A. L. PARMELEE.

PRESS.

APPLICATION FILED OCT. 18, 1915.

1,238,324.

Patented Aug. 28, 1917.

3 SHEETS—SHEET 1.

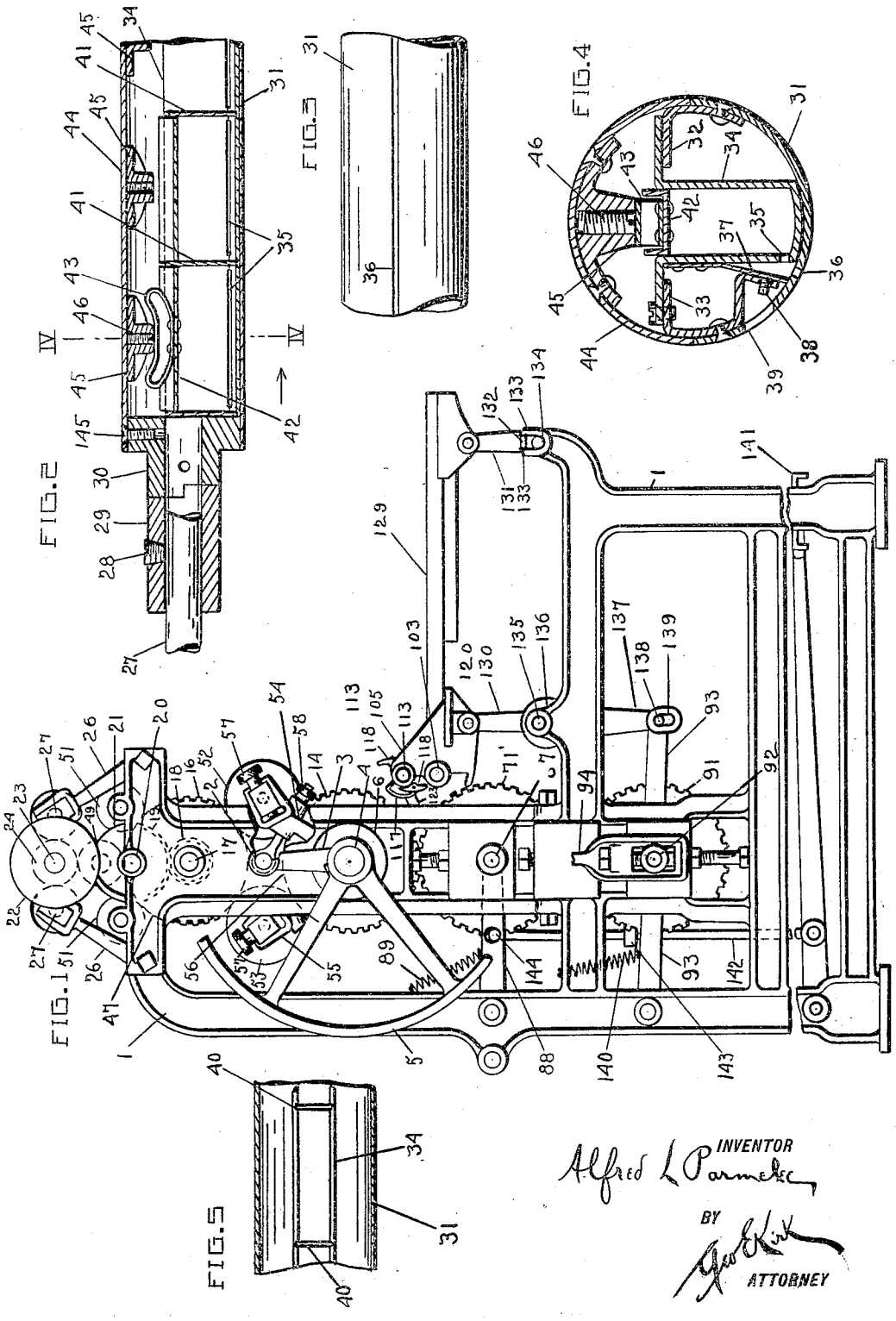


FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

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3 SHEETS—SHEET 2.

FIG. 6

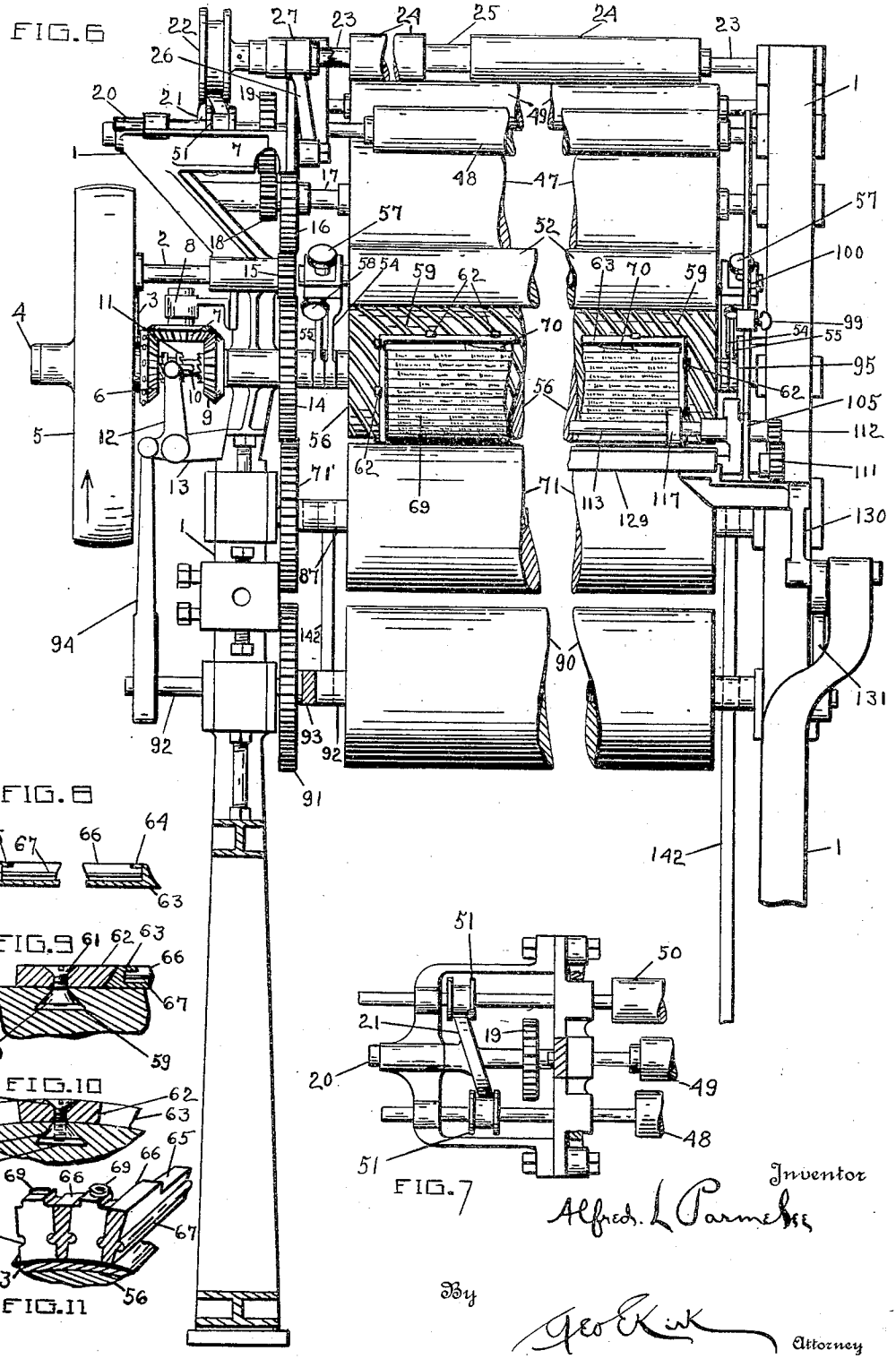


FIG. 8

FIG. 9

FIG. 10

FIG. 11

FIG. 7

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3 SHEETS—SHEET 3.

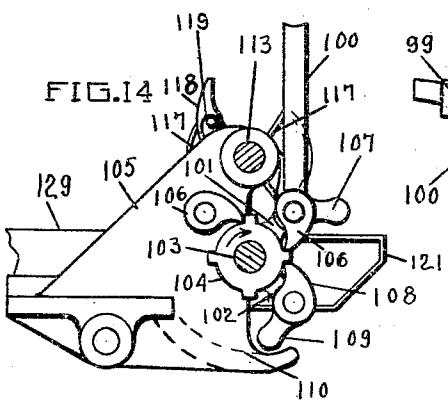


FIG. 14

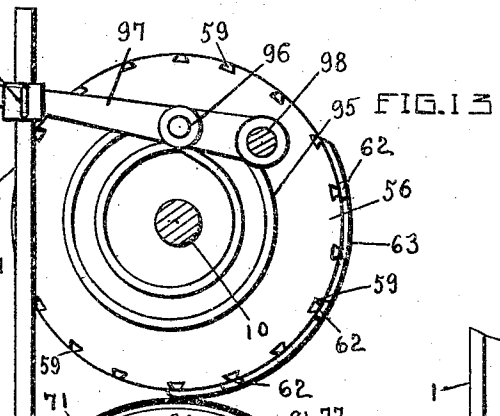


FIG. 13

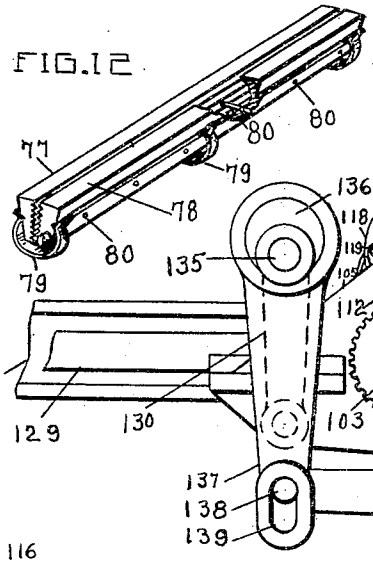


FIG. 12

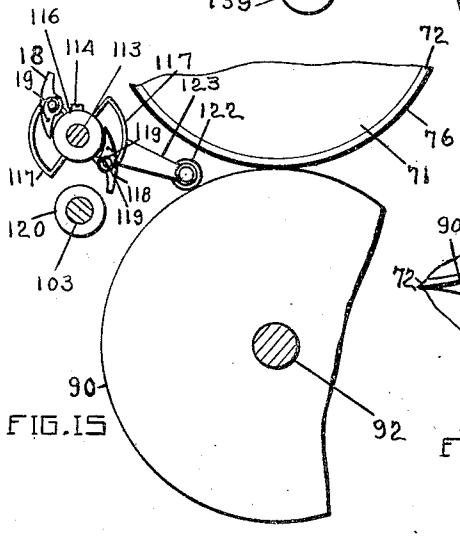


FIG. 15

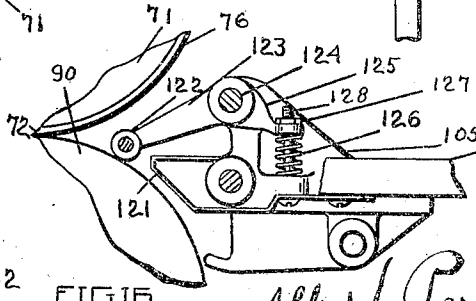


FIG. 16

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UNITED STATES PATENT OFFICE.

ALFRED L. PARMELEE, OF LAMBERTVILLE, MICHIGAN, ASSIGNOR OF ONE-HALF TO SEYMOUR B. GOODKIND, OF TOLEDO, OHIO.

PRESS.

1,238,324. Specification of Letters Patent. **Patented Aug. 28, 1917.**

Application filed October 18, 1915. Serial No. 56,472.

To all whom it may concern:

Be it known that I, ALFRED L. PARMELEE, a citizen of the United States of America, residing at Lambertville, Monroe county, Michigan, have invented new and useful Presses, of which the following is a specification.

This invention relates to printing presses.

This invention has utility in the handling of stock, as paper, for exposing to a repetition of similar actions, as in printing upon sheet or web material.

Referring to the drawings:

Figure 1 is a side elevation with parts broken away of an embodiment of the invention in a combination offset or direct printing web or sheet rotary press;

Fig. 2 is a fragmentary section of the inking reservoir or roll;

Fig. 3 is a fragmentary side elevation of the inking reservoir showing the ink discharge slot;

Fig. 4 is a section on an enlarged scale on the line IV—IV, Fig. 2;

Fig. 5 is a plan view of one of the inking compartments of the inking roll;

Fig. 6 is a fragmentary front elevation of the press of Fig. 1;

Fig. 7 is a fragmentary plan view of the ink distributing rolls;

Fig. 8 is a fragmentary section of the copy carrying frame;

Fig. 9 is a fragmentary section of the copy carrying roll showing the coaction of the engaging device and the copy carrying frame;

Fig. 10 is another view of the engaging device showing the copy carrying frame configured to the curvature of the roll;

Fig. 11 shows the anchoring and spacing of the type or copy as mounted in the copy carrying frame;

Fig. 12 is a perspective view of the make-ready or independently removable outer draw sheet clamp for the offset or copy opposing roll;

Fig. 13 is a fragmentary end elevation of the intermittent driving device for feeding stock through the press, the table being adjusted for offset operation instead of for direct printing, as shown in Fig. 1;

Fig. 14 is a detail of the intermittent feeding device holding dogs;

Fig. 15 is a fragmentary detail of the paper coacting elements of the feeding device as to the rolls; and

Fig. 16 is a fragmentary detail of the adjustable holding device for the paper sheets or web.

The press comprises the main frame 1 which has an outwardly extending bracket 2 having downwardly extending therefrom the arm 3 carrying the stub shaft 4 upon which is mounted the drive wheel 5. This shaft 4 has fast therewith the bevel gear 6 in mesh with the bevel gear 7 carried by the bracket 8 from the frame 1. The bevel gear 7 is in mesh with the bevel gear 9 opposing the gear 6 and loose on the shaft 10. Between the gears 6 and 9 is the splined collar 11 rockable by the bell crank 12 to clutch the gear 6 or the gear 9 for driving the shaft 10 in reverse directions. The bell crank lever 12 is carried by the bracket 13 from the frame 1. The shaft 10 has fast therewith the gear 14.

The gear 14 is in mesh with the idler pinion 15 disposed thereabove in the frame 1, which idler pinion 15 is in mesh with the gear 16 fast on the shaft 17 carried by the frame 1. Also, fast on the shaft 17 is the pinion 18 in mesh with the gear 19 fast on the shaft 20 carried by the frame 1. This shaft 20 has a wabbler or angularly disposed cam 21 thereon engaging the channeled roll 22 fast on the shaft 23 which carries the upper or first roll 24 of the inking train longitudinally oscillated by the cam 21.

When it is desired to use different inks or inks of more than one color, this first roll of the inking train may have a central recessed portion 25 of an extent greater than the longitudinal reciprocation of this roll, thereby avoiding intermediate mingling of these different inks or colors. Two color work may be run off in this manner by having the imprints double size and running the stock through twice, making, in the aggregate, one operation for each article turned out.

The ink may be supplied to this first roll 24 of the inking train by rotary reservoirs or ink supply rolls. Mounted on the frame 1 are the rocking arms 26 carrying the trunnions 27 of the inking rolls, which accordingly may fall by gravity toward the roller 24 for frictional rotation by contact therewith.

The inking roll trunnion 27 may be locked by set screw 28 (Fig. 2) to the collar 29 interfitting with the hub 30 of the rotary inking reservoir or hollow roll having the lower section 31 (Fig. 4) provided with inwardly extending angular ledges 32, 33, for removably mounting therebetween the compartment reservoir 34. This inking reservoir proper has near the bottom thereof adjacent each compartment a slot 35. Adjacent the slot 35 is an opening 36 in the outside of the roll member 31. The effective size of this opening 36 may be adjusted by the spring wing 37 movable across the opening 36 toward the slot 35 by the set screw 38 accessible through the opening 39 in the member 31.

The reservoir proper 34 may have at intervals therealong grooves 40 (Fig. 5) for partitions 41 (Fig. 2), thereby dividing the reservoir into a plurality of compartments. This sub-division of the reservoir will permit greater refinements in the control of ink flow therefrom.

For each compartment there is a discharge assisting means comprising the compartment closure member 42 having rigidly fixed therewith the yieldable means or spring loop 43. Opposing the roll section 31 is the roll section 44 having fixed thereon a plurality of brackets 45 to abut the loops or springs 43 and thereby cause a yieldable pressure action upon the closure 42 in assisting flow of ink through the slot 35 and the opening 36 from this rotary reservoir inking roll.

To increase the compression and thereby the discharge rate for a particular region or compartment along the inking roll or ink reservoir, screws 46 may be adjusted outward to increase the compression of the springs 43.

As shown in Fig. 1 the inking reservoirs or rotary ink supply rolls may be grouped about the roll 24 and the supply may be quickly and easily reduced by merely rocking the reservoir free from contact with the roll 24.

Fast on the shaft 17 to be rotated thereby is the inking roller 47 which is contacted by the rollers 48, 49, 50. (Figs. 1, 6, 7.) Rolls 49 and 50 each have fixed therewith a channeled roll 51 coacting with the cam 21 on the shaft 20. Accordingly, while roll 49 transmits its rotation from roll 47 to effect rotation of the roll 24 and the inking reservoirs coacting therewith, the rolls 24, 48 and 50 of the inking train have oscillation or reciprocation, the former as to the inking reservoir rolls and roll 49 and the latter as to the roll 47. The reciprocated rolls are each actuated by the cam 21 coacting with the channeled rolls 22 and 51.

The inking train down to and including roll 47 is effective (Figs. 1, 6) to thoroughly and uniformly distribute the ink and this ink from the roll 47 may be taken by the idler rolls 52, 53, respectively carried by arms 54, 55, from the shaft 10 on which the copy carrying roll 56 is fixedly mounted. Set screws 57, 58, permit adjustment of the rolls 52, 53, into such frictional contact with the roller 47 of the inking train and the copy carrying roll as may be desired.

The copy carrying roll 56 may to advantage have copy anchoring means thereon as the spiral or angularly progressing undercut ways 59. In these ways 59 may be slipped from the end of the roll the flare nuts 60 for the screws 61 having the wedge side blocks 62 movable into contacting relation with the inclined sides of the copy carrying frame 63. With these wedge blocks 62 moved in the various grooves for closely engaging position as to the frame 63, these screws 61 may be tightened for effective anchoring of the copy carrying frame 63 configured to the curvature of the copy carrying roll 56. The copy carrying frame 63 may have overhanging flanges 64 under which may engage the tongue 65 of the liners or spacers 66 (Figs. 8, 9, 10, 11) provided with interengaging means or ribs 67 to coact with grooves 68 in the copy elements or type 69. These liners 66 are thicker on their upper or outer portions than at their root or base portions to care for the curvature in the frame 63 and permit of close fitting of the copy elements as locked in the frame by the wedges 70 (Fig. 6).

Opposed to this copy carrying roll 56 is the roll 71 (Figs. 1, 6, 13), positively driven by the gear 71′. In direct printing the roll 71 may have a packing 72 of yieldable or fiber stock brought around under the wedge 73 having the terminal pins 74 to be engaged by the wedge hook 75 and firmly drawn down into anchoring position. With this end of the packing 72 firmly held, the packing should loosely extend about the roll to approximately fully embrace this roll 71.

For independent removal there is mounted over this packing sheet 72 the draw sheet or make-ready face 76. This sheet of flexible stock which in direct printing may be of Manila paper, while in offset printing it is preferably a rubber, may have an end thereof inserted between the members 77 and 78 of the clamp (Fig. 12) normally held in assembled relation by the spring clip 79. With the strip 76 inserted between these clamps 77, 78, the pins 80 may be forced through this sheet 76 to additionally assist the opposing jaws of the clamp member 77, 78 in firmly anchoring one end of the sheet 76. The other end of this sheet may be wrapped about the face of the sheet packing 72 and brought under the wedge block 81 mounted for swinging out of position on the links 82. This wedge block 81 has terminal pins 83 which may be engaged by the lock-

ing hook 84 in drawing the end of the sheet 76 into snugly held position about the roll 71. Before this wrapping of the sheet 76 about the roll 71 the clamp 77, 78 is brought into assembled relation with the roll 71 by having its pin 85 engaged by the locking hook 86 to draw this wedge clamp into assembled position. This roll 71 and its gear 71′ are mounted on the shaft 87 carried by link 88 from the frame 1 and normally held in upward position by the spring 89. (Fig. 1).

With additional sets of clamps 77, 78, when the sheet 76 is a make-ready sheet, any special copy can be built up for use and the sheet 76 removed with its clamp, the copy taken off and other copy used. For re-use of the first copy, it is not necessary to again build up the make-ready for it may be brought back and placed identically with its original position without any delay and copy run off at once.

In offset operation, say when the roller 71 has a soft fiber or rubber jacket for the draw sheet, to take ink supplied from the outstanding copy on roll 56, this offset may be transferred to stock passing between the roll 71 and the lower roll 90, which in this operation has its gear wheel 91 in mesh with the gear wheel 71′. This roll 90 and gear 91 are mounted on the shaft 92 carried by lever 93 from the frame 1. In order that stock may be fed through the press in the same direction for offset work as for direct printing, the lifting of the gear 91 into mesh with the gear 71′ acts upon the link 94 and rocks the bell crank lever 12 to reverse the direction of the driving train by throwing the clutch 11 from the gear wheel 6 into mesh with the gear wheel 9.

For supplying the stock to the press there may be an intermittent feed device for the material. As shown in Figs. 6 and 13, this may comprise a cam 95 fast on the shaft 10 which may be engaged by a pin 96 on the lever 97 having its fulcrum 98 fixed with the frame 1. Upon rotation of the shaft 10, this lever 97 is oscillated. This lever 97 is adjustably connected by the set screw 99 to the rod 100 to effect vertical reciprocation of this rod. To the lower end of this rod 100 (Fig. 14) is connected the bell crank 101, 102, pivotally mounted at its angle upon the shaft 103 which has fixed thereon the four-toothed wheel 104. This shaft 103 is mounted in the bracket 105, which bracket 105 carries the gravity pawl 106 confining the rotation of the shaft 103 to clockwise rotation by engaging the teeth of the member 104. As the rod 100 descends, the dog 106 thereon held in engaging position by the weight 107 engages a tooth of the member 104 and pushes downwardly for a 90° rotation with the shaft 103. In this downward travel the dog 108 normally held by its counterweight 109 to prevent back-lash of the shaft 103 is carried by the arm 102 to have the counterweight 109 ride along the cam 110, thereby throwing the dog 108 free of the toothed member 104, so that, as the rod 100 completes its downward travel and starts upward, the dog 108 may clear one tooth of the member 104 and ride up against the next tooth of the member 104. This intermittent rotation of the shaft 103 (Fig. 13) drives the gear wheel 111 and the pinion 112 meshing therewith for 180° rotation of the shaft 113.

Adjustably mounted along the shaft 113 by set screws 114 may be the collars 116 carrying opposing arc members 117 (Fig. 15). Each of the arc members 117 on its after side carries a pivoted dog 118 normally held in thrown position by the spring 119. Accordingly, in the 180° rotation of the shaft 113 the friction face segment 117 coacting with the loose roll 120 on the shaft 103 will force a length of stock thereover to pass over the bracket 121, Fig. 16, and under the roller 122 held against the face of the roll 90 by the arm 123 fulcrumed at the pin 124 and having its arm 125 normally upwardly urged by the spring 126, the force of which may be adjusted by the nut 127 on the pin 128.

In the event the stock is sheet material, after the feeding of the length past the intermittent driving device, the spring 119 on the lower dog 118 will throw this dog into intercepting position so that the next sheet passing over the roller 120 is stopped in a definite position for a repetition of this feeding operation.

This feeding operation may occur from a table 129 upon which the brackets 105 are mounted. This table may be movable into different feeding relation positions so that stock may be fed therefrom between the rolls 56, 71, as shown in Fig. 1, or between the rolls 71, 90, as shown in Fig. 13. To permit of this adjustment of the table 129, it is carried by links 130, 131. The links 131 are provided with lugs 132 normally in upstanding position anchored between the opposing cheeks 133.

For turning the table into lowered position the set screw 99 on the rod 100 is released. The table 129 at its outer end is lifted to bring the lugs 132 clear of the cheeks 133 and the table then swung outward from the press and downward on the pins 134 and 135. As the table gets into lowermost position, the eccentric 136 on the pin 135 lifts the link 137 and through the pin 138 and slot 139 permits the spring 140 to actuate the lever 93 upward to bring the gear 91 into mesh with the gear 71′ as well as bring the roll 90 into position for passing stock therethrough for receiving offset impression from the roll 71.

In the normal operation of the press, the

treadle 141 may be operated to actuate the link 142 which has a collar 143 to engage the lever 93 and a loose pin 144 to engage the lever 88. (Fig. 1.) In offset printing operation, this pressing down of the treadle 141 will throw the rolls 90, 71, sufficiently far apart, owing to the early engagement of the collar 143 with the lever 93, to permit removal of stock from between said rolls. This movement is permitted by the slot 139. The shifting of the shaft 92 carrying the roll 90 is sufficient to act through the link 94 and bell crank 12 to throw the clutch 11 into disconnecting driving position.

Similarly, when the table 129 is in upper position and the press is being run for direct printing, actuation of the throwoff treadle 141 downward will cause the pin 144 to pull the roll 71 sufficiently far from the copy carrying roll 56 that paper stock therebetween may be removed.

In the operation of the machine, the rotary ink supply reservoirs may be charged by removal of the section 44 and ink supplied in the various compartments therealong, the inking reservoir re-assembled by screws 145 and mounted in position as to the roll 24. Say paper stock is being supplied over the table 129, while in the upper position, driving of the pulley 5 will occur as shown in Fig. 6 by arrow, for rotation of the inking train, reciprocation of the ink distributing rolls as well as rotation of the ink supply reservoir for the delivery of the distributed ink to the copy mounted on the copy carrying roll. Stock intermittently fed through the machine by the intermittently driven arc members 117 will repeat proper delivery of the stock for successive impressions.

When the copy used is designed for offset reproduction, the table 129 is shifted to lowermost position and the press automatically assembles the rolls for offset operation and reverses the drive by shifting the clutch 11 so that stock may be fed from the table 129 to the offset side of the roll 71. In a similar manner as to the feeding above, the intermittent grip device may be re-set by the set screw 99 in the lowered position.

What is claimed and it is desired to secure by Letters Patent is:

1. A press comprising a copy carrying roll, reversible driving means for the roll, follower rolls driven from said driving copy roll including an impression roll connected to be rotated coincidentally from the copy roll whereby register is maintained between the driver and follower rolls, and means for throwing off one of the follower rolls without stopping the drive for the copy roll.

2. A press comprising three rolls in a series, one diametrically spacing the other two, and a material supply table having a rigid complete platform unit movable to horizontal position on opposite sides of the one.

3. A press comprising three rolls, bearings for the rolls mounting them in a vertical series, and a material supply table having a rigid complete platform unit movable to horizontal position above and below an intermediate roll of said series.

4. A press comprising a series of rolls, a horizontal material supply table, and a rockable mounting for the table moving the table away from the rolls to clear the rolls in shifting the table to different positions as to the rolls.

5. A press comprising a copy roll, first and second follower rolls, means for supplying material between the first and second follower rolls and between the copy and follower rolls, and a device for rendering the second follower roll idle when the material is supplied between the first follower roll and the copy roll.

6. A press comprising a copy roll, first and second follower rolls, driving means for the rolls, means for supplying material between the copy roll and the first follower roll and between the first and second follower rolls, and a throwoff device for spacing the follower rolls and provided with actuating connections for disconnecting the driving means from the rolls.

7. A press comprising a copy roll, first and second follower rolls, driving means for the rolls, feeding means for material between the rolls, a throwoff device for spacing the follower rolls, and connections from one of said follower rolls for reversing the driving means.

8. A press comprising a copy roll, first and second follower rolls, driving means for the rolls, feeding means for feeding material to the follower rolls including a movable platform, and a throw-off device for shifting the follower rolls and provided with coacting connections from the platform.

In witness whereof I affix my signature.

ALFRED L. PARMELEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."