

Dec. 24, 1940.

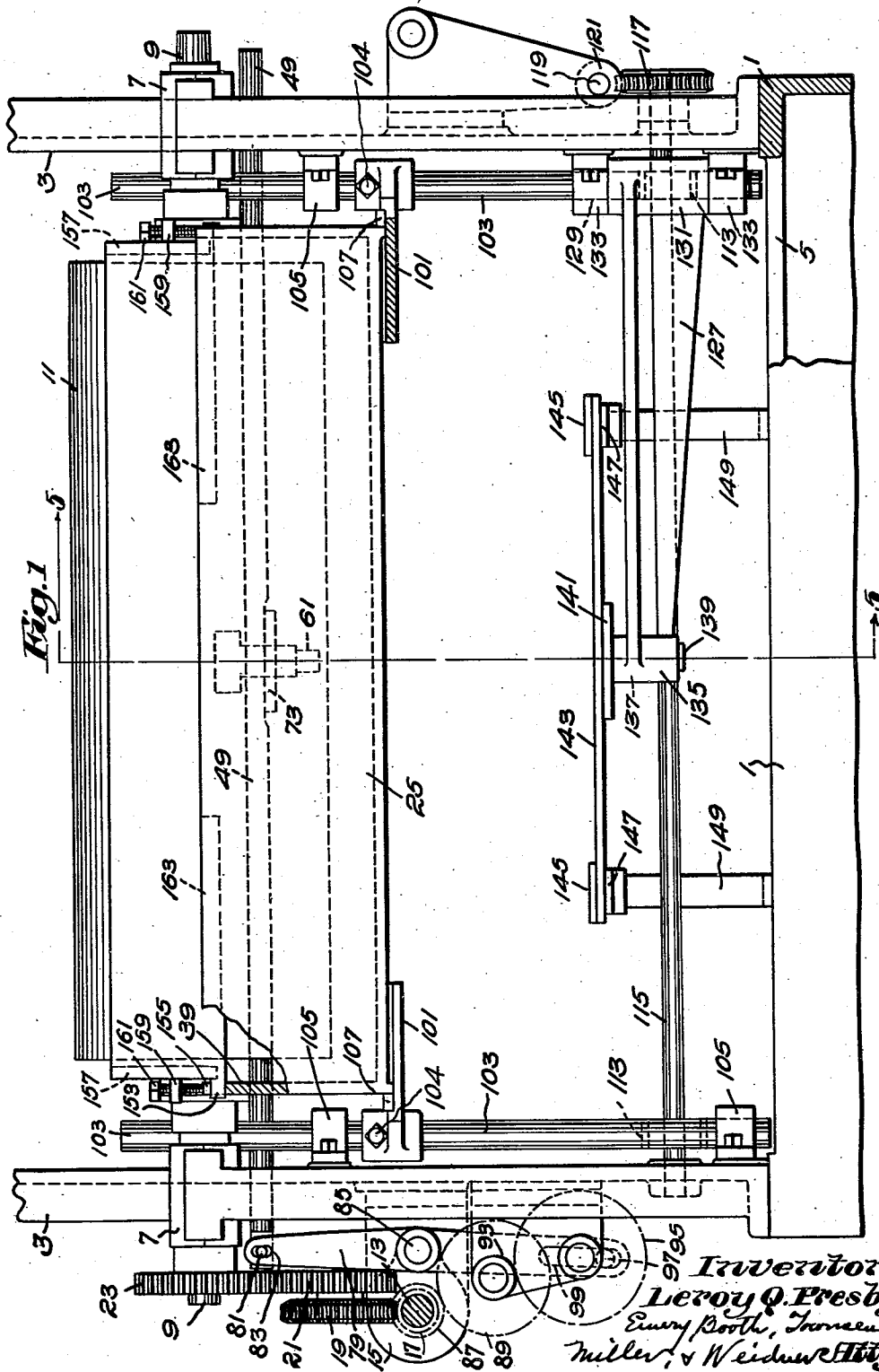
L. Q. PRESBY

2,226,515

PRINTING PRESS

Filed June 1, 1938

4 Sheets-Sheet 1.



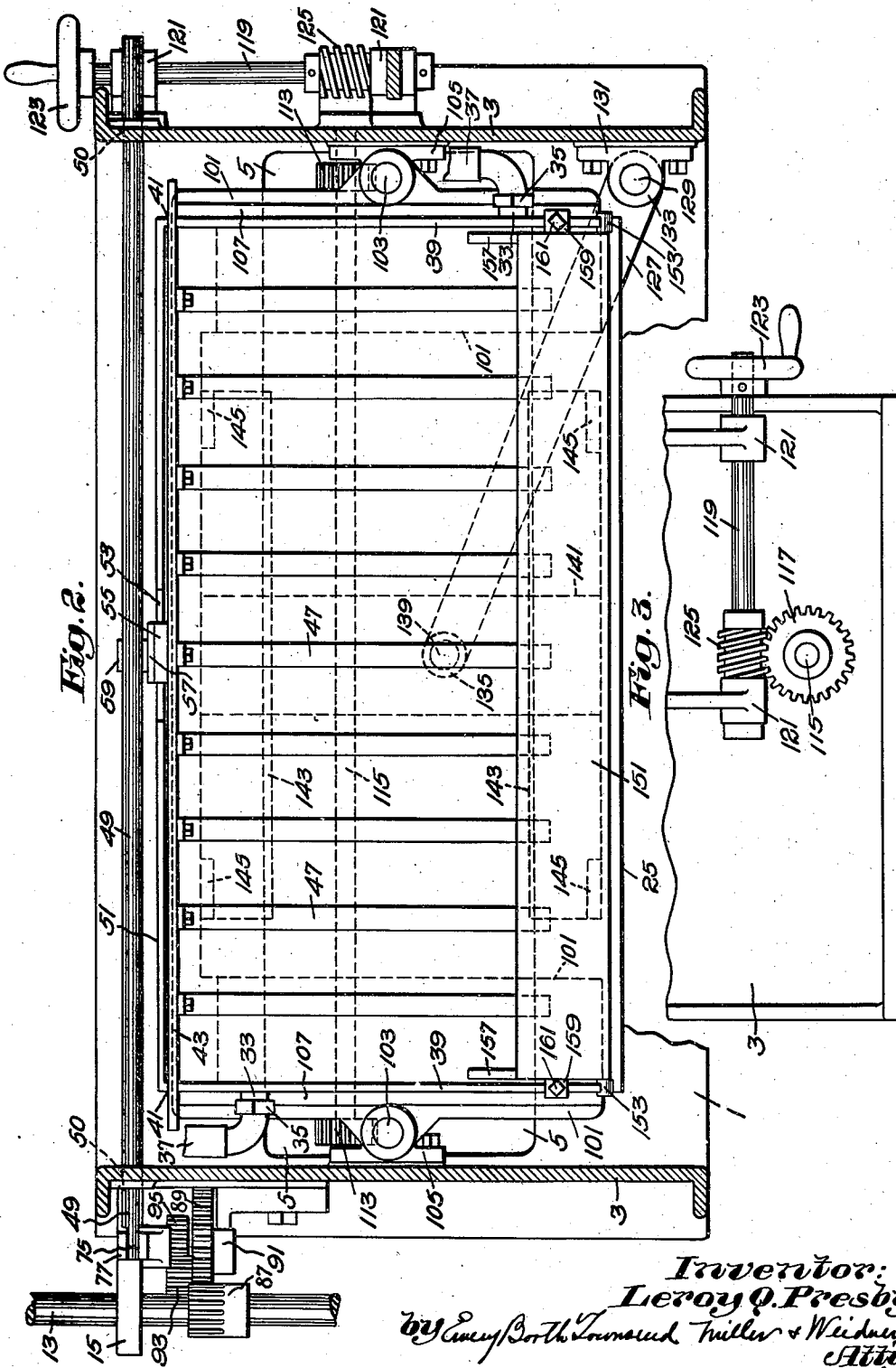
Dec. 24, 1940.

L. Q. PRESBY
PRINTING PRESS

2,226,515

Filed June 1, 1938

4 Sheets-Sheet 2



Inventor:
Leroy Q. Presby,
by Emily Borth Lumsden, Thiller & Wickham
Attys.

Dec. 24, 1940.

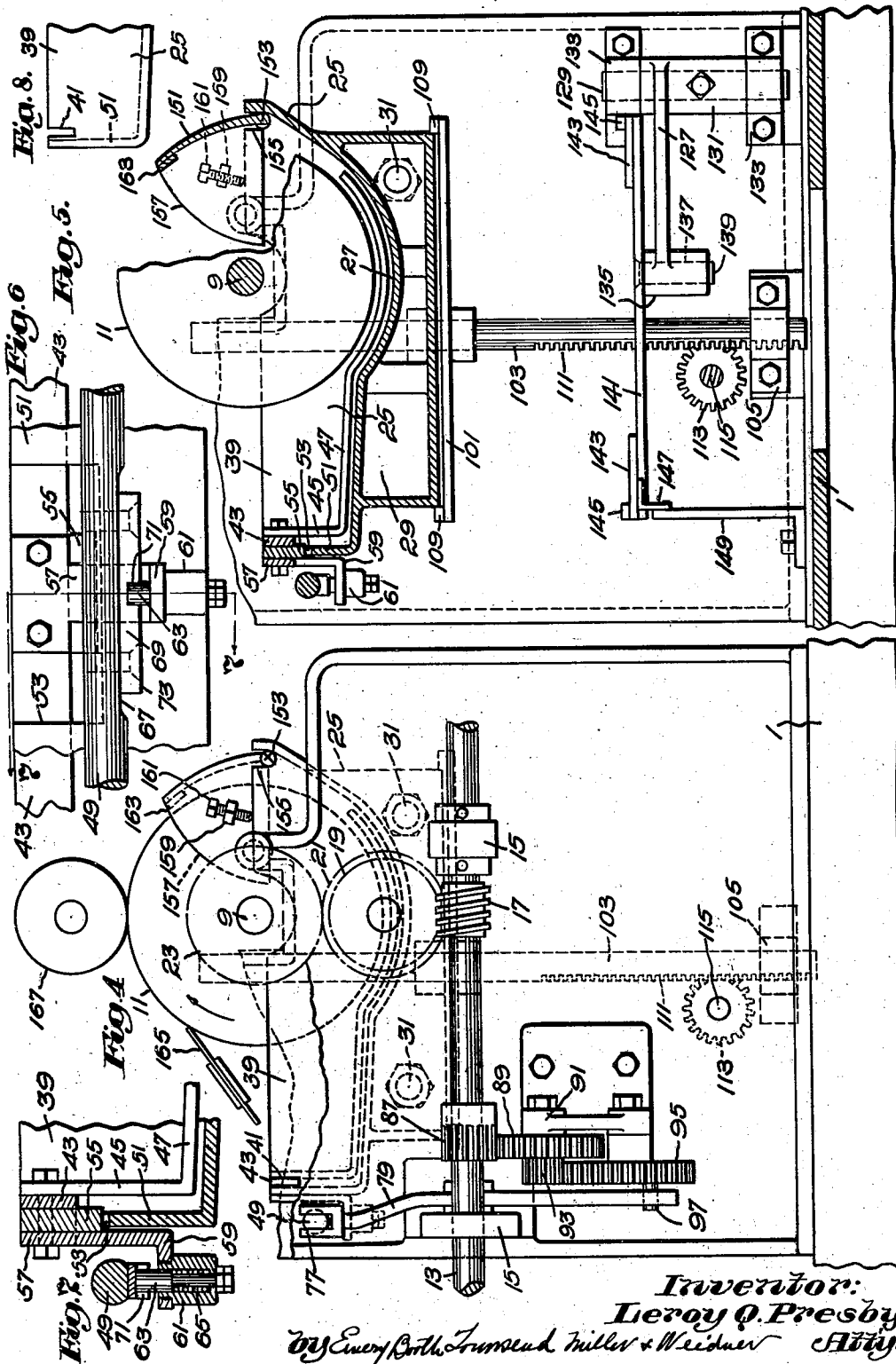
L. Q. PRESBY

2,226,515

PRINTING PRESS

Filed June 1, 1938

4 Sheets-Sheet 3



Dec. 24, 1940.

L. Q. PRESBY

2,226,515

PRINTING PRESS

Filed June 1, 1938

4 Sheets-Sheet 4

Fig. 10.

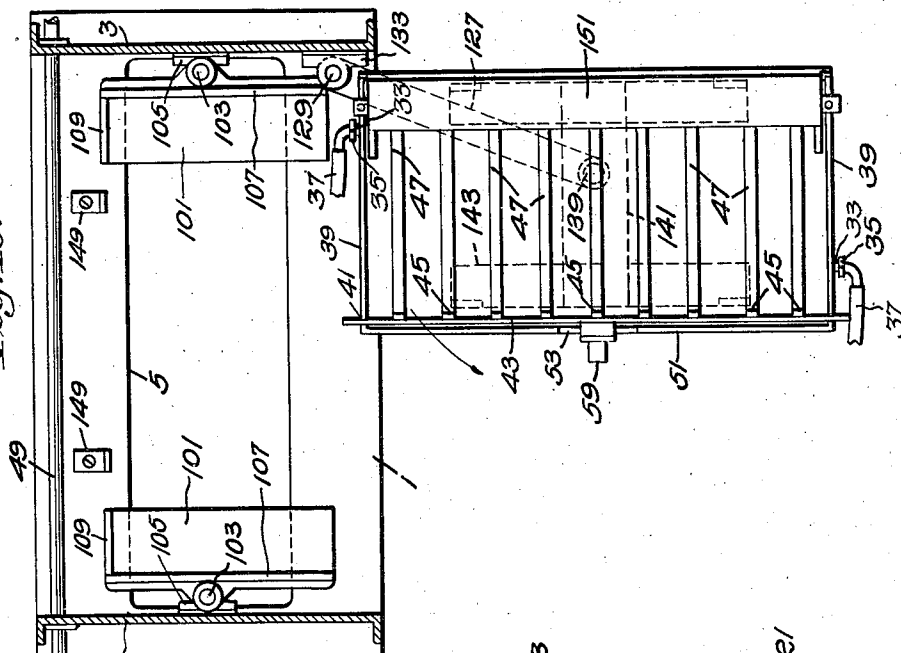


Fig. 9.

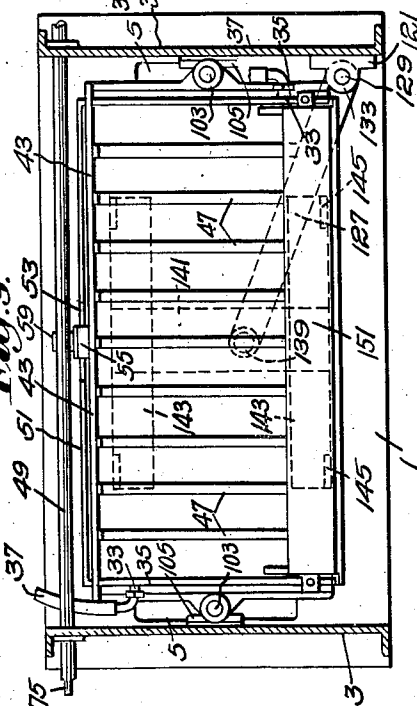
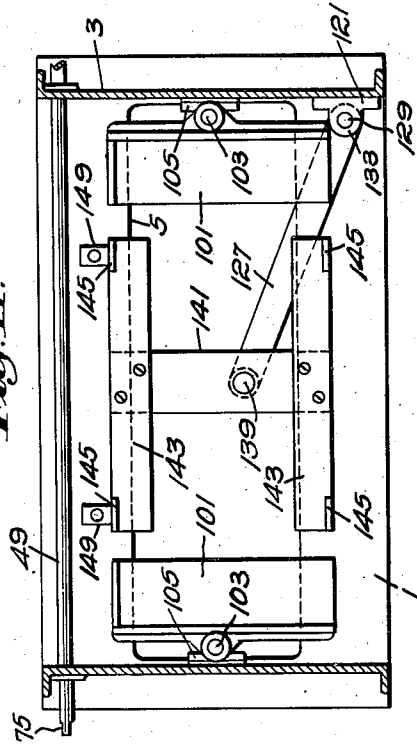


Fig. 11.



Inventor:
Leroy Q. Presby,
by *Ernest North Townsend Fuller & Widener*
Attys

UNITED STATES PATENT OFFICE

2,226,515

PRINTING PRESS

Leroy Q. Presby, Melrose, Mass., assignor to
American Stay Company, East Boston, Mass., a
corporation of Massachusetts

Application June 1, 1938, Serial No. 211,163

13 Claims. (Cl. 101—364)

My invention relates to printing presses, and is more particularly concerned with a novel inking mechanism therefor.

The invention will be best understood from the following description when read in the light of the accompanying drawings of an embodiment of the invention, the scope of which latter will be more particularly pointed out in the appended claims.

10 In the drawings:

Fig. 1 is an end elevation of a press constructed according to the invention with parts broken away and parts omitted;

15 Fig. 2 is a plan of the press according to Fig. 1 with parts omitted;

Fig. 3 illustrates part of the elevator mechanism for the ink fountain corresponding to an elevation of Fig. 2 as viewed from the right;

20 Fig. 4 is an elevation of the press according to Fig. 1, as viewed from the left of the latter, with parts broken away;

Fig. 5 is a section on the line 5—5 of Fig. 1;

Fig. 6 illustrates a detail;

Fig. 7 is a section of the line 7—7 of Fig. 6;

25 Fig. 8 is an elevation of a fragment of the end of the ink fountain;

Figs. 9 and 10 illustrate the ink fountain in different operative positions, respectively, and are plans of the press corresponding to Fig. 2 with parts omitted; and

30 Fig. 11 is a plan on a reduced scale corresponding to Fig. 2 with parts omitted.

Referring to the drawings, which show the preferred embodiment of the invention, the press comprises a frame having a base 1, which latter supports the vertical side standards 3, the base being formed with an opening 5 as is clearly illustrated in Fig. 10.

Carried by the standards 3 are bearings 7 for the shaft 9 of the printing cylinder 11. As shown, this printing cylinder is driven from a horizontal shaft 13 carried by one of the side standards, the latter being provided with projecting bearings 15 for supporting the shaft. The shaft 13 may be driven in any suitable way (not shown), and may be of such length as to drive the printing cylinders of a plurality of printing couples arranged in a row for operating on the same web. Herein, the shaft 15 has fixedly secured thereto a worm 17 with which meshes a worm wheel 19, a gear 21 coaxial with the worm wheel and rotating therewith meshing with the gear 23 on the shaft 9 of the printing cylinder so that the latter will rotate when the shaft 13 rotates.

35 As illustrated, positioned between the stand-

ards 3 in operative relation to the printing cylinder 11 is an ink fountain 25, the bottom of the ink chamber of which has a depressed portion 27, the upper surface of said portion being approximately coaxial with the printing cylinder.

5 Below the bottom of the ink chamber the fountain is formed to provide a chamber 29, the opposite end walls of which have openings 31. To each of these openings is connected a projecting pipe 33 terminating in a union fitting 35 for detachably connecting to the pipe a length of flexible hose 37. By means of these hoses and their connections to the chamber 29 hot or cold fluid, if desired, may be circulated through that chamber for heating or refrigerating the ink.

15 As illustrated, the opposite end walls 39 of the ink fountain at their upper edges are formed with notches 41, in which is reciprocally received a bar 43 forming part of an ink agitator. To this bar are connected the vertical terminal portions 45 of a plurality of spaced fingers, the fingers having formed integrally with the portions 45 thereof projecting portions 47 conforming closely to the surface of the bottom of the ink chamber. In an obvious manner by reciprocating the bar 43 the fingers connected to said bar will agitate the ink.

Herein, for reciprocating the bar 43 is provided a parallel reciprocatory rod 49 mounted on bearings 50 in the opposite standards 3. Intermediate its length the rear wall 51 of the ink fountain at its upper edge is notched as shown at 53. Carried by the bar 43 in position to extend through this notch is a spacer 55 for securing to the bar the vertical leg 57 of an angle bracket. 35 The lower leg 59 of this bracket carries a cup-shaped member 61 within which is reciprocally mounted an upwardly projecting pin 63, the latter being urged in an upward direction by a coiled compression spring 65 as will be clear from Fig. 7. 40 The lower side of the reciprocatory bar 49 adjacent its center portion is shown as flattened at its under side as indicated at 67, and to this flattened surface is secured a plate 69 having on its lower surface a notch 71 into which the projecting upward end of the pin 63 removably extends. It will be observed that when the ink fountain, which operatively carries the pin 63, is placed between the standards, if the pin and notch are not in alignment the pin will slidably bear against 50 the lower surface 73 of the plate 69, and that reciprocation of the bar 49 will move the notch into alignment with the pin, whereupon the pin will snap into the notch and cause the agitator to operate. 55

For reciprocating the bar 49 the latter at one end at the exterior side of the adjacent standard 3 is shown as flattened as at 75 (Fig. 2). Embracing this flattened portion of the rod is the bifurcated upper end portion 77 of a lever 79, as clearly shown in Fig. 4. Extending through the flattened portion of the rod and projecting from opposite sides thereof is a pin 81 (Fig. 1) received in slots 83 in the bifurcated end of the lever. The lever is pivoted at 85 to the adjacent bearing bracket 15 for the drive shaft 13. Carried by the drive shaft is the gear 87 (Fig. 4) which meshes with the gear 89 rotatably supported on a bracket 91 secured to the outer side of the adjacent standard. Fixed to rotate with the gear 91 is a pinion 93 meshing with a gear wheel 95 rotatably carried by the bracket 91. The last mentioned gear wheel has an eccentrically positioned projecting pin 97 which extends into the slot 99 formed in the lower end of the lever 79. In an obvious manner when the shaft 13 is rotated the pin 97 will rotate about the axis of the gear wheel 95 and cause the lever to oscillate on its pivot 85, which oscillation is effective to reciprocate the bar 49.

As illustrated, for supporting the ink fountain 25 there is provided a pair of flat bracket members 101 each of which is fixedly carried by a shaft 103, the set screws 104 providing for adjustment of the bracket members longitudinally of the shafts. As shown, the shafts are mounted for vertical reciprocation in bearing brackets 105 secured to the inner sides of the standards 3. Conveniently, each of these brackets at its upper side has an upwardly projecting lug 107 (Figs. 1 and 10) between which lugs of the respective brackets the ink fountain fits lengthwise. Also each bracket at opposite edges of its upper side has an upwardly projecting lug 109 between which the ink fountain fits transversely. In this way the ink fountain when placed on the brackets 101 is accurately positioned relative to the printing cylinder.

For simultaneously raising and lowering the shafts 103 each is provided on one side thereof with rack teeth 111 (Fig. 5) with which meshes a pinion 113, the two pinions being fixedly carried by a horizontal shaft 115 journaled at opposite ends in the standards 3. At one end the shaft 115 projects through the adjacent standard, and at the exterior of the latter fixedly carries a worm wheel 117. Above the worm wheel is positioned a horizontal shaft 119 which is journaled in bearings 121 carried by the adjacent standard 3. At one end the shaft 119 is provided with a hand wheel 123, and at its opposite end with the worm 125, the latter meshing with the worm wheel 117. By reason of this construction rotation of the hand wheel is effective to raise and lower the shafts 103 which operatively support the ink fountain, the mechanism by reason of the meshing worm and worm wheel holding the ink fountain in its adjusted position. As will be obvious, the ink fountain must be raised and lowered to accommodate cylinders of different diameters and to permit removal of the ink fountain when it is desired to substitute fountains of different sizes, or to remove the ink fountain for cleaning purposes.

For removing the ink fountain from between the standards a swinging arm 127 is provided, the arm at one end fixedly carrying a spindle 129 projecting from opposite sides of a hub 131 formed integrally with that end of the arm. As shown, the projecting ends of the spindle at op-

posite sides of the hub are pivotally mounted in bearing brackets 133 fixedly carried at the inner side of one of the standards adjacent one edge thereof. At its opposite end the arm 127 is integrally formed with a hub 135 having a vertical perforation 137 in which is swivelled a pin 139. This pin is fixedly secured to a support for the ink fountain, which support for convenience of terminology is herein called a table. As shown, the pin 139 is fixedly carried by and projects downwardly from the under side of a flat bar 141. At opposite ends the bar 141 carries flat bars 143 arranged transversely thereof. The bars 143 at their outer edges at each end are provided with upwardly projecting lugs 145. When the parts are in the position shown by Figs. 1, 2, 5, 9 and 11, by turning the hand wheel 123, the brackets 101 which support the ink fountain will be lowered to lower the fountain and place it upon the table carried by the swinging arm 127, the bottom of the fountain when placed upon the table resting upon the flat bars 143 with the fountain positioned thereon by the lugs 145, the inner sides of which latter are spaced apart the same distance as those of the lugs 109 on the brackets 101, as will be clear from Fig. 5. The arm 127 may then be swung on its pivot to move the ink fountain from between the standards, the swivel connection of the table to the arm permitting the table to be turned so that the fountain will clear the standards and the parts carried by them during the swinging movement. The fountain may then be removed from the table and placed on a truck for transporting it. A truck of the elevator platform type is preferably used for that purpose.

As illustrated, one of the bars 143 adjacent each end thereof on its under side has secured thereto a bracket having a downwardly projecting leg 147 (Fig. 5), which legs are adapted to contact with the upper ends of posts 149 carried by the base 1 of the frame of the press when the parts are in the position as illustrated in Figs. 1 and 5. It will be observed by this construction that when a new fountain is placed upon the table carried by the swinging arm and the arm is swung to move the fountain between the standards one of the brackets 147 will strike one of the posts 149 and as a result the table will swivel on the end of the arm 127 to move both brackets against the posts and cause the fountain automatically to align the printing cylinder.

It will be understood that by use of the unions 35 the flexible hoses 37 may be readily detached from the fountain and attached to the new fountain substituted. Conveniently, these hoses are of such length that the fountain may be raised and lowered and swung while hoses are attached thereto.

As illustrated, the fountain at one side thereof at its top is provided with a cover member 151 opposite ends of which have lugs 153 (Fig. 1) removably received in notches 155 formed in the opposite end walls 39 of the fountain. At opposite ends the cover has wings 157 embracing the ends of the cylinder. The outer sides of these wings are formed with lugs 159 through each of which extends a screw 161 adapted to rest upon the upper edge of the end wall 39 of the fountain. By adjusting these screws the cover 151 may be swung on its lugs 153 to adjust it relative to the cylindrical surface of the printing cylinder so as to compensate for different diameters of cylinders. Preferably, at the inner side of the cover adjacent its upper edge are se-

cured one or more blocks of soft rubber 163 to prevent the cover from accidentally injuring the surface of the printing cylinder. It will be observed that the cover 151 in conjunction with the doctor blade 165 acts to enclose the fountain except for a relatively small portion of its upper surface adjacent the impression cylinder 167, this preventing excess evaporation of the ink and hardening of the residual amount thereof that remains on the cylinder after it operates upon the web.

It will be understood that within the scope of the appended claims wide deviations may be made in the form of the invention described without departing from the spirit of the invention. It will also be understood that the elements herein designated an "ink fountain" and a "printing cylinder" are referred to as such only for convenience of terminology and are not limited to use with ink or for ordinary printing, but that the fountain may contain various lacquers, waxes or coating compounds to be applied to the web by the cylinder as may be desired, the provision for heating the fountain rendering it possible to maintain the wax in a liquid state if solid at room temperatures.

I claim:

1. A printing press having, in combination, an ink fountain, a roll dipping into said fountain, and means for raising and lowering said fountain and for moving it when lowered from beneath said roll, which means comprises a movably mounted fountain support and an elevator for placing the fountain on and raising it from said support.

2. A printing press having, in combination, a frame comprising side standards, an ink fountain between said standards, and means for raising and lowering said fountain and for moving it when lowered from between said standards, which means comprises a movably mounted fountain support and an elevator for placing the fountain on and raising it from said support.

3. A printing press having, in combination, an ink fountain, a roll dipping into said fountain, a table mounted for movement in a horizontal plane, and an elevator for said fountain adapted to lower and raise it to place it on and remove it from said table.

4. A printing press having, in combination, a frame comprising side standards, an ink fountain between said standards, a table, means supporting table for movement in a horizontal plane adapted to move said table from between said standards, and an elevator for lowering said fountain while between said standards and placing it on said table and for raising it from said table.

5. A printing press having, in combination, a frame comprising side standards, an ink fountain between said standards, a table, means supporting said table for swinging movement in a horizontal plane adapted to move said table from between said standards, and an elevator for lowering said fountain while between said standards and placing it on said table for raising it from said table.

6. A printing press having, in combination, a frame comprising side standards, an ink fountain between said standards, a table, means supporting said table for swinging and swiveling movement in a horizontal plane adapted to move said table from between said standards, and an elevator for

lowering said fountain while between said standards and placing it on said table and for raising it from said table.

7. A printing press according to claim 5, in which the means for supporting the table for swinging movement is an arm pivoted about a vertical axis adjacent one of said standards.

8. A printing press according to Claim 5, in which the means for supporting the table for swinging movement is an arm pivoted about a vertical axis adjacent one of said standards, the table also being swiveled on said arm about a vertical axis.

9. A printing press having, in combination, an ink fountain, a roll dipping into said fountain, an ink agitator associated with said fountain, driving means for said agitator, means for moving said fountain into and out of association with said roll, and an automatically engaging and disengaging connection between said agitator and said driving means operated into engaging position by movement of said fountain into association with said roll and operated into disengaging position by movement of said fountain from that position.

10. A printing press having, in combination, an ink fountain having a movable ink agitator, means for operating said agitator, said fountain being movable toward and away from said means, and an automatically engaging and disengaging connection between said agitator and said means operated by movement of said fountain toward and away from said means.

11. A printing press having, in combination, a support, an ink fountain carried by said support in movable relation thereto, an ink agitator supported by said fountain, mechanism carried by said support for operating said agitator, and a detachable connection between said agitator and said mechanism automatically operated for making and breaking the connection by movement of said fountain relative to said support.

12. A printing press having, in combination, a support, an ink fountain carried by said support, an ink agitator carried by said fountain having a reciprocatory part reciprocation of which operates said agitator, a driven reciprocatory member carried by said support for operating said reciprocatory part, and a detachable connection between said part and member automatically operated for making and breaking the connection by movement of said fountain relative to said support.

13. A printing press having, in combination, a support, an ink fountain carried by said support, an ink agitator carried by said fountain having a reciprocatory part reciprocation of which operates said agitator, a driven reciprocatory member carried by said support for operating said reciprocatory part, and a detachable connection between said part and member comprising a relatively movable part carried by one of them and a portion on the other adapted slidably to contact with said part, which portion is formed with a notch into which the last mentioned part is adapted automatically to move when the latter and said notch are brought into alignment, the direction of movement of said fountain relative to said support being such as to disengage said last mentioned part from said notch.

LEROY Q. PRESBY.

CERTIFICATE OF CORRECTION.

Patent No. 2,226,515.

December 24, 1940.

LEROY Q. PRESEY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 52, claim 4, before "table" insert --said--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of January, A. D. 1941.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.