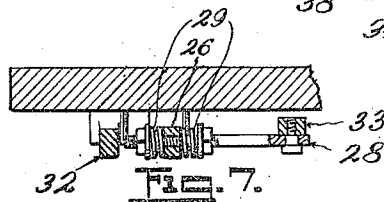
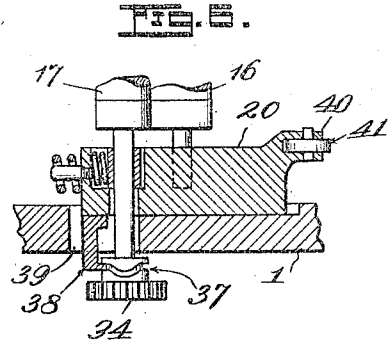
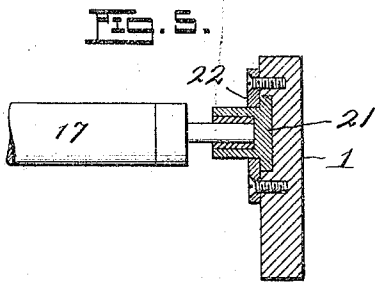
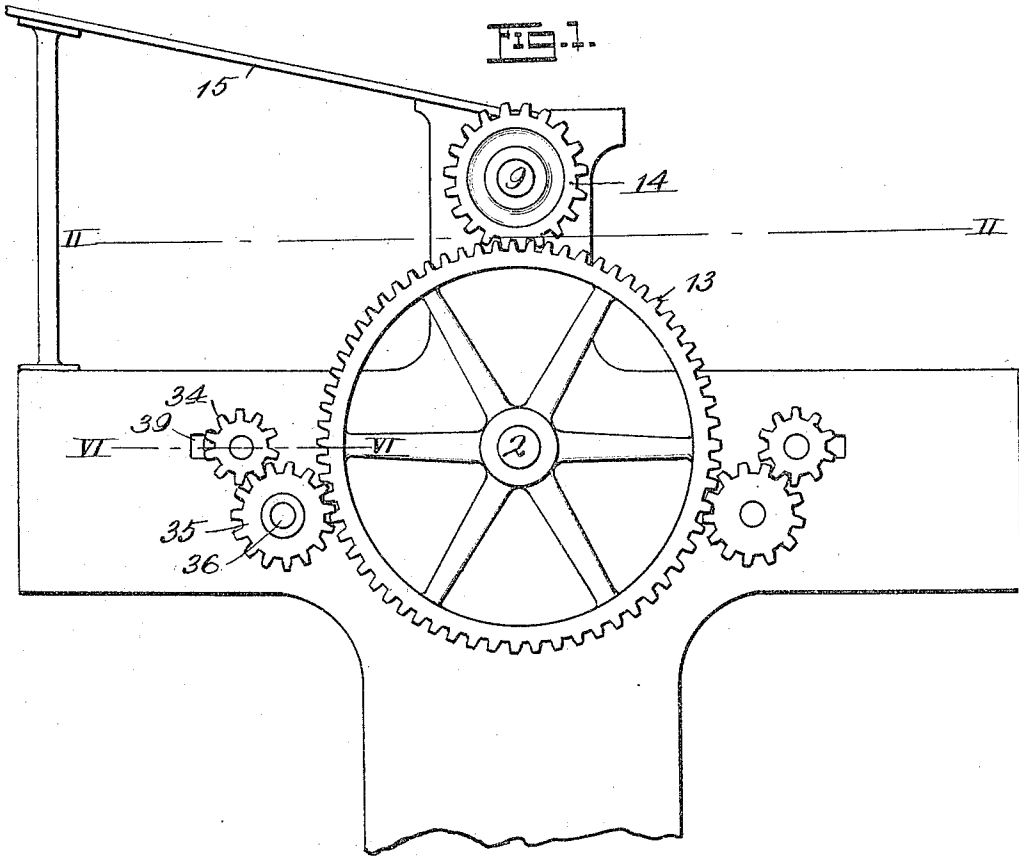


H. W. BREWER.
 MULTICOLOR PRINTING PRESS.
 APPLICATION FILED JUNE 8, 1912.

1,068,480.

Patented July 29, 1913.

3 SHEETS—SHEET 1.



Witnesses:

W. Hamilton
E. C. Latham

Inventor,
 Harry W. Brewer,

By *F. G. Fischer*,

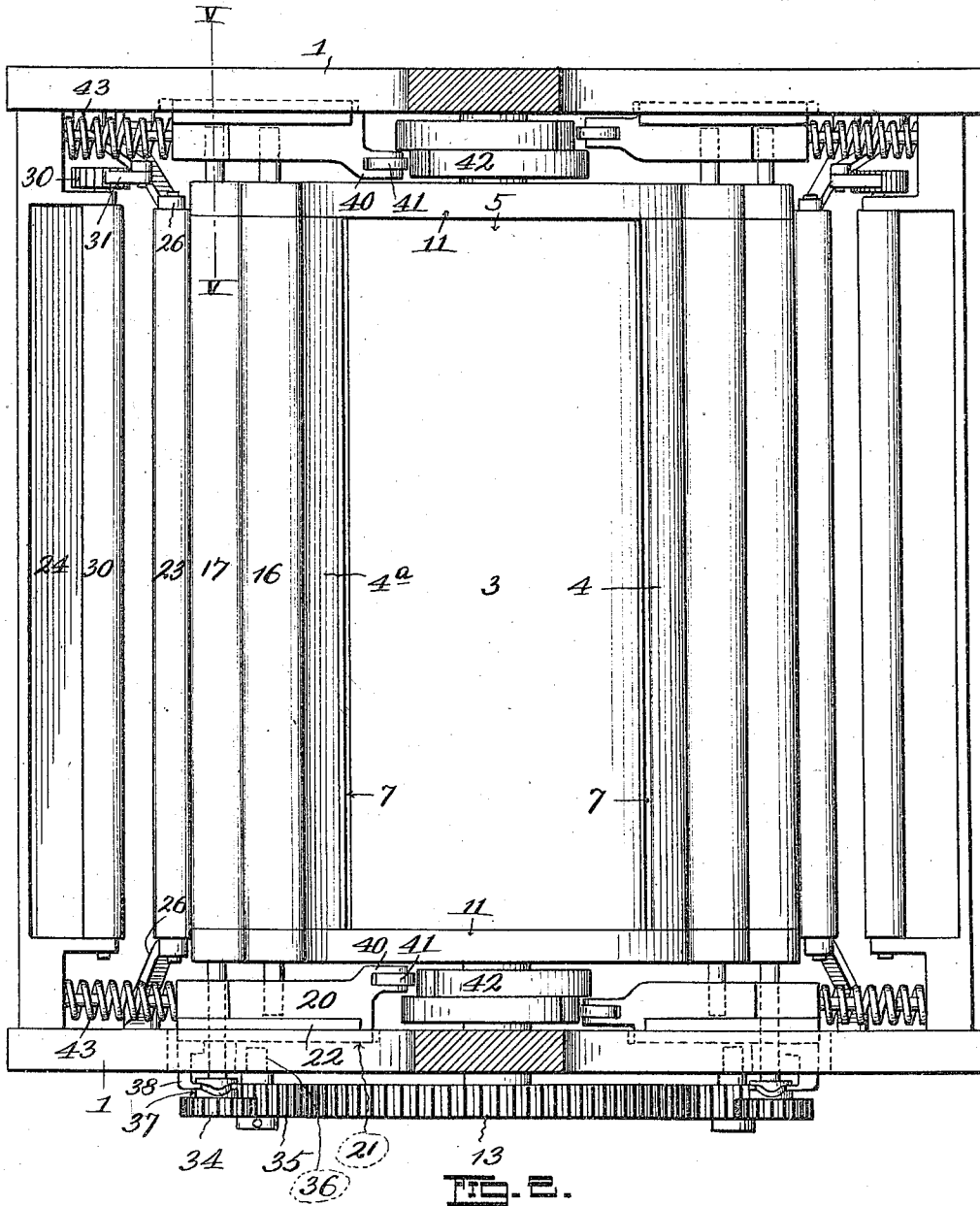
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3 SHEETS—SHEET 2.



Witnesses:

R. Hamilton
E. C. Sullivan

Inventor:

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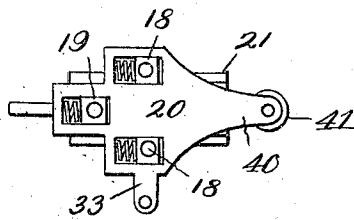
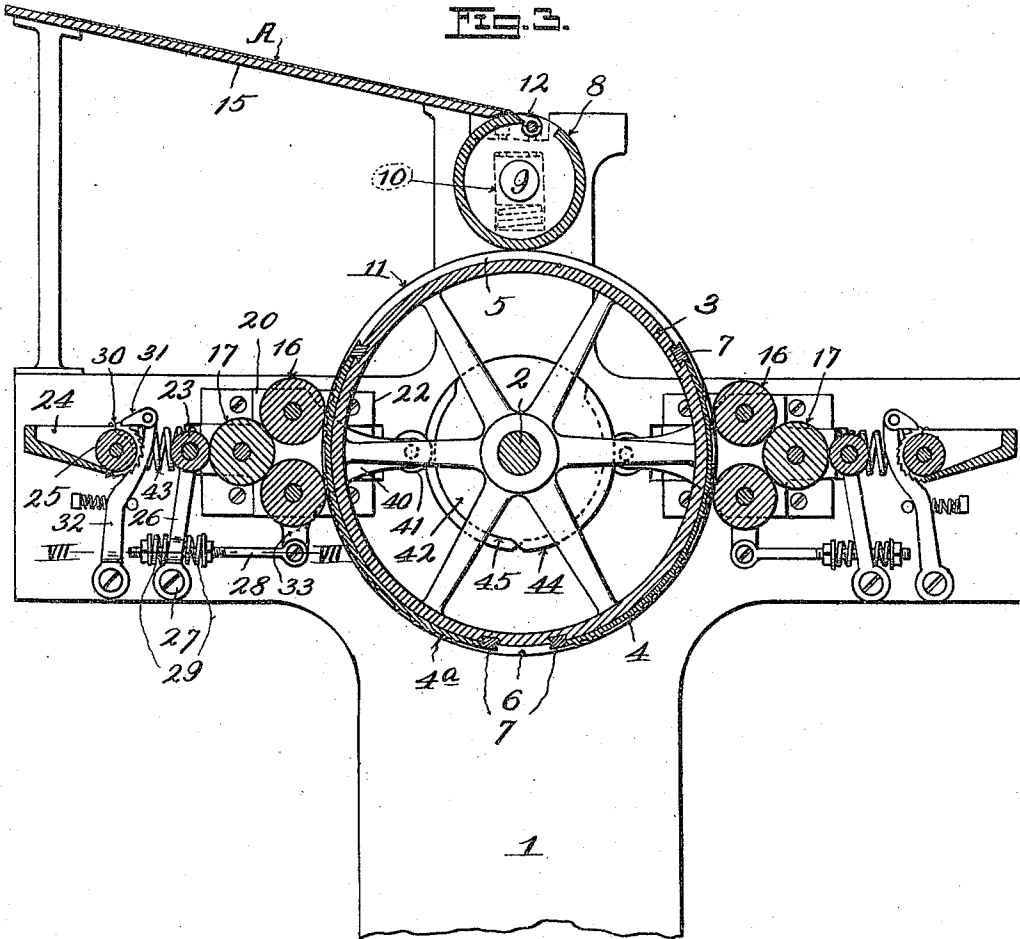
By F. G. Fischer,
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3 SHEETS—SHEET 3.



Witnesses:
R. Hamilton
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UNITED STATES PATENT OFFICE.

HARRY W. BREWER, OF HUTCHINSON, KANSAS, ASSIGNOR OF ONE-HALF TO
FREDERICK D. LARABEE, OF HUTCHINSON, KANSAS.

MULTICOLOR-PRINTING PRESS.

1,068,480.

Specification of Letters Patent.

Patented July 29, 1913.

Application filed June 8, 1912. Serial No. 702,474.

To all whom it may concern:

Be it known that I, HARRY W. BREWER, a citizen of the United States, residing at Hutchinson, in the county of Reno and State of Kansas, have invented certain new and useful Improvements in Multicolor-Printing Presses, of which the following is a specification.

My invention relates to improvements in multicolor printing-presses, and my primary object is to provide a simple and efficient press of this character whereby two or more colors may be printed by a single form cylinder at each revolution thereof.

Other objects of the invention will hereinafter appear and in order that said invention may be fully understood, reference will now be made to the accompanying drawings, in which:

Figure 1 is a broken side elevation of my improved multicolor printing-press. Fig. 2 is a horizontal section of said multicolor printing-press on line II—II of Fig. 1. Fig. 3 is a vertical section of the press. Fig. 4 is a side elevation of a carriage carrying a number of inking rollers. Fig. 5 is a detail cross section on line V—V of Fig. 2. Fig. 6 is a detail horizontal section on line VI—VI of Fig. 1, and Fig. 7 is a detail horizontal section on line VII—VII of Fig. 3.

In carrying out my invention I employ a suitable frame 1, in which is journaled a shaft 2 carrying a fixedly-mounted form cylinder 3, the circumference of which is divided into three principal parts of approximately equal lengths and two of which contain the printing appliances 4 and 4^a, while the other is left blank as indicated at 5 for a purpose which will hereinafter appear. A short space 6 is also left between two ends of the printing appliances 4 and 4^a, to leave blank margins at the top and bottom of the sheets A when the same are printed.

The printing appliances 4 and 4^a may be of the usual kind, and for the sake of brevity I shall hereinafter refer to them as stereotype-plates. Form cylinder 3 is provided with the customary retaining elements 7 to removably-secure the stereotype-plates 4 and 4^a in position thereon.

8 designates an impression cylinder, which is mounted upon a shaft 9 journaled in bear-

ings 10 yieldingly-mounted in the upper portion of frame 1 to yieldingly-hold said impression cylinder 8 upon the peripheral flanges 11 placed at the ends of the form cylinder 3 to hold the impression cylinder 8 out of contact with the face of the type or other printing elements on the stereotype plates 4 and 4^a. The impression cylinder 8 is provided with the usual grippers 12, adapted to seize the sheets A, one at a time and hold them upon the impression roller 8 while the same carries them around into contact with the stereotype plates 4 and 4^a to be printed.

The periphery of the impression cylinder 8 is approximately the same length as space 5, and sheets A are approximately the same length as the circumference of said impression roller 8, which carries each sheet thereon around three revolutions, about one-half revolution of which is utilized in bringing a sheet into proper register with the stereotype plate 4, and the other half in discharging the printed sheet; the two remaining revolutions being utilized to bring the sheet successively into contact with the printing surface of the plates 4 and 4^a, whereby it is printed in two colors at one revolution of the form cylinder 3. Cylinders 6 and 8 are held in proper time with each other by gear-wheels 13 and 14, keyed, respectively, on shafts 2 and 9. Sheets A are supported adjacent the impression roller 8 on a table 15. Stereotype-plate 4^a is supplied with ink of suitable color by a pair of form rollers 16, which in turn are supplied from a distributing roller 17, said rollers 16 and 17 being journaled in boxes 18 and 19, respectively, yieldingly-mounted in a pair of carriages 20, provided with cross-heads 21, reciprocably-mounted in slideways 22, secured to opposite sides of frame 1. Roller 17 receives its supply of ink from a laterally-movable roller 23, which in turn is supplied from an ink-font 24, through the intermediacy of a feed-roller 25, journaled in said ink-font.

The space between the distributing roller 17 and the feed-roller 25 is greater than the diameter of roller 23, consequently the latter is intermittently carried back and forth into contact with said distributing roller and the feed-roller by a pair of oscillatory arms 26, mounted at their lower ends upon pivots 27.

Oscillatory arms 26 are actuated by a pair of reciprocatory connecting-rods 28, which extend loosely through said oscillatory arms and are provided at opposite sides thereof with springs 29 whereby roller 23 is alternately held in yielding contact with rollers 17 and 25. One of the connecting-rods 28 also effects the rotation of the feed-roller 25, so that it may better distribute ink on roller 23, through the intermediacy of a ratchet-wheel 30, mounted upon one end of the feed-roller 25, a pawl 31 for actuating said ratchet-wheel 30, and a pivotally-mounted arm 32 arranged in the path of said connecting-rod 28. The connecting-rods 28 are actuated by the carriages 20, to which they are pivotally-connected through the intermediacy of arms 33, depending from the carriages.

The distributing roller 17 is driven by a pinion 34 and in turn drives the rollers 16 and 23 through frictional contact therewith. Pinion 34 is driven by an intermediate gear 35 fixed upon a stub-shaft 36 and driven by the large gear-wheel 13. Longitudinal movement is given roller 17, so that it may better distribute ink on its companion rollers, through the intermediacy of a cam 37 integral with pinion 34 and engaging a finger 38, fixed to the adjacent carriage 20 and projecting through a slot 39 in the adjacent side of frame 1, see Fig. 6. Finger 38 being stationary so far as lateral movement is concerned, moves the cam 37 and the pinion 34 laterally at each revolution thereof, and in order that this lateral movement of the pinion will not carry it out of mesh with the intermediate gear 35, the latter is made of sufficient width to accommodate the movement of the former. The carriages 20 have arms 40 extending forward toward shaft 2 and provided with rollers 41. Intermittent reciprocatory movement is imparted to said carriages 20 by a pair of cams 42 and a pair of springs 43, which latter are interposed between the rear ends of the carriages and the adjacent ink-font 24, see Fig. 2.

Cams 42 are fixed to shaft 2 and each has a high radius 44 and a low radius 45, which latter is arranged in radial alinement with the stereotype plate 4^a, so that it will not engage the adjacent roller 41 during the time the form rollers 16 are in engagement with the stereotype plate 4^a. Just as soon, however, as the stereotype plate 4^a passes out of engagement with the lowermost form roller 16, the high radii 44 of the cams 42 engage the rollers 41 and thus push the carriages backward and thereby carry rollers 16 out of the path of the stereotype plate 4, which has been previously coated with a different colored ink by its respective inking mechanism, which being a duplicate of the inking mechanism for the stereotype

plate 4^a, need not be described in detail. The operation of the press briefly stated is as follows: A sheet is seized by the grippers 12 when the impression roller 8 is in the position shown in Fig. 3, and carried around on said impression roller during three revolutions thereof. In the first half revolution of said impression cylinder 8 the front portion of the sheet is brought into register with the front side of the stereotype plate 4, which prints said sheet in one color. The stereotype plate 4^a then prints the sheet in another color. As the stereotype plate 4 approaches the uppermost form roller 16 of the inking means for the stereotype plate 4^a, the high radii 44 of the cams engage the rollers 41 and push the carriages backward, so that the form rollers 16 of said inking means will be carried out of the path of stereotype plate 4. As the carriages 20 move backward, they, through the intermediacy of the connecting-rods 28, rock the arms 26 to the left, causing them to carry roller 23 into engagement with the feed-roller 13, which is rotated by one of the connecting-rods 28 through the intermediacy of arm 32, pawl 31, and ratchet-wheel 30. As the stereotype plate 4 passes the lowermost form roller 16, the high radii of cams 44 pass out of engagement with the rollers 41 and permit the springs 43 to push the carriages forward so that the form rollers 16 may engage the stereotype plate 4^a and coat the same with ink. When the stereotype plate 4^a approaches the lowermost form roller constituting part of the inking means for the stereotype plate 4, the form rollers of the latter are pushed backward so that they in turn will not apply ink to said stereotype plates 4^a, thus it will be understood that the stereotype plates are supplied with ink only from their respective inking devices.

While I have shown the form roller 3 with but two printing surfaces for a like number of colors, it is obvious that the number of printing surfaces may be increased by enlarging said form roller or diminishing the size of the impression cylinder 8 accordingly.

Having thus described my invention what I claim and desire to secure by Letters Patent, is:

1. In a printing press, a frame, a rotary form cylinder carried by the frame, slidable carriages carried by the frame and disposed on opposite sides of said cylinder, superposed form rollers journaled in the carriages, distributing rollers journaled in the carriages, and contacting with the form rollers thereof, ink fonts rigidly connected to the frame and having feed rollers therein, laterally movable rollers connected to the frame for alternate contact with the feed and distributing rollers, means for actuating

said laterally movable rollers from the carriages, and means for actuating the carriages.

2. In a printing press, a frame, a rotary form cylinder carried by the frame, slidable carriages carried by the frame and disposed on opposite sides of said cylinder, superposed form rollers journaled in the carriages, distributing rollers journaled in the carriages, and contacting with the form rollers thereof, ink fonts rigidly connected to the frame and having feed rollers therein, means for intermittently rotating the feed rollers, laterally movable rollers connected to the frame for alternate contact with the feed and distributing rollers, means actuated by the carriages for oscillating the laterally movable rollers and for also actuating said means for intermittently rotating the feed rollers, and means for actuating the carriages.

3. In a printing press, a rotary form cylinder, movable carriages on opposite sides of the cylinder, form rollers borne by the carriages, and means to supply ink to said form rollers including an ink font, a feed roller in the ink font having a ratchet wheel, a pivoted spring pressed arm having a pawl to engage said ratchet, an oscillatory arm, a roller borne by said oscillatory arm, a rod connected to the carriage and extending through the oscillatory arm, springs on said rod engaging opposite sides of said oscillatory arm, said rod having its free

end for engagement with the pivoted arm to actuate same, and means to operate the carriages.

4. In a printing press, a frame, a rotary form cylinder carried by the frame, a slidable carriage carried by the frame, form rollers and distributing rollers in the carriage, an ink font rigidly carried by the frame and having a feed roller therein, a movable device, means whereby said device intermittently rotates said feed roller, a second movable device having a roller, and means actuated by the carriage for successively operating each of said devices.

5. In a printing press, a frame, a rotary form cylinder carried by the frame, a slidable carriage carried by the frame, form rollers and distributing rollers in the carriage, an ink font rigidly carried by the frame and having a feed roller therein, a pivoted arm connected to the frame, means whereby said arm intermittently actuates the feed roller, a roller carrying arm pivoted to the frame, and means to actuate the roller carrying arm, said last named means being normally spaced from the first named arm but contacting with and operating same upon movement of the carriage.

In testimony whereof I affix my signature, in the presence of two witnesses.

HARRY W. BREWER.

Witnesses:

F. W. KATHS,
C. A. McCORD.