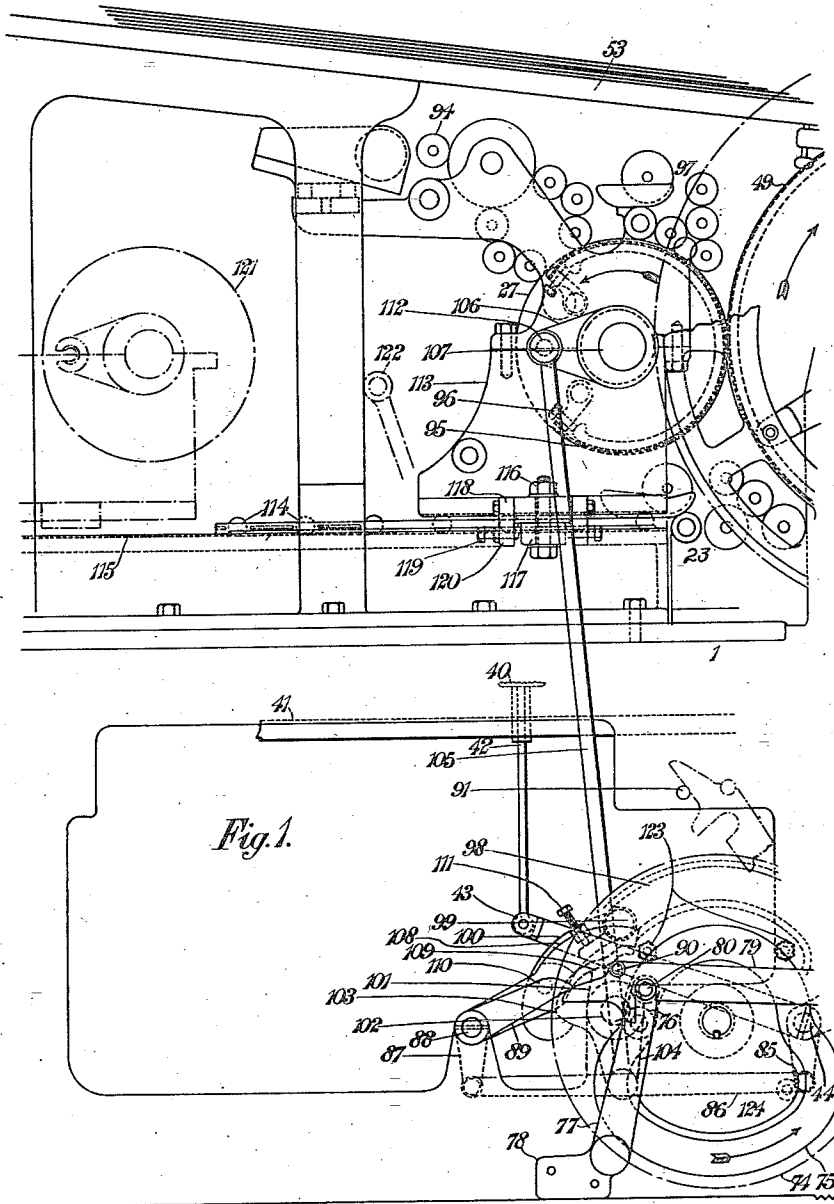


T. R. G. PARKER.
PRINTING PRESS.
APPLICATION FILED DEC. 26, 1911.

1,127,672.

Patented Feb. 9, 1915.

3 SHEETS—SHEET 1.



Witnesses
L. F. Amison
J. J. Dolan

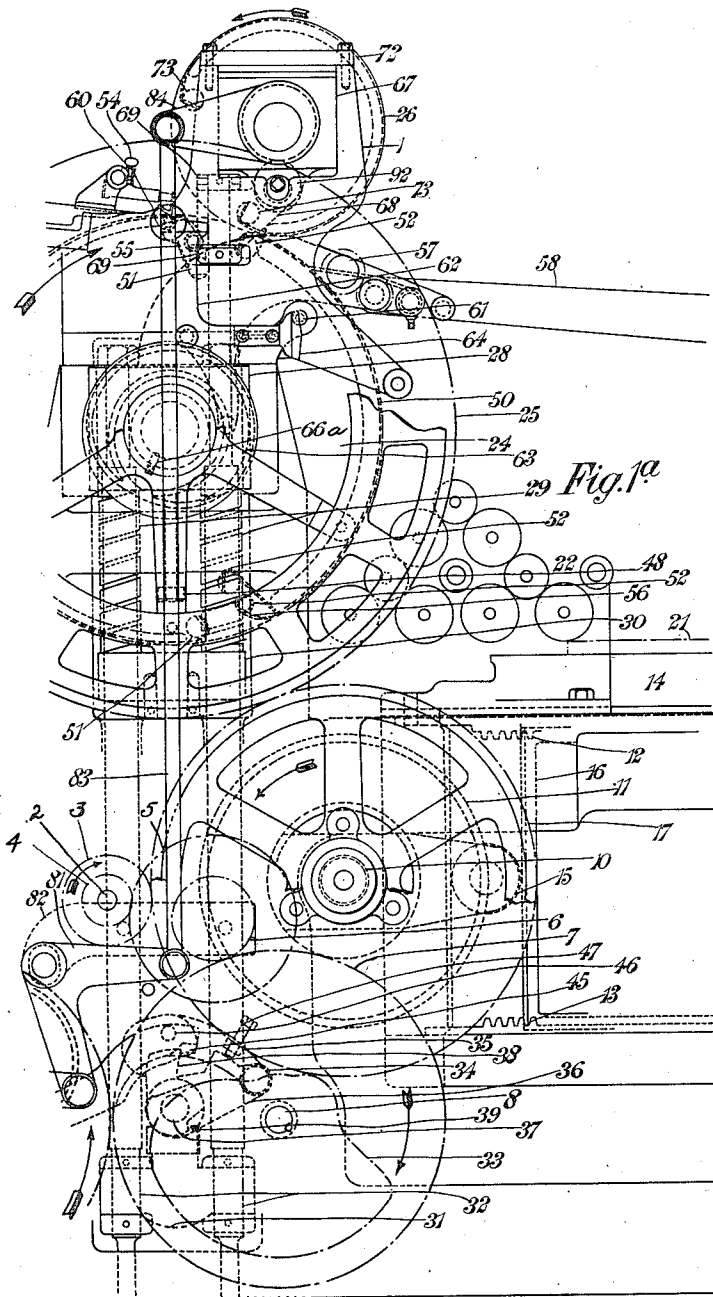
Inventor
Thomas R. G. Parker
per
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3 SHEETS—SHEET 2.



Witnesses
 L. E. Morrison
 per J. Dolan

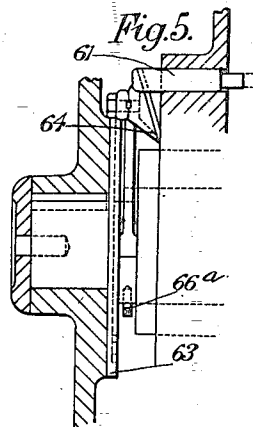
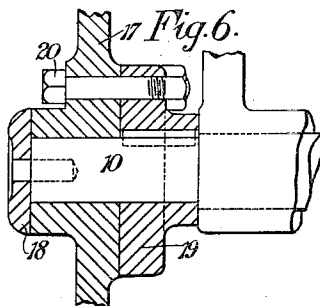
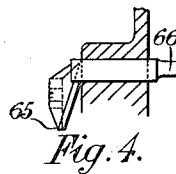
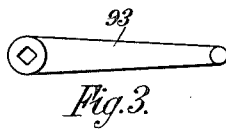
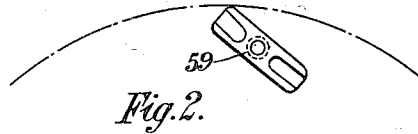
Inventor
 Thomas R. G. Parker
 per
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3 SHEETS—SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS ROBERT GILLETT PARKER, OF BROADHEATH, ENGLAND, ASSIGNOR TO
LINOTYPE AND MACHINERY LIMITED, OF LONDON, ENGLAND.

PRINTING-PRESS.

1,127,672.

Specification of Letters Patent.

Patented Feb. 9, 1915.

Application filed December 26, 1911. Serial No. 667,867.

To all whom it may concern:

Be it known that I, THOMAS ROBERT GILLET PARKER, a subject of the King of the United Kingdom of Great Britain and Ireland, and residing at Linotype and Machinery Works, Broadheath, in the county of Chester, England, have invented new and useful Improvements in Printing-Presses, of which the following is a specification.

The subject of the present invention is a two revolution printing press characterized by a capacity for being either (1) a reciprocating flat bed press for single color direct (as distinguished from transfer) typographic printing, (2) a reciprocating flat bed press for single color direct planographic printing, (3) a rotary press for single color direct planographic printing, (4) a rotary press for single color direct typographic printing, (5) a reciprocating flat bed press for single color planographic offset printing, (6) a reciprocating flat bed press for single color typographic offset printing, (7) a reciprocating flat bed press for two color direct planographic printing, (8) a reciprocating flat bed press for two color direct typographic printing, (9) a reciprocating flat bed press for two color direct planographic and typographic printing, (10) a rotary and flat bed planographic press for printing the first color direct and a second one by the offset process, (11) a rotary and flat bed perfecting planographic offset press, (12) a rotary and flat bed perfecting typographic offset press, or (13) a rotary and flat bed perfecting combined planographic and typographic offset press.

The improved press comprises all the organs necessary to all the thirteen capacities just enumerated and means by which the organs not necessary to the one desired capacity, are held, or can be put, out of action; and those necessary thereto are held, or can be put into action.

The term typographic is to be understood as including forms of separate type, forms of linotypes commonly known as slugs, and stereotype and other printing plates, and the term planographic as including lithographic stones of a suitable thickness and sheets or forms of any metal such as zinc or aluminium which can replace lithographic stones. At the same time, all the type

graphic or planographic printing surfaces referred to in this specification are of the respectively well known kinds, their construction being no part of the present invention.

The accompanying drawings illustrate a preferred constructional form of the improved press. In them Figures 1 and 1^a together form a side elevation showing all the organs necessary to the thirteen capacities enumerated above. Fig. 2 is a side elevation of the sheet-gripper tumbler; Fig. 3, a side elevation of a winch handle for turning the adjusting eccentrics of a certain cylinder; Fig. 4, a sectional detail of a gripper opener; Fig. 5, a sectional detail of a substitute gripper opener; and Fig. 6 a sectional detail of the connection between a certain gear wheel and the shaft of the flat bed motion.

I will describe first, the organs of the improved press and their mutual relationship; secondly, the means by which it is adapted for each of the thirteen press capacities; and then proceed to define by the claims, the several features of the invention.

1. The organs and their mutual relationship.

1 is one of the side frames; 2, the first motion shaft; 3, a gear fast on it and meshing with the gear 17; 4, a gear fast on the shaft 2 and meshing with a second gear 5 axially fast to a gear 6 meshing with a gear 7 fast on shaft 8; 11, a gear fast on the shaft 10 to mesh alternately in the well known manner with the top and bottom racks 12 and 13, of the flat bed 14; 15, the usual bed-reverser engaging as heretofore in a yoke 16 at each end of the rack frame; 17, a gear normally loose on the shaft 10 between an end plate 18 and a disk 19 fast on the said shaft; and 20, 20 detachable bolts normally holding the gear 17 to the shaft 10 by being passed through both gear and disk 19.

21, is a flat printing surface upon the bed 14. It is either typographic or planographic according to the press-capacity called for. Whichever it is, it must always be of the proper height so as to print the cooperating sheet or blanket on the cylinder 24 described farther on; 22, the usual mechanism for inking the surface 21 whenever it is used and 23, the usual mechanism for damping it.

when it is a planographic surface. When it is a typographic one, the damping mechanism 23 is put out of action by the removal of its rollers. The inking slab (not shown for want of space) occupies the usual position at the right hand (looking at Fig. 1^a) of the bed 14.

24, is a cylinder driven by the gear 17 through a gear 25 axially fast to the former. 25 is a second cylinder and 27, a third one. The two cylinders 26, 27, have practically a common diameter which is half that of the cylinder 24 and a common rate of rotation considered peripherally. These three cylinders are geared together; the cylinder 24 being driven by the gear 17 or by another of the same size. When the said gear 17 is loose on the shaft 10, it, by reason of its meshing with the gear combined with the pulley 3, serves as an intermediate gear to transmit the driving effort from the shaft 2 to the said three cylinders.

28 is one of the bearings of the cylinder 24 both bearings having a rise and drop in the side frames 1 to provide for the said cylinder being tripped and untripped with respect to the printing surface 21.

29, 29 are springs resilient between a ledge 30 on the respective side frame 1 and the bottom face of the respective bearing 28, and therefore, when they are free to do so automatically holding the cylinder 24 tripped *i. e.*, out of printing coöperation with the form 21.

31 is a block fast to the bottom ends of two rods 32 fast by their top ends to the respective bearing 28.

33 is a cam groove axially fast to the gear 7 and embracing and rocking the projecting end of the pin 34, which pivotally connects a hook 35 to the outer end of an arm 36 mounted on a suitably supported shaft 37. The weight of the hook 35 tends to keep it in engagement with a second arm 38 likewise fast on the shaft 37 and having incorporated with it, an eccentric 39 capable of depressing the block 31 to untrip the cylinder 24, *i. e.*, to put it in printing coöperation with the surface 21, and of disengaging from the said block to allow the springs 29 to trip the said cylinder. The hook 35 and its coöperating organs constitute a well known combination.

40 is a foot pedal standing up above the feeder's foot-board 41, its rod 42 pivotally connected to one end of a lever 43 fulcrumed on a side frame 1 at 44 and having a cam shaped ledge 45 at its opposite end adapted to engage, when the pedal 40 is depressed, with a roller 46 on the hook 35 to disengage the latter from the arm 38 and to hold it disengaged therefrom as long as the cylinder 24 is to remain tripped.

47 is a set-screw working downward through the hook 35 between its pivot and

its operative end and bearing against a face on the arm 36 so that screwing the screw 47 down through the said hook shall, by rocking it away from the arm 38, disconnect the cylinder 24 from the eccentric 39.

48 is a set screw working upward through each side frame 1 against the bottom face of the respective block 28 to hold the cylinder 24 tripped. It is not considered that the combination of the above described organs 28 to 48 inclusive is new.

The cylinder 24 has two operative surfaces, 49 and 50, each of which is an impression surface or an offset surface according to the press capacity called for.

51, 51, are the two reel rods for the blanket to make the surface 49 an offset one; and 52, 52, are the like for the blanket to make the surface 50 an offset one.

The paper to be printed is fed in sheet form only.

53 is the feed board; 54, the sheet guide; 55, the gripper for the surface 49; 56, that for the surface 50; 57, the stripper; and 58, the delivery tapes.

59 is the tumbler for operating the grippers; 60, its closing pin; 61, its opening pin; 62, the gripper pin lever; and 63, the cam axially fast to the shaft of the cylinder 24 for operating that lever.

64 is the lower blade of the lever 62; 65, (Fig. 4) a substitute lower blade; and 66, a substitute opening pin, both to be substituted for the organs 64 and 61 respectively for the purpose of making the closing pin 60 and the opening pin 61 act together.

66^a, is a set screw to provide for a change in the angular position of the cam 63.

Turning now to the cylinder 26, it is held in rigid connection with the cylinder 24 so as to rise and drop with it, by its bearing boxes 67 capable of a vertical motion in the side frames 1, by reason of their being operatively fast upon brackets 68 fast to the adjacent rods 32. These brackets are vertically adjustable upon the said rods by nuts 69, 69, above and below them, to adjust the cylinder 26 in printing contact with the cylinder 24. The cylinder 26 has only one operative surface, which is an offset one 72; and 73, 73, are the usual reel rods for the respective blanket. It coöperates only with the cylinder 24 and is tripped and untripped with respect thereto, from the gear 7 through an equal gear 74 with which it engages; a cam groove 75 axially fast to the gear 74 and embracing a roller 76 on an arm 77 rocking on a bracket 78 on one of the side frames; a trip hook 79 engaging a stud 80 on the top end of the arm 77; a bell crank lever 81 fulcrumed on a bracket 82 fast on the rods 32 and having one arm pivotally connected to the adjacent end of the trip hook 79 and the other to the bottom end of a rod 83 the top end of which is con-

connected to the arm 84 of the eccentric bearings of the said cylinder 26. There is a connection between the trip hook 79 and the pedal 40 by which the depression of the latter can trip both cylinders 24 and 26. It consists of an arm 85 fast on a shaft 44, a link 86 from it to an arm 87 fast on a stud 88 turning in the adjacent side frame and carrying a cam 89 which will, by the engagement of a roller 90 on the hook 79 with it the next time the arm 77 is rocked to the left, disengage the said hook from the last mentioned arm when the cylinder 26 is tripped. Means are provided for rendering the tripping and untripping mechanism just described, inoperative. These consist of rocking the trip hook 79 upward by hand clear of both the arm 77 and the cam 89 and resting it on a fixed stud 91, and further, of an eccentric 92 turning in each bracket 68 and in operative contact with the respective box 67, both eccentrics to be turned together by a winch handle 93 in the right direction to put and hold the cylinder 26 out of printing contact with the cylinder 24.

Turning now to the cylinder 27, it has only one operative surface which is planographic or typographic according to the press capacity called for. 94 is the usual inking mechanism. The cylinder is shown as dressed with a planographic sheet 95 held to it by clamping screws 96. 97 is the usual damping mechanism to cooperate with the said surface when it is planographic. It is put out of action by removing its rollers. The cylinder 27 cooperates only with the cylinder 24 and is tripped and untripped with reference to it by a cam groove 98 axially fast to the gear 74 already described, and embracing and rocking the projecting end of the pin 99 which pivotally connects a hook 100 to the outer end of an arm 101 mounted on a shaft 102. The weight of the hook 100 tends to keep it in engagement with one arm 103 of a bell crank lever likewise mounted on the shaft 102 and having its opposite arm 104 pivotally connected to the bottom end of a connecting rod 105 the top end of which is pivotally connected to the outer end of an arm 106 of the eccentric bearing 107 of the said cylinder 27. The tripping effect of a depression of the pedal 40 described with reference to the cylinder 24, is brought to bear upon cylinder 27, and in a substantially similar way, by an arm 108 fast on the previously mentioned stud 88 and having a cam shaped ledge 109 adapted to engage, when the pedal 40 is depressed, with a roller 110 on the hook 100 to disengage the latter from the arm 103.

111 is a set screw working downward through the hook 100 between its pivot and its operative end and bearing against a face on the arm 101 so that screwing the screw 111 down through the said hook shall, by

rocking it away from the arm 101, disconnect the cylinder 27 from the cam groove 99.

The whole of the mechanism appertaining to the cylinder 27 may be rendered inoperative. For this purpose the pivot pin 112 connecting the rod 105 to the arm 106 is removable. The cylinder itself is mounted in a frame 113 supported on the rollers 114 of a track 115 on the frame 1 and the cylinder frame 113 is held to the frame 1 by locking bolts 116 passed through lugs 117 on the latter and lugs 118 on the frame 113, which bolts are also removable.

119, 119, are set screws working in the direction of the motion of the frame 113 along the track 115 through lugs 120 against opposite sides of the lugs 117 for the purpose of accurately adjusting the touch of the cylinder 27 upon the cylinder 24, and these lugs 120 are pivoted upon the lugs 118 so that they can be rocked up to clear the lugs 117 when the frame 113 is to be moved back along the track 115 to render the said mechanism inoperative—say as far as position 121—or returned therefrom; 122, indicates the inoperative position of the disconnected rod 105. Although the cam groove 98 is necessarily axially fast to the gear 74 when they are working, it is adjustable about their common axis upon the said gear by bolts 123.

II. Adaptation of the press to each of its thirteen capacities.

Capacity 1—A reciprocating flat bed press for direct (as distinguished from transfer) typographic printing.—The form 21 must be a typographic one, and the damping mechanism 23 as well as the cylinders 26 and 27 together with their respective mechanisms, be put out of action. This leaves the form 21 on the bed 14 and the cylinder 24 as constituting the printing couple. A sheet is fed down the board 53 up to the guides 54 where it meets the leading edge of the impression surface 49 and is gripped by the grippers 55. The closing pin 60 is brought into operation with the tumbler 59 during the first revolution of the cylinder 24, the opening pin 62 being then inoperative. During the second revolution, the operations just described are reversed, and the printed sheet passes over the strippers 57 to the delivery 58.

Capacity 2—A reciprocating flat bed press for single color direct planographic printing.—The form 21 must be a planographic one, the damping mechanism 23 and grippers 55 be put into action, and the cylinders 26 and 27 with their respective mechanisms, be put out of action. This form 21 and the cylinder 24 constitute the printing couple. The acts of feeding, gripping, printing stripping and delivering are as described above under Capacity 1.

Capacity 3—A rotary press for single color direct planographic printing.—The bed 14 is put out of action by withdrawing the bolts 20; the cylinder 24 disconnected from the shaft 8 by making the screw 47 rock the hook 35 away from the arm 38 when it is tripped and locked in that position by the screw 48; and the cylinder 26 put out of action. The cylinder 27 is dressed with a planographic sheet 95 which, damped by damping mechanism 97 and inked by inking mechanism 94, prints on a sheet fed to and held on the impression surface 49 of the cylinder 24 by the grippers 55. These latter are worked and the sheet delivered in the way and by the means described with reference to Capacity 1.

Capacity 4—A rotary press for single color direct typographic printing.—The bed 14 is put out of action by withdrawing the bolts 20; the cylinder 24 disconnected from the shaft 8 by making the screw 47 rock the hook 35 away from the arm 38 when it is tripped and locking it in position by the screw 48; and the cylinder 26 as well as the damper 97 put out of action. The cylinder 27 is dressed with a typographic surface such as a curved stereotype plate and put into action. It is inked by the inking mechanism 94 and prints on a sheet fed to and held on the impression surface 49 of the cylinder 24 by the grippers 55. These latter are worked and the sheet delivered in the way and by the means described with reference to Capacity 1.

Capacity 5—A reciprocating flat bed press for single color planographic offset printing.—The bed 14 is equipped with a printing surface 21 which is planographic and which is damped by the damping mechanism 23 and inked by the inking mechanism 22; and the gear 17 made fast to the shaft 10. The surface 49 is dressed with an offset blanket and the gripper tumbler 59 adjusted to operate the gripper 56. The lower blade 64 of the gripper pin lever 62 and the opening pin 61 are taken off and respectively replaced by the blade 65 and pin 66 so that the closing pin 60 and opening pin 66 shall both move in or out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24. The latter is then connected to the shaft 8. The cylinder 26 has its operative surface 72 equipped with an offset blanket and is then connected to the gear 74. The cylinder 27 is put out of action. The action is as follows: During the first revolution of the cylinder 24, the planographic surface 21 makes an impression on the blanket on surface 49. At the commencement of the second revolution of the said cylinder, the said impression is transferred on to the blanket on the sur-

face 72 of the cylinder 26, and during the same revolution a sheet fed from the board 53 to the gripper 56 and surface 50 is printed by the blanket on the said surface 72, whereupon the gripper 56 opens, and the printed sheet is stripped off the cylinder 24 by the stripper 57 and delivered by the delivery 58.

Capacity 6—A reciprocating flat bed press for single color typographic offset printing.—The bed 14 is equipped with a printing surface 21 which is a typographic one to be inked by the inking mechanism 22; and the gear 17 made fast to the shaft 10. The damping mechanism 23 is put out of action. The surface 49 is equipped with an offset blanket and the gripper tumbler 59 adjusted to operate the gripper 56. The lower blade 64 of the gripper pin lever 62 and the opening pin 61 are taken off and respectively replaced by the blade 65 and pin 66 so that the closing pin 60 and opening pin 66 shall both move in and out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24. The latter is then connected to the shaft 8. The cylinder 26 has its operative surface equipped with an offset blanket and is then connected to the gear 74. The cylinder 27 is put out of action. The action is as follows: During the first revolution of the cylinder 24, the typographic surface 21 makes an impression on the blanket on surface 49. At the commencement of the second revolution of the said cylinder, the said impression is transferred on to the blanket on the surface 72 of the cylinder 26, and during the same revolution, a sheet fed from the board 53 to the gripper 56 and surface 50, is printed by the blanket on the said surface 72, whereupon the gripper 56 opens and the printed sheet is stripped off the cylinder 24 by the stripper 57 and delivered by the delivery 58.

Capacity 7—A reciprocating flat bed press for two-color direct planographic printing.—The bed 14 is connected to the shaft 10 and equipped with a planographic printing surface 21 for the first impression, which surface is damped by the damping mechanism 23 and inked by the inking mechanism 22. The cylinder 26 is disconnected from the lever 77, thereby putting it out of action and the cylinder 27 equipped with a planographic printing surface for the second impression and connected with the gear 74. The sheet to be printed is fed to the surface 49 on the cylinder 24 and seized by the gripper 55, the said surface acting only as an impression surface. The sheet takes the first impression during the first revolution of the cylinder 24 from the surface 21 and the second impression from the surface 95 immediately after the first one. During the sec-

ond revolution it is stripped from the surface 49 by the stripper 57 and delivered by the delivery 58.

Capacity 8—A reciprocating flat-bed press for two-color direct typographic printing.

The bed 14 is connected to the shaft 10 and equipped with a printing surface 21 (which is a typographic one) for the first color. This surface 21 is inked by the inking mechanism 22. The damping mechanism 23 is put out of action, the cylinder 26 disconnected from the lever 77, the cylinder 27 equipped with a curved stereotype plate to be inked by the inking mechanism 94, the damping mechanism 97 put out of action and the cylinder 27 connected with the gear 74. The sheet to be printed is fed to the surface 49 on the cylinder 24 and seized by the gripper 25, the said surface acting only as an impression one. The sheet takes the first color during the first revolution of the cylinder 24, and the second color immediately after the first one, each color directly from the respective printing surface. During the second revolution of the said cylinder 24 the sheet is stripped from the surface 49 by the stripper 57 and delivered by the delivery 58.

Capacity 9—A reciprocating flat-bed press for two-color direct planographic and typographic printing.—Of this capacity, there are two modifications (a) and (b).

(a) The bed 14 is connected to the shaft 10 and equipped with a printing surface 21 (which is a planographic one) for the first color. This surface is damped by the damping mechanism 23 and inked by the inking mechanism 22. The cylinder 26 is disconnected from the lever 77, the cylinder 27 equipped with a curved stereotype plate, instead of the planographic sheet 95, to be inked by the inking mechanism 94 with the second color, the damping mechanism 97 put out of action, and the cylinder 27 connected with the gear 74. The sheet to be printed is fed to the surface 49 on the cylinder 24 and seized by the gripper 25, the said surface acting only as an impression one. The sheet takes the first color from the flat planographic surface 21 during the first revolution of the cylinder 24, and the second color from the stereotype plate on cylinder 27 immediately after the first one, each color directly from the respective printing surface. During the second revolution of the said cylinder 24 the printed sheet is stripped from the surface 49 by its stripper 57 and delivered by the delivery 58.

(b) The printing surface 21 is for the first color and is a typographic one, the damping mechanism 23 being put out of action. The cylinder 27 is equipped with a planographic printing surface and the damping mechanism 97 put into action. The other arrangements of modification (a) are retained. The

sheet takes the first color from the flat typographic surface 21 during the first revolution of the cylinder 24, and the second color from the planographic printing surface on the cylinder 27 immediately after the first one, each color directly from the respective printing surface.

Capacity 10—A rotary and flat bed planographic press for printing the first color direct and a second one by the offset process.—The bed 14 is connected to the shaft 10 and equipped with a printing surface 21—a planographic one—to be damped by the damping mechanism 23 and inked by the inking mechanism 22 with the second color. The cylinder 24 is connected to the shaft 8 and its surface 49 equipped with an offset blanket. The cylinder 26 is connected to the gear 74 and equipped with an offset blanket 72. The cylinder 27 is likewise connected to the same gear and equipped with a planographic sheet 95 to be damped by the damping mechanism 97 and inked by the inking mechanism 94 with the first color. The sheet to be printed is fed from the feed-board 53 to the gripper 56 cooperating with the surface 50 of the cylinder 24 which surface thus acts only as an impression one. The tumbler 59 is adjusted to operate the gripper 56; the gripper cam 63 is set back half a turn for correct timing; and the cam race 98 is turned about its axis to the right (looking at Fig. 1) through a quarter of a circle so putting the right-hand bolt 123 in the position 124, to make the cylinder 27 cooperate with the cylinder 24 when the latter has made a revolution and a quarter. The cylinder 26 is put into printing cooperation with the cylinder 24 at the commencement of the second revolution of the latter. The action is as follows: During the first revolution of the cylinder 24, the surface 21 is damped and inked with the second color and the sheet to be printed is fed to the surface 50 from the feed-board 53. The said sheet receives the first color from the planographic surface 95 and the offset blanket 72 receives the impression from the offset blanket on the surface 49. The sheet then receives the second color from the blanket 72, whereupon the gripper pin 12 comes into operation, the gripper 56 opened, the sheet stripped from the surface 50 by the stripper 57 and delivered by the delivery 58.

Capacity 11—A rotary and flat bed perfecting planographic offset press.—The bed 14 is connected to the shaft 10 and equipped with a printing surface 21—a planographic one—to be damped by the damping mechanism 23 and inked by the inking mechanism 22. The cylinder 24 is connected to the shaft 8 and has each of its surfaces 49, 50, equipped with an offset blanket. The gripper tumbler 59 is adjusted

ed to operate the gripper 56, the lower blade 64 of the gripper pin lever 62 and the opening pin 61 taken off and respectively replaced by the blade 65 and the pin 66, so that the closing pin 60 and the opening pin 66 shall move in and out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24.

The cylinder 26 is connected with the gear 74 and equipped with an offset blanket 72. The cylinder 27 is likewise connected with the same gear 74 and equipped with a planographic plate 95 to be damped by the damping mechanism 97 and inked by the inking mechanism 94. The action is as follows. During the first revolution of the cylinder 24, the surface 21 is damped and inked and makes an impression on the blanket on surface 49, the plate 95 makes its impression on the blanket on surface 50, the blanket on surface 49 transfers its impression to the blanket 72, and the sheet to be perfected is fed from the board 53 to the gripper 56. During the second revolution, it is perfected between the blanket on the surface 50 and the blanket 72, gripper 56 opened by the pin 66, the perfected sheet stripped by the stripper 57, and delivered by the delivery 58.

Capacity 12—A rotary and flat bed perfecting typographic offset press.—The bed is connected to the shaft 10 and equipped with a printing surface 21,—a typographic one,—to be inked by the inking mechanism 22. The damping mechanism 23 is put out of action. The cylinder 24 is connected to the shaft 8 and has each of its surfaces 49, 50, equipped with an offset blanket. The gripper tumbler 59 is adjusted to operate the gripper 56, the lower blade 64 of the gripper pin lever 62 and the opening pin 61 taken off and respectively replaced by the blade 65 and the pin 66, so that the closing pin 60 and the opening pin 66 shall move in and out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24. The cylinder 26 is connected with the gear 74 and equipped with an offset blanket 72. The cylinder 27 is likewise connected with the same gear 74 but it is equipped with a curved stereotype plate and the damping mechanism 97 made inoperative. The action is as follows: During the first revolution of the cylinder 24, the surface 21 is inked and makes an impression on the blanket on surface 49, the stereotype plate on cylinder 27 makes its impression on the blanket on surface 50, the blanket on surface 49 transfers its impression to the blanket 72, and the sheet to be perfected is fed from the board 53 to the gripper 56. During the second revolution it is perfected between the blanket 72 and

that on surface 50, the gripper 56 opened by the pin 66, the perfected sheet stripped by the stripper 57, and delivered by the delivery 58.

Capacity 13—A rotary and flat bed perfecting combined planographic and typographic offset press.—Of this press capacity there are two modifications (a) and (b).

(a) The bed 14 is connected to the shaft 10 and equipped with a printing surface 21—a planographic one—to be damped by the damping mechanism 23 and inked by the inking mechanism 22. The cylinder 24 is connected to the shaft 8 and has each of its surfaces 49, 50, equipped with an offset blanket. The gripper tumbler 59 is adjusted to operate the gripper 56, the lower blade 64 of the gripper pin lever 62 and the opening pin 61 taken off and respectively replaced by the blade 65 and the pin 66, so that the closing pin 60 and the opening pin 66 shall move in and out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24. The cylinder 26 is connected with the gear 74 and equipped with an offset blanket 72. The cylinder 27 is likewise connected with the same gear 74 but it is equipped with a curved stereotype plate and the damping mechanism 97 made inoperative. The action is as follows: During the first revolution of the cylinder 24, the surface 21 is damped and inked and makes an impression on the blanket on surface 49, the stereotype plate on cylinder 27 makes its impression on the blanket on surface 50, the blanket on surface 49 transfers its impression to the blanket 72, and the sheet to be perfected is fed from the feedboard 53 to the gripper 56. During the second revolution it is perfected between the blanket 72 and that on the surface 50, the gripper 56 opened by the pin 66, the perfected sheet stripped by the stripper 57, and delivered by the delivery 58.

(b) The bed 14 is connected to the shaft 10 and equipped with a printing surface 21—a typographic one—to be inked by the inking mechanism 22. The damping mechanism 23 is put out of action. The cylinder 24 is connected to the shaft 8 and has each of its surfaces 49, 50, equipped with an offset blanket. The gripper tumbler 59 is adjusted to operate the gripper 56, the lower blade 64 of the gripper pin lever 62 and the opening pin 61 taken off and respectively replaced by the blade 65 and the pin 66 so that the closing pin 60 and the opening pin 66 shall move in and out together. The cam 63 is also set so that both the last mentioned pins shall operate the tumbler 59 on the second revolution of the cylinder 24. The cylinder 26 is connected with the gear 74 and equipped with an offset blanket 72. The cylinder 27 is likewise connected with the

same gear 74 but is equipped with a planographic plate 95 to be damped by the damping mechanism 97 and inked by the inking mechanism 94. The action is as follows:

5 During the first revolution of the cylinder 24, the surface 21 is inked and makes an impression on the blanket on surface 49, the plate 95 makes its impression on the blanket on surface 50, the blanket on surface 49 transfers its impression to the blanket 72, and the sheet to be perfected is fed from the feedboard 53 to the gripper 56. During the second revolution, it is perfected between the blanket 72 and that on the surface 50, the gripper 56 opened by the pin 66, and the perfected sheet stripped by the stripper 57 and delivered by the delivery 58.

Having described my invention I declare that what I claim and desire to secure by

20 Letters Patent is:—

1. In a printing press, the combination of impression cylinder, two segmental surfaces on such cylinder, sheet grippers and blanket stretching devices for each segmental surface, a plate cylinder and transfer cylinder, each capable of being moved into and out of printing relationship with the impression cylinder, and a flat bed capable of being reciprocated in, and thrown out of, printing relationship with the impression cylinder.

2. In a printing press, the combination of impression cylinder, two segmental surfaces on such cylinder, sheet grippers and blanket stretching devices for each segmental surface, a plate cylinder and transfer cylinder, each capable of being moved into and out of printing relationship with the impression cylinder, and a flat bed capable of being reciprocated in, and thrown out of, printing relationship with the impression cylinder, the plate cylinder and transfer cylinder being both of the same diameter which is one-half of that of the impression cylinder.

3. In a printing press, the combination of plate cylinder and transfer cylinder both of the same diameter, an impression cylinder of double that diameter, a flat bed capable of being reciprocated in, and thrown out of, printing relationship with the impression cylinder, and inking and damping devices for the printing surfaces carried by the plate cylinder and flat bed respectively, such devices being capable of being rendered operative and inoperative relatively to the respective printing surfaces.

4. A two-revolution printing press comprising a reciprocating flat bed mechanism adapted to receive and work with a planographic printing surface, a cooperating two-revolution impression cylinder adapted to receive an offset blanket and a cylinder of half the diameter of the said impression

cylinder with which it coöperates and adapted to receive an offset blanket, and also having more than four press-capacities any one of which, but only one, can be used at a time, one of the said capacities being for single color planographic offset printing. 65 76

5. A two-revolution printing press comprising a reciprocating flat bed mechanism equipped with a planographic printing surface, a coöperating two-revolution impression cylinder equipped with an offset blanket and a cylinder of half the diameter of the said impression cylinder with which it coöperates and likewise equipped with an offset blanket, and also having more than four press-capacities any one of which, but only one, can be used at a time, one of the said capacities being for single color planographic offset printing. 75 80

6. A two-revolution printing press having multiple-press capacities any one, but only one, of which can be used at a time, one of the said capacities being a cylinder press-capacity for single color typographic offset printing and comprising a reciprocating flat bed adapted to work with a typographic printing surface; inking mechanism coöperating therewith; a two-revolution impression cylinder having two operative surfaces, one of them adapted to receive an offset blanket to take an impression from the said typographic printing surface, and the other having a coöperating sheet gripper combined with it; and a second cylinder in printing relationship with the impression cylinder and adapted to receive an offset blanket to receive an impression from the one first mentioned; means for feeding a sheet between the two blankets; and an automatic stripper and delivery coöperating with the said gripper. 85 90 95 100 105

7. A two-revolution printing press having multiple press-capacities any one, but only one, of which can be used at a time, one of them being a rotary press-capacity for printing the first color direct and a second one by the offset process, and comprising a reciprocating flat bed adapted to receive a planographic printing surface, damping and inking mechanism coöperating with the said surface, an impression cylinder having an impression surface limited to a portion of its periphery adapted to receive an offset blanket and a second surface adapted to act only as an impression surface, a second cylinder of half the diameter of the said impression cylinder, coöperating therewith and adapted to receive an offset blanket, a third cylinder likewise of half the diameter of the said impression cylinder, coöperating therewith and adapted to receive a planographic printing surface, damping and inking mechanisms coöperating with the said surface, and automatic sheet 110 115 120 125

gripper, stripper, and delivery cooperating with the said second surface on the impression cylinder.

8. A two-revolution printing press having multiple press-capacities any one, but only one, of which can be used at a time, one of them being a rotary perfecting planographic offset press-capacity and comprising a reciprocating flat bed adapted to receive a planographic printing surface, damping and inking mechanisms for the same, a cylinder adapted to receive two offset blankets one of which cooperates with the printing surface just mentioned, a second cylinder of half the diameter of the last-mentioned cylinder cooperating therewith and adapted to receive an offset blanket to have transferred to it the impression from the one offset blanket above mentioned, a third cylinder likewise of half the diameter of the cylinder first mentioned cooperating therewith and adapted to receive a planographic plate to make an impression on the other of the two offset blankets on the first mentioned cylinder, damping and inking mechanisms for the said third cylinder and automatic sheet gripper, stripper, and delivery cooperating with the said other of the offset blankets on the first mentioned cylinder.

9. A two-revolution printing press having multiple press-capacities any one, but only one, of which can be used at a time, one of them being a rotary perfecting typographic offset press-capacity and comprising a reciprocating flat bed adapted to receive a typographic printing surface, inking mechanism for the same, a cylinder adapted to receive two offset blankets one of which cooperates with the printing surface just mentioned, a second cylinder of half the diameter of the last mentioned cylinder, cooperating therewith and adapted to receive an offset blanket to have transferred to it the impression from the one offset blanket above mentioned, a third cylinder likewise of half the diameter of the cylinder first mentioned, cooperating with the latter and adapted to receive a typographic printing surface to make an impression on the other of the two offset blankets on the first mentioned cylinder, inking mechanism for the said third cylinder and automatic sheet gripper, stripper, and delivery cooperating with the said other of the offset blankets on the first mentioned cylinder.

10. A two-revolution printing press having multiple press-capacities any one, but

only one, of which can be used at a time, one of them being a rotary perfecting combined planographic and typographic press-capacity and comprising a reciprocating flat bed adapted to receive a planographic printing surface, damping and inking mechanisms for the same, a cylinder adapted to receive two offset blankets one of which cooperates with the printing surface just mentioned, a second cylinder of half the diameter of the one first mentioned, cooperating therewith and adapted to receive an offset blanket to have transferred to it the impression from the one offset blanket above mentioned, a third cylinder likewise of half the diameter of the first mentioned cylinder, cooperating with the latter and adapted to receive a typographic printing surface to make an impression on the other of the two offset blankets on the first mentioned cylinder, inking mechanism for the said third cylinder, and automatic sheet gripper, stripper, and delivery cooperating with the said other of the two offset blankets on the first mentioned cylinder.

11. A two-revolution printing press having multiple press-capacities any one, but only one, of which can be used at a time, one of them being a rotary perfecting combined planographic and typographic press-capacity and comprising a reciprocating flat bed adapted to receive a typographic printing surface, inking mechanism for the same, a cylinder adapted to receive two offset blankets one of which cooperates with the printing surface just mentioned, a second cylinder of half the diameter of the one first mentioned, cooperating therewith and adapted to receive an offset blanket to have transferred to it the impression from the one offset blanket above mentioned, a third cylinder likewise of half the diameter of the first mentioned cylinder, cooperating with the latter and adapted to receive a planographic surface to make an impression on the other of the two offset blankets on the first mentioned cylinder, damping and inking mechanisms for the said third cylinder, and automatic sheet gripper, stripper, and delivery cooperating with the said other of the two offset blankets on the first mentioned cylinder.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

THOMAS ROBERT GILLET PARKER.

Witnesses:

WILLIAM GERRARD,
LANCELOT CHARLES ELLER.