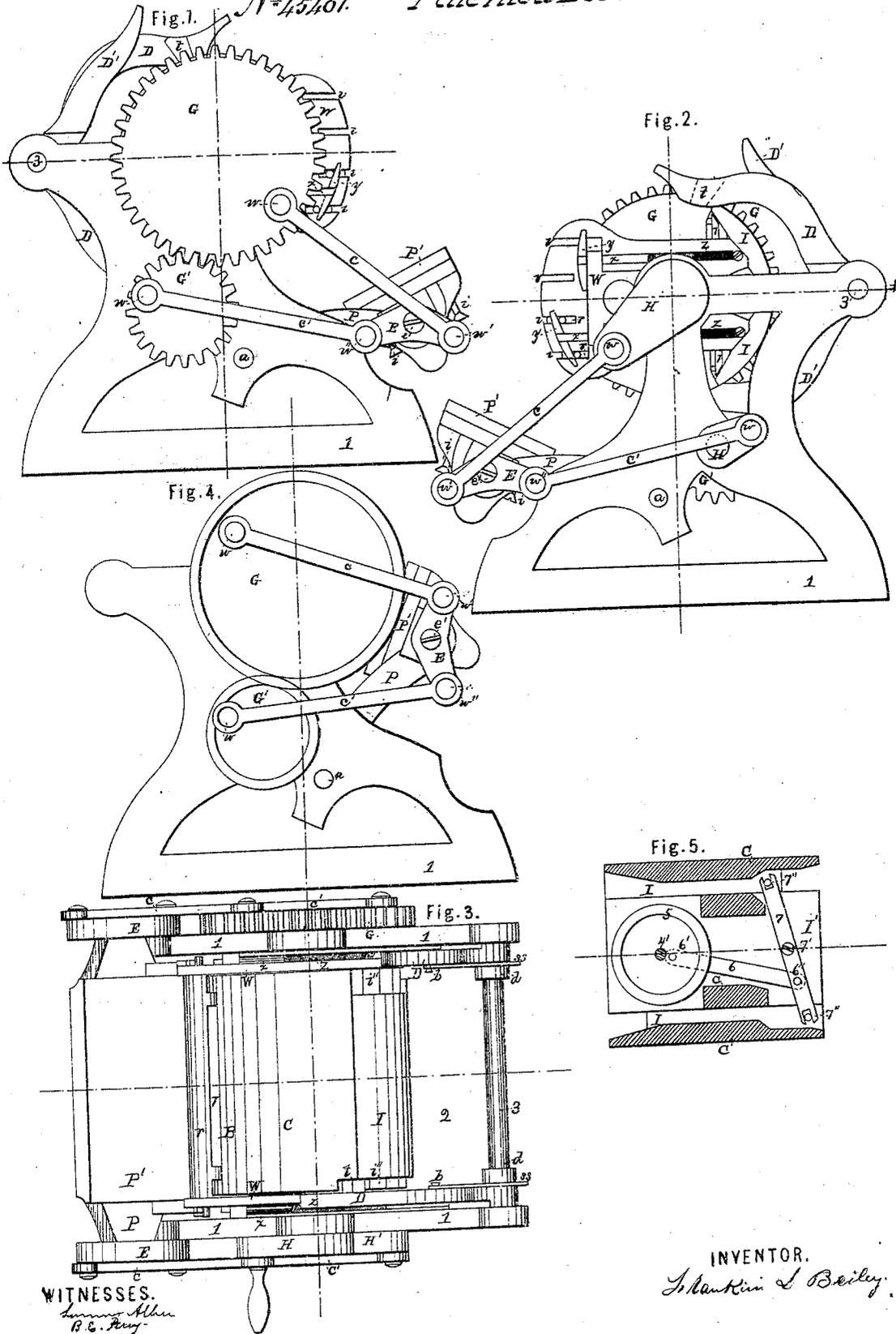


F.L. Bailey *Sheet 1 of 2 Sheets*

Printing Press

N^o 45,101. Patented Dec. 13, 1864.



WITNESSES.
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UNITED STATES PATENT OFFICE.

FRANKLIN L. BAILEY, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification forming part of Letters Patent No. 45,461, dated December 13, 1864.

To all whom it may concern :

Be it known that I, FRANKLIN L. BAILEY, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented and made certain new and valuable Improvements in Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which compose a part of this specification, and to the letters of reference marked thereon, in which it will be found that—

Figure 1 is an elevation showing the left side of this press. Fig. 2 is an elevation showing the right side of this press. Fig. 3 is a plan of the same. Fig. 4 is an elevation showing the left side when all parts are in their position while the impression is being taken. Fig. 6 is a vertical longitudinal section of the same. Fig. 5 is a reverse view of the ink-tables detached from the rest.

To enable those skilled in the art to construct and operate my invention, and that I may make known the number and nature of my improvements, I will describe the construction of this press from the drawings, the same letters referring to corresponding parts in the several figures.

1 1 are the two sides. 2 is the base connecting the same. 3 is a girt, also connecting and fastened to the two sides. This girt, the base, and the sides constitute a fixed frame to which all the moving parts are attached.

M, Fig. 6, is the impression-shaft, which has bearings in the two sides 1 1, which shaft supports the cylinder C, upon the periphery of which, as seen in Fig. 3, the ink is distributed. Upon one side of the cylinder a plane surface is cut, which forms the bed B, upon the face of which is fixed the form of type T.

P P' is the platen, which vibrates up to and away from the form T upon its center at a.

r r, Fig. 6, are inking-rollers, which roll or revolve around the cylinder C and spread and take their ink from its periphery, and roll over the type in their onward motion and ink the type when the platen is withdrawn from the type, as seen in Fig. 3. These rollers are carried by the plates W W, which plates are fixed on the shaft M at each end of the cylinder C. As these plates and the rollers r r cut off all connection of the cylinder C with the frame of the press, the cylinder is

held in a fixed position by the two dogs D D, as seen in Fig. 6, which are hinged on the fixed girt 3 of the frame. These dogs take hold alternately on opposite sides of the cylinder C by means of the teeth t t and indents or cavities in the periphery of the cylinder, into which they enter, so that while one dog is forced from its hold and rises and allows the rollers r r to pass under it the opposite one is holding the cylinder in its fixed position, alternating from one to the other, and the rollers passing under the one, then the other. To guard against the accident of either dog not falling into its place in the cylinder at the proper time or before its opposite is forced out, thus letting the cylinder swing on its shaft, the dogs have each a tail, D', against which the edge or periphery of the plates W W strike and force them outwardly, consequently the head of the dogs D D inwardly, into contact with the cylinder. Around the girt 3 and collars d d, and pressing against the studs b b on the dogs, are coiled the springs s s s s, which make the dogs close into the cylinder after the plates W W (which stand in range with them) force them out. The bearings of the rollers r r enter into the slots v v in the plates W W, and are made to roll in contact with the cylinder C and the type T by means of the yokes y y, rods x x, and springs z z. (Also seen in Figs. 2 and 3.)

Part of the periphery of the cylinder C is occupied by the two lateral ink distributing tables or slides I I, which have the same curvature as the cylinder, over which the rollers r r roll and take and leave ink in a new place at each revolution of the press. These slides are made to move in opposite directions alternately (in order to more effectually distribute the ink) on the grooves i' i'', which are made in the stationary support I', Fig. 6, and by means of the vibrating forked lever 7, attached to the reverse side of I, as seen in Fig. 5, which is hinged at 7', and takes hold of the pins 7'' 7''' in the said plates. This forked lever 7 is moved by means of the connecting-rod 6, joint 6'' in the lever, and joint 6', set eccentrically from the center 4' of the beveled gear-wheel 5, this wheel matching with and receiving motion from the beveled gear 4, fixed to the shaft M, as seen dotted in Fig. 6.

The platen *P'* is adjustable upon the sub-platen *P* by means of the screws *i i i*, that the impression may be regulated thereby. The impression is given by the platen *P P'* being drawn up to the form by the two pairs of connecting-rods, the one, *c c*, connecting by wrists *w w* on crank *H* and gear *G* on main shaft *M*, and set eccentrically from its center of motion, the other pair, *c' c'*, connecting in the same way with the sub-gear *G'* and crank *H'*, which are attached to the shaft *g*, which revolve twice to each revolution of the gear *G*, which drives them. The lower ends of the connections connect with vibrating swivels or levers *E E*, hinged at *e' e'* at each side of the press to the platen or frame *P*, one of each pair of the connections being each side of the press, *c c* connecting with the upper ends of the levers *E E*, and *c' c'* connecting with the lower ends of the same by wrist-pins, (marked *w' w' w'' w''*.) As said before, the sub-gear *G'* and crank *H'* make two revolutions to one impression, and the two connections *c' c'* draw up and push down their ends of the levers *E E* to each upward moving of the platen. When the impression is in the act of being taken, all of the cranks and connections are drawing the platen against the type, as seen in Fig. 4; but as the sub-series move more rapidly they push their ends of the levers *E E* to their lowest point after the impression, while that of the upper series is still elevated, thus pushing the points at *e' e'* and the platen down sooner than would be the case if it depended upon the upper series alone; and from the lowest point, just mentioned, the lower series of connections immediately rise again as rapidly as they descended, and draw up their ends of the levers *E E* at nearly the same speed that the upper ends are pushed down by connections *c c*, so that as one motion nearly compensates for the other the platen remains nearly stationary, until by the rapid-gaining motion of the sub-shaft the two pairs of connections coincide again in an upward motion, and a second impression is given.

Fig. 4 represents the position of all the parts while the platen is drawn up and the impression going on, and Figs. 1, 2, 3, and 6 show their position when the platen is at the lowest point and proper place to receive the sheet.

Having described my invention, I will describe the operation of the whole together.

A sheet of paper having been placed on the face of the platen when it is at its lowest and most quiet position, the press is set in motion by the crank on the impression-shaft. The platen moves upwardly at first but slowly, on account of the annulling effect of the lower set of cranks and connections, which move downward as the upper set move upwardly, until finally the lower set, together with the upper set, pull the platen against the type, and an impression is given. In the mean time the ink-rollers, having passed over the form of type pass onward round the cylinder to distribute and get their next supply of ink, and the dogs perform their office—first one, then the

other—when, the cranks having passed their centers, the platen descends again, rapidly at first, then slowly, until, when in the most convenient place for the sheet to be removed, the platen has little movement to disturb the operator, and one revolution is ended. A new sheet is placed while the platen is still moving but slowly upward, and a second revolution is commenced.

Having described the construction and operation of my invention, I will endeavor to present the different features of the same.

One part of my invention is seen in the improved means for distributing the ink in a lateral direction upon the cylinder for the purpose of bringing the ink from the sides into the middle of the cylinder and equalizing it, as the unequal forms cause it to be used in unequal quantities in different places. By the use of two slides, going alternately in opposite directions, the ink is very rapidly broken up and transferred from side to side, and vice versa, especially as the two bevel gear-wheels which operate them have an unequal number of teeth, and the plates assume all possible positions relative to the rollers when they roll over them. As the curvature of the slides is the same as that of the cylinder, the rollers are not in the least disturbed in their onward smooth course round the cylinder.

Another part of my invention is the making the same part of the press which opens and raises the dogs close the same after it has held them up as long as is required to pass the rollers under them, and that by means of the tails or projections above mentioned. I do not wish to be confined to this exact form of dog or clutch or catch which is used for this purpose.

Another part of my invention consists in making the platen hasten down, so as to remain as long a time as possible in nearly a quiescent position or slow movement when the platen is in the most convenient general position for the placing and the removal of the sheets, and then hasten upward to the impression after it has been delayed for this purpose. I do not wish to be confined to this precise arrangement of two shafts and two sets of connections, &c. Although part of the impression is borne by the sub-shaft, it is not at all necessary for that purpose, and the whole impression may come on the main shaft *M* and its connections alone. This sub-shaft and connections is only one of the contrivances by which the platen may be suspended on the swivels *E E*, and the surplus movement of the connections proper, *c c*, be disposed of. By operating on the lower ends of the swivels *E E* by some other means, and by lengthening or shortening either end of the swivels, the motion of the platen can be greatly modified. By disposing of the downward movement of the connections in part by use of the swivels *E E*, which double or fold or turn the connections aside from the platen and retard the platen, I am enabled to place

the wrists in the gear G and crank H in a greater circle, so the platen will drop sooner, for the purpose of gaining as much time as possible to lay the sheets of paper.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The application of one or more movable slides or tables to the cylinder C, for the purpose described, when these movable tables constitute a part of the distributing-surface over which the rollers *r r* roll and spread ink.

2. The means of effecting the movement of these tables I I, the same being the gear 4 and gear 5, connection 6, and forked lever 7, substantially as described.

3. The combination of the dogs D D with

the cylinder, when such dogs are made to close with the cylinder by the same means that raises or uncloses them, for the purpose described.

4. The combination of the connection *c c* and joints *w' w'* with the swivels E E, when these swivels are made to vibrate on their axes *e' e'* and fold the connections *c c* down onto them, for the purpose above set forth.

5. The herein-described method of vibrating the swivels E E by means of the sub-connections *e' e'* and their shaft *g*.

FRANKLIN L. BAILEY.

Witnesses:

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B. E. PERRY.