

Jan. 26, 1926.

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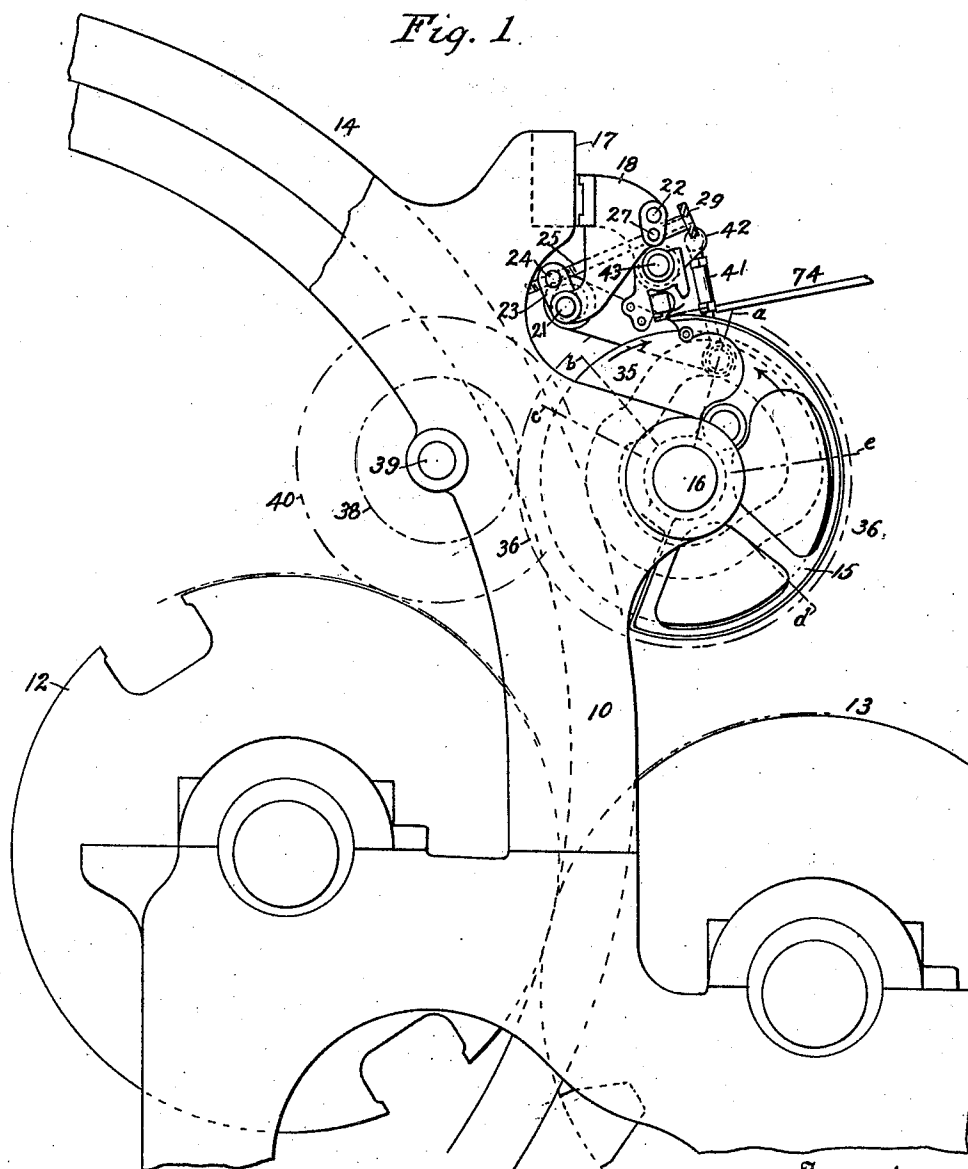
B. C. WHITE

SHEET CONTROL DEVICE FOR PRINTING PRESSES

Filed April 18, 1922

4 Sheets-Sheet 1

Fig. 1.



Inventor

Bruce C. White

By his Attorney

Wm Dodge

Jan. 26, 1926.

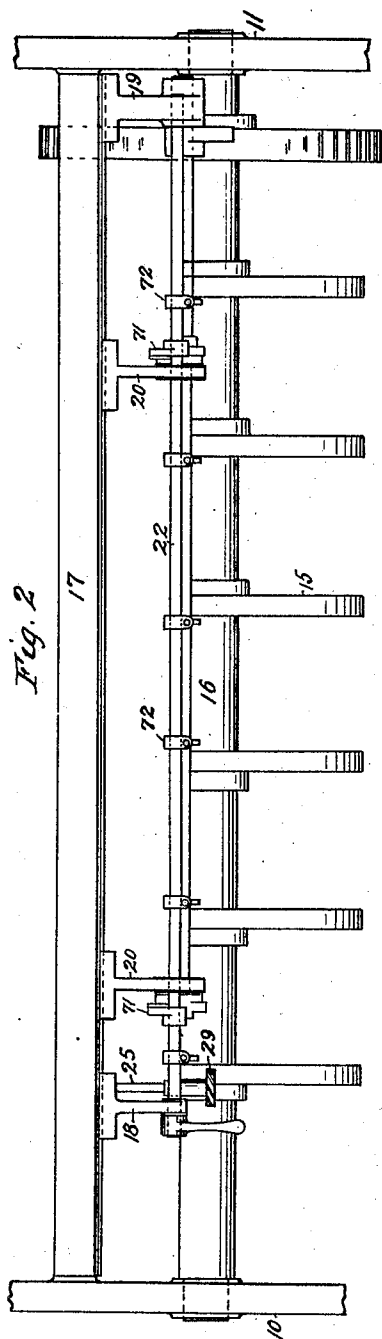
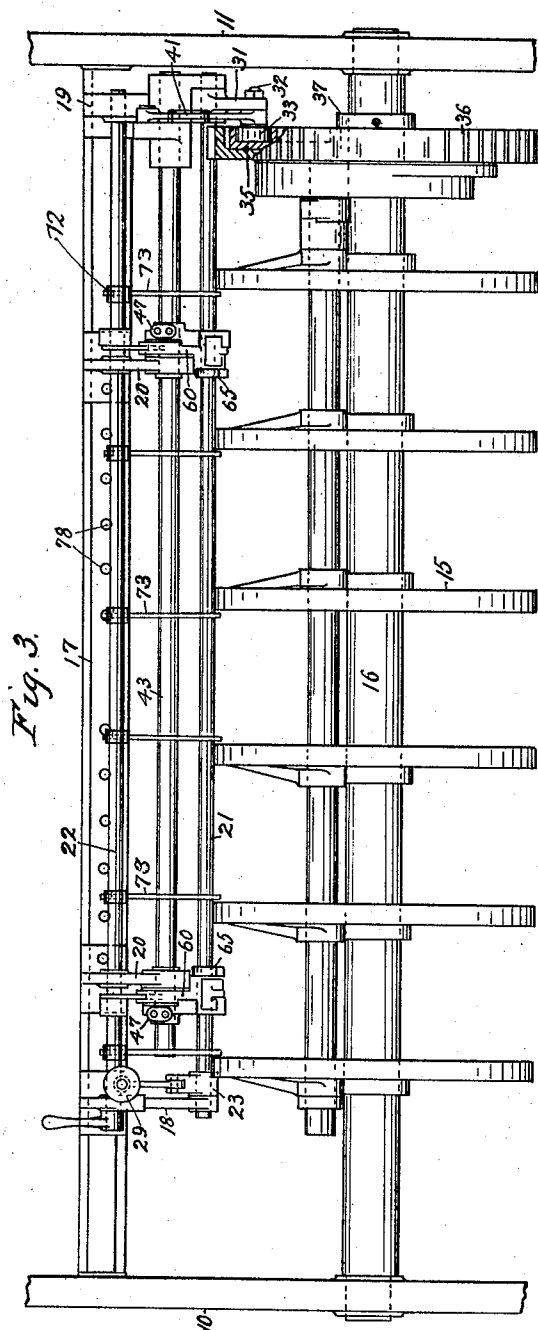
B. C. WHITE

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SHEET CONTROL DEVICE FOR PRINTING PRESSES

Filed April 18, 1922

4 Sheets-Sheet 2



Inventor

By his Attorney *Bruce C. White*
Wm Dodge

Jan. 26, 1926.

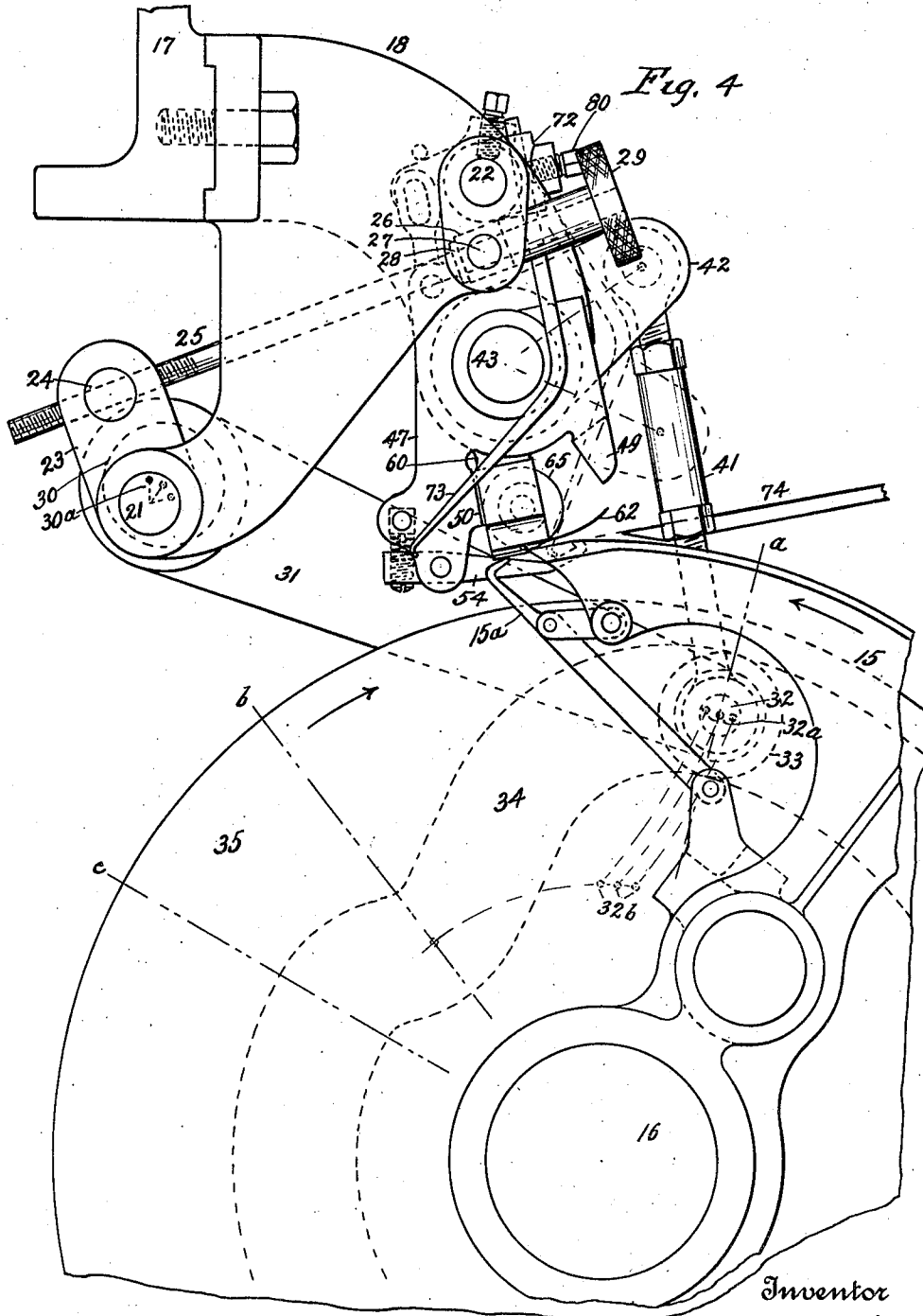
B. C. WHITE

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SHEET CONTROL DEVICE FOR PRINTING PRESSES

Filed April 18, 1922

4 Sheets-Sheet 3



Inventor
Bruce C. White
By his Attorney
Wm. Dodge

Jan. 26, 1926.

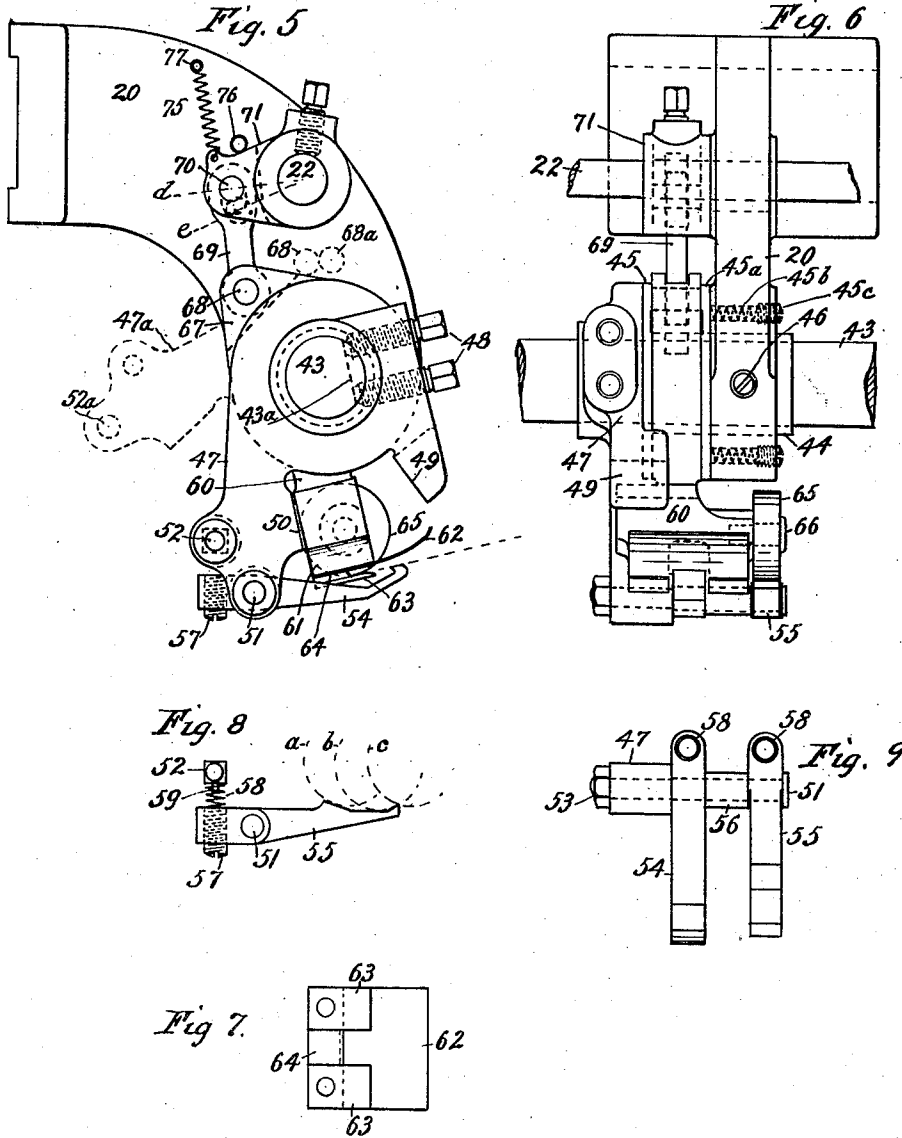
B. C. WHITE

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SHEET CONTROL DEVICE FOR PRINTING PRESSES

Filed April 18, 1922

4 Sheets-Sheet 4



Inventor
Bruce C. White
By his Attorney
Wm. Dodge

UNITED STATES PATENT OFFICE.

BRUCE C. WHITE, OF NEW YORK, N. Y.; MARIA LOUISA WHITE EXECUTRIX OF SAID
BRUCE C. WHITE, DECEASED.

SHEET-CONTROL DEVICE FOR PRINTING PRESSES.

Application filed April 18, 1922. Serial No. 554,885.

To all whom it may concern:

Be it known that I, BRUCE C. WHITE, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Sheet-Control Devices for Printing Presses, of which the following is a specification.

The invention relates to sheet control devices for printing presses, and more particularly to that class of machines in which the sheets to be printed are first fed from a feed board either manually or by any well-known automatic feeders to front guides, and from which point they are picked up by a feed drum and transferred to the printing devices, the drum being preferably of the class described in my co-pending application filed April 18, 1922, Serial No. 554,886.

One of the objects of the present invention is to provide means for insuring a more perfect register of the sheet with respect to the front guides.

A further object is to provide a detector, held inoperative by the sheet when the latter is regularly fed to the guides, otherwise, to operate a rejecting device adapted to hold back and prevent an untimed sheet from being led into the press, the said detector being also adapted to operate other devices not herein shown.

The invention also includes certain details of construction and arrangement of parts hereinafter set forth.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various features of the invention are more particularly set forth.

Fig. 1 of the drawings is a side elevation of a portion of a printing press embodying the present invention.

Fig. 2 is a partial plan view thereof.

Fig. 3 is an elevation taken at the feed end of the machine.

Fig. 4 is an enlarged side elevation showing

the principal parts relating to the invention.

Fig. 5 is an enlarged side view showing certain of the parts more in detail.

Fig. 6 is a view taken at right angle to Fig. 5.

Fig. 7 is a detail view looking at the bottom of the front guide.

Fig. 8 is a detail side view of the spring pressed pull guide finger.

Fig. 9 is a detail plan view showing the assembly of the pull guide and the detector fingers.

In the drawings, numerals 10 and 11 respectively indicate the front and rear frames of the press, in which is mounted in the usual manner a printing couple comprising the impression cylinder 12 and the plate cylinder 13. Also mounted and operated in conventional manner for co-operation with the printing couple is the sheet carrier ring 14. The feed drum comprising a series of segmental rings 15 is fixed upon the shaft 16 and provided with a series of sheet grippers 15^a, the construction and operation of the several parts composing the feed drum being fully set forth in my co-pending application filed April 18, 1922, Serial No. 554,886.

Between the main frames 10 and 11 is fixed a cross bar 17, on which are respectively mounted the fixed front and rear brackets 18 and 19. A pair of intermediate brackets 20 are also mounted on this cross bar or brace 17 and arranged thereon for lateral adjustment with respect to the machine. The brackets 18 and 19 are provided with bearings in which are mounted the shafts 21 and 22, extending across the machine. Fixed upon the shaft 21, adjacent the bracket 18, is an arm 23, the free end of which is forked to form a double bearing to receive the stub shaft 24, the latter having a transverse threaded perforation midway its length to receive the threaded end of the connection rod 25, the said threaded end extending between the double bearing of the arm 23, while the opposite end of the rod is carried in a pivotally mounted bearing 26, having

a stem 27, mounted for turning movement in a short extension of the bracket 18. For positioning the rod 25 within the pivotal bearing, the former is provided with a flange 28, which engages one side of the bearing, the opposite side thereof being engaged by the hub of the hand wheel 29, fixed to the outer end of the rod.

Also fixed upon the shaft 21, adjacent the rear bracket 19, is an eccentric hub 30, on which is loosely mounted one end of the radius arm 31, its opposite or outer end being provided with a stud 32, having on its inner end a friction roller 33 engaging a cam groove 34 formed in the double acting cam 35, the latter being fixedly secured to the interior of the spur gear wheel 36, which in turn is loosely mounted on the shaft 16 and suitably positioned thereon against lengthwise displacement by collars, one thereof being indicated at 37. Rotation is imparted to the cam 35 in the direction of the arrow by its fixedly connected gear 36, the latter being in turn driven by the spur gear 38, fixed to the shaft 39, rotatably mounted in the frames 10 and 11. This latter shaft is provided with a driving gear 40 which in turn is engaged by a gear on the impression cylinder 12 and from which the driving movements of the several parts are taken, the ratio of the several gears being proportioned to effect one turn of the cam 35 for each revolution of the impression cylinder. Also by suitably arranged gearing this latter cylinder is adapted to drive the feed-drum 15 at a variable velocity and in a direction indicated by its arrow, the number of turns of the drum corresponding with that of the cam, while the directions thereof are opposite. For the driving mechanism of this drum, reference may be had to my co-pending application filed April 18, 1922, Serial No. 554,886.

Referring more particularly to Figs. 4, 5 and 6, the movement from the cam 35 is carried through the roller 33 and stud 32 to the lengthwise adjustable connection rod 41, the lower end thereof being pivotally mounted on the stud, while its upper end is similarly connected to the free end of the operating lever 42, the latter being fixed to the rock shaft 43, carried in the bracket bearings 19 and 20, each of the latter bearings being provided with a bush 44 to receive the shaft. At one end, the bushes are provided with a flange 45 and are also held against rotation by set-screws 46 threaded through the hubs of the bracket bearings. Also on the bushes are loosely mounted the friction washers 45^a, one of the side faces thereof being engaged by the inner ends of the compression springs 45^b located in perforations formed in the web of the brackets 20, the outer ends of the springs having terminal adjustment by the set-screws 45^c

threaded in the web. Fixed upon the rock shaft 43, adjacent the flange 45 of the bush, is an actuating arm 47, having threaded in the hub thereof a pair of set-screws 48, the points of which engage the flattened surface 43^a on the shaft 43 whereby a slight turning movement or adjustment may be made between the shaft and arm. This arm is furthermore provided with a pair of jaws 49 and 50 and also with perforated hubs to receive the studs 51 and 52, the former stud being reduced at one end to form a shoulder and provided at its outer end with a nut 53 by which the stud may be connected to the arm (see Figs. 5, 6, 8 and 9). Upon the free end of the stud 51 are loosely mounted the detector finger 54 and the pull guide finger 55, the two fingers being separated on the stud by a spacer 56 and held in place thereon by the inner flange thereof. A threaded perforation extends through the short back end of the fingers 54 and 55 and in which perforations are fitted adjusting screws 57 which engage the lower ends of compression springs 58, the upper ends of the latter being resisted by the square or free end of the stud 52, the lateral position of the springs at their upper end being held by pins 59, fixed in the square stud section. The springs as thus arranged normally serve to effect for the relatively long or forward end of the fingers 54 and 55 an adjustable yielding movement in an upward direction.

For the co-operation of the detector finger 54 and the pull guide 55, a controller arm 60 is loosely mounted on the bush 44, between the flange 45 thereof and the friction washer 45^a, adjacent the hub of the bracket bearing 20. At the lower end of the controller arm, an extension 61 is formed which is provided with opposite side faces adapted to be engaged by the jaws 49 and 50 of the actuating arm 47. Fixed to the bottom surface of this extension 61, is an upper guide-plate 62 and an intermediate stop-plate or front guide 64, these plates being unitedly fixed together, as indicated in the bottom view, Fig. 7. The arm 60 is further provided with a roller 65, loosely mounted on the stud 66, suitably fixed in the said arm, the roller being alined with the pull guide finger 55, carried by the actuating arm 47, the roller and the finger engaging together under the upwardly yielding tension of the latter. At its upper end the controller arm 60 is also provided with an extension 67, constituting, as here shown, a forked or double bearing provided with a pin 68, on which is pivotally mounted the lower end of a link connection 69, the latter having at its opposite end a slotted perforation engaging a stud or pin 70, fixed at the free end of a lever 71, fixedly secured to the shaft 22. Upon this latter shaft is also fixed a plurality of hubs 72, in each of which is adjustably mounted a rejector-bar 73, hav-

ing at its lower end a hook or bend adapted to engage the leading end of the sheet to be printed and to reject the same if improperly positioned upon the feed board with respect to the front guides.

The arrangement of the several parts of the machine as herein shown in the drawings are respectively positioned to engage a sheet regularly advanced from the feed board 74 to a point at which its leading edge is adapted to be engaged by the grippers of the feed drum 15, in which advancement the edge of the sheet has passed between the upper and lower guide-plates 62 and 63, and above the hook end of the detector finger 54, to a position of engagement between the roller 65 and the pull guide 55, this latter position of the sheet being somewhat short of contact with the front guide, or stop-plate 64. As shown in Fig. 7, the stop-plate is provided with a beveled section midway its length for engagement by the detector hook, while at opposite ends of the beveled part the front edge of the stop-plate is left square to engage the leading edge of the sheet. Fig. 8 shows the finger 55 with respect to the several relative positions of the roller, the latter being shown by dotted lines, the position indicated by "a" corresponding with the initial engagement of the sheet, as positioned somewhat short of contact with the stop-plate 64.

The sheet as thus fed to the front guides, is automatically advanced into registered position by the action of the cam 35, rotated in the clock-wise direction indicated by the arrow, the consecutive divisions of the cam action being indicated respectively by the broken lines *a*, *b*, *c*, *d* and *e*. (See Figs. 1, 4 and 5). The movements of the cam are transmitted through the roller 33, rod 41, lever 42 and shaft 43 to the arm or support 47, which carries the detector finger 54 and the pull guide finger 55. In its movement between the radial lines *a* and *b*, the cam swings the arm 47 its full movement forward as indicated by the dotted lines 47^a, during the first part of which movement the arm 60 together with its connected guide and stop plates 62, 63, 64 and roller 65 remain stationary under the frictional action of the washer 45 exerted by the springs 45^b, thus allowing the forward action of the pull guide finger 55 to rotate the roller 65 into the relative positions indicated by the dotted lines *a*, *b*, *c*, the tension between the roller and the finger serving to exert a puling force upon the leading edge of the interposed sheet to advance the same into contact with the stop-plate 64, the tension of the pull guide members being suitably adjusted to allow the finger to slip over the under surface of the sheet upon any additional pulling action thereof, the resilient detector finger 54 in the mean time, sliding over the lower surface of the regularly positioned sheet, remains in-

operative. As the movement of the arm 47 continues, the jaw 49 thereof reaches the point of engagement with the adjacent side face of the extension 61 formed on the arm 60, causing the latter to jointly swing therewith throughout the remainder of its full movement against the frictional resistance of the washer 45^a. In this movement the arm 60 together with its connected parts are rotated to a position clear of the path of movement of the feed drum 15, the extent of said arm's rotation being indicated by the spaced relation of the pin 68 thereof, as shown in full and dotted lines. The movement of this pin, in connection with the slotted link 69, being insufficient in this instance to operatively affect the lever 71. The above movements of the several parts are effected at each revolution of the cam 35 for the regularly positioned sheets to be received by the feed drum 15.

For sheets irregularly placed with respect to the stop guides, the detector finger 54 is free to move upwardly against the upper guide-plate 62, and in which position the arm 47 at the beginning of its regular forward movement advances the detector finger to a point in which its terminal hook engages the beveled edge of the stop-plate 64 and serves thereby to advance the initial movement of the arm 60 to an earlier period and thus increase its motion as indicated by the pin 68 in its dotted position 68^a, in which latter position the pin, through the link 69, has rotated the lever 71 to the extent shown between the dotted radial lines *d* and *e* thereof, this movement of the lever being sufficient to advance the rejector bars 73 into their dotted position, as shown in Fig. 4, and thereby reject an irregularly positioned sheet. It is to be observed that the rejector bars will only be operated when the detector finger 54 hooks up with the stop-plate, and at the point corresponding with the final inward movement of the cam roller 33, indicated as on the radial line *b*, from which point the roller has a quick outward movement to the radial line *c*, serving to rapidly release the rejector bars and allow them to assume their original outer position under the action of the tension spring 75 and the stop 76, the opposite ends of the spring being respectively connected to the arm 71 and the pin 77, the latter fixed to the bracket 20. In this latter or intermediate position the cam roller dwells or remains inoperative while the cam is rotating between the radial lines *c* and *d*, and during this movement the arms 47 and 60 together with their connected parts remain in an outward position to clear the path of the advancing sheet engaged by the feed drum 15, and upon the sheet's final passage the arms are returned to their inward position by the cam during its movement between the radial lines *d* and *e*, and

between the radial lines e and a the cam in its continued uniform rotation holds the arms in their original inward position for the engagement of a new sheet.

5 As indicated in Figs. 2 and 3, the arms 47 and 60 together with their registering devices, as carried by the brackets 20, are adjustably spaced apart upon the cross brace 17 and secured thereto by bolts 78 passing
10 through the foot of the brackets and into the threaded holes 79 of the brace, the adjustable space allowing the registering devices to be positioned adjacent the opposite side edges of the leading end of sheets of
15 variable widths. In positioning the brackets 20 for the above adjustment, the arms 47 and 71 are first released upon their respective shafts 43 and 22 and after sliding same into the desired positions the parts are
20 again made fast.

For adjustably securing the rejector bars 73 to their hubs 72 set screws 80 are used, similar screws being employed for adjustably fixing the hubs along their supporting
25 shaft 22, the number of rejector bars preferably corresponding with the number of segments comprising the feed drum 15 and with which latter at their gripping edges the bars co-operate to backwardly project upon the
30 segments the leading end of an irregularly positioned sheet, having a displacement with respect to the stop, or front guides.

Also, for jointly adjusting the rejector bars, stop guides, detectors and pull guides
35 with respect to the leading end of the sheet and gripping ends of the drum sections 15, the rock shaft 43 is given a variable rocking movement by the operating lever 42 acting through the rod 41 from the cam 35, this
40 variation of movement being effected by shifting the cam roller stud 32 with respect to a plane extending through the axis of the cam's rotation and the axial center of the pivotal connection between the rod 41 and
45 the lever 42. For obtaining this shifting movement of the stud 32, the rock shaft 21 is oscillated by the arm 23, pivotal stub shaft 24 having threaded engagement with rod 25, rotatable by the hand wheel 29, the latter in
50 its movement serving to rotate in opposite directions the eccentric 30 fixed to said rock shaft 21 and through said eccentric to operate the radius arm 31 loosely mounted thereon. The lengthwise movement of the radius
55 arm or shifting motion of the cam roller as effected by the eccentric is indicated at 30° by the spaced relation of the centers thereof, and at the opposite end of the arm by the correspondingly spaced centers 32^a, the
60 latter centers being projected by the circular arcs of the arm's movement to the positions 32^b, which indicate the extreme inward movement of the cam roller to be on a concentric curved line without change of rela-

tion for the downward or clearance position
65 of the lever 42. At its outward extreme of movement, the cam in operating the roller 33 in its several positions 32^a serves to correspondingly change the upward extreme of
70 movement of the arm 42 and thereby alter the rocking movement of shaft 43 and cause a variation in the sheet engaging mechanism, which may be accomplished by simply rotating the hand wheel 29.

In the foregoing description of the construction and operation of the invention, it is to be understood that a sheet fed from the feed board into a correct or regular position upon the gripping ends of the stationary feed drum segments and into engagement with the adjacent pull guide members, will be, under the movement of the latter, advanced into contact with the stop guides and registered thereby, and at
75 which point in the operation the grippers of the feed drum close upon and hold the sheet until the jointly connected pull guides and stop guides are moved forwardly their full throw to clear the passage of the sheet, which now begins its feeding movement.
80 In the event of a sheet being fed from the feed board incorrectly or irregularly so that either or both the leading side edges thereof fail to properly engage the pull guides, one or both of the detector fingers will engage
85 the stop plate and act to advance its initial movement to an earlier period, thus extending its terminal movement to operate the rejector bars which engage the leading edge of the misplaced sheet and project it
90 backwardly upon the feed board.

It is to be understood that the feed board shown at 74 simply indicates a support or means for the preliminary advancement of the sheets to the front guides and may be
95 accomplished in well known manner either by hand or conventional automatic mechanism.

While I have shown and described an application of the present invention, it will be obvious that various detail changes may be made to certain of the parts thereof for adaptations to other situations without departing from the general scope and principles herein set forth.
100

What I claim as my invention and desire to secure by Letters Patent, is:

1. In a printing press, sheet feeding means, a front gage provided with a stop guide member disposed while at rest to position
105 the leading edge of a sheet, a sheet engaging element carried by said member, a finger movable with respect thereto and adapted to yieldingly cooperate therewith to advance the sheet against said stop guide, means for
110 adjusting said front gage during the running movement of the press to variably position the leading edge of the sheet, and
115

a feed drum adapted while at rest to engage the sheet from said stop guide.

2. In a printing press, sheet feeding means, a front gage provided with a stop guide member disposed while at rest to position the leading edge of a sheet, a sheet engaging element carried by said member, a finger movable with respect thereto and adapted to yieldingly cooperate therewith to advance the sheet against said stop guide, a feed drum adapted while at rest to engage the sheet from said stop guide, means for adjusting said front gage during the running movement of the press to variably position the leading edge of the sheet, and means for jointly moving said stop guide member and said finger out of the path of the sheet.

3. In a printing press, the combination of a feed board, a pull guide disposed beyond said feed board and arranged to engage a sheet fed therefrom, a stop guide arranged beyond said pull guide, means for operator said pull guide to advance the sheet into contact with said stop guide, and feeding means arranged to carry the sheet from said stop guide to the printing devices, said feeding means being arranged for stop motion to receive the sheet from said stop guide during a period of rest.

4. In a printing press, the combination of a feed board, a pull guide disposed beyond said feed board and arranged to engage a sheet fed therefrom, a stop guide arranged beyond said pull guide, means for operating said pull guide to advance the sheet into contact with said stop guide, feeding means arranged to carry the sheet from said stop guide to the printing devices, said feeding means being arranged for stop motion to receive the sheet from said stop guide during a period of rest, and means for jointly advancing said pull and stop guides to clear the movement of said sheet feeding means.

5. In a printing press, the combination of a feed board, a pull guide disposed beyond said feed board and arranged to engage a sheet fed therefrom, a stop guide arranged beyond said pull guide, means for operating said pull guide to advance the sheet into contact with said stop guide, feeding means arranged to carry the sheet from said stop guide to the printing devices, and means for jointly adjusting said stop and pull guides with respect to said sheet feeding means.

6. In a printing press, the combination of a feed board, a pull guide disposed beyond said feed board and arranged to engage a sheet fed therefrom, a stop guide arranged beyond said pull guide, means for operating said pull guide to advance the sheet into contact with said stop guide, and a detector finger jointly actuated with said

pull guide and held inoperative with respect to said stop guide by its engagement with a regularly positioned sheet.

7. A front gage comprising upper and lower members mounted for independent movement and disposed while at rest to receive the leading edge of a sheet therebetween, a stop guide fixed to said upper member and adapted to limit the forward registering movement of the sheet, a sheet engaging element provided for said upper member and arranged to engage the upper surface of the sheet, a pull guide finger carried by said lower member and disposed to yieldingly cooperate with the sheet engaging element of the upper member, means for advancing said lower member while the upper member is at rest to urge the sheet against said stop guide, and means for jointly moving said upper and lower members from the path of the sheet.

8. In a printing press, the combination of a feed board, a pair of co-operating pull guides and stop guides arranged to engage a sheet fed from said feed board, said pair being spaced apart to engage the sheet adjacent the opposite side edges thereof, a plurality of rejector bars arranged to engage an irregularly positioned sheet, and a pair of detectors respectively spaced adjacent said pair of guides and adapted to co-operate with said stop guides in the absence of a regularly positioned sheet to operate said rejector.

9. In a printing press, the combination of a feed board, a pair of co-operating pull guides and stop guides arranged to engage a sheet fed from said feed board, said pair being spaced apart to engage the sheet adjacent the opposite side edges thereof, a plurality of jointly connected rejector bars arranged to engage an irregularly positioned sheet, and a pair of independently operating detectors respectively spaced adjacent said pair of guides and adapted to co-operate with their respective stop guides to operate said rejectors in the absence of a sheet regularly positioned at either of the leading side edges thereof.

10. A front gage comprising a pair of co-operating members disposed while at rest to receive the leading edge of a sheet and yieldingly engage the opposite side faces thereof, one of said members including a stop guide, means for moving the opposite member with respect to the stop guide member to urge the sheet against said stop guide, and means for jointly adjusting said members during the running movement of the press to variably position the leading edge of the sheet.

11. A front gage comprising a shaft, a pair of cooperating members operatively mounted on said shaft and disposed while

at rest to receive the leading edge of a sheet and yieldingly engage the opposite side faces thereof, one of said members being provided with a stop guide and frictionally held against movement, means for moving the opposite member with respect to the stop guide member to urge the sheet against said stop guide, and means for jointly adjusting said members during the running movement of the press to variably position the leading edge of the sheet.

12. A front gage comprising a pair of cooperating members disposed while at rest to receive the leading edge of a sheet and yieldingly engage the opposite side faces thereof, one of said members including a stop guide and a rotatable roller, and the opposite member including a pull guide finger yieldingly engaging said roller, and means for moving said pull guide member while the stop guide member is at rest, whereby the sheet is advanced between said roller and finger and yieldingly urged against said stop guide.

13. In a front gage, a member provided with a stop guide and disposed while at rest to position the leading edge of a sheet, a roller mounted on said member, and a finger movable with respect thereto and adapted to yieldingly cooperate with and rotate said roller to advance the sheet against said stop guide.

14. In a sheet control, a pull guide comprising a controller arm periodically held immovable, an actuating arm, a roller carried by said controller arm, a stop guide mounted on said controller arm, a finger carried by said actuating arm and yieldingly engaging said roller and disposed therewith to receive a sheet therebetween, and means for operating said actuating arm to advance the sheet to contact said stop guide.

15. In a sheet control, a pull guide comprising a controller arm periodically held immovable, an actuating arm mounted coaxially with said controller arm, a roller carried by said controller arm, a stop guide mounted on said controller arm, a finger carried by said actuating arm and yieldingly engaging said roller and disposed therewith to receive a sheet therebetween, and means for operating said actuating arm to advance the sheet to contact said stop guide.

16. In a sheet control, a rock shaft, a controller arm mounted coaxially on said shaft and periodically held immovable, an actuating arm fixed on said shaft adjacent said controller arm a stop guide mounted on said controller arm, a roller carried by said controller arm, a finger carried by said actuating arm and yieldingly engaging said roller and disposed therewith to receive a sheet therebetween, and means for operating said rock shaft to advance the sheet to contact said stop guide.

17. In a sheet control, a pull guide comprising a controller arm periodically held immovable, an actuating arm mounted coaxially with said controller arm, upper and lower sheet guides fixed to said controller arm and disposed to receive the edge of the sheet therebetween, a stop guide fixed to said controller arm, a roller mounted on said controller arm, a finger carried by said actuating arm and yieldingly engaging said roller and disposed therewith to receive a sheet therebetween, and means for operating said actuating arm to advance the sheet in contact with said stop plate.

18. In a sheet control, a pull guide comprising upper and lower sheet guides and an interposed stop guide, a rotatable member, a finger in relatively yielding engagement with said rotatable member and disposed therewith to receive the edge of a sheet therebetween, and operating means for the finger arranged to advance the sheet to contact said stop guide.

19. In a sheet control, a fixed support, a bush fixed in said support, a rock shaft rotatable in said bush, a controller arm loosely mounted for intermittent movement on said bush and carrying a roller and a stop guide, an actuating arm fixed to said rock shaft and carrying a finger yieldingly engaging said roller, and means for operating said rock shaft to advance the sheet to contact said stop guide.

20. In a sheet control, a fixed support, a bush fixed in said support and provided with a flange at the free end thereof, a rock shaft rotatable in said bush, a friction washer slidably mounted on said bush adjacent said fixed support, a controller arm loosely mounted on said bush between said flange and friction washer and provided with sheet advancing means, compression springs mounted in said fixed support and engaging said friction washer to exert a tension on said controller arm, an actuating arm fixed to said rock shaft and provided with sheet advancing means co-acting with the advancing means of said controller arm, and means for operating said rock shaft to advance the sheet to contact said stop guide.

21. In a sheet control, a fixed support, a rock shaft carried by said support, an actuating arm fixed to said rock shaft, a controller arm loosely mounted co-axially on said shaft, frictional means periodically holding said controller arm against movement, interengaging sheet advancing means carried by said actuating and controller arms, and operating means for said rock shaft.

22. In a sheet control, a controller arm having a stop guide, an actuating arm, interengaging means carried by said controller and actuating arms to advance the sheet to the stop guide, a detector finger carried

by the actuating arm and normally adapted to operatively engage said controller arm, but held in operative with respect thereto by its engagement with a regularly positioned sheet.

23. In a sheet control, a controller arm having a stop guide, an actuating arm, interengaging means carried by said controller and actuating arms to advance the sheet to the stop guide, a rejector bar arranged to engage an irregularly positioned sheet, and a detector finger co-operating with said sheet advancing means in the absence of a regularly positioned sheet to operate said rejector bar.

24. In a sheet control, a stop guide, means for feeding a sheet thereto, a rejector bar arranged to backwardly project the leading end of an irregularly positioned sheet, and operating means for said rejector bar controlled by the position of the sheet with respect to said stop guide.

25. In a sheet control, a stop guide, means for advancing a sheet thereto, a detector finger arranged on the path of said sheet, a rejector bar arranged to backwardly project the leading end of sheet irregularly positioned with respect to said stop guides, and operating means for said rejector bar controlled through said detector finger whereby the rejector will remain inoperative when the sheet is regularly positioned.

26. In a sheet control, a stop guide, means for advancing a sheet thereto, a detector finger arranged in the path of said sheet, a rejector bar arranged to backwardly project the leading end of a sheet irregularly positioned with respect to said stop guide, and operating means for said rejector bar controlled through said detector finger whereby the rejector will be operated when the sheet is irregularly positioned.

27. In a sheet control, a pair of stop guides spaced apart and disposed to engage the sheet adjacent its opposite side edges, means for advancing the sheet to said stop guides, a pair of detector fingers respectively spaced adjacent said pair of stop guides and in the path of said sheet, a plurality of rejector bars arranged to intercept a sheet irregularly positioned with respect to said stop guides, and operating means for said rejector bars controlled through said detector fingers by the position of the sheet with respect to said stop guides.

28. In a sheet control, a pair of stop guides, spaced apart and disposed to engage the sheet adjacent its opposite side edges, means for advancing the sheet to said stop guides, a plurality of detector fingers respectively spaced adjacent said pair of stop guides and in the path of the sheet, said detector fingers being independently operative with respect to each other, a plurality

of rejector bars arranged to backwardly project the leading end of a sheet irregularly positioned with respect to said stop guides, said rejector bars being jointly connected together, and operating means for said rejector bars being jointly connected together, and operating means for said rejector bars controlled through said detector fingers whereby the said bars will be operated when the sheet is irregularly positioned at either of the leading opposite side edges thereof.

29. In a sheet control, a rejector bar arranged to backwardly project the leading end of a sheet irregularly positioned with respect to its front guides, and means for adjusting the operative movement of said rejector bar while the press is running.

30. In a sheet control, a rejector bar arranged to remain normally inoperative when the sheets are regularly positioned with respect to the front guides, and to backwardly project the leading end of the sheet when the latter is irregularly positioned, and means for regulating the operation of said rejector bar while the press is running.

31. In a sheet control, a plurality of jointly connected rejector bars arranged to remain inoperative when the sheets are regularly positioned with respect to the front guides, and operative means for said rejector bars arranged to backwardly project the leading end of the sheet when the latter is irregularly positioned at either of the leading opposite side edges thereof, said operative means being adjustable while the press is running.

32. In a sheet control, a pair of jointly connected stop guides spaced apart for the engagement of the sheet, and means for independently adjusting the joint connection for varying the sheet-engaging position of the guides with respect to each other.

33. In a sheet control, a pair of jointly connected stop guides spaced apart for the engagement of the sheet, means for independently adjusting the joint connections and means for variably positioning said stop guides for the engagement of and the clearance of the sheet, said means being operable while the press is running.

34. In a sheet control, a pair of jointly connected stop guides spaced apart for the engagement of the leading end of the sheet, and joint adjusting means for varying the engaging position of said stop guides, said means being operable while the press is running.

35. In a sheet control, a rock shaft, a pair of stop guides jointly connected thereto and spaced apart thereon for the engagement of the sheet, means for independently adjusting said stop guides about said shaft for varying the sheet-engaging position of

the guides with respect to each other, and means for adjusting the operation of said rock shaft while the press is running.

36. In a sheet control, a rock shaft, a pair of stop guides jointly connected thereto and spaced apart thereon for the engagement of the sheet, and means for operating said shaft to variably position said stop guides for the engagement of and the clearance of the sheet.

37. In a sheet control, a rock shaft, a pair of stop guides jointly connected thereto and spaced apart thereon for the engagement of the sheet, and joint means for varying the engaging position of said stop guides, said means including a hand wheel operating to advance or retard the terminal movements of said rock shaft.

38. In a sheet control, a stop guide, means for operating said guide including an actuating lever arranged at one extreme of its movement to cause said guide to engage and register the sheet at its opposite extreme of movement to clear the path thereof, and means for adjusting the movement of said lever to cause the sheet engaging position to vary and the clearance position thereof to remain constant.

39. In a sheet control, a stop guide, a pull guide, means for jointly operating said guides including an actuating lever arranged at one extreme of its movement to cause said guides to engage and register the sheet, and at its opposite extreme of movement to clear the path thereof, and means for adjusting the movement of said lever to cause the sheet engaging position to vary and the clearance position thereof to remain constant.

40. In a sheet control, a stop guide, a pull guide, a plurality of rejector bars and a detector, means for jointly operating said guides, rejector bars and detector including an actuating lever arranged at one extreme of its movement to cause said guides to engage and register the sheet at its opposite extreme of movement to clear the path thereof, and means for adjusting the movement of said lever to cause the sheet engaging position to vary and the clearance position thereof to remain constant.

41. In a front gage, a member provided with a stop guide and disposed while at rest to position the leading edge of a sheet, a sheet engaging element carried by said member, a finger movable with respect thereto and adapted to yieldingly cooperate therewith to advance the sheet against said stop guide, and means for jointly adjusting said member and finger during the running movement of the press to variably position the leading edge of the sheet.

42. In a sheet registering device, a rock shaft, a front gage mounted thereon, said front gage including a stop guide, means

operated by said rock shaft for advancing the sheet in contact with said guide and means for adjusting the relative movement of said rock shaft while the press is in movement to variably position the leading edge of the sheet.

43. In a sheet registering device, a rock shaft, a front gage mounted thereon, said front gage including a stop guide, means operated by said rock shaft for advancing the sheet in contact with said guide, and means for relatively adjusting the movement of said rock shaft while the press is running, to variably position the leading edge of the sheet.

44. In a sheet registering device, a rock shaft adapted to support and operate a front gage for the advancement of a sheet thereto, and means for adjusting the relative movement of said rock shaft during the running movement of the press to variably position the leading edge of the sheet.

45. In a sheet registering device, a rock shaft arranged to support and operate a front gage for the advancement of a sheet thereto, and means for variably rotating said shaft for the adjustment of the gage.

46. In a sheet registering device, a rock shaft arranged to support and operate a front gage for the advancement of a sheet thereto, and means for variably rotating said shaft for the adjustment of the gage during the running movement of the press.

47. In a sheet registering device, a rock shaft, a front gage mounted thereon and operated thereby, a cam, connections between said cam and rock shaft for operating the latter, and means for adjusting said connections for variably operating said rock shaft.

48. In a sheet registering device, a rock shaft, a front gage mounted thereon and operated thereby, a cam, connections between said cam and rock shaft for operating the latter, and means for adjusting said connections for variably operating said rock shaft while the press is in operation.

49. In a sheet registering device, a rock shaft, a front gage mounted thereon and operated thereby, a rejector bar, means actuated by said rock shaft for operating said rejector bar, and means for variably adjusting the movement of said rock shaft.

50. In a sheet registering device, a rock shaft, a front gage mounted thereon and operated thereby, a rejector bar, means actuated by said rock shaft for operating said rejector bar, and means for variably adjusting the movement of said rock shaft during the regular running movement of the press.

Signed at New York in the county of New York and State of New York this 4 day of April A. D. 1922.

BRUCE C. WHITE.