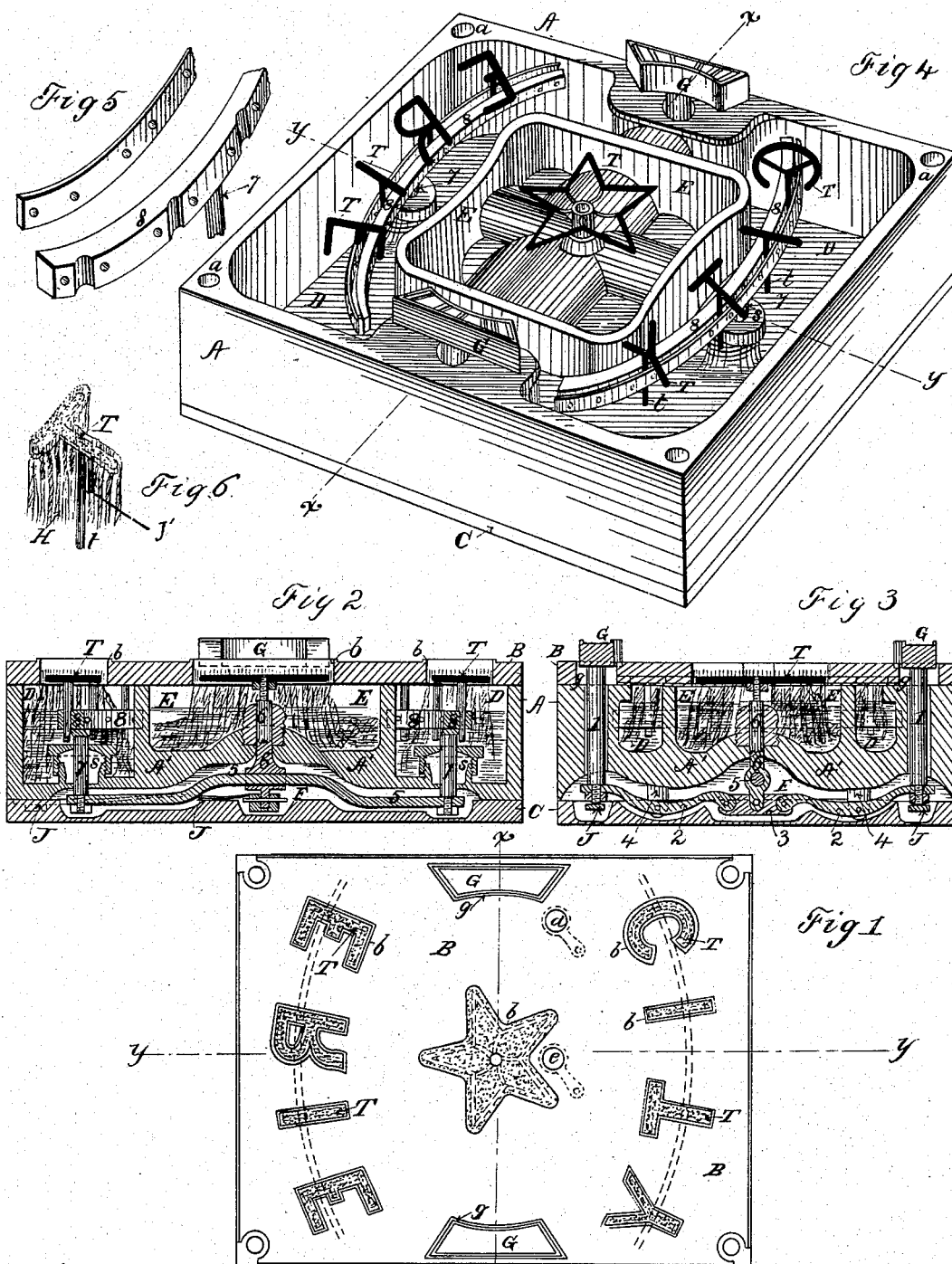


(No Model.)

E. H. CAUGHEY.
CHROMATIC PRINTING APPARATUS.

No. 263,762.

Patented Sept. 5, 1882.



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UNITED STATES PATENT OFFICE.

EDGAR H. CAUGHEY, OF ERIE, PENNSYLVANIA.

CHROMATIC-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 263,762, dated September 5, 1882.

Application filed February 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDGAR H. CAUGHEY, a citizen of the United States, a resident of Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Chromatic-Printing Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters or figures of reference marked thereon.

My invention consists in providing a new and improved chromatic-printing apparatus.

The object of my invention is to provide a chromatic-printing device which can be used in any ordinary printing-press in connection with ordinary type, and will make chromatic impressions while the type are making common black impressions.

My device is shown in the accompanying drawings as follows, the views being exaggerated:

Figure 1 is a top view of the device complete. Fig. 2 is a longitudinal sectional view on the line *yy* in Fig. 1. Fig. 3 is a transverse sectional view on the line *xx* in Fig. 1. Fig. 4 is a perspective view of the device with the upper plate removed. Figs. 5 and 6 are details of construction.

A is the body of the apparatus. B is the upper or face plate; C, the lower plate or back.

The letters and figures designating other parts will appear in the following general description of the construction and operation:

The body A has on its upper side two cavities, D and E, which are wells for receiving the chromatic ink, and in its back is a cavity, F, for receiving the mechanism for operating the type which give the chromatic impressions.

The face-plate B is provided with openings *b b*, &c., and *g g*, of which the openings *b* are for the chromatic type proper, and the openings *g g* are for the pressure-plates G G. The face-plate B and the pressure-plates G G may be provided with suitable configuration to give any design impression in black ink which may be desired.

In the drawings, Fig. 1, I show the edges of the letter-openings faced so as to give a black line around the color-letters, and the balance

of the plate may bear any other engraving desired.

In the face-plate there are openings *d e*, which are for the admission of ink to the wells D and E. These latter openings are closed by spring-valves. (Shown by dotted lines in Fig. 1.)

The pressure-plates G G set a little above the face-plate B; but when the type is under pressure in the press the plates are pressed down even with the surface of the plate. When this occurs the color-type T T are raised by the mechanism contained in the apparatus, and make a colored impression at the same time that the ordinary impression is made. This mechanism is as follows: Connected with each pressure-plate is a plunger-rod, 1, which connects with levers 2 2, which are pivoted at 4, and are connected at their inner ends with an equalizing-beam, 3, which is pivoted to the plunger-rod 6, which carries on its upper end the central type, which in this case is a star; and also attached to rod 6 is a beam, 5, which extends longitudinally in the lower cavity, F, and carries at its ends the plunger-rods 7 7, to which are attached the end type. The arrangement of this mechanism is such that if one of the pressure-plates G only is pressed down neither of the plungers 6 7 7 is raised, for the equalizing block or beam 3 will be tilted, and thus take up the movement; but if both pressure-plates are depressed at once the equalizing-beam is raised bodily, and hence are also raised the plungers 6 7 7. The object of this movement is this: When the inking-roller of the press passes over the type it will only be in contact with one pressure-plate at a time, as it is of small diameter, and consequently the color-type will not be raised; but when the impression-cylinder or the impression-plate of the press comes upon the form both pressure-plates G G are subjected to an equal pressure, and the color-type are raised through their openings in the plate B and brought into contact with the paper.

The color-type are made as follows: A skeleton of wire is formed with a stem, *t*, by which the letter can be clamped and held in place. (See Fig. 4.) Upon this skeleton is attached a body of fibrous material which has its ends

or shreds left hanging below. (See Fig. 6.) The fibrous material is packed solidly together on the frame and forms a face for the type, and the shreds which drop down enter the ink contained in the ink-wells and draw it up by capillary attraction and keep the face of the types inked. The ornamental type in the center (the star) is made in the same way.

When a line of letters occur, as the words "Erie" and "City" in the drawings, the color-letters T are clamped onto a single bar, 8, by their stems, and are thus all moved at once by a single plunger-rod. The stem *t* of each letter is provided with a shoulder, J', which sets upon the bar 8, to which they are clamped so as to give the letters a uniform height. The type operated from the central plunger, 6, may be an ornamental figure, as shown, or a line of letters or other signs or designs. The two ink-wells D and E allow of two separate colors being used, and they may be divided so as to permit of more colors being used.

When the apparatus, as a whole, is set in a form of type it should be so placed that the inking-roller shall pass over it from side to side and not from end to end, so as not to come in contact with both presser-plates at the same time.

Where the letter-openings through the plate are of such form that a part has to be sustained independently—as, for instance, the center of an O or the space in the upper part of an R, as shown in the drawings—a bar (shown by dotted lines in Fig. 1) is soldered on underneath the plate B and the skeleton frame of the letters T, the fringe of the fiber forming the body of the letters T being parted over said bar.

The plungers 1 1 are kept up when the pressure-plate is not under pressure by leaf-springs J J, the ends of which are seen in Fig. 3, and in Fig. 2 one is shown mostly by dotted lines. Springs for this purpose may, however, be located at other points—as, for example, a coil-spring may be placed in the passage in which the plungers 1 operate.

My apparatus as a whole may be used in the columns of a newspaper-form, and will print chromatic impressions at the same time the black impression is printed. It may be used separately for printing labels and for various other purposes. Of course the primary ink—that is, the ink put on by the inking-roller—may be of any color desired, and the ink-wells in the type will supply the other colors. If there is only one ink-well, then only one other

color will be supplied; if two, as shown, then two other colors will be supplied, and so on.

What I claim as new is—

1. A chromatic-printing apparatus consisting essentially of the combination of the following elements: a body having therein one or more ink-wells, a face cap or plate covering the same, in which are openings into the ink well or wells of the form of the design to be printed, type formed of absorbent material mounted in said openings and extending into the ink well or wells, and, finally, pressure-plates working in slots in the face of the body-plate, and which are connected with mechanism, substantially as shown, whereby when the said printing apparatus, as a whole, is under pressure the said type formed of absorbent material will be raised from the ink well or wells and pressed against material being printed.

2. In a chromatic-printing apparatus, the combination, substantially as described, of the following elements: a body, A, having one or more ink-wells on its upper side, and a cavity, F, underneath the wells for the reception of actuating mechanism, a face-plate, B, with chromatic-type openings, a plate, C, covering the back of the body, absorbent type arranged substantially as shown, and connected by plungers with the mechanism in cavity F, and pressure-plates G G at the sides of the face-plate, which are also connected with the mechanism in cavity F.

3. In a chromatic-printing apparatus, the combination, substantially as shown, of the following elements: the presser-plates G G, plungers 1 1, levers 2 2, equalizing-beam 3, bar 5; and plungers 6, 7, and 7, and the movable type T T.

4. In an apparatus for printing in various colors, the combination, with a stationary face-plate of type, the designs of which lie below the surface of said face-plate, said type resting upon levers operated by pressure-plates having their faces above the stationary face and working in slots therein.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of January, 1882.

EDGAR H. CAUGHEY.

Witnesses:

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W. R. EDELEN.