

(No Model.)

2 Sheets—Sheet 1.

T. J. TURLEY.
CHROMATIC PRINTING DEVICE.

No. 530,865.

Patented Dec. 11, 1894.

Fig. 1.

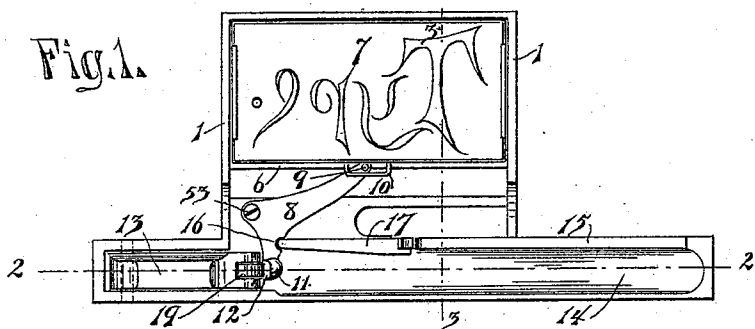


Fig. 2.

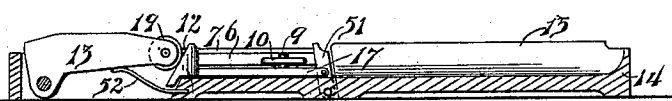


Fig. 3.

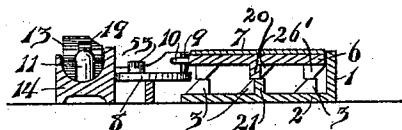
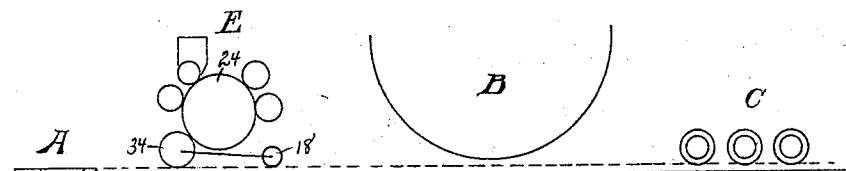


Fig. 7.



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2 Sheets—Sheet 2.

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Fig. 4.

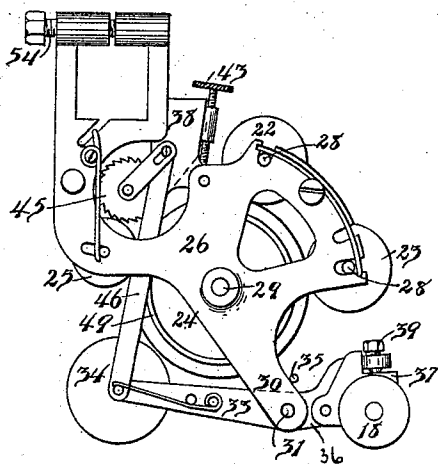


Fig. 6.

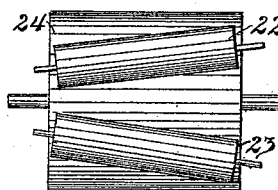


Fig. 5.

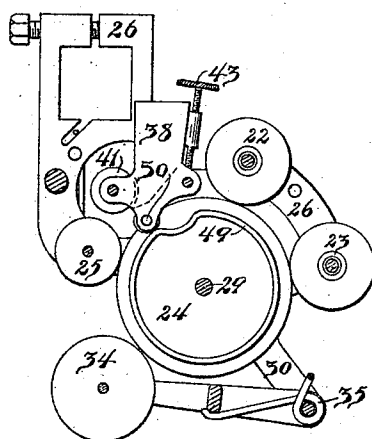


Fig. 8.

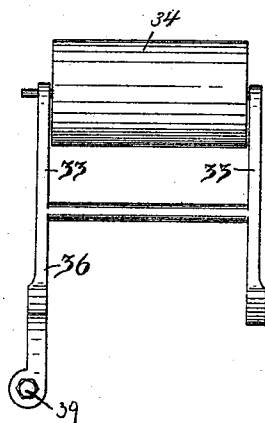
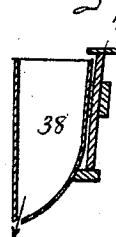


Fig. 9.



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UNITED STATES PATENT OFFICE.

THEODORE JONES TURLEY, OF NASHVILLE, TENNESSEE.

CHROMATIC-PRINTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 530,865, dated December 11, 1894.

Application filed November 2, 1893. Serial No. 489,831. (No model.)

To all whom it may concern:

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

My invention relates to chromatic printing devices and its objects are to provide a simple, effective and durable device for printing in colors; to so construct such a device that it can be readily attached to the ordinary press and thereby avoid extra expense and labor; to provide a simple, reliable inking apparatus for such a device, and provide a novel means of distributing the ink upon the main roller.

In the accompanying drawings, Figure 1, is a top plan view of my color printing device. Fig. 2, is a longitudinal section on the line 2—2. Fig. 3, is a cross section on the line 3—3 of Fig. 1. Fig. 4, is a side view of the inking mechanism. Fig. 5, is a side view of the same with one side frame removed. Fig. 6, is a plan view showing the arrangement of the distributing rollers. Fig. 7, is a diagrammatic view showing the relation of the printing device, impression cylinder, and the inking mechanism, as applied to the ordinary press. Fig. 8, is a detail of the yoke lever. Fig. 9, is a vertical section of the ink reservoir.

Referring now to the accompanying drawings, in which the same reference numerals and letters designate the same parts throughout the different views, the numeral 1, indicates an open frame, provided with a bottom support, 2, having inclined lugs, 3, with flat faces projecting upwardly therefrom. Adapted to slide upon said lugs, are corresponding lugs, or projections, 26', secured to, or forming part of the supplemental form, 6, in which the electrotype, or plate, 7, is suitably secured. This form or frame which carries the electrotype, plate, or other printing means, is by means of the lugs thereon, engaging with the corresponding lugs in the bottom of the frame, 1, adapted to be raised and lowered within said frame, for the purpose of adjusting the electrotype, or other matter, in the proper position at the proper time for an impression, and for other purposes hereinafter described. To

procure this movement I provide a bell crank lever, 8, pivoted at 53, and provided at one end with a pin 9, projecting upwardly and engaging the slot, 10, formed on the side of the plate carrying frame or form. This slot may be integral with said form, or it may be made by soldering, or otherwise suitably securing to the side of the form, a wire or rod shaped to allow the proper movement of the pin, 9. The other arm of the bell crank lever is provided with a projection, 11, having an inclined face, 12, contacting with one end of the dog, 13, outside of the margin of the paper and pivoted in a slot formed in the side bar, 14, which bar is preferably cast integral with the frame, 1. This bar is provided on one of its edges with an elevated track or rail, 15, of the same length as the matter to be printed with colors.

Adjacent to the projection, 11, on the bell crank lever, is preferably formed a curved recess, 16, against which one end of the rod, 17, acts when operated by the lever, 51, for the purpose of oscillating the bell crank lever, so as to lower the printing device within the frame. This lever, 51, or trigger, as it may be called, is pivoted to the side of the bar, 14, at the end of the rail, 15, and is preferably provided on its upper end with a curve adapted to be engaged by the roller, 18, on the inking apparatus. The dog, 13, is preferably provided with an anti-friction roller, 19, and is normally held up by a spring, 52. The frame 1, and bar, 15, are preferably made integral as shown, but it is obvious that they may be made in separate pieces.

From the foregoing description it will be seen that as the dog, 13, is depressed, its end engages with the projection on the bell crank lever, thus oscillating the said lever on its pivot thereby causing the pin, 9, to exert side pressure upon the form or type holder which causes the said holder to be raised by means of the corresponding inclined lugs before described. While I have shown these lugs, it is obvious that continuous ribs with inclined faces would serve the same purpose. In order to secure a firm foundation or base for the form, 6, when it is elevated for taking impressions, I provide corresponding ribs, 20, 21, on the bottom of the frame, 1, and the form. The inking apparatus to which is attached

the means for operating the color printing device, is adapted to be secured to the edge of the press by screws, 54, or other suitable means; or if there is no frame above the bed of the press, as in some types of presses, an upright standard is fastened to the floor from which a securing arm for said apparatus projects. Referring to Figs. 4 and 5, the inking rollers, 22, 23, 24, 25, are suitably journaled in the frames, 26, 26. The main roller, 24, is a hollow metal cylinder having the others disposed around its periphery and the rollers, 22, 23, 24, and 25, are composition, the rollers, 22 and 23, having hollow cores, 60, which are journaled upon fixed spindles, 28, placed diagonally, as shown in Fig. 6. By this arrangement, as the main roller oscillates, the two rollers, 22, 23, being free to reciprocate on their spindles, vibrate back and forth across the surface of the said main roller, thereby evenly distributing the ink on said rollers.

Projecting downwardly from the frames, 26, below the spindle, 29, of the main roller, are two arms, 30, in which is mounted a rod, 31, on the latter of which is pivoted a forked lever, carrying between the forks, 33, a composition ink roller, 34. This roller is normally held in contact with the main roller, 24, by means of a coiled spring, 35, having one end fixed to frame, 26, and the other engaging the said lever. On one side of the forked lever, is a projecting arm, 36, provided with a pivoted bearing, 37, for the roller or wheel, 18, which bearing is adjusted up and down by means of the set screw, 39.

Pivoted to the frames, 26, is an ink reservoir, 38, carrying a feed roller, 41, which is adapted to take the ink from the reservoir through an opening in the bottom and give it to the composition roller, 25, which latter roller inks the main roller, 24. The ink reservoir is provided with a set screw, 43, engaging a lug on the spring bottom of said reservoir, for the purpose of regulating the width of the opening in the bottom of the reservoir, thereby controlling the flow of the ink to the roller, 41. In the reservoir shown in the drawings, the movable part of the reservoir is a free portion of the bottom of the reservoir itself, which can be, owing to its elasticity, moved up and down by the set screw, 43, but it is manifest that a separate lid or bottom cover, suitably attached, may be used for this purpose as is well known.

On the end of a roller, 41, is a ratchet wheel, 45, adapted to be engaged by the upper end of the rod, 46, pivoted to the forked lever, so that as the said lever is lowered the upper end of the rod, 47, which is provided with an offset, engaging the teeth of the ratchet wheel, the said movement will turn the ratchet wheel, and the roller, 41. Projecting downwardly from one side of the ink reservoir upon a cam, 49, on the end of the main ink roller, is an arm, 50, so that as said arm passes over the depression of the cam, the reservoir will be tilted bringing the feed roller, 41, in con-

tact with the roller, 25. The main ink roller, 24, may be operated by means of a friction wheel, (not shown in the drawings) on its spindle, which is turned by the chase as the bed and the chase reciprocate, but any other suitable means may be employed for this purpose.

The operation of the device thus described, is as follows: The frame is secured within the main form at point A, the other parts being arranged as shown in Fig. 7. When the bed passes to the right under the inking apparatus the track on the frame will engage the wheel, 18, thereby depressing the ink roller, 34, which travels over and inks the plate, and coming in contact with the trigger mechanism the wheel, 18, actuates the lever, 51, and rod, 17, causing the bell crank lever to lower the plate within the frame, so that the latter is always in its lower position as the bed passes to the right under the impression cylinder. As the printing device passes under the impression cylinder, B, in its first movement, no impression is taken, since the plate is depressed and the impression cylinder elevated as shown, whereby no effect is had upon the printing device. Continuing its movement to the right the supplemental form passes under the black ink rollers. The latter touch the dog, 13, but since the spring, 52, is made strong enough to resist the pressure of these rollers, the color plate or type still remains depressed. Upon the reversal of the bed of the machine, the main form with the color printing device passes under the black ink rollers which ink the main form again, and when the form reaches the impression cylinder, the latter now being lowered to type high, or to the line of the type, engages the dog, 13, depressing said dog, which moves the bell crank lever, thereby elevating the color device to type high and an impression is made as the device passes under the impression cylinder. As the form now passes to the left under the color inking apparatus, E, the track or rail, which is not type high on the frame, raises the wheel, 18, depressing the ink roller, 34, and inking the color plate. Upon the return of the bed, the wheel, 18, coming in contact with the trigger, or lever, throws the said trigger with the attached rod, thereby moving the bell crank lever to depress the plate, and the operation will then continue as before.

While I have described friction rollers for operating the main rollers, where single color is to be printed, it is obvious that other means for effecting this motion may be used, and it is also plain, that a weight may be used instead of a spring for holding the dog, 13, or any other suitable means for holding said lever in the position described without departing from the spirit of my invention.

I claim as my invention—

1. The combination with the printing press, of a frame provided on the bottom with projections having inclined sides and flat upper

- faces, and adapted to be secured rigidly within the main form, a supplemental form provided with corresponding projections having flat lower faces and engaging the projections on the frame, a dog pivoted on the frame, a bell crank lever with one end engaging the dog and connected by a sliding connection to the side of the supplemental form, substantially as described.
2. In a printing press, the combination with the main form of the supplemental form for color printing, consisting of a frame, a form, vertically movable therein, a bell crank lever pivoted to the frame, having one arm engaging the form, the spring pressed dog pivoted to the said frame, with one end contacting the other arm of the said bell crank lever, to raise the form, and means for actuating the bell crank lever to lower said form, substantially as described.
3. In a printing press the combination with the main form, of a frame locked therein, having a bar projecting therefrom and provided with a rail thereon, the trigger located at one end of the rail, the form-holder or plate in said frame, the bell crank lever, having one end engaging the plate, the lever on the inking apparatus carrying a roller and a wheel at opposite ends thereof, adapted to be operated by the rail as the form passes under the inking apparatus, substantially as described.
4. A color printing device consisting of the frame having inclined projections on the bottom, a form holder provided with corresponding projections, a lever pivoted to the form, one arm provided with a pin engaging the

slot in the form-holder, a dog on said frame with its free end contacting with the free end of the lever, whereby the form may be raised when the dog is depressed, with means for lowering said form, substantially as described.

5. The combination with a printing press, of a frame carrying an inking device consisting of a main roller with a cam on one end thereof, an ink reservoir, pivotally supported above said roller, and adapted to be tilted by said cam, a feed roller on said reservoir provided with a ratchet wheel, a lever on the frame provided with an inking roller, and a rod operatively connecting said lever with the ratchet wheel on the feed roller, substantially as described.

6. An inking mechanism consisting of a frame adapted to be attached to the press, provided with bearings in which are journaled inking and distributing rollers, an ink reservoir supported above the main roller, a lever pivoted in the lower part of the frame, an ink roller mounted directly upon one end of said lever, and means upon the bed of the press for engaging directly the other end of said lever, whereby the ink roller carried thereby is lowered to ink the form as it passes under said mechanism, substantially as described.

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

THEODORE JONES TURLEY.

Witnesses:

SAM. H. ORR,

HENRY C. HENSLEY.