feeding paper to the printing surface, a pivoted frame carrying an impression roller at the forward end of the bed, a toggle to raise and lower the roller, and means carried by the bed for operating the toggle to raise and lower the roller into and out of printing relation to the bed on forward and backward movement.

4. A printing press comprising a reciprocable bed, a platform for feeding paper, a vertically movable impression roller, posts on the bed for shifting the roller into and out of printing relation upon alternate movement of the bed, guides delivering the paper as printed, arms for the roller shifted by the bed to rock the impression roller.

5. A printing press comprising a reciprocable bed, a vertically adjustable weight impression roller, a frame therefor, slotted arms carrying the roller, a collapsible toggle for raising and lowering the roller frame, and means for collapsing and setting the toggle by the reciprocating bed.

6. A printing press, drive means for reciprocating the bed therefor, a vertically shiftable weighted impression roller, a pivoted frame for the roller, a toggle automatically collapsed and straightened by the reciprocating bed to shift the roller in or out of printing position, means for feeding a sheet of paper over the roller, and delivery arms upon the pivoted frame to transfer the printed paper to a receiving table.

7. A printing press comprising a reciprocal bed plate, a pivoted frame for the press, an impression roller carried by the frame, slide members for the journal ends of the roller, means included upon the bed plate to raise and lower the roller and slides therefor incident to the reverse actions of the bed, and a locking mechanism having connection with the slide mountings to prevent displacement of the roller when the latter is shifted for operative use adjacent the bed.

In testimony whereof I affix my signature.

PAUL W. ALLEN.