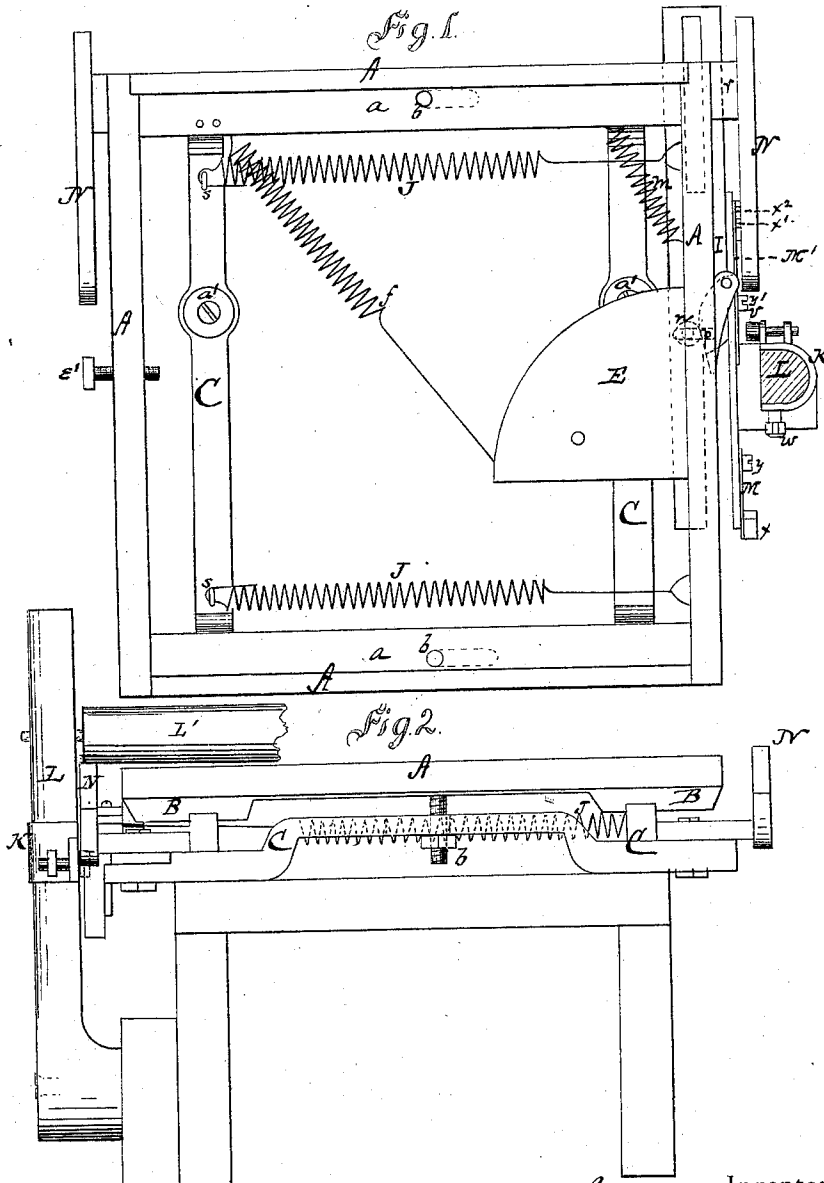


L. BIDDLE.

Inking Apparatus for Color Printing.

No. 125,655.

Patented April 16, 1872.



Witnesses:

James E. Hutchinson
 C. L. Ewert.

Inventor

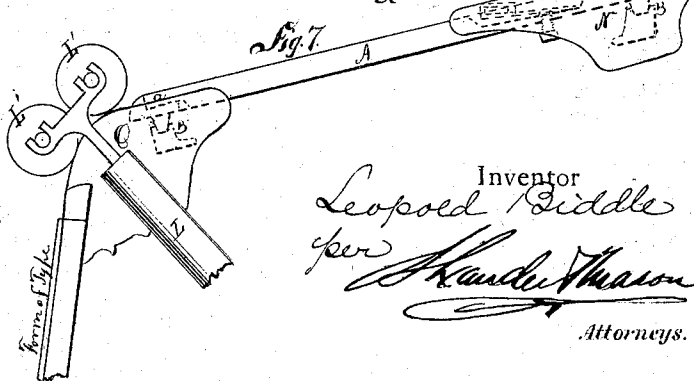
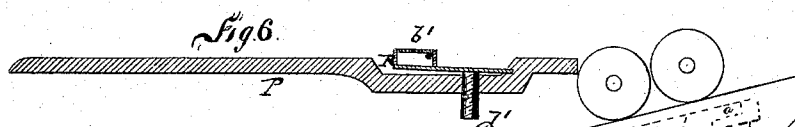
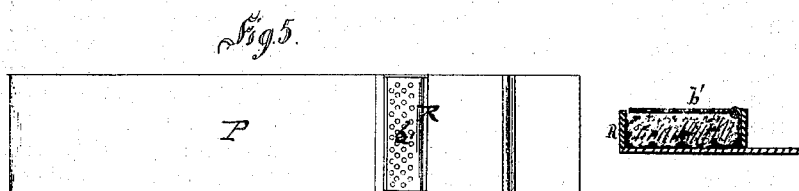
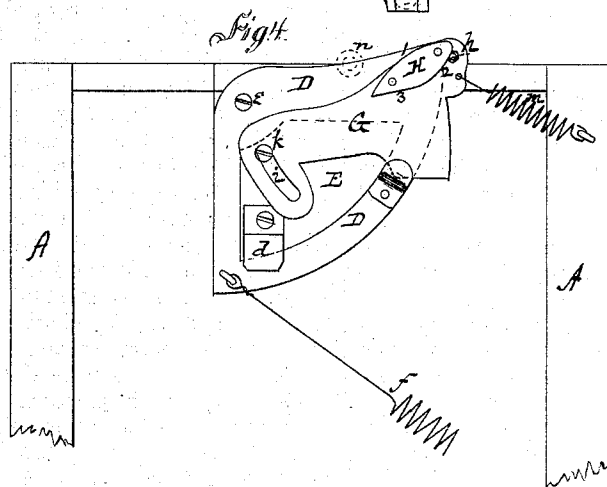
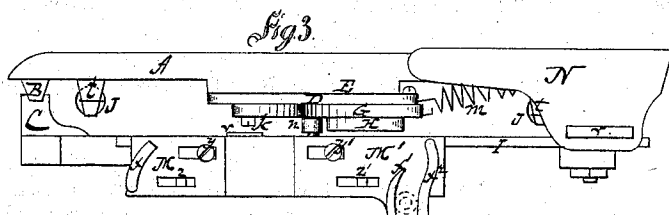
Leopold Biddle
 per *Handley Mason*
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UNITED STATES PATENT OFFICE.

LEOPOLD BIDDLE, OF KNOXVILLE, IOWA.

IMPROVEMENT IN INKING APPARATUS FOR COLOR-PRINTING.

Specification forming part of Letters Patent No. 125,655, dated April 16, 1872.

To all whom it may concern:

Be it known that I, LEOPOLD BIDDLE, of Knoxville, in the county of Marion and in the State of Iowa, have invented certain new and useful Improvements in the Art of Printing in Colors at one Impression; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in constructing the distributing-table of printing-presses of sections of any given size, and in such a manner that the sections may be adjusted to any selection of color on any given form of type, for the purpose of having several colors transmitted from said sections, by means of distributing or inking rollers, to the form of type without mixing, blending, or otherwise interfering with each other.

The inking or distributing rollers used in this improvement are made in the same manner and of the same materials as those of any other printing-press, and are the same in their operation upon the type; and the distribution of ink upon said rollers is produced by the sections of which said distributing-table is composed, together with the amount of shift given to the sections and table at right angle with the movement of said rollers and parallel with their axes, so that said rollers, in passing and repassing over the sections of which said distributing-table is composed, and upon which sections the ink is contained, receive ink or color corresponding in width with the measure of each section and the amount of shift given to the table. The amount of this shift must be a fraction less than the width of the narrowest section used, so that in printing three colors upon one line of type, the section being one-eighth of an inch wide, the distance between sections one-eighth of an inch, and the shift of the distributing-table, also one-eighth of an inch, the amount of impression of color upon the ink-roller will be one-quarter of an inch, and will be so transferred to the type.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of the table and attached mechanism, the ink sections being removed. Fig. 2 is a front elevation, and Fig. 3 a side view of the same. Fig. 4 is a bottom view of the shifting gear. Fig. 5 is a plan view, and Fig. 6 a side view of an ink section and fountain; and Fig. 7 a side elevation of form, ink-rollers, and table.

A represents the frame of the distributing-table, with ways or tracks B, resting upon the lower frame C. *a a* represent the sunk or shouldered parts of the table-frame A, fitted to receive the ink sections. The frame A is secured to the lower stationary frame C by means of screws, *b b*, which pass through slots in said stationary frame. In line with the ways B B, on one side of the frame A, a plate, E, is cast, which plate carries the shifting gear hanging on its under side. This shifting gear consists of the plate D secured to the plate E and the frame A by means of the screw *e* and the stop-piece *d*, and is held in position by a coil spring, *f*. Upon the plate D there is another vibrating plate, G, the fulcrum of which is at *h*, and the movement of which is controlled by the screw *k* and slot *i*. This plate is held in position by the coil spring *m*, as shown in Fig. 4. Upon this plate G the cam H is attached, whereby the shifting motion of the frame A with all its attached parts is produced by coming in contact with the friction-roller or stud *n*. The shaft of this roller passes through a slot, *p*, in a bar, I, which is held to the lower frame C in bearings or guides, *r r*, which allow said bar to be moved forward and backward. By moving the bar I forward the roller *n* comes in contact with the cam H at the side marked 1, but the springs *f* and *m* allowing the plates D and G to turn on their fulcrums no movement is produced upon the frame A. But moving the bar I in an opposite course, a movement of the plate G will take place, and as this plate can only vibrate as fast as the slot *i* and screw *k* will permit, any excess of movement on the part of the roller *n* will cause a movement of the distributing-table A and attached parts, said roller sliding past the inclined plane 2 of the cam to the straight side 3. The bar I and roller *n* being moved still further, the cam H is released and the frame A is thrown back to its former position by the springs J J, one end

of each of said springs being fastened to the lower frame C, at s s , and the other end to studs t t on the frame A. The roller n can be moved back and forward in the slot p at right angles with the bar I, and thereby a greater or less vibration or shift of the distributing-table A can be produced. For the purpose of moving the bar I in the manner desired, the clutch K, with friction-roller v and steel set-screw w , is fastened onto the rear arm L of the Gordon printing-press, said arm carrying the ink-rollers of said press, so that the friction-roller v will project sufficiently from the inner face of said arm to catch on the projections x x^1 x^2 , so as to impart a periodical movement to the bar I and thereby to the roller n . To overcome the difficulty of fitting this attachment to the different styles of Gordon presses, the plates M and M', having upon their faces, respectively, the projections x and x^1 x^2 , are made adjustable by means of the set-screws y and y' and set-pins z and z' working in slots, so that the movement of the bar I, and thereby the shift of the table A, can be exactly regulated. This apparatus is fastened to the Gordon press upon the same seat and by the same means which confine the rotating disk now used on said presses, the screws or bolts passing through the frame C at a' a' . Then the clutch K is adjusted upon the rear arm L, which carries the inking-rollers, so that the friction-roller v of the clutch K will run clear of the projection x on the plate M on its upward movement, but catch the projection x^2 at its upper end, and move the bar I upward until ready to make a return stroke, at which time the roller v will be down between the projections x^1 and x^2 , as indicated by dotted lines in Fig. 3. On making the return stroke the friction-roller v will catch the projection x^1 on the plate M' and move the bar I in the opposite direction until the roller passes the projection x^1 , allowing the bar I to stand still. During the time the friction-roller v moved the bar I on its return stroke the roller n came in contact with the cam H, and thereby shifted the distributing-table and frame A, while the ink-rollers of the press rested on the side track N, thereby releasing the frame A from contact with and pressure of the ink-rollers. During the time consumed by the ink-rollers in running down to the end of the frame A the friction-roller v will leave the bar I undisturbed; but as soon as the ink-rollers have left the table A and come to the position shown in Fig. 7 by O, the roller v will come in contact with the projection x , move the bar I so that the roller n will release the cam H, and the springs J J will throw the table back to the position from whence it started. P P represent the ink sections of which the distribut-

ing-table is composed, said sections fitting on the frame A in the sunken portions a a . A selection of these sections of all different sizes required in working different kinds of jobs is to be furnished with each machine, so that the printer can select therefrom such as suit the work in hand. In one end of each section, and partly below the working surface, there is an ink-vessel, R, provided with a perforated metal lid, b' , which vessel is filled with a small portion of raw wool and the color or ink wanted. The ink-rollers of the press, being soft and spongy, will receive a small amount of ink through the perforated lid by pressure thereon, the pressure being regulated by the set-screw d' in the section below. By means of this simple device color or ink can be held upon the sections for a long time before it becomes necessary to apply more ink. For the purpose of adjusting the ink-sections P P in or upon the frame A in the sunken parts a a , quods or type of different sizes can be used, and the whole set of sections can be held in place by means of the set-screw c' in the left side of the frame A; and to adjust the sections to suit a given job of printing, the table can be detached from the press by loosening the nuts on the screws b b , also releasing the ends of the springs J J at s s or t t , so that the frame A can be lifted off and placed beside the form of type for adjustment of sections.

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

1. The combination of the frame A with sunken parts a a , ways B B, stationary frame C, screws b b , and springs J J, all constructed and arranged substantially as and for the purposes herein set forth.

2. The combination of the pivoted plates D and G, cam H, springs f m , and roller n , all constructed and arranged to operate substantially as and for the purposes herein set forth.

3. The roller n , adjusted in the slot p upon the reciprocating bar I, substantially as and for the purposes herein set forth.

4. The adjustable plates M M', provided respectively with the projections x and x^1 x^2 , substantially as and for the purposes herein set forth.

5. The clutch K, attached to the arm L, and provided with the friction-roller v to operate upon the projections x x^1 x^2 , substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of November, 1871.

LEOPOLD BIDDLE.

Witnesses:

J. B. DINSMOOR,
C. L. COLLINS.