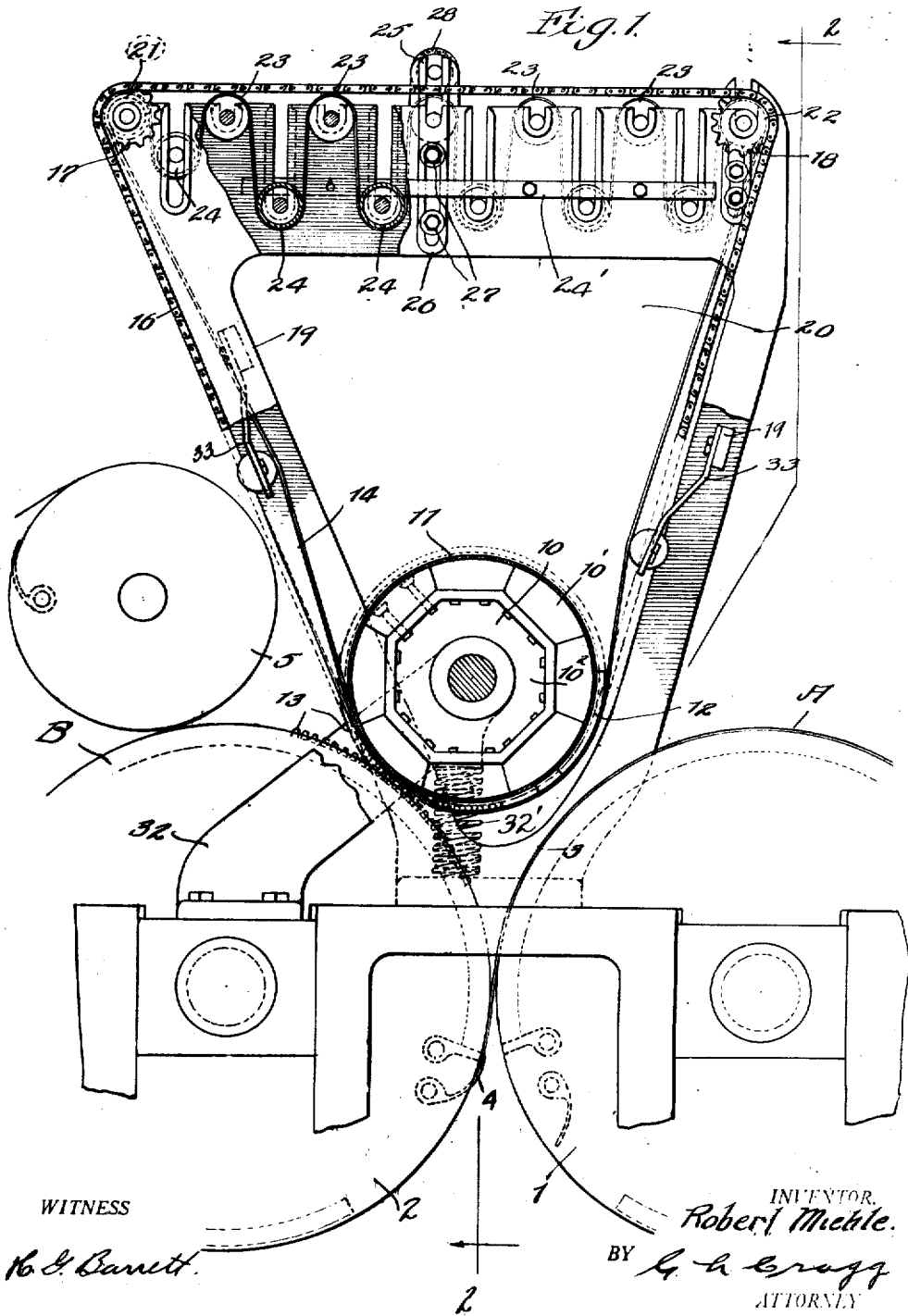


R. MIEHLE.  
 BLOTTING OR OFFSETTING MECHANISM FOR PRINTING PRESSES.  
 APPLICATION FILED NOV. 27, 1916.

1,240,996.

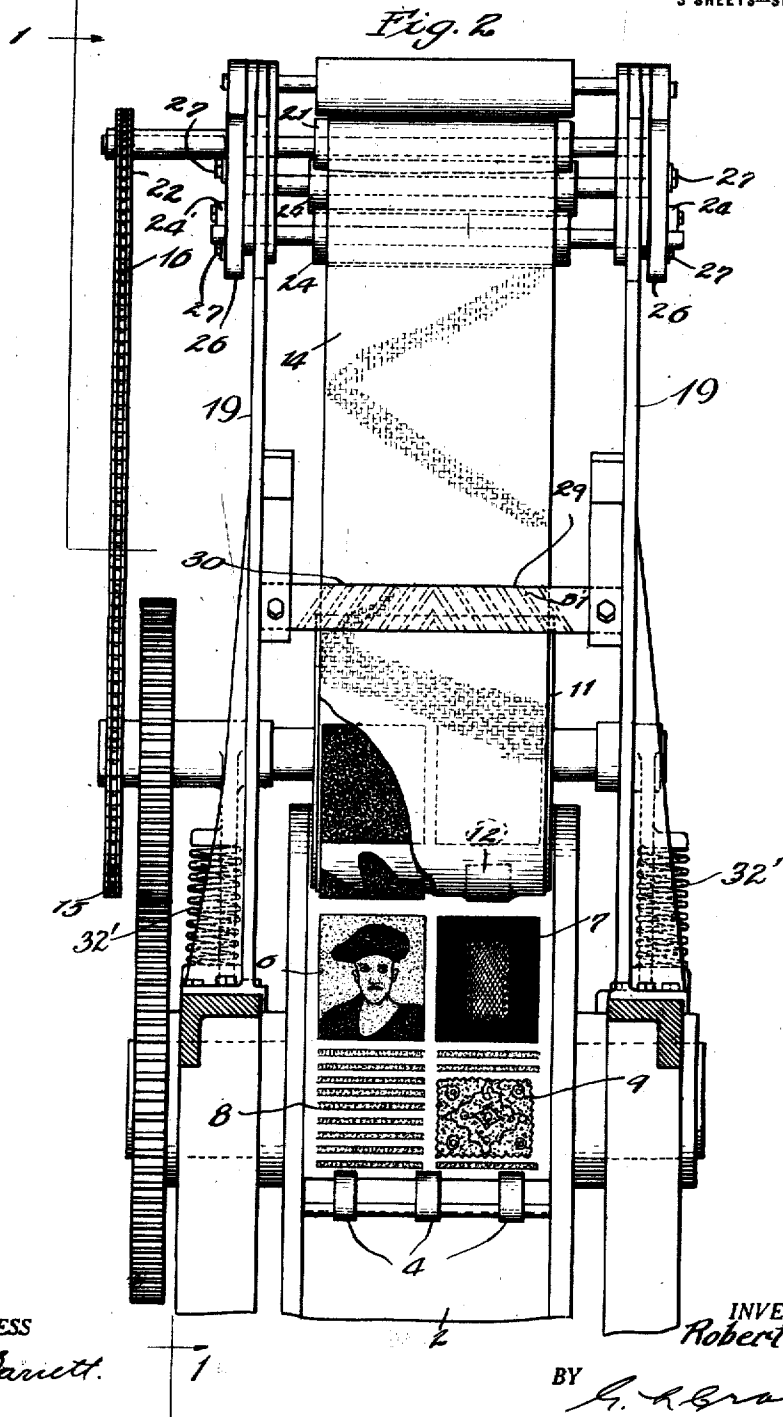
Patented Sept. 25, 1917  
 3 SHEETS—SHEET 1.



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WITNESS  
*K. S. Barnett.*

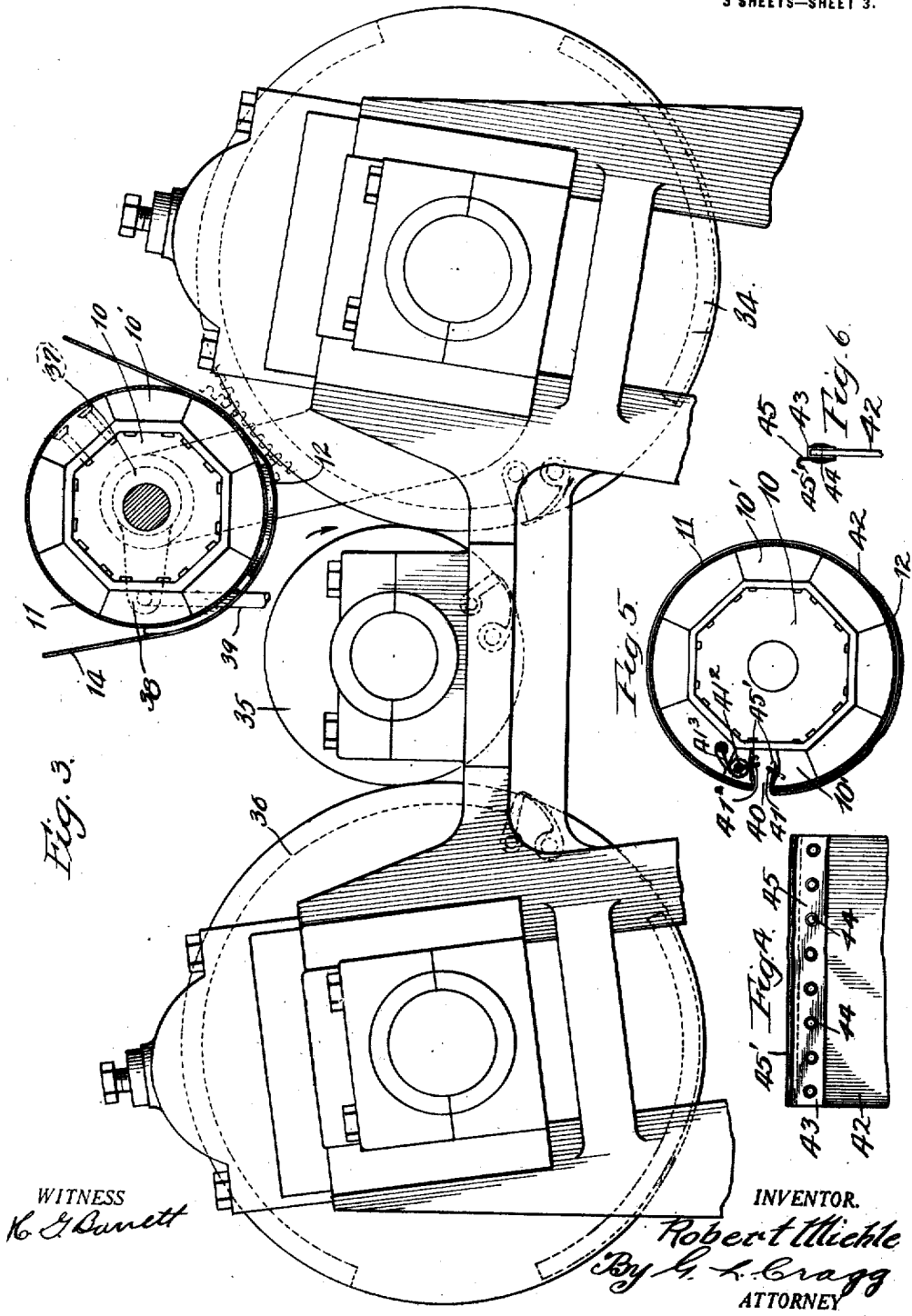
INVENTOR.  
*Robert Miehle*

BY *G. H. Bragg*  
 ATTORNEY

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WITNESS  
*K. S. Barrett*

INVENTOR.  
*Robert Miehle*  
 By *L. L. Cragg*  
 ATTORNEY

# UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS.

BLOTTING OR OFFSETTING MECHANISM FOR PRINTING-PRESSES.

1,240,996.

Specification of Letters Patent. Patented Sept. 25, 1917.

Application filed November 27, 1916. Serial No. 133,762.

*To all whom it may concern:*

Be it known that I, ROBERT MIEHLE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Blotting or Offsetting Mechanism for Printing Presses, of which the following is a full, clear, concise, and exact description.

My invention relates to printing presses and, in one of its embodiments, particularly to those printing presses employing two printing cylinders which cause the printing to be effected upon both sides of each sheet of paper passing through the press and in which the side of paper that is first printed upon is brought into contact, while still wet, with the tympan surface of the second printing cylinder to print offsets thereon.

In practising my invention in connection with such a press I employ improved means for removing some only of the ink that is offset from the printed sheet onto the tympan surface of the second printing cylinder, this mechanism residing in a blotting element, preferably a blotting cylinder, operating in conjunction with a blotting sheet interposed between the blotting cylinder and the second printing cylinder, the blotting cylinder having raised portions which cooperate with the blotting sheet to remove some of the offset printing and recesses corresponding with other parts of the offset printing to allow such other parts of the offset printing to remain. I also have recesses in the blotting cylinder corresponding to blank spaces (other than the regular margins) that are left in printing on one side of a sheet and which are backed up by printing due to the second cylinder on the other side of the sheet. The blotting element or cylinder presses the blotting sheet between the printing cylinder and the raised portions of the blotting cylinder to transfer the ink to the blotting sheet from the portion of the wet printing that corresponds to the raised portions of the blotting cylinder.

I also have employed my invention in connection with multicolor printing presses whereby some of the ink upon portions of the printed sheets may be removed while other portions are allowed to remain. In my Patent No. 693,044, dated February 11, 1902, I have disclosed a blotting cylinder with raised and recessed portions respectively corresponding to ink portions that

are to be removed and are to remain. The raised portions of the blotting cylinder are made of rubber or printers' roller composition in order that they may first take up the ink and the ink taken up thereby may be removed therefrom, but it has been found in practice that the raised portions of the blotting cylinder have not sufficient affinity and absorptive quality to take off enough of the ink. It has also been noticed that the ink which is taken up by the raised portions of the blotting cylinder is not adapted to be fully removed by the ink removing mechanism operating in conjunction therewith. For these two reasons I do not allow the raised portions of the blotting cylinder to come in direct contact with the ink that is to be removed but rather interpose the blotting sheet which is preferably muslin and is of such nature that it will readily take up the desired quantity of ink and will readily absorb the oil and varnish, constituents of the ink. By giving this sheet sufficiently extended travel the ink will be dried thereupon.

I will describe my invention in sufficient detail in connection with both of these uses of the invention, but to which uses the invention is not to be limited, further description of the invention being given in connection with the accompanying drawings showing preferred embodiments thereof. In the drawings Figure 1 is indicative of a two cylinder printing press taken on line 1—1 of Fig. 2, parts being broken away, some of this figure being somewhat diagrammatic; Fig. 2 is a view on line 2—2 of Fig. 1; Fig. 3 illustrates the application of the invention to a color press; Fig. 4 illustrates one end of a sheet of rubber that may be drawn around the blotting cylinder after it is built up with its raised portions; Fig. 5 is an end view of the blotting cylinder with the rubber sheet stretched about the raised portions thereof; and Fig. 6 is a detail end view of the rubber sheet.

Like parts are indicated by similar characters of reference throughout the different figures.

Referring first to the embodiment of the invention illustrated in Figs. 1 and 2. I have illustrated a printing cylinder 1 that cooperates with one of the forms upon a reciprocating form bed and a printing cylinder 2 that cooperates with another form upon said reciprocating bed. The printing

cylinder 1 causes one side of each sheet of paper passing thereover to be printed upon, one such sheet of paper being indicated at 3. The sheet of paper 3 is taken by the grippers 4 upon the other printing cylinder 2, this latter printing cylinder causing the other side of this sheet to be printed upon. Thus by the cooperation of both printing cylinders 1 and 2 with forms individual thereto that are upon the same form bed, both sides of each sheet of paper fed to the press are printed upon as is well known by those skilled in the art. The sheets of paper that have been thus printed upon are delivered from the press by the usual or suitable delivery mechanism of which the delivery cylinder 5 is diagrammatically indicated in a position somewhat different from normal position owing to lack of space for proper illustration. The cylinder 2 is the final cylinder that operates upon the paper passing through the press, the wet side of the paper that passes from the cylinder 1 pressing against the tympan surface of the cylinder 2, the ink from this wet side of the paper being offset upon this tympan surface as indicated at 6, 7, 8 and 9 in Fig. 2. Where the offset printing is solid black or nearly so there is usually no objection to having it remain upon the tympan surface of the printing cylinder 2, but where the offset printing is of lighter tone it is desirable to remove it. To effect this result I employ a blotting cylinder 10 surrounded by canvas 11 and upon which canvas there are raised portions 12 projecting from the blotting cylinder 10, these raised portions being of similar configuration to the offset printing upon the tympan surface of the printing cylinder 2 that is to be removed. Recesses upon the blotting cylinder correspond to the offset printing that is not to be removed. The diameter of the blotting cylinder is such that the raised portions 12 thereupon may be equal in extent to the portion of the printing cylinder 2 that effects the printing. The printing cylinder 2, in the embodiment of the invention illustrated, rotates once while the blotting cylinder rotates twice, these two cylinders being in gear connection as illustrated at 13. As illustrated, one revolution of the blotting cylinder 10 is effective and the second is ineffective as it then operates over the non-printing area of the cylinder 2. In accordance with my invention I pass a blotting sheet 14 between the blotting cylinder and the printing cylinder 2, there being means for maintaining this blotting sheet in such a position with the blotting cylinder that the blotting sheet will lie closer to the blotting cylinder where there are no raised portions 12. By this construction the raised portions 12 will press the blotting sheet with required force against the offset print

ing, that is to be removed, upon the tympan surface of the printing cylinder 2 and into crevices and indentations therein, the blotting sheet being removed from contact with the remainder of the offset printing or having such slight contact therewith as practically not to effect any removal thereof. The blotting sheet which I preferably employ is muslin and this sheet of muslin is desirably endless. It is caused to travel in synchronism with the blotting cylinder so as not to slip upon the raised portions 12. Any suitable mechanism may be employed for effecting the travel of the blotting sheet. The mechanism illustrated includes a driving sprocket gear 15 that drives an endless sprocket chain 16 operating over sprocket pinions 17, 18, the gear 15 being at the apex of an inverted triangular frame 19 while the pinions 17 and 18 are at the corners of the top of such frame. There is a sufficient opening 20 in this frame to permit a pressman to have access to the blotting roller 10. The pinions 17 and 18 are in rigid relation to slightly crowned sheet driving rollers 21, 22. The blotting cylinder 10 and the cylinders 21 and 22 have tractive engagement with the muslin to effect the endless travel thereof normally in clockwise direction, and to increase this tractive engagement and also to increase the length of the muslin sheet within the space in which it travels I provide a sinuous path for the stretch thereof that intervenes between the rollers 21 and 22. This sinuous path is defined by slightly crowned idler rollers 23 received in shallow sockets in the upper sides of the frame 19 and other idler rollers 24 in deep sockets in this top side of the frame 19. All of the idler rollers 24 except the one at the left hand end are held in the bottom of their sockets by means of the displaceable holding bar 24'. Sufficient space intervenes between adjacent rollers 21 and 23, adjacent rollers 22 and 23, and between adjacent rollers 23, to permit of the removal and replacement of the rollers 24 for the purpose of repair of the rollers 24 or the muslin sheet 14. The length of the sheet 14 is such that the left hand idler roller 24 does not reach the bottom of its socket and is therefore normally floating to be able to maintain the sheet sufficiently taut by taking up the slack therein. When the sheet contracts or expands as it may do under the influence of weather, the sheet also expanding under usage, I provide means whereby the roller 23 at the center of the top side of the frame 19 may be raised or lowered. To this end the sockets 25 for the shaft of the middle roller 23 are vertically adjustable, these sockets having slotted downward continuations 26 which, together with the sockets 25, may be moved up and down. When the socket 25 has been adjusted to a position in

which the middle roller 23 will so adjust the sheet 14 as to suspend the left hand roller 24 between the ends of its socket, the adjustment is maintained by tightening the bolts 27 that pass through the socket continuations 26. All of the rollers 24 are desirably covered with soft absorbent material to distribute ink upon the sheet 14 and to take off some of such ink, these rollers engaging the side of the sheet 14 that takes the printing ink from the tympan surface of the cylinder 2. A roller 28 similarly covered with soft absorbent material may ride in the sockets 25 and may turn upon the bight in the sheet 14 formed by the middle roller 23 whereby the ink upon the sheet 14 is further distributed and removed.

To take up the kinks and wrinkles in the sheet 14 I make use of a spreading bar 29 having two sets of slots 30, 31 opposed to each other.

As is shown, the printing cylinders rise and fall and I therefore maintain the centers of the blotting cylinder 10 and the printing cylinder 2 in fixed relation through the intermediation of the frame 32 and in order to lighten the load upon the support for the printing cylinder 2 I make the blotting cylinder 10 of light construction, it being preferably built up of wooden segments 10<sup>1</sup> that are carried upon light wheels 10<sup>2</sup>. Whenever the cylinder 2 and the blotting wheel 10 rise slack occurs in the sheet 14. This slack is taken up in part by a take-up device 33 in the nature of a spring structure that performs its function through the intermediation of the spreading bar 29 that engages the sheet 14, the spring structure 33 pressing the spreading bar against the sheet. The roller 21 which is the first to pull upon the sheet is of slightly larger diameter than the remaining rollers 22, 23, 24 so that it will take up the slack on the left hand side. Springs 32<sup>1</sup> take part in supporting the blotting roller.

In printing upon both sides of a sheet it frequently happens that the first printing cylinder will leave black spaces (other than the regular margins) which are backed up by printing due to the second cylinder on the other side of the sheet and I therefore leave recesses in the blotting cylinder to correspond with such blank spaces to positively avoid offsetting from the blotting sheet onto such blank spaces.

In Fig. 3 I have shown the application of my invention to a color press of the type illustrated in my Patent 1,081,320, dated December 16, 1913, this figure showing a press adapted to printing in two colors upon the same side of a sheet, though my invention is applicable to presses capable of printing more than two colors upon the same side of the sheet. In Fig. 3 I have illustrated a printing cylinder 34 which co-

operates with a form to print one color upon one side of a sheet of paper or selected portions of said side, the transfer cylinder 35 operating to transfer the paper conveyed by the printing cylinder 34 to a second printing cylinder 36 with the wet side of the sheet outward. The cylinder 36 cooperates with another form to print another color upon this wet side of the sheet whereafter the sheet is passed to the delivery mechanism (not shown) if the press is a two color press. If the press is designed to print more than two colors the sheet is transferred to a third printing cylinder by means of another transfer cylinder similar to the cylinder 35, etc. My invention is not only applicable to this type of color press but is also applicable to other types as will be readily understood by those skilled in the art. It is frequently desirable to remove some of the ink from the printed surface particularly from those areas where the succeeding printing cylinder is to print another color or where ink is to be removed to make it of lighter tone or to have the effect of water color tint. In this way preparation is made for the taking of the succeeding color upon area already in receipt of a preceding color whereby the succeeding color will "take" better. In other words, the resistance offered by the preceding color to the taking of the succeeding color is reduced by making the ink of the preceding color as dry as possible and removing surplus portions thereof before the ink of the succeeding color is superimposed upon ink of the preceding color.

In Fig. 3 I have illustrated the blotting cylinder and a part of the blotting sheet shown in Figs. 1 and 2 and like parts are given similar characters of reference.

This blotting cylinder, however, operates in conjunction with the first printing cylinder 34 instead of in conjunction with the second printing cylinder and has an eccentric bearing 37 by means of which the blotting cylinder may be moved toward and from the printing cylinder 34. An arm 38 extends from this eccentric and has attached thereto an operating link 39. When the link 39 is pulled down into the position illustrated, the blotting cylinder is lowered into working position. When a blank sheet passes by the blotting cylinder on the first revolution of the cylinder 34 the link 39 is elevated to elevate the blotting cylinder to nonoperation position and permit the blank sheet to pass the blotting cylinder without coming into contact with the blotting cylinder but on the second revolution of the printing cylinder the aforesaid sheet, which was the blank sheet, is now printed upon and the selected parts thereof are engaged by the blotting sheet 14, the blotting cylinder being again lowered to working position.

tion, to remove the excess ink and dry the same as much as possible. The printed sheet upon the cylinder 34 thus operated upon by the blotting sheet is now transferred to the printing cylinder 36 where the printed side thereof undergoes a second printing operation.

While I have illustrated cylinders of printing presses as the elements of such presses which carry the printing that is to be blotted by the mechanism of my invention. I do not wish to be limited to the shape or manner of operation of such printing press element as my invention contemplates the employment of raised portions of a blotting element or cylinder to register with the selected portions of printing borne by any suitable element of the printing press in conjunction with a blotting sheet between the blotting cylinder and the printing, a part of which is to be removed.

In Figs. 4, 5 and 6 I have shown a modification of the blotting rollers that are illustrated in Figs. 1, 2 and 3. In the modified roller one of the wooden segments 10<sup>1</sup> is vided with a groove 40 along whose opposite sides are distributed pins 41, 41<sup>1</sup>. A rubber sheet 42 has its ends bound by a canvas border 43. Eyelets 44 are passed through the ends of the roller sheet and the canvas binding 43 thereof, the pins 41 being received in the first row of eyelets 44. After the blotting cylinder has been built up with the raised portions 12 (that may be termed an overlay prepared and located with a printed sheet in the manner of preparing overlays upon impression cylinders) the rubber sheet 42 is anchored at one end below a row of pins 41 and is passed about the blotting cylinder and the raised portions 12 thereon, whereafter the other end of the rubber sheet is passed into engagement with the other row of pins 41<sup>1</sup>. The pins 41<sup>1</sup> are desirably mounted upon the rod 41<sup>2</sup> which may be turned to draw the sheet 42 and which may be held by a pawl 41<sup>3</sup>. A metal strip 45 is desirably attached to each end of the rubber sheet by the eyelets 44, the outer edges of these strips being turned over as indicated at 45<sup>1</sup> to enable the strip to be engaged by a tool such as a screw driver in attaching and detaching the rubber sheet.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. The combination with a printing press element for supporting printing; of a blotting element that is raised corresponding to a portion of the printing that is borne by

said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting element to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; and a blotting sheet interposed between the raised and recessed portions of the blotting element and the aforesaid printing press element.

2. The combination with a printing press element for supporting printing; of a blotting element that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting element to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; a blotting sheet interposed between the raised and recessed portions of the blotting element and the aforesaid printing press element; and means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting element.

3. The combination with a printing press cylinder for supporting printing; of a blotting element that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting element to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; and a blotting sheet interposed between the raised and recessed portions of the blotting element and the aforesaid printing press cylinder.

4. The combination with a printing press cylinder for supporting printing; of a blotting element that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting element to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; a blotting sheet interposed between the raised and recessed portions of the blotting element and the aforesaid printing press cylinder; and means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portion of the blotting element.

5. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blot-

ting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; and a blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element.

6. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; a blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; and means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder.

7. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; and a blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder.

8. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; a blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; and means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portion of the blotting cylinder.

9. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portion thereof to register with the

printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; and means for effecting the travel of such sheet.

10. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portion of the blotting cylinder; and means for effecting the travel of such sheet.

11. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and means for taking up the slack in the sheet upon each side of the blotting cylinder.

12. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portions of the blotting cylinder; means for

effecting the travel of such sheet; and means for taking up the slack in the sheet upon each side of the blotting cylinder.

13. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel.

14. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel.

15. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; means for taking up the slack in the sheet upon each side of the blotting cylinder; and two sets

of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel.

16. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portions of the blotting cylinder; means for effecting the travel of such sheet; means for taking up the slack in the sheet upon each side of the blotting cylinder; and two sets of rollers engaging a portion of the blotting sheet there, to give the blotting sheet a sinuous path of travel.

17. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, rollers engaging the ink receiving side of said sheet having their sheet engaging portions made of ink taking material.

18. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid

printing press cylinder and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, rollers engaging the ink receiving side of said sheet having their sheet engaging portions made of ink taking material.

19. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; means for taking up the slack in the sheet upon each side of the blotting cylinder; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, rollers engaging their sheet engaging portions made of ink taking material.

20. The combination with a printing press cylinder for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press cylinder and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press cylinder; means for passing such sheet between and in contact with the aforesaid printing press cylinder and the raised portions of the blotting cylinder; means for effecting the travel of such sheet; means for taking up the slack in the sheet upon each side of the blotting cylinder; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, rollers engaging their sheet engaging portions made of ink taking material.

21. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne

by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and means for taking up slack in the sheet.

22. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, one of the rollers in one of these sets floating to take up slack in the blotting sheet.

23. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding to a portion of the printing that is borne by said printing press element and is recessed corresponding to another portion of the printing; mechanism for operating the blotting cylinder to cause the raised and recessed portions thereof to register with the printing portions to which they correspond; an endless blotting sheet interposed between the raised and recessed portions of the blotting cylinder and the aforesaid printing press element; means for passing such sheet between and in contact with the aforesaid printing press element and the raised portion of the blotting cylinder; means for effecting the travel of such sheet that are inclusive of two sheet driving rollers; and two sets of rollers engaging a portion of the blotting sheet there to give the blotting sheet a sinuous path of travel, these two sets of rollers being located between these sheet driving rollers.

24. The combination with a printing press element for supporting printing; of a blotting cylinder that is raised corresponding

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 by said printing press element and is re-  
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fecting the travel of such sheet that are 15  
 inclusive of two sheet driving rollers; and  
 two sets of rollers engaging a portion of  
 the blotting sheet there to give the blotting  
 sheet a sinuous path of travel, these two sets 20  
 of rollers being located between these sheet  
 driving rollers, the sheet driving roller  
 which first pulls upon the sheet being of  
 larger diameter than the other sheet driving  
 roller.

In witness whereof, I hereunto subscribe 25  
 my name this 22nd day of November A. D.,  
 1916.

ROBERT MIEHLE.