

H. F. WYATT.
CHROMATIC PRINTING MACHINE.

No. 420,399.

Patented Jan. 28, 1890.

Fig. 1.

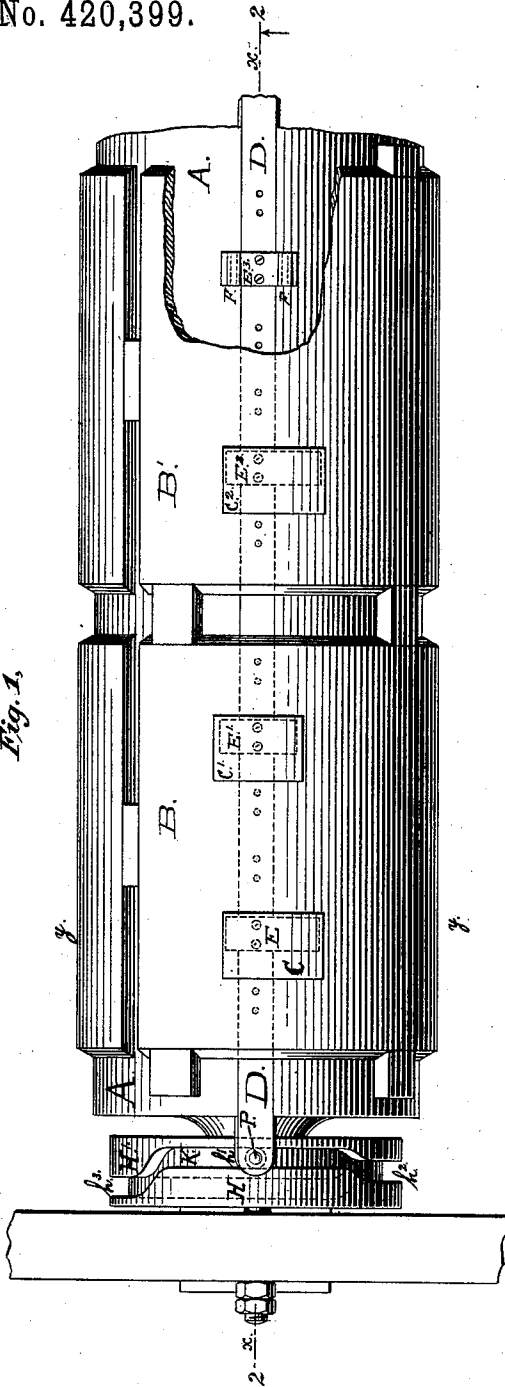
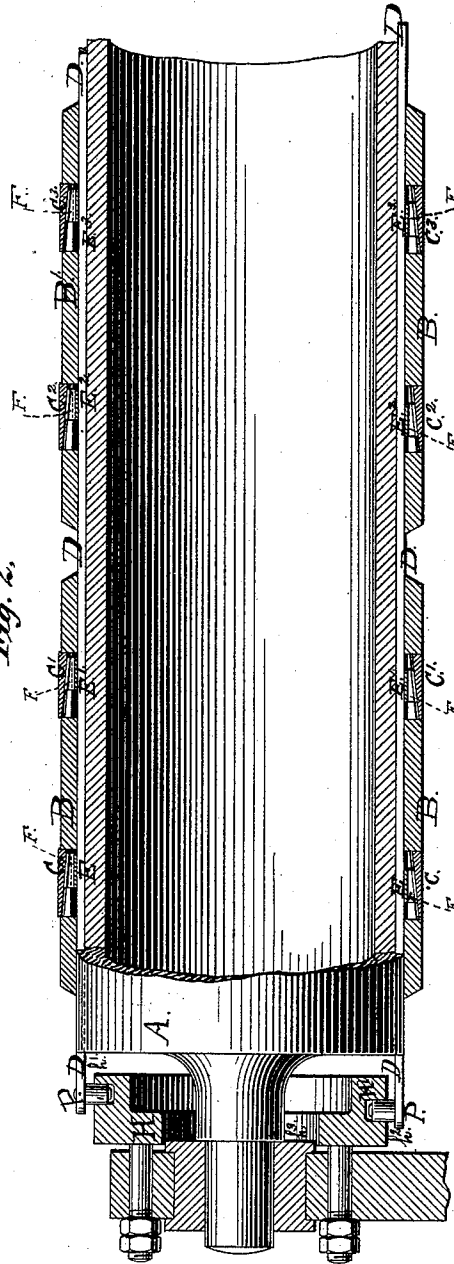


Fig. 2.



Witnesses
Geo. W. Drexler
Carrie E. Ashley

Inventor
Harry F. Wyatt
By his Attorney
Amey McNeill

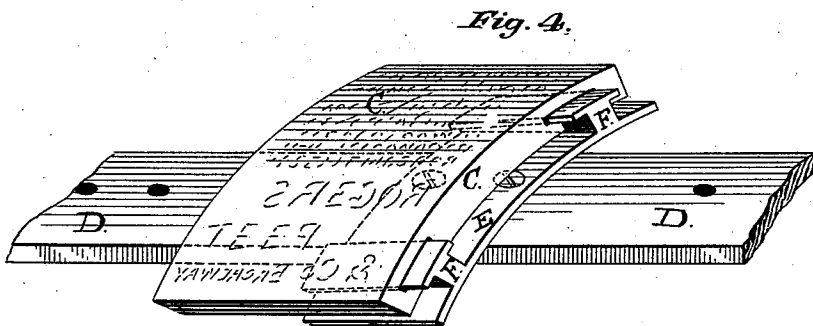
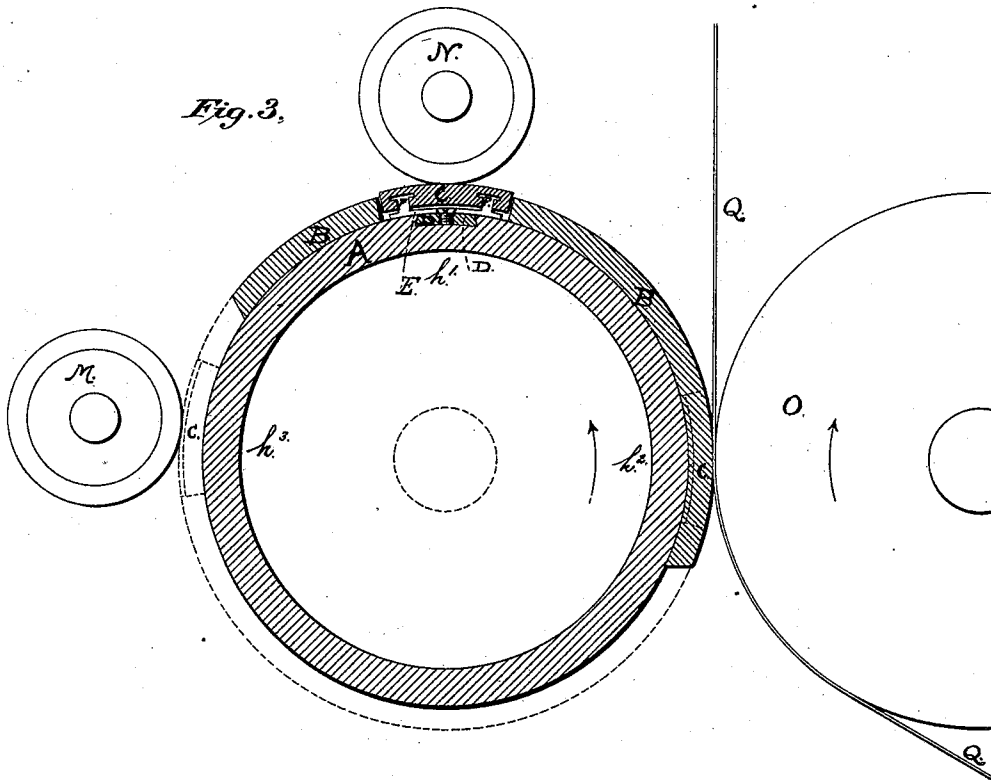
(No Model.)

2 Sheets—Sheet 2.

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Patented Jan. 28, 1890.



Witnesses
Geo. W. Brock
Carroll C. Ashley

Inventor
Harry F. Wyatt.
By his Attorney
Harry H. H. H.

UNITED STATES PATENT OFFICE.

HARRY F. WYATT, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE WYATT CHROMATIC PRINTING COMPANY.

CHROMATIC-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,399, dated January 28, 1890.

Application filed August 3, 1888. Serial No. 281,908. (No model.) Patented in England August 31, 1889, No. 12,182, and in France October 28, 1889, No. 200,015.

To all whom it may concern:

Be it known that I, HARRY F. WYATT, a subject of the Queen of Great Britain and Ireland, residing in the city, county, and State of New York, have invented certain new and useful Chromatic Improvements in Chromatic-Printing Machines, (for which I have obtained patents in Great Britain, No. 12,182, dated August 31, 1889, and in France, No. 200,015, dated October 28, 1889,) of which the following is a full, clear, and exact description, such as will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a chromatic-printing device which can be used on any ordinary cylinder or rotary printing-press in connection with the ordinary stereotype-plates, and will make chromatic impressions while such plates are making common black impressions. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the device complete; Fig. 2, a longitudinal sectional view on the line $x x$ in Fig. 1. Fig. 3 is a transverse sectional view on the line $y y$ in Fig. 1; and Fig. 4 shows the details of construction of parts C, C', C², and C³, E E' E² E³, and F F' in Figs. 1, 2, and 3.

In Fig. 1 A represents the cylinder of a printing-press, upon which the ordinary stereotype-plates B B' are clamped in the usual manner. Separate stereotype-plates are made of the articles to be printed in color, (represented by C C' C² C³), which fit in openings cut to receive them in the fixed stereotype-plates B B'. On the underside of these movable stereotype-plates C C' C² C³ are openings, with a groove on each side the opening running obliquely from the top of one side to the bottom of the other, as best shown in Figs. 2, 3, and 4. The purpose of these grooves is to receive the lips of the heads of the T-shaped wedges or lifts F F', thereby holding the stereotype when inverted by the revolution of the cylinder and insuring an accurate and posi-

tive rise and fall of the stereotypes C C' C² C³ 50 as the wedges are worked under them. These wedges are part of a flat plate E E' E² E³, made of steel or any other suitable material, shaped to conform to the cylinder, which plate is fastened by screws or clamps to the sliding 55 bar D, which works within a dovetailed-shaped groove cut in the cylinder A. This bar has screw holes or clamps arranged along it at convenient intervals, so that the plates E E' E² E³ can be affixed wherever desired or taken 60 off altogether when movable plates are not to be used. The bars D D' are connected with cams H H' by a revolving steel button or roller P, which works in a space K between the faces 65 of the cams H H', as shown on Fig. 1. These cams H H' are so shaped and arranged with reference to each other that when the cylinder A revolves the bar D, being operated by them through pressure on the roller P will be moved laterally in and out of the groove in 70 the cylinder A, and the plates E E' E² E³, having the wedges F F' on them, being attached to the bar D, the wedges will also move laterally, and, their heads working within the grooves in the stereotypes C C' 75 C² C³, these stereotypes will be raised and depressed according to the relative positions of roller P between the cams H H'. Therefore when the bar D is at the position h' on the cams H H', as shown in Figs. 1, 2, and 3, 80 this position being the nearest to the cylinder A, the wedges will be driven into their furthest extent under the plates C C' C² C³, thereby raising them, as best shown on the left-hand side of Fig. 2, and when the bar D 85 is at the position h^2 on the cams H H' it is drawn out of the cylinder to a position that brings the wedges F F' to the center of the movable stereotype-plates C C' C² C³ and holds them exactly flush with the surface of the 90 plates B B', as best shown on the right-hand side of Figs. 2 and 3, and when the bar D is at the position h^3 on the cams H H' it is withdrawn farther still from the cylinder, thereby causing the plates C C' C² C³ to be depressed 95 by the wedges below the surface of the plates B B'. These positions h' h^2 h^3 so occur on the cams H H' as to cause the plates C C' C² C³

to be raised above the plates B B' at the time they are traveling between the paper Q (or blanket-roller O) and the black-ink roller M, as shown in Fig. 3, when they receive ink of such color as desired from an inking-roller N, which can, if thought best, be made to feed different-colored inks to each of the plates C C' C² C³, and then to cause the plates C C' C² C³ to be depressed below the surface of the plates B B' just prior to reaching the black-ink roller M, as shown by dotted lines on the left-hand side of Fig. 3, so that while the stereotype-plates B B' are receiving black ink from the black-ink roller M they receive no black ink, but remain charged with the colored ink they received from the colored-ink roller N at position h', and, finally, to cause the plates C C' C² C³ to be raised to such a position as will bring their surfaces exactly flush or level with the surfaces of the plates B B' just prior to their reaching their point of contact with the paper Q, so that they will imprint the paper in color at the same time that the plates B B' are printing it in black. The cams H H' can be attached to the side frame of the press; but in these drawings only such parts of the press and cams are shown as are affected by my invention, the other parts being omitted to avoid confusion.

The devices and combinations of devices herein shown are capable of use in a more or less modified form on other kinds of presses—as, for instance, a press in which motion is imparted to a bed-plate; and I therefore do not limit myself to their use in the particular apparatus described, nor do I confine myself to the exact mechanism herein shown for securing a lateral motion to the bar D, as, if desired, a guide or gage or a system of gearing or other well-known mechanical movements can be substituted for the cams shown. In like manner other devices than lips to the wedges may be used for securing the movable printing-surfaces.

Having thus described my invention and the operation thereof, I claim as follows, using for convenience in all cases the expression "printing-surface" to signify not only stereotype-plates, but also electrotypes, molds, type-forms, cuts, engravings, &c., which are equally capable of being used in connection with the other elements of my invention:

1. In a printing-machine, the combination of a fixed printing-surface with a movable printing-surface having slots or openings placed at convenient positions in the bottom of the same, and similarly-shaped wedges or lifts working in the openings and producing a rise and fall in the movable printing-surface, the said wedges having projections working in grooves forming part of the openings arranged to firmly hold the movable printing-surface.

2. In a printing-machine, a cam or cams such as herein shown, in combination with a sliding bar or bars operated laterally by said

cam, and one or more movable printing-surfaces operated by said bars, substantially as above set forth.

3. In a printing-machine, the combination of a fixed and movable printing-surface, together with a system of lipped wedges working under the movable portion of the printing-surface, the said wedges being arranged at such an angle relative to the thickness of the printing-surface and the distance they travel that they raise and depress the movable printing-surface above and below the level of the fixed printing-surface, as above set forth.

4. In a printing-machine, the combination, with a cylinder provided with grooves extending longitudinally across the surface thereof, of a printing-surface supported on said cylinder by bars movable longitudinally in said grooves by the rotation of said cylinder.

5. In a printing-machine, the combination, with a cylinder provided with grooves extending longitudinally across the surface thereof, of one or more movable printing-surfaces that are supported and held upon said cylinder by one or more bars movable in said grooves, and one or more lifts between said bars and said printing-surfaces, by which combination the motion of said bars and lifts will place said printing-surface successively in three continuing levels.

6. In a printing-machine, the combination, with a cylinder having a fixed printing-surface thereon and provided with grooves extending longitudinally across a portion of the face thereof, of a movable printing-surface supported and held on said cylinder by one or more bars movable in said grooves and one or more lifts between said bars and said printing-surfaces, and a series of inking-rollers supported at different distances from the level of the said fixed printing-surface, substantially as described.

7. In a printing-machine, the combination, with a cylinder having a fixed printing-surface thereon and provided with grooves extending longitudinally across a portion of the face thereof, of a movable printing-surface supported and held on said cylinder by one or more bars movable in said grooves and one or more lifts between said bars and said printing-surfaces, and a projection from said bars to a cam or its described equivalent fixedly attached to the frame of the press, whereby lateral motion is imparted to said bars as the cylinder rotates.

8. In a printing-machine, the combination of a form-holder provided with longitudinal recesses, a fixed printing-surface, a relatively-movable printing-surface, and longitudinally-reciprocating bars for operating said movable printing-surfaces, substantially as described.

9. In a printing-machine, the combination of a plurality of printing-surfaces arranged across the form, means, substantially as described, for imparting motion to a part of said

surfaces, and a form-holder having recesses in its surface, through which and beneath the stationary surfaces said means operate upon the movable surfaces, as shown and described.

5 10. In a printing-machine, the combination of one or more movable printing-surfaces, together with one or more wedges or lifts operating under the movable printing-surfaces, said lifts being provided with lips or projections, whereby the movable printing-surface is firmly held and withdrawn.

15 11. The combination, with a form-cylinder, of movable printing-surfaces that are secured thereto by lipped wedges or lifts, substantially as described.

12. In a printing-machine, the combination of fixed and movable printing-surfaces, together with a system of lipped wedges or lifts

shaped conjointly to openings in the movable 20 printing-surfaces, together with a plate having wedges or lifts attached, together with a sliding bar or bars working in slots or grooves in the cylinder, which bars operate the plate and have at the end a revolving steel roller 25 working between two cams, together with a cam or cams so shaped or arranged as to produce three or more continuing positions of the movable printing-surfaces, and wedges attached to the bar, together with a suitable 30 device for applying one or more colored inks, substantially as above set forth, the whole designed to produce printing in different colors at one impression.

HARRY F. WYATT.

Witnesses:

WILLIAM J. A. CAFFREY,
WELTON C. PERCY.