

(No Model.)

3 Sheets—Sheet 1.

T. J. TURLEY. CHROMATIC PRINTING DEVICE.

No. 538,986.

Patented May 7, 1895.

Fig. 2.

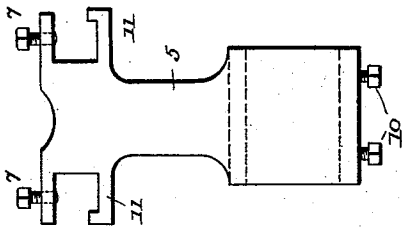


Fig. 1.

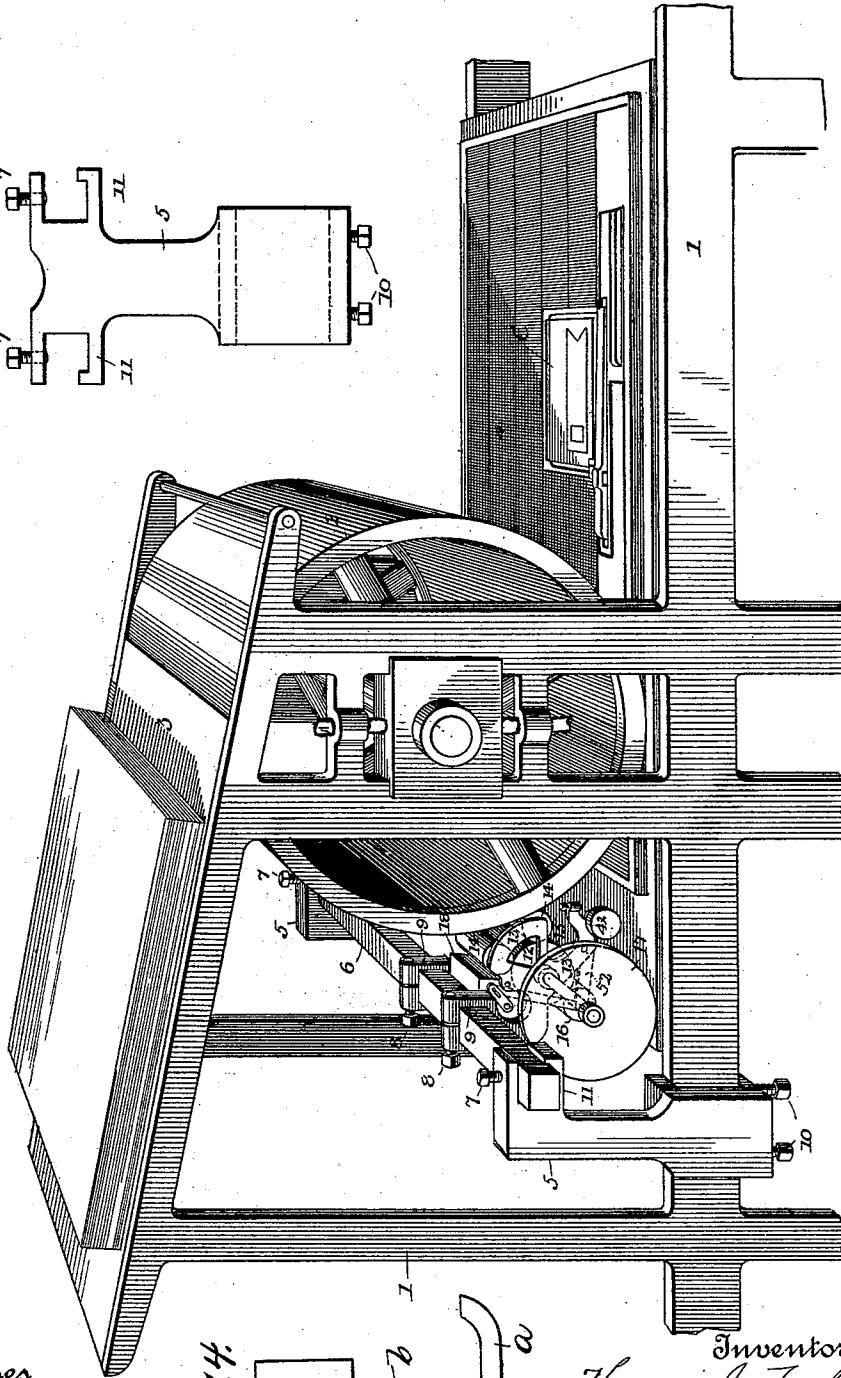
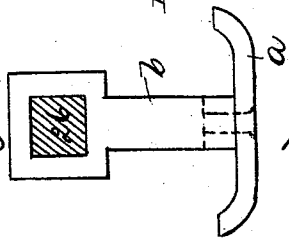


Fig. 14.



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Fig. 3.

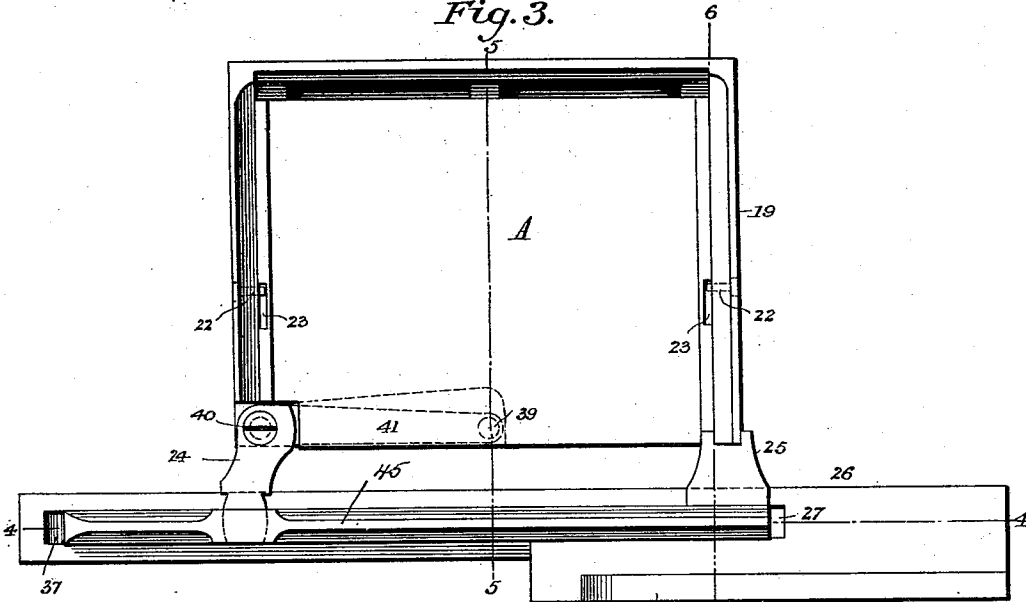


Fig. 4.

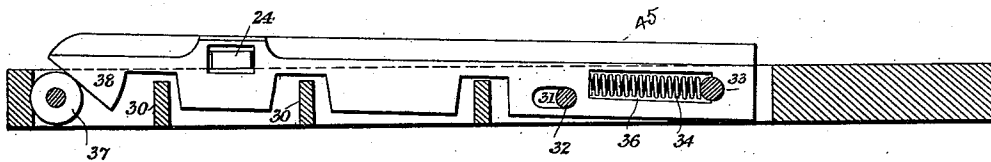


Fig. 5.

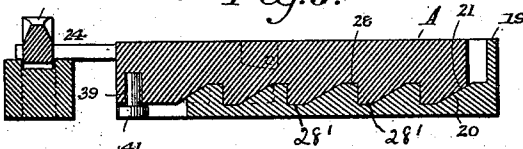


Fig. 6.

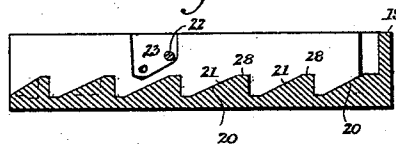
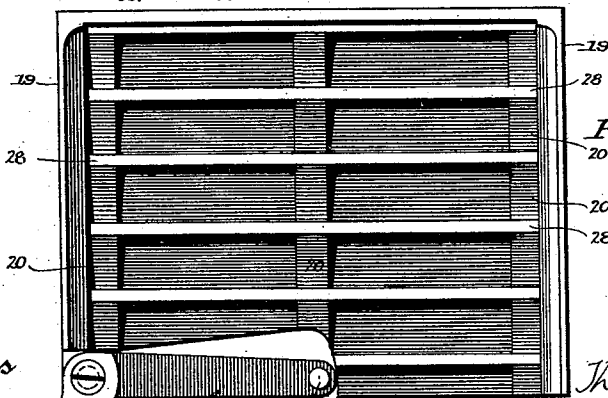
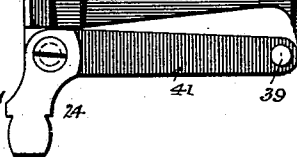


Fig. 7.



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Fig. 8.

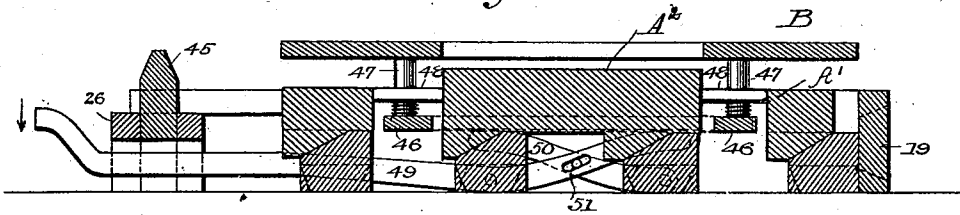


Fig. 9.

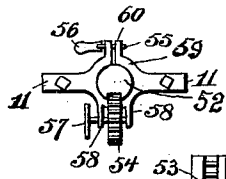
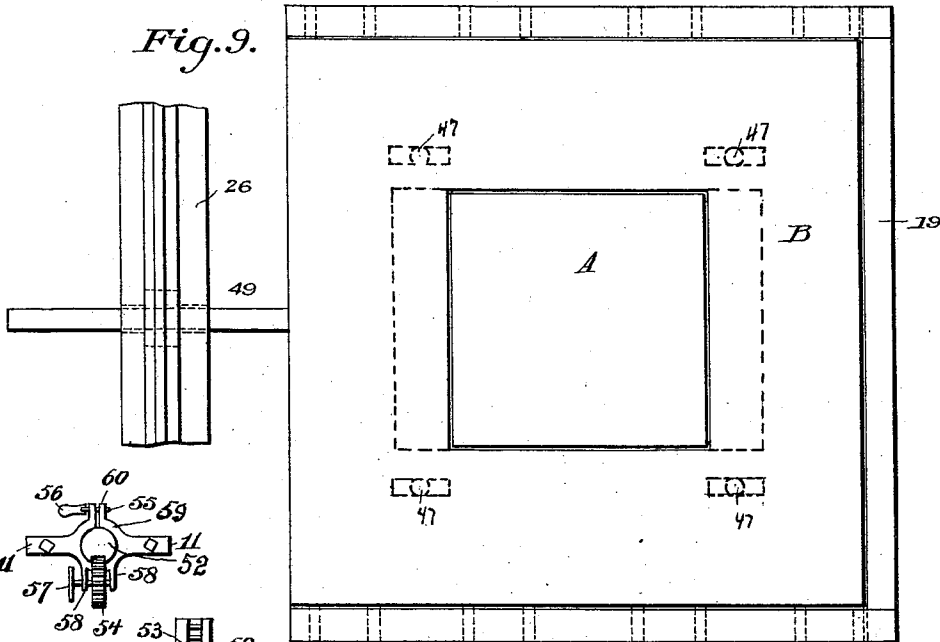


Fig. 11.

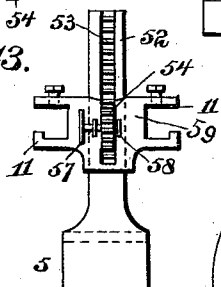


Fig. 12.



Fig. 10.

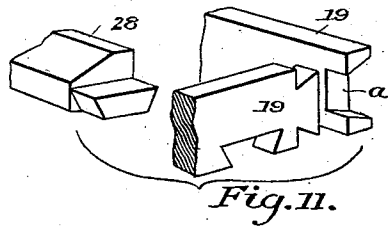
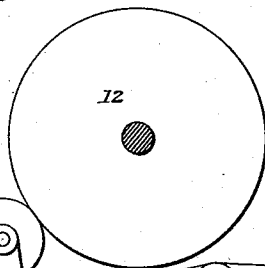


Fig. 11.

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UNITED STATES PATENT OFFICE.

THEODORE J. TURLEY, OF NASHVILLE, TENNESSEE.

CHROMATIC-PRINTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 538,986, dated May 7, 1895.

Application filed July 2, 1894. Serial No. 518,270. (No model.)

To all whom it may concern:

Be it known that I, THEODORE J. TURLEY, a citizen of the United States, residing at Nashville, county of Davidson, Tennessee, have invented certain new and useful Improvements in Chromatic-Printing Devices, of which the following is a specification.

My invention relates to improvements in chromatic printing devices, particularly of the type shown in my pending application, Serial No. 489,831, filed November 2, 1893, and it is specially applicable to newspaper and magazine, or similar work where it is desirable to print advertisements, announcements, headings and the like, in colors contrasting with the body of the paper, magazine, &c.

My objects are to simplify to a great extent the mechanism for operating such devices; to provide means for readily placing the device within the main form at any point desired in the outside column or columns, without confining it to a particular space in the column; to provide means whereby the width of the colored matter to be printed may be easily varied without being compelled to provide separate complete forms for various widths, such as one, two or three columns; and to reduce the space lost in inking the supplemental form and insure the thorough inking of the whole of said form. I attain these objects by the mechanism shown in the accompanying drawings, and hereinafter described and particularly claimed.

In the drawings, Figure 1 is a perspective view of my device attached to a bed and cylinder press. Fig. 2 is a detail of a bracket for supporting the inking apparatus. Fig. 3 is a top plan view of the frame and supplemental form with attached parts. Fig. 4 is a longitudinal vertical section on the line 4 4, Fig. 3. Fig. 5 is a transverse vertical section on the line 5 5, Fig. 3. Fig. 6 is a similar section on the line 6 6, Fig. 3. Fig. 7 is a top plan view of the frame with the supplemental form removed. Fig. 8 is a transverse vertical section of a modification. Fig. 9 is a top plan view of the same. Figs. 10, 11, 12, and 13 are details of modifications to be hereinafter referred to. Fig. 14 is a detail of the modification shown in Figs. 8 and 9.

In my present invention the supplemental form, A, is retained within the frame, 19, nor-

mally below type high so that the inking apparatus is to be so adjusted that its inking roller will dip below type high for inking the supplemental form, instead of inking the said form at type high as in my former application referred to. With this arrangement additional mechanism for lowering the form below type high as it passes under the impression cylinder and main ink rollers is dispensed with, thereby materially simplifying the construction.

In the drawings, the numeral 1, indicates a portion of a frame of the press on which are supported the impression cylinder, 2, the feed table, 3, and the bed, 4, carrying the main form in which is locked at the point desired my chromatic printing device, C. This device consists of an open rectangular frame, 19, having inclined lugs, 20, projecting upwardly from the bottom and ribs 28, with flat upper faces extending longitudinally of the frame. The supplemental form-holder, A, upon which an electrotype or plate is secured, has corresponding inclined lugs, 21, and ribs 28', with flat lower faces, depending therefrom, adapted to engage the inclined lugs, 20, of the frame, so that as the form-holder is moved transversely of the frame it will also be caused to move vertically upward until the flat faces of its lugs, 20, rest upon the ribs or projections, 28, of the frame, affording a firm base for the form-holder when an impression is taken, as is in my application before mentioned. A bell crank lever is pivoted at 40, on the frame, its two arms, 24 and 41 being in different horizontal planes, the former engaging a slot in the spring actuated dog, 45, while the latter is connected to the form-holder by a pin, 39, projecting upwardly into a socket in the bottom of the form-holder. In the sides of the form-holder are guide ways, 23, into which the pins, 22, passing through the sides of the frame, 19, enter for the purpose of limiting the upward movement of the form-holder and preventing its displacement from any cause. The side bar, 26, is detachably secured to the frame by a forked lug, 25, which snugly holds the bar from any lateral movement. By making the side bar separable from the frame the latter can be readily locked within the main form at any portion of the column and the side bar easily adjusted, the

space between it and the frame being filled in with ordinary printers' side sticks.

It is to be understood, of course, that the supplemental form-holder is used at the side only of the main form; and so placed as to bring the rail, 29, and dog, 27, outside of the type line.

The side bar, 26, is provided with a slot, 27, in one end of which is journaled a roller, 37, upon which rests the inclined projection or cam, 38, on the front end of the dog, 45. This dog has on its rear end a slot, 31, through which the pivot pin, 32, passes, forming a fulcrum upon which the dog moves forward and upward, the forward movement being limited by the length of the slot. In its lower position the dog rests upon webs, 30, extending across the forward portion of the slot, 27, and into recesses in the lower face of the dog. A spring, 34, located in a slot, 36, of the dog, with one end engaging a pin, 33, on the side bar and the other in contact with the front end of the slot in the dog, tends to press the dog forward against the roller, 37, upon which the cam, 38, rides, thus normally holding the free end of the dog up and keeping the arm, 24, of the bell crank lever in its extreme forward position, thereby retaining the form-holder normally below type high. Upon the outer edge of the side bar is an elevated track or rail 29 for operating the roller, 42, on the end of an arm pivoted upon the frame, 13, of the inking apparatus, which arm carries at its opposite end the ink roller, 16, normally in contact with the main ink roller, 12, above which are the two distributive rollers, 14. The frames of this inking apparatus are provided with two clamping jaws, 9, which are secured upon the cross bar, 6, that is held in place between the clamping jaws, 11, of the bracket, 5, by the set screw, 7, said bracket being adjustably mounted upon the side frames of the press by suitable set screws, 10. In Fig. 1 the brackets are shown with the single clamping jaws, but it is obvious that there may be two or more such jaws, as shown in Fig. 2, if it is desired at any time to provide for more than one inking apparatus, located at different distances from the impression cylinder.

In order to provide for the vertical adjustment of the inking apparatus, I make the brackets for supporting the cross bar, to which the frames of the inking apparatus are secured, as shown in Figs. 12 and 13, which illustrate my preferable construction of this feature of my device. In this modification the bracket, 5, terminates upwardly in a stem, 52, preferably circular in cross section, which is provided with a groove extending longitudinally of the stem, in the bottom of which groove is a rack, 53. A collar, 59, encircles this stem, and is held in place thereon by the screw threaded bolt, 55, passing through ears, 60, and to which bolt a handle, 56, is pivotally secured. Journaled in ears, 58, on the collar, 59, is a pinion, 54, meshing with the rack, 53, and on the shaft of which is a hand

wheel, 57. By this construction it will be seen that when it is desired to raise or lower the collar, the bolt, 55, is eased, thereby relieving the pressure of said collar on the stem, and the operator turns the hand wheel, 57, in the desired direction, causing its pinion, 54, to rotate in mesh with the rack, 53, thus moving said collar up or down.

As the device passes under the inking apparatus the cam track, 29, engages the wheel, 42, thereby causing the roller at the opposite end of the arm, 52, on which the two are mounted to be depressed below type high and ink the form with ink fed from the reservoir, 18. Passing under the impression cylinder which is now above type there is no effect upon the supplemental printing device. Upon the reversal of the bed, the impression cylinder, lowered to type high, engages the dog, 45, depressing it and causing the bell crank lever to move the supplemental form to type high for an impression.

In order to provide for the printing of colors in various widths without having to provide separate complete devices for the different widths, I form the sides of the frame, 19, and the ribs, 28, detachable as shown in Fig. 11, the side frames being secured together by dovetail joints, *a*, at the ends, and provided with mortises into which corresponding tenons on the ends of the ribs, 28, are adapted to fit. The bottom of the frame in this construction will form a "grid" composed of the several ribs, 28. When it is desired therefore to alter the width of the color printing the frame can be readily dismantled, the side pieces of the proper length selected and the form readily assembled with the parts in the same relation as above described.

Between the edge of the frame and the point where the ink roller, 16, first strikes the plate or type upon the form-holder, there is considerable lost space, and to insure a proper inking of the whole of the supplemental form, and at the same time reduce this space to a minimum, I employ the construction shown in Fig. 10, where an enlarged view of a portion of the inking apparatus is shown.

Instead of employing a single roller upon the arm, 52, which is moved by the track or rail, 29, to ink the supplemental form, the roller, 16, is journaled in an upward extension of said arm, and a second ink roller, 44, of smaller diameter is journaled on the arm below said roller, 16, receiving ink from a metal roller, 43, rotating between the two. By this arrangement the roller, 44, can be caused to dip closely to the edge of the frame, and enter the form closer to the edge of the same than in the ordinary case where a single roller of larger diameter is used. Motion to the inking rollers is transmitted from the bed of the press by the friction wheel, 17, which should be in contact with the chase; but I do not wish to be restricted to this means of transmitting such motion, as in presses where the impression cylinder is provided with a

circular rack other suitable means may be employed for this purpose.

In Figs. 8 and 9 I have shown a construction similar to that in the preceding figures with a supplemental form arranged to print a colored border or other matter around a contrasting center. The means for accomplishing this result consists of the centrally apertured form-holder, B, secured by posts, 47, passing through the vertically and horizontally movable plate, A', to a frame, 46, located between the inclined lugs on the bottom of the frame, 19. The plate, A', is also provided with an aperture of sufficient diameter in the direction of its horizontal motion to allow of said motion without coming in contact with the form-holder, A². The springs, 48, bearing between the frame, 46, and the plate, A', normally tend to keep the form-holder, B, seated upon the plate, A', below type-high. Two levers, 49 and 50, fulcrumed at the bottom of the frame 19, and connected by a pin, 51, upon one of the arms engaging a slot in the other, extend upwardly and support by a sliding contact the frame, 46. The lever, 49, is prolonged through slots or openings in the side bar, 26, and dog, 45, and is adapted to be pressed downward by any suitable means such as a shoe, *a*, secured to a downwardly projecting standard, *b*, supported by the cross bar, 26, Fig. 14, so as to cause the upper ends of the arms of the levers to raise the frame, 46, and the attached form-holder, B, above type-high, as it passes under the supplemental inking apparatus. When the arm 49, is released from the shoe, *a*, the spring 48, will push the frame, 46, downward until the form, B, is seated upon the plate, A'. The form-holder, A², is firmly fastened by any suitable means to the lugs in the frame, 19, and projects up through the aperture in the form-holder, B, and always carries its form at type-high so that the latter may be inked by the main ink rollers. By this arrangement, it will be seen that two colors may be printed by the same device, one either as a plain border, around the central electrotype or plate, in contrasting color, or either or both in letters, figures, &c., of different colors.

I claim as my invention—

1. A chromatic printing device consisting of a frame to be located within the main form of a printing press, a supplemental form-holder vertically and horizontally movable within the frame, a side bar attached to the frame, a dog fulcrumed in a slot in the side bar, a bell crank lever fulcrumed upon the frame and having one of its arms connected to the form-holder and the other arm positively connected to the dog, a connection between the side bar and dog for normally holding the supplemental form-holder below type high, and means for causing said form-holder to move vertically within the frame, substantially as set forth.

2. In a chromatic printing device, the combination with the frame and the form-holder

vertically and horizontally movable therein, and means for causing the form-holder to move vertically within the frame, of the side bar having a roller journaled in one end of a slot therein, a dog fulcrumed in the slot and having an inclined front end engaging the roller, a spring between the side bar and the dog tending to press the said dog forward upon the roller, and a bell crank lever positively connecting the form-holder with said dog, substantially as and for the purpose set forth.

3. In a chromatic printing device, the combination with the frame, the form-holder carried thereby, the side bar detachably secured to said frame, with means substantially as described for raising and lowering said form-holder, substantially as set forth.

4. In a chromatic printing device, the combination with the frame, the form-holder carried thereby, the side bar provided with a forked lug detachably engaging the side of the frame, with means substantially as described for raising and lowering said form-holder, substantially as set forth.

5. In a chromatic printing device, a frame for holding the supplemental form having its sides detachably secured to the end piece, and transverse ribs, 28, detachably secured to said sides, whereby the frame may be readily varied in width to suit different widths of forms, substantially as and for the purpose set forth.

6. In a chromatic printing device, the combination with the supplemental form-holder normally below type high, and the frame in which said form-holder is confined, of the inking apparatus, the main ink roller carried thereby, the arm pivoted in the lower part of the frame of the same, carrying on one end an ink roller normally in contact with the main ink roller, a second roller of smaller diameter journaled on the lever below the same, a distributing roller journaled between these two rollers, and means on the frame for engaging one end of the lever to cause the other end to be depressed and ink the form upon the form-holder, substantially as described.

7. In a chromatic printing device, the combination with the plate, A', vertically and horizontally movable within a frame, the form-holder, A², of the apertured supplemental form-holder, B, normally seated upon the plate, A', with means for raising the said form-holder, B, above the form-holder, A², for inking, substantially as and for the purpose set forth.

8. The combination with the frame and supplemental plate, A', vertically and horizontally movable therein, of the supplemental form-holder, B, movable vertically independently of the plate, A', of the levers pivoted in the bottom of the frame, a frame, 46, connected to the form-holder, B, and with which frame the upper ends of said levers engage and means for operating said levers to raise

the form-holder, B, above type high, substantially as and for the purpose set forth.

9. The combination with the frame and supplemental plate, A', of the apertured form-holder, B, a frame, 46, posts, 47, connecting the form-holder, B, and said frame, springs, 48, between the frame and the plate, A', tending normally to separate the two, and levers engaging the frame, 46, for elevating the form-holder, B, at a predetermined point in the travel of the bed, with means for operating the levers to raise the form-holder, B, above type high, substantially as and for the purpose set forth.

10. The combination with the frame, the side bar, and the plate, A', of the centrally apertured form-holder, B, the frame, 46, upon which the latter is mounted, the levers fulcrumed below the frame, 46, for moving it and attached form-holder vertically, one of said levers having its operating arm extending through the side bar, and means for depressing said arm to raise the form-holder, B, independently of the plate, A', substantially as described.

11. In a printing press, the combination with the frame, of the cross bar for supporting the inking mechanism, the brackets for supporting the cross bar having stems extending upwardly therefrom, collars slidably mounted

upon said stems, and having laterally extending clamping jaws to hold said bar, with means for raising and lowering said collars, substantially as described.

12. The combination with the frame of a printing press, the cross bar for holding the inking mechanism, the brackets for supporting the cross bar, each having a stem extending upwardly therefrom, and provided with a rack, collars having laterally extending clamping jaws for holding the cross bars and a pinion on the collar meshing with the rack, for raising and lowering said collar, substantially as described.

13. The combination with the frame and the cross bar, 6, of the brackets, 5, having the stems, 52, provided with the racks, 53, the split collar, 59, slidably mounted upon said stems, and having the jaws, 11, the pinion, 54, meshing with the rack on the stems, and the hand wheel, 57, for rotating the pinion, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEODORE J. TURLEY.

Witnesses:

SAM. H. ORR,
JOHN ALLISON.