

No. 606,891.

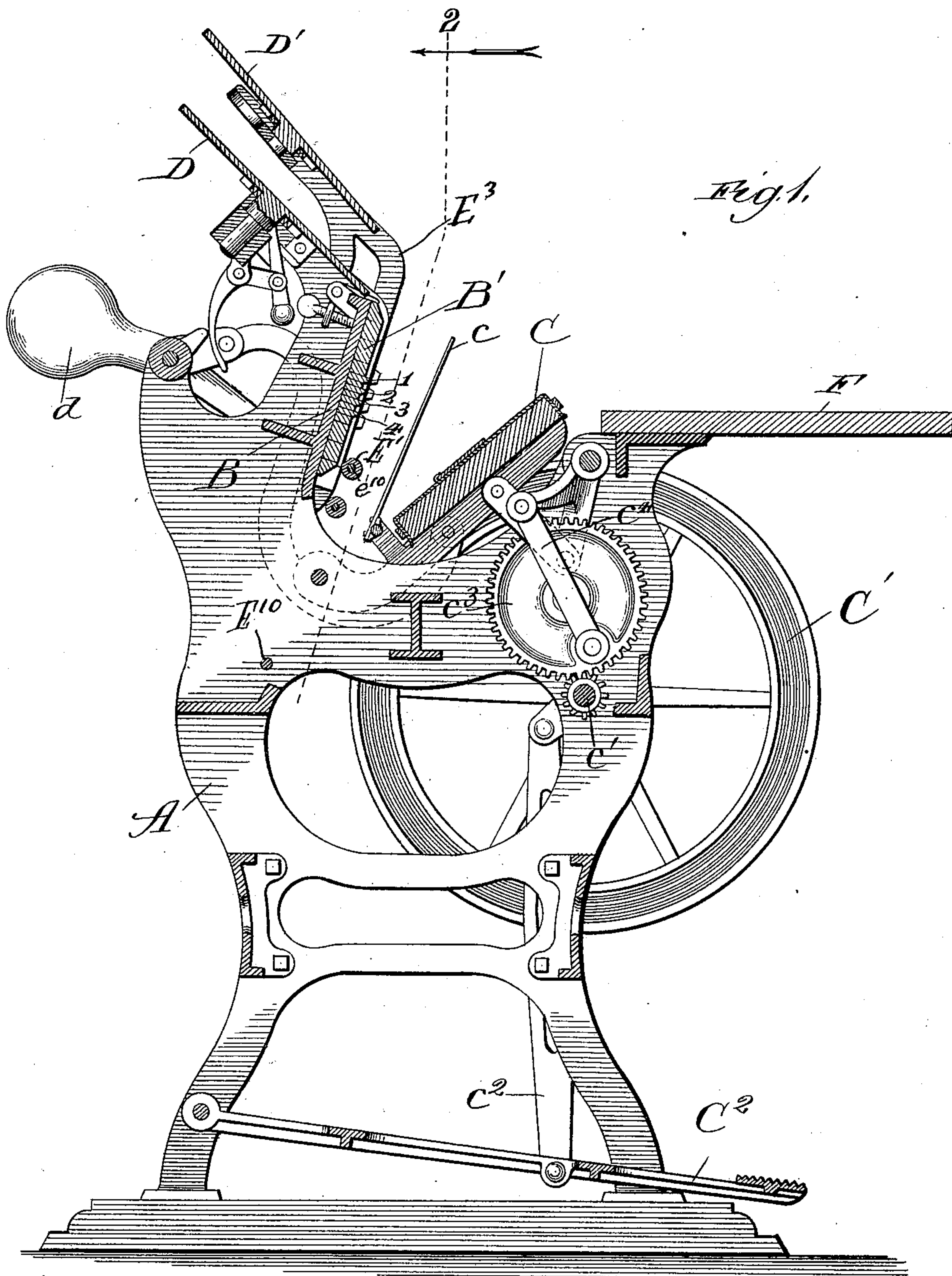
Patented July 5, 1898.

S. KLOTZ.
COLOR PRINTING PRESS.

(Application filed Jan. 26, 1895.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
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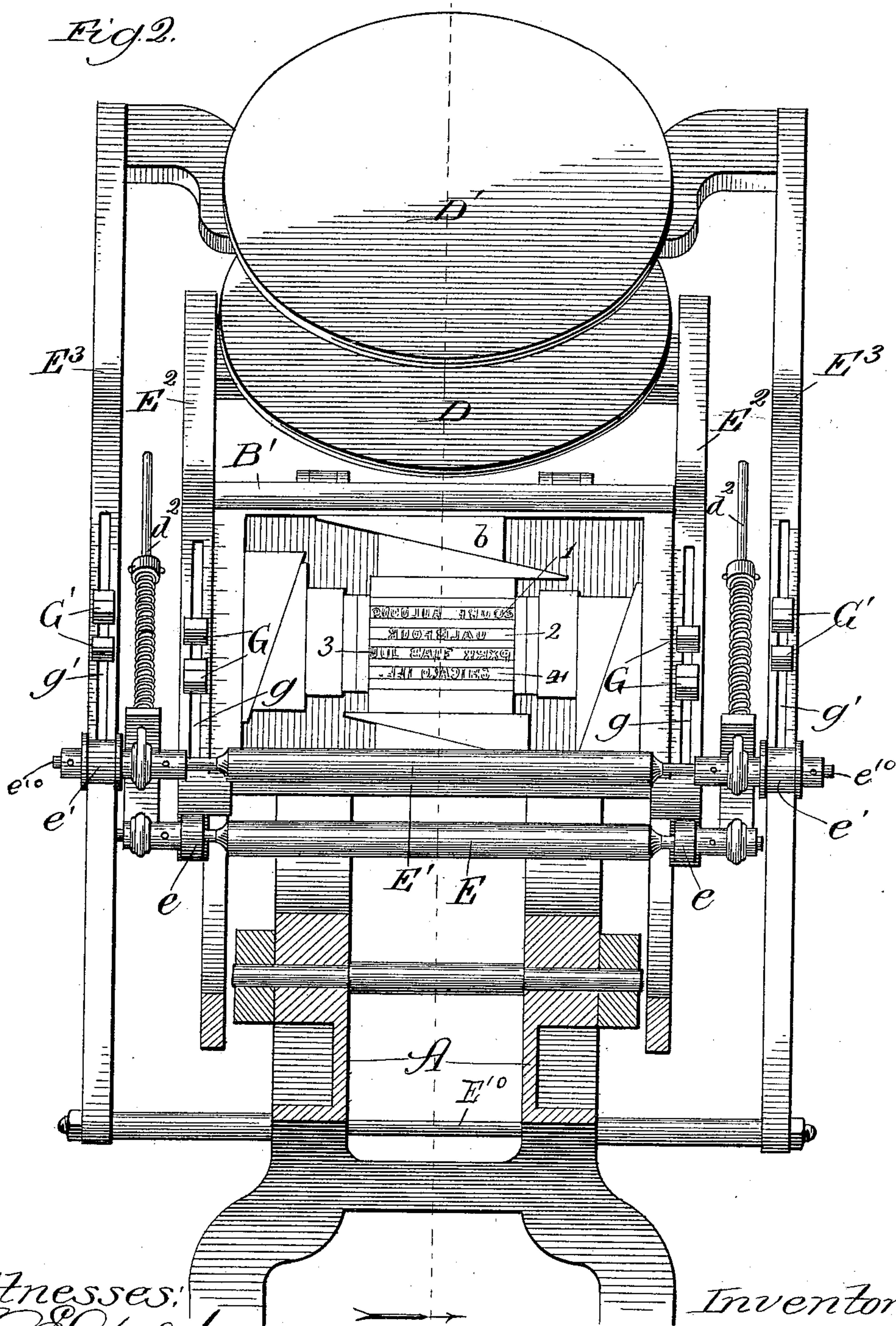
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(No Model.)

3 Sheets—Sheet 2.

Fig. 2.



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1
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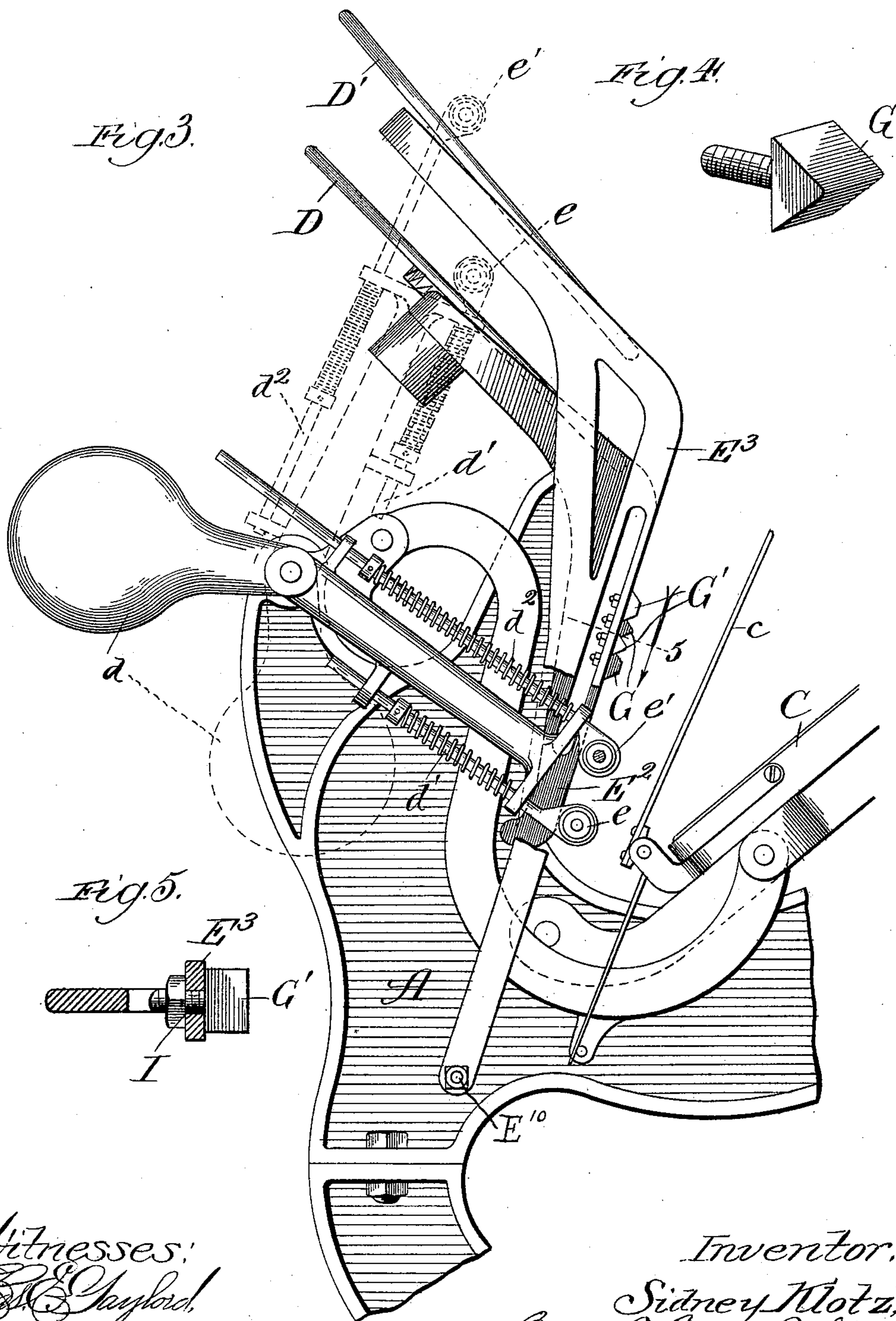
S. KLOTZ.

COLOR PRINTING PRESS.

(Application filed Jan. 26, 1895.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

SIDNEY KLOTZ, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO MINNIE B. SIMON, OF SAME PLACE.

COLOR-PRINTING PRESS.

SPECIFICATION forming part of Letters Patent No. 606,891, dated July 5, 1898.

Application filed January 26, 1895. Serial No. 536,337. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY KLOTZ, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Processes of and Presses for Printing in Two or More Colors, of which the following is a specification.

The object of my invention is to provide a simple, economical, and efficient process and press that will print a circular, letter, bill-head, or other matter in two or more different colors at one operation; and the invention consists in the features and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a transverse sectional elevation of a platen printing-press with my improvements attached thereto, taken on line 1 of Fig. 2; Fig. 2, a front sectional elevation taken on the irregular line 2 of Fig. 1; Fig. 3, an enlarged side elevation of the upper portion of my machine, as hereinafter described; Fig. 4, a perspective detail view of one of the cams; and Fig. 5, an enlarged view of the cams and the means of attachment to the machine, taken on line 5 of Fig. 3, looking in the direction of the arrow.

In the art of printing it is often desirable to print circulars, postals, letter-heads, bill-heads, lithographs, &c., in two or more colors for the purpose of ornamentation or to attract attention to particular portions of the advertisements or bill-heads, &c. To do this it is usually necessary to run such matter through the press a number of times, corresponding to the number of colors desired to be used. This is very expensive in that the cost of handling and rehandling the material so many times is largely in excess of the actual time taken in making an impression. Various expedients have been used to overcome this objection and print in several colors at one operation, among which is the applying of several colors to one disk, so that the inking-rolls will take up the different colors and divide them in their longitudinal length. The type is set lengthwise of the motion of the rolls, so that the colors are applied to them in the same relation that they are distributed on the disk. The objection to this mode or process is that if the type be set lengthwise of the motion of

the inking-rolls the rolls will be rapidly worn away, rendering them unfit for use in that they become grooved or cut and do not spread the ink evenly. The application of different colors to one line of type by the above method does not present an ornate appearance nor bring out the features desired. To overcome these objections and provide a simple and economical printing-press by which any number of colors may be applied to successive or alternating lines of type and an impression taken therefrom at one operation is the principal object of my invention.

In the drawings I have shown my improvements applied to an ordinary printing-press of the platen type, in which the bed is stationary and the platen oscillated into parallelism with the bed that holds the form to make the desired impression upon the paper. I will not enter into any detailed description of the ordinary parts of the press, as they are old and will be readily understood by those skilled in the art, as the drawings clearly show the parts to enable any mechanic or person skilled in the art to understand the same.

A is the frame of the press, which may be of any usual form and size; B, the bed to which the chase is secured; B', the chase in which the form *b* is placed; C, the oscillating platen; *c*, the spring-fingers for holding the work in position; *c'*, the driving-shaft, upon which a balance-pulley C' is mounted; C², the treadle; *c*², the pitman connecting the treadle with the driving-shaft for transmitting power; *c*³, the crank-gear for communicating the power through a system of levers *c*⁴ to the oscillating platen; D, one of the inking-disks; D', a second inking-disk, both of which may be rotated by the ordinary mechanism; *d*, a counterbalance which is connected with the oscillating platen to operate the spring roller-carriers *d'* and *d*², at the end of which are secured the inking-rolls E and E', and F is the feed-board upon which the work is placed before and after impression.

From this short description and an examination of the drawings the ordinary operation of the parts will be readily understood.

It is desirable at times to print either successive or alternating lines of type in two or

more colors. In order to accomplish this result, I provide the press with the inking-disks above described, and each disk is adapted to receive a separate color. These inking-disks or what I term in the claims broadly as "plane rotating inking-surfaces" are arranged in multiple relation with each other, or, which might be said in other words, the inking-disks are arranged in different horizontal planes, so that the ink is applied to the inking roll or rolls at practically, or nearly so, the same period of time, all of which will be apparent from an inspection of Figs. 1 and 2 of the drawings and as they are hereinafter described.

In this specification I will describe and show mechanism for printing in but two colors; but it will be understood that when additional colors are used a separate inking-disk is required for each additional color.

To further facilitate the description, I will assume that the disk D bears the ordinary black color and the disk D' a red color. To apply these colors at one operation to the proper line of type in the form and from that to the article to receive the impression, I provide the inking-rolls E and E' above described, which are mounted in carriers and provided with rollers *e* and *e'*, running in independent tracks E² and E³—that is, each roll has its separate pair of tracks upon which it runs, so that for the inking-roll E its track leads to the black-inking disk and for the inking-roll E' its tracks lead to the red-inking disk. During the operation of the machine, therefore, these rolls are led to their respective disks, and the springs upon their carrier-arms keep them normally in engagement with the tracks. To apply the ink from these disks by means of the inking-rolls to the proper line of type, I prefer to make the tracks normally level and parallel with the surface of the chase, so that as the inking-rolls move along upon the tracks they will normally contact the face of the type and ink the same. Where it is desired to apply the ink of the respective roll—as, for instance, from the black-inking roll—the track is left free, and, as shown in Fig. 2 of the drawings, it would contact the line of type 1. It is desirable, however, that it should not contact line 2 or 4, as for these lines of type it is desired to apply the red ink. In order to accomplish this result, I provide cams G and place them on the track in the same line or opposite the type to be skipped, securing them thereto in any suitable manner, preferably by means of the bolt and nut *g*. (Shown in Fig. 5.) As the black-inking roll therefore travels along its track it will contact these cams and be raised above the type in alignment therewith, to descend again in the free space *g'* and ink line 3, rising again opposite line of type 4 to prevent contact with such line. In the case of the red-inking roll similar cams G' are placed opposite the lines of type 1 and 3 of the form, so that the inking-roll is thereby raised from contacting such

line, but permitted to descend and contact the track where it is free, or opposite lines 2 and 4, and in position to ink such lines. It will therefore be seen that both inking-rolls, which are carried along simultaneously in one operation, apply the proper color of ink to the alternating lines of type—that is, lines 1 and 3 are inked in black and lines 2 and 4 in red, so that when the oscillating platen, with the article to be printed, comes in contact with the form the article will receive the impression in the colors so disposed.

For the sake of simplicity I have described but one inking-roll for each color; but it will be understood that several rolls are generally used and that I can use them with very slight modifications. With regard to inking successive lines of type with similar colors the cams which are placed upon the roll-tracks may be of any length or size, so that they may present a raised plane opposite the successive lines of type that it is desired to skip for one roll, leaving a space free where they are to descend and contact the desired lines of type. Supposing it is lines 1 and 2 of the form that it is desired to ink in black and lines 3 and 4 in red, the cam G' is made large enough to present a raised plane opposite lines 1 and 2, leaving the track-surface free opposite lines 3 and 4, while on the track for the black-inking roll cams G would be placed in position to present a raised plane opposite lines 3 and 4. As both inking-rolls descend from the inking-disks the black ink will be spread on lines 1 and 2 and the red ink on lines 3 and 4.

My second rotating inking-disk D', with its track, by which the chromo-printing is actually provided, is made in the form of a chromatic printing attachment and consists of the upper ink-table D', which is arranged parallel to the ordinary table D and is removably attached to the press parallel with the ordinary inking-table by means of the tracks E³, which form, as it were, a supporting-bracket held in place by means of the bolt E¹⁰. The second set of form-rolls E' are mounted upon the shaft *e*¹⁰, relatively movable when compared with the shaft upon which the ordinary form-rollers are mounted, such shafts having wheels *e e'*, which run upon the tracks E² E³ and by which the rollers are run and raised into and out of contact with the proper ink-tables and lines of type.

The operation of this platen printing-press above described with the type set as illustrated in Fig. 2 of the drawings would be as follows, assuming a circular to be printed: The circular to be printed would be placed upon the oscillating platen and the type in the form inked during the passage of the inking-rolls across the same, so that black ink would be applied to lines 1 and 3 and red ink to lines 2 and 4. The operation of the press would bring the platen and its blank circular into parallelism with the form to receive the impression. Its rearward oscillation away from the form during the operation of the ma-

chine would bring the inking-rolls up and over the type, reinking the same, and up in contact with the respective inking-disks. These operations would be continued until the desired number of circulars were printed, and each circular would be printed in two colors in one operation without the possibility of mixing the colors or causing more than ordinary wear to the parts.

10 While I have described my improvements with more or less minuteness as regards details and as being embodied in precise forms, I do not desire to be limited thereto unduly any more than is pointed out in the claims.
15 On the contrary, I contemplate all proper changes in form, construction, and arrangement, the omission of parts and substitution of equivalents, as circumstances may suggest or necessity render expedient.

20 I claim—

1. In presses for printing two or more colors, the combination with a bed portion adapted to hold a form of type or similar element, plane inking-surfaces arranged in multiple relation
25 with each other and each adapted to contain ink of a different color, an inking roll or rolls for each inking-surface arranged to apply its color to the type of the form, and a track for each roll leading from the form to the corresponding inking-surfaces, substantially as
30 described.

2. In presses for printing in two or more colors, the combination of a bed portion adapted to hold a form with lines of type arranged
35 in transverse relation to the bed, an inking-roll for each different color, plane inking-surfaces arranged in multiple relation to each other and each adapted to contain ink of a different color, a track or tracks upon
40 which each roll is moved and guides leading from the form to each inking-surface provided with means for raising and lowering the rolls to apply the proper color to a complete line of type in the form as desired, and means for
45 carrying the article to receive the impression into parallelism with the form and transfer the colors so disposed all in one complete operation, substantially as described.

3. In presses for printing in two or more
50 colors, the combination of a bed portion adapted to hold a form of type, an inking roll or rolls for each different color and provided with wheels at each end thereof, plane rotating inking-surfaces arranged in multiple

relation to each other—one above the other— 55 adapted to contain different-colored inks, a track or tracks upon which each roll is moved and guided provided with means for raising and lowering the rolls away from and into contact with the desired lines of type and 60 leading from the form to each inking-surface, vibrating arm or arms for moving the rolls along their proper tracks from the inking-surfaces into contact with the form, and a vibrating platen to carry the article to receive 65 the impression into parallelism with the form and transfer the colors so disposed all in one complete operation, substantially as described.

4. In presses for printing in two or more 70 colors, the combination of a bed portion adapted to hold a form of type with the lines of type in transverse relation to the bed, an inking-roll for each different color, plane rotating inking-surfaces arranged one above the other 75 to supply different-colored inks to each roll, track or tracks upon which each roll is moved and guided provided with adjustable cams for raising and lowering the rolls away from and into contact with the desired lines of type 80 in alternating or successive series and leading from the form to each rotating inking-surface, one of such portions—the track or cams—being slotted to adjustably receive the other, vibrating arm or arms for removing 85 the inking-rolls upon their proper tracks, and a vibrating platen to carry the article to receive the impression into parallelism with the form and transfer the colors so disposed all in one complete operation, substantially 90 as described.

5. In a printing-press, the combination with the ink-table of ordinary form and form-rollers, of a chromatic printing attachment consisting of an upper ink-table removably 95 attached to the press parallel to the ordinary table thereof, a set of form-rollers mounted upon a shaft removable with respect to the ordinary form-rollers, a wheel or wheels on said shaft, and a track upon which said wheels 100 are adapted to run and raise the second set of rollers out of contact with the lower ink-table and into contact with the upper table, substantially as described.

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Witnesses:

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