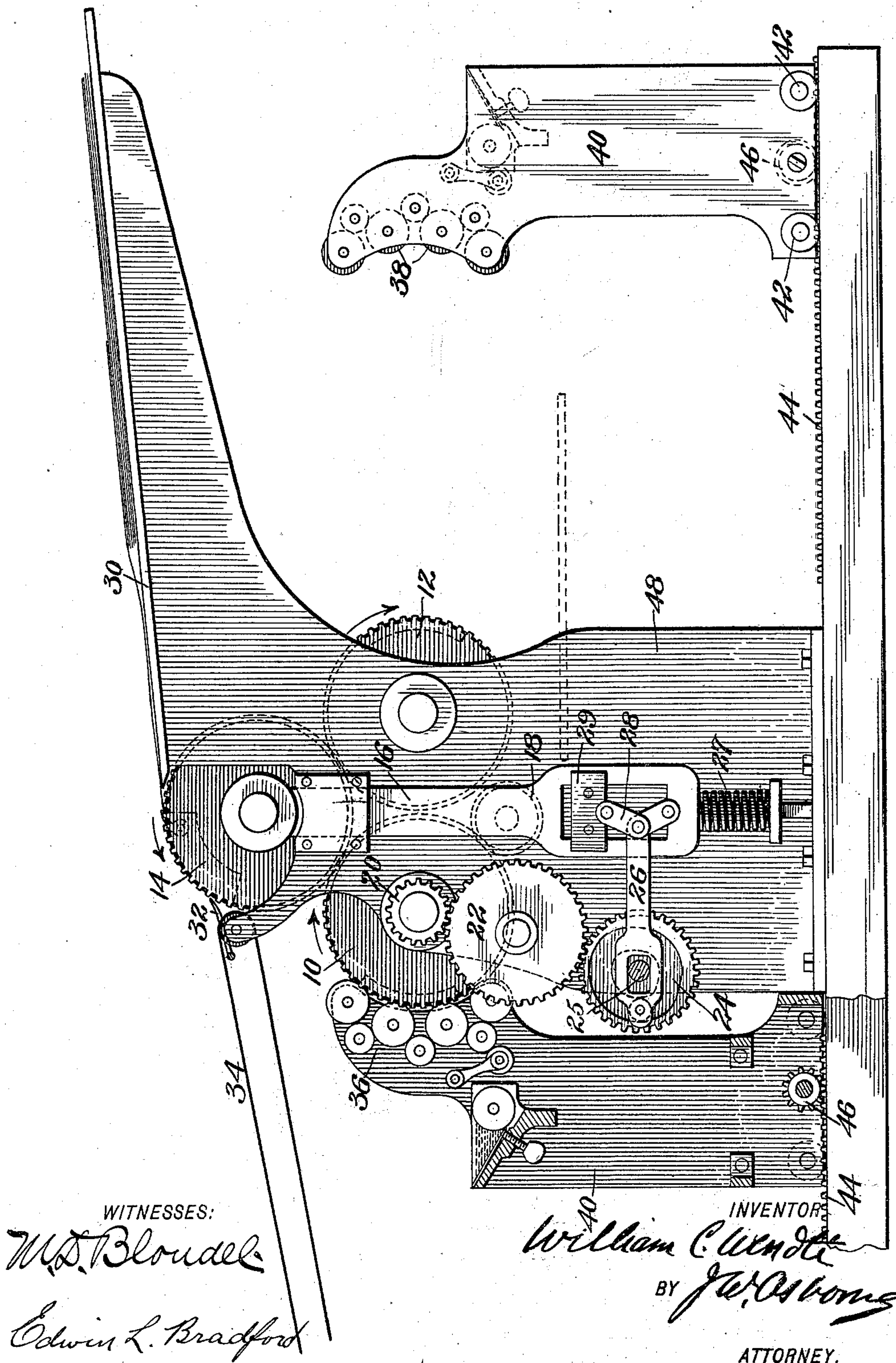


(No Model.)

W. C. WENDTÉ.  
COLOR PRINTING PRESS.

No. 550,735.

Patented Dec. 3, 1895.





# UNITED STATES PATENT OFFICE.

WILLIAM C. WENDTÉ, OF BOSTON, MASSACHUSETTS.

## COLOR-PRINTING PRESS.

SPECIFICATION forming part of Letters Patent No. 550,735, dated December 3, 1895.

Application filed September 3, 1895. Serial No. 561,273. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. WENDTÉ, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Two-Color Printing-Press, (designated Case M,) of which the following is a specification.

This invention is related to a large class of multicolor presses, and its special object is to secure the advantages derivable from a compact arrangement, by which a second inking is accomplished without waste of time, as well as a delivery face up, and other benefits to be hereinafter set forth.

In the drawing that forms part of this specification the figure shows from the near side my press in elevation, with part of one of the frames of an inking apparatus removed and the other shifted back. In it the essential details are represented in diagrammatic outline, which the following description will make clear.

Two form-cylinders of equal size (marked 10 and 12, respectively) are supported in bearings near together, but not in close contact. In gear with both of these is the impression-cylinder 14, also of the same diameter. This cylinder is supported in bearings which admit of being raised and lowered to a small extent, (about one-eighth of an inch,) for which purpose they are carried by the sliding bars 16, one on each side of the press. This machine receives the power necessary to drive it through the pinion 18, which meshes into a gear on the form-cylinder 10. On the axis of the latter a small gear is keyed, (marked 20,) which drives the intermediate 22 and the cam-wheel 24, (the last-named at half the speed of the impression and form cylinders,) of which there are two, one on each end of a common shaft 25. The cam-rods 26, one at each side of the machine, operate the toggles 28 (of which there are also two) and in conjunction with the heavy springs 27 raise and lower the impression-cylinder at proper times. The springs 27 for this purpose raise the sliding bars 16, while the toggles, working against the fixed abutments 29 and the lower ends of the bars, force the latter downward and with them the cylinder into operative contact so soon as the toggles are straightened by the

cam 24 and the thrust of the springs thereby overcome.

In the drawing the impression-cylinder 14 is shown in gear with both the cylinders 10 and 12 as it always remains, but out of operative contact, though the distance separating their surfaces can hardly be seen on so small a scale.

When a sheet of paper from the feed-board 30 is taken on the impression-cylinder 14, the grippers in the gap upon the latter carry it down to the first form-cylinder 10, where (the impression-cylinder having been depressed) it begins to receive its first color and immediately afterward its second color from the second form-cylinder 12. The sheet, which has thus been twice printed, is carried direct to the delivery-fingers 32, where, after being released by the grippers, it is thrown out face up upon the tapes 34 and carried to the delivery-board in the usual way. As soon as the tail of the sheet reaches the line of contact on 12, the toggles 28 are relaxed and the cylinder 14 is immediately thrown up by the springs 27, whereby the blanket on the impression-cylinder in revolving past the freshly-inked forms escapes the same altogether and takes no ink while the sheet is being delivered. The forms receive in this way a first inking from the form-rollers 36 and 38, and by the time the leading edge of the next sheet fed from the feed-board 30 reaches the form-cylinders the forms thereon will each have been inked again from the same rollers and print accordingly after a double roll. In this way my invention secures the advantages in a continuously-running press of a very perfect application of ink to the form within the time that must in any case be spent in printing and in making a face-up delivery of the sheet.

Persons conversant with printing will recognize the importance of adding to the number of form-rollers in a press when it can be conveniently done, with a view to securing the most uniform inking, and the second roll in my press, while it is equivalent to such an increase—that is, to doubling the number of rollers—is at the same time much better and more manageable than such an addition would be, for a thorough distribution and solid application of the coating of ink is thereby ob-



tained with the smallest possible number of riders and other distributing apparatus, which must be kept in order, cleaned up, and handled continually.

5 In the figure the group of rollers 36, which constitutes the inking apparatus for the first form, is shown in its proper place against the first cylinder 10. One side of the frame supporting this group is removed in the drawing, so that the ends of the rollers may be seen in elevation. To facilitate access by the pressman to the forms for the purpose of fixing and adjusting them and to the rollers themselves, I embrace each group in a separable  
15 piece of framing 40, which rests upon truck-rollers 42 and ways in the bed-plate of the press. With the help of the horizontal racks 44 and the small cogged wheels 46 on a cross-shaft, adapted to receive a winch-handle on either side of the press, the frames above referred to can be racked to or from the main frame 48, (indicated in general outline only,) and free access thereby had to both form-cylinders.

25 In the figure the group of form-rollers which ink the forms on the second cylinder 12, it will be seen, is not shown in its place for printing, but has been racked out to the end of the bed to illustrate the construction I have described.

The size of the gaps in the three cylinders I employ is subject to a certain limitation. If all three cylinders were in actual contact, which they obviously cannot be, the length of the cap, circumferentially, could be not less than sixty degrees; but as the two form-cylinders are necessarily separated from each other the gaps must exceed that length by a small quantity, dependent, essentially and chiefly,  
40 on the distance apart of the lines of contact measured on the circumference of the impression-cylinder, to which length should of course be added, in practically constructing the press, the short distance traveled during the act of shifting the impression-cylinder, allowance for margins, &c.

The forms fitted for use in this press must be curved and may consist of electrotypes or stereotypes or of etched zinc, &c., bent into the required curve and attached to the cylinder in well-known ways, and although I have hitherto considered my invention with reference to relief-printing only it is clearly quite as adaptable for surface-printing of the zincographic kind, requiring therefor only the addition of the usual damping apparatus in advance of the inking-rollers, as in other presses employing stone or zinc, &c., or collographic surfaces.

60 In the foregoing I have set forth the manner I believe to be best adapted for the successful embodiment of my invention; but I do not wish it understood that I confine myself to the specific details herein given, inasmuch as other means can certainly be successfully employed for the practical application of the principles underlying the same.

It is obvious, for instance, that the means used to bring down the impression-cylinder might be modified and substitutes for the toggle might be devised; also, instead of lifting the impression-cylinder the separation could be effected by giving the bearings of the form-cylinders a lateral movement apart, the same to be accomplished simultaneously or in sequence, so as to remove them at proper times from operative contact with the impression-cylinder.

The great productiveness of this press is dependent on the fact that the rotation is continuous and is always in the same direction, on the considerable length of the forms in relation to the circumference of the form-cylinders, and for the reason that the two forms are printing together during much of the time required to produce and deliver the two-color impression.

What I claim is—

1. In a two-revolution color press, the combination of an impression-cylinder having grippers adapted for taking sheets; with two form-cylinders each of diameter equal thereto and geared together through the same; with two groups of form rollers in continuous operative contact with their respective forms; and with means for holding first in and then out of operative contact the impression-cylinder with the two form-cylinders during and after the printing of the sheet carried by the former; substantially as described.

2. In a two-revolution color press, an impression-cylinder with grippers in combination with and geared to two form-cylinders each of diameter equal thereto; means for holding the impression-cylinder in operative contact with the form-cylinders while the sheet is passing between them and the impression-cylinder, and of then separating the same to unmake said contact while the sheet is not passing; with inking apparatus for each form; and with delivery fingers and tapes adapted to convey the printed sheet face up from the grippers when the latter have released it; substantially as described.

3. In a two-revolution color press, an impression-cylinder in combination and in operative contact with two form-cylinders of like size; with form rollers adapted for continuous rolling; with grippers on the impression-cylinder adapted to take a sheet at the beginning of every alternate revolution of the cylinders, and to release each sheet for delivery face up after one revolution has been completed; with springs to throw the impression-cylinder out of operative contact, and cams and toggles to overcome the spring action and return the impression-cylinder to its place, immediately before and while the sheet is being printed by the form-cylinders; substantially as described.

4. In a two-color rotary press, two form-cylinders provided with gaps or blanks, each in combination and in operative connection with an impression-cylinder having a gap



equal in size to those on the form-cylinders, each gap subtending an angle not less than that included by two radii of the impression-cylinder to its lines of contact with the form-cylinders; with color rollers for each form-cylinder held in constant functional relation thereto; and with means for holding the printing cylinders in operative contact when the impression surface is protected by the sheet, and of separating them while still in gear when said surface is unprotected and exposed in passing the inked form in the absence of said sheet; substantially as described.

5. In a two-revolution two-color press, an impression-cylinder with grippers to take sheets in combination and in gear with two form-cylinders each of size equal thereto;

with sliding bearings for said impression-cylinder actuated by toggles and springs, timed to shift the impression-cylinder into and out of operative contact with the two form-cylinders during and after the printing of the sheet, respectively; with inking apparatus adapted to ink both forms twice in the same direction previous to printing from the same; and with delivery fingers and tapes to receive and convey the sheet face up from the impression-cylinder after the completion of its second revolution; substantially as described.

WILLIAM C. WENDTÉ.

Witnesses:

SAMUEL JENNISON,  
S. BOWEN PIERCE.

It is hereby certified that in Letters Patent No. 550,735, granted December 3, 1895, upon the application of William C. Wendté, of Boston, Massachusetts, for an improvement in "Color-Printing Presses," an error appears in the printed specification requiring correction, viz: In line 35, page 2, the word "cap" should read *gap*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 10th day of December, A. D. 1895.

[SEAL.]

JNO. M. REYNOLDS,  
*Assistant Secretary of the Interior.*

Countersigned:

JOHN S. SEYMOUR,  
*Commissioner of Patents.*