

No. 637,813.

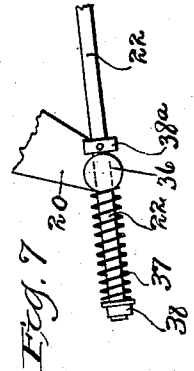
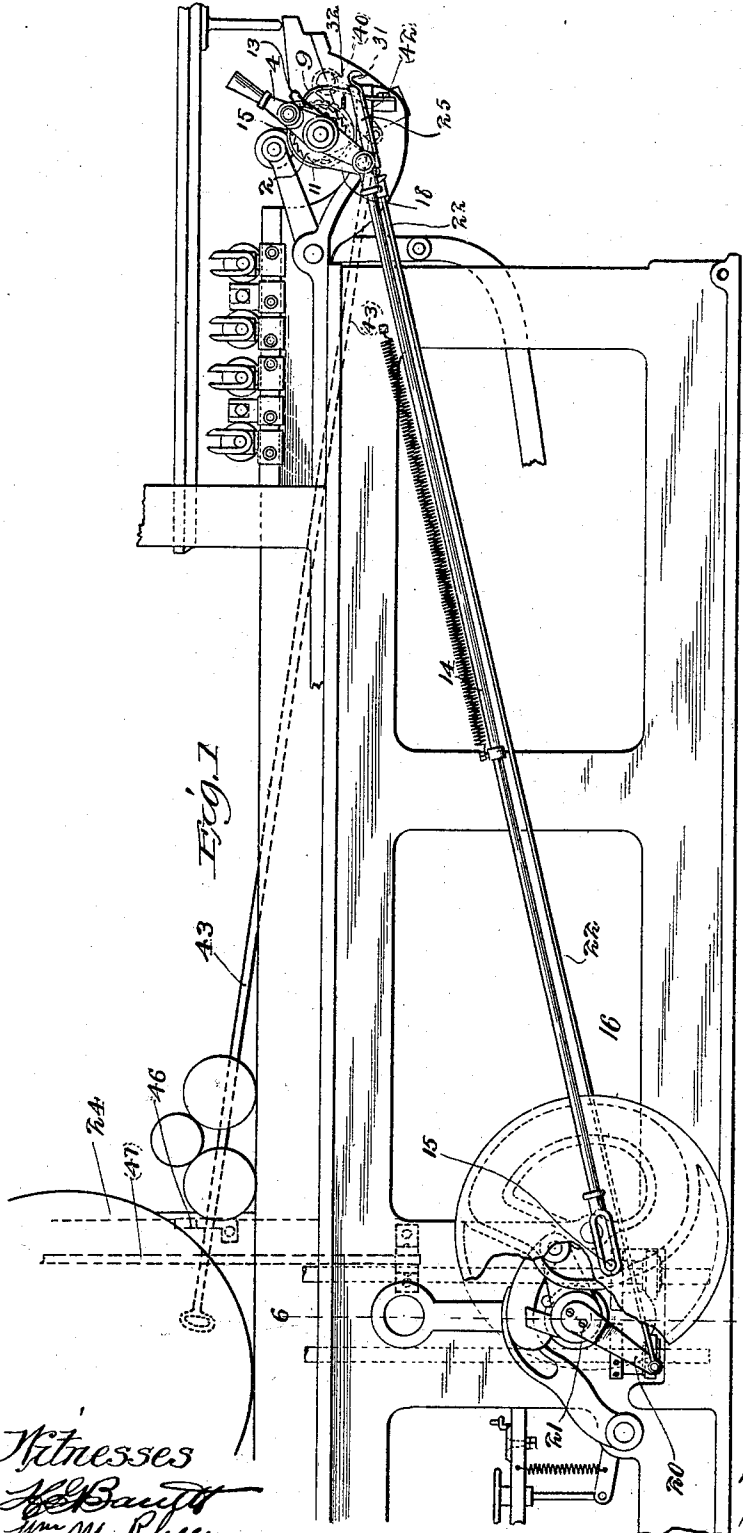
Patented Nov. 28, 1899.

R. MIEHLE.
PRINTING PRESS.

(Application filed Jan. 21, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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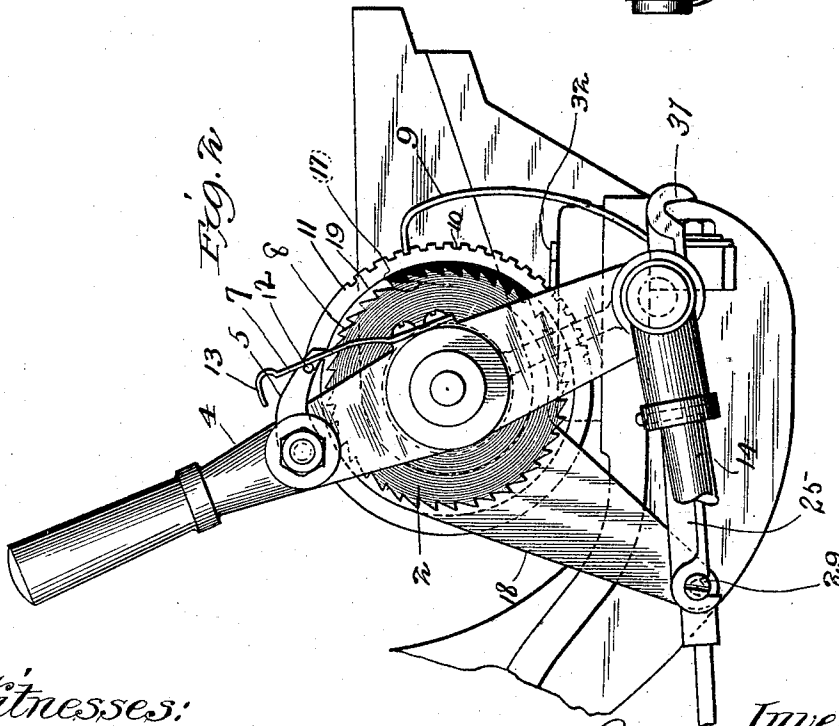
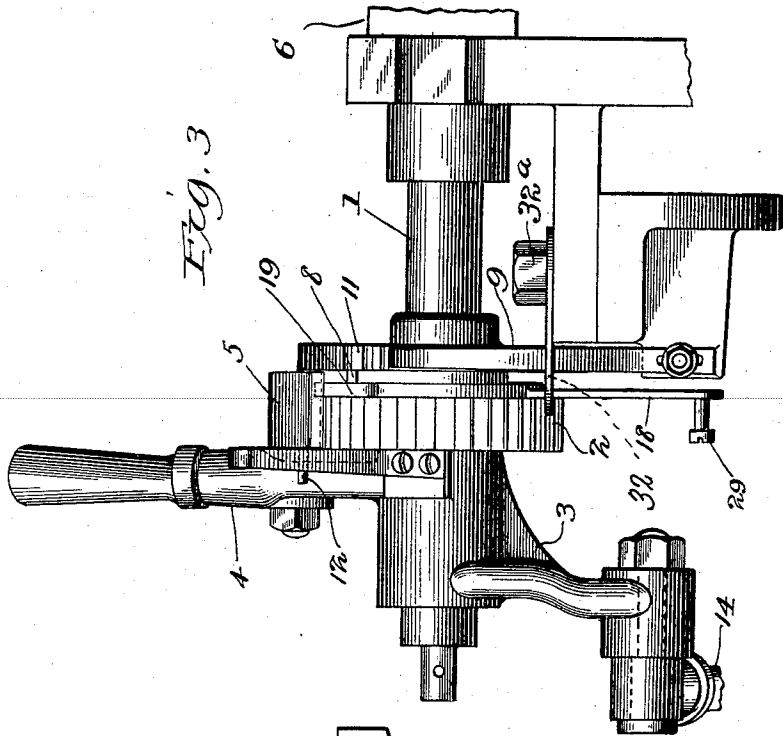
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(No Model.)

3 Sheets—Sheet 2.



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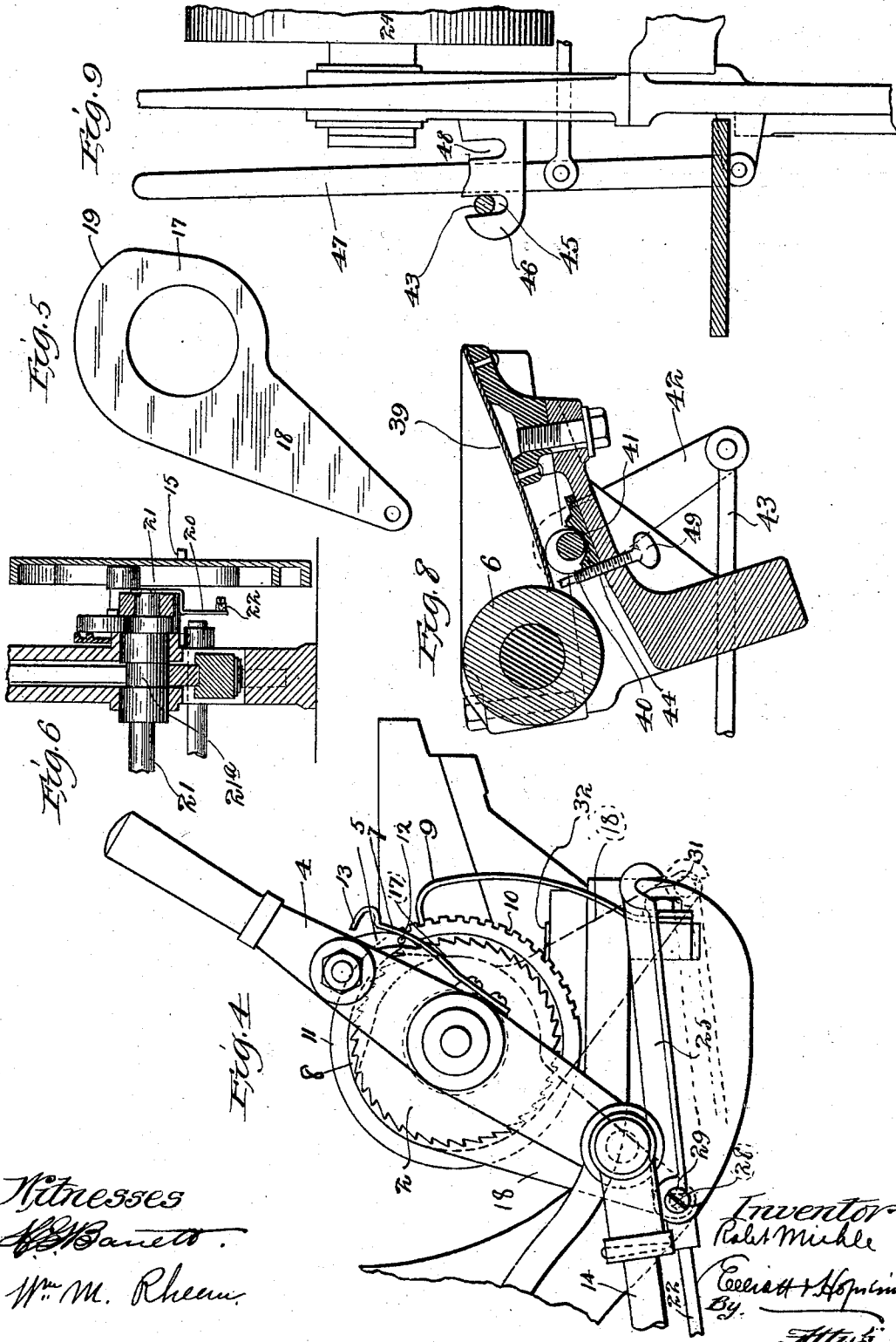
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 637,813, dated November 28, 1899.

Application filed January 21, 1899. Serial No. 702,925. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing-Presses, of which the following is a full, clear, and exact specification.

My invention relates more particularly to the ink-fountain mechanism, and the improvements have reference to means for preventing the fountain from feeding or supplying the ink at such times as the same may be unnecessary—as, for instance, when the pressman allows the press to operate without feeding thereto a sheet to be printed.

The improvements also relate to means for preventing the ink from leaking from the fountain when the latter is at rest.

The primary object of my invention is to provide improved means for permitting the press to operate without feeding ink to the inking devices or to be able to so set the fountain-controlling mechanism that it will prevent the operation of the ink-fountain when the printing operation is suspended at will, a further object being to trip the ink-fountain-controlling mechanism back to normal as soon as the printing operation begins.

A still further object of my invention is to provide means whereby the supply of ink to the fountain feed-roller may be quickly shut off when the press is at rest, so as to prevent the leakage of ink from the fountain at such time when it is necessary to employ ink of a very fluid consistency, a yet other object in this respect being to make it impossible to start the press without first turning on the ink.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of a part of a cylinder printing-press in connection with which my invention is illustrated. Fig. 2 is an enlarged side eleva-

tion of the ink-fountain-operating mechanism having my invention applied thereto. Fig. 3 is an edge view thereof looking from the right in Fig. 2. Fig. 4 is a view similar to Fig. 2, illustrating the ink-fountain-operating mechanism and its controlling mechanism at the opposite end of the throw to that shown in Fig. 2. Fig. 5 is a detail view of the cam for tripping the fountain-feeding mechanism. Fig. 6 is a vertical sectional view taken on the line 6 6, Fig. 1. Fig. 7 is a detail view of a modification hereinafter described. Fig. 8 is an enlarged transverse sectional view of the ink-fountain, showing the means for shutting off the ink when the fountain is at rest; and Fig. 9 is a detail end view of the press-frame on one side, looking from the attendant's platform, showing the belt-shifting lever and its relation to the means for controlling the flow of ink to the ink-fountain roller.

The invention is illustrated in connection with that form of printing-press in which one of the two members that produce the impression rises and falls with reference to the other at each impression, and the particular type shown is the same as that described and claimed in United States Patent No. 611,923, issued to me October 4, 1898, in which one of these members—*i. e.*, the cylinder—is caused to descend toward the other—*i. e.*, the type-bed—at each impression by means of an eccentric which pulls it down against the action of lifting-springs that raise the cylinder clear of the type during the return movement of the bed and are also caused to hold the cylinder elevated during such time as the printing operation may be suspended, and while this particular form of press is desirable it will nevertheless be understood that the invention may be applied to other forms in which one of the impression-producing members rises and falls with reference to the other. In applying my invention to this general type of press the rising and falling one of the impression-producing members is operatively associated or connected with means for throwing the ink-fountain out of connection with its operating mechanism in such a manner that when the said member recedes from its companion member the ink-fountain will not operate to supply ink, and should the said

members be allowed to remain in this relative position the ink-fountain will remain inactive even though the press continue to operate.

5 In applying my invention to the particular form of press shown in the drawings the mechanism which controls the device for transmitting motion to the ink-fountain roller is connected directly to the rock-shaft which controls the position of the aforesaid eccentric for lowering the cylinder. In this form of press 1 represents the shaft of the ink-fountain roller 6, having secured thereto a ratchet-wheel 2, through which it projects and on whose projecting end is loosely mounted a crank-arm 3, carrying a hand-lever 4 and a pawl or dog 5, which engages with the teeth of the ratchet 2 when the crank-arm 3 is moved in one direction, and thus imparts feeding movement to the fountain-roller 6 on the shaft 1, the dog 5 being pressed toward the ratchet 2 by a spring 7 and engaging with the ratchet at a sooner or later period of its stroke, according to the position of the regulating-disk 8, having a plain edge concentric with but exterior to the periphery of the ratchet 2, which engages under the dog 5 and holds it out of engagement with the ratchet until the dog passes beyond the end of its concentric edge, when the dog will drop into engagement with the teeth in the usual and well-known manner, the position of the concentric edge with reference to the stroke of the dog being controlled to suit the requirements by means of a lock or catch 9, engaging in one of a series of notches 10 in a flange 11, formed on or secured to one side of the disk 8. The spring 7 rests upon a lug 12, projecting from the side of the dog 5, and it is provided with a hook 13, adapted to engage over such lug and hold the dog elevated when desired. The crank-arm 3 is connected by rod 14 to a wrist-pin 15 on the outer side of the cam-disk 16, employed for imparting the desired movements to the cylinder-controlling eccentric 21^a, before referred to, as will be hereinafter explained. All of these parts may be of the usual or any suitable construction.

Mounted loosely upon the protruding end of the shaft 1, preferably at a point between the ratchet 2 and the disk 8, is a cam 17, having a crank-arm 18, a detail of which is shown in Fig. 5. This cam has a part 19 of its periphery formed concentric with the shaft 1 and preferably flush with the concentric periphery of the disk 8, and being between the disk 8 and ratchet 2 it of course underlies and holds aloof the free end of the dog 5 and prevents said dog from engaging with the ratchet at such times as the concentric part 19 is located thereunder, and this concentric part 19 being greater in length than the maximum stroke of the dog 5 it will be seen that it may be utilized for preventing any rotation of the roller 6 at all, and thus avoiding the feeding of the ink to the form-inking devices

when such further supply of ink is unnecessary. The cam 17 has this effect when the crank-arm 18 is turned to the left and allowed to remain there, as shown in Fig. 2; but when turned to the right, so that the stroke of the dog 5 will carry the dog beyond the end of the concentric periphery 19, the dog will engage the ratchet 2 as soon as permitted by the regulating-disk 8.

The required movement is imparted to the cam 17 by a crank-arm 20, which is rigidly secured to the end of the shaft 21, upon which are mounted the eccentrics aforesaid for drawing down the cylinder, as fully shown in Fig. 6 and described in my said prior patent, the crank-arm 20 being connected to the crank-arm 18 of the cam 17 by a rod 22, the rod 22 being located at the inner side of the cam-disk 16, while the rod 14 is located on the outer side, and the crank-arm 20 being offset or bent inwardly at its lower end to bring it into line with the cam 17 and get close to the frame.

As will readily be understood by reference to the aforesaid patent, the crank-arm 20 will be thrown to the left when the cylinder 24 is in its upper position out of contact with the type, and when it is in its lower position the crank-arm 20 will be shifted to about the same angle on the right of a vertical angle passing through its axis. Hence should the cylinder be allowed to remain in its elevated position the concentric periphery 19 of the cam 17 would remain under the dog 5 and hold it out of engagement with the ratchet 2 throughout the entire stroke of the dog, and therefore prevent the ink-fountain from feeding a further supply of ink. When the arm 20 is thrown to the opposite side of the center to that shown in Fig. 1 by reason of the cylinder coming down, the concentric periphery 19 of the cam 17 will be withdrawn from under the dog 5, permitting the latter to engage the ratchet 2 as soon as the regulating-disk 8 will permit. The crank-arms 3 18 oscillate more or less in unison and in the same direction as the cylinder rises and falls during the ordinary printing operation of the press and ordinarily the cam-surface 19 would follow up the dog 5 and prevent it from engaging with the ratchet 2 at all times; but with the form of cam-groove described in the cam-disk 16 in my former patent the dog 5 is permitted to gain or advance ahead of the concentric periphery 19 shortly after they begin to move forward by virtue of the dwell formed in said cam-groove, which causes the crank-shaft 21 to remain at rest for a short period, while the wrist-pin 15, which operates the rod 14, continues to move, and hence during the ordinary printing operation the crank-arm 20 will fail to catch up with the movement of the wrist-pin 15, and therefore the dog 5 will begin its receding movement before the periphery 19 of the cam 17 has completed its forward movement, and in this way the cam 17

is prevented from interfering with the regular operation of the ink-fountain-operating mechanism.

If it should be desired to run the press for inking up while the cylinder 24 is allowed to remain in its elevated position, the concentric surface 19 of the cam 17 may be thrown back out of the way of the dog 5 in the position opposite to that shown in Fig. 4 by pushing its arm 18 forward with reference to the rod 22. In order that these parts may be thus related and at the same time connected, the rod 22 is secured to a casting 25, which is provided with a notch 28 at one end, in which engages a lug or wrist 29, secured to the end of the arm 18. During the ordinary operation of the device the lug 29 is seated in the notch 28, and hence the forward-and-back movement of the rod 22 imparts a like movement to the arm 18; but should it be desired to throw the crank-arm 18 of the cam 17 to the right for holding the concentric periphery 19 permanently out of the way of the dog 5 the lug 29 is lifted out of its notch 28 and slipped along the casting 25 and dropped in another notch 31 at the opposite end of casting 25, where it remains until the cylinder 24 is brought down as a result of turning the eccentric-shaft 21 and throwing the crank-arm 20 to the right of the center, whereupon the casting 25 will ride upwardly over the lug 29 and slide toward the right until the notch 28 at its left-hand end comes over and receives the lug 29, thus again shortening up the distance between arms 18 20 and compelling the lug 29 to recede with the rod 22 when the arm 20 makes its return movement to the position shown in Fig. 1. In order that the casting may be caused to thus ride upwardly over the lug 29, the left-hand side of the notch 31 is beveled, as clearly shown in Figs. 2 and 4, the declivity being sufficient to hold the lug 29 from slipping downwardly by force of gravity, and the lug 29 is limited in its outer or right-hand movement by a stop 32, secured to the frame by bolt 32^a and arranged to be struck by arm 18. Lug 29 may have a head 29^a for holding the casting 25 in place.

In the event that the cam-groove in the cam-disk 16 should be made without the aforesaid dwell, which enables the dog 5 to gain on the cam 17—as, for instance, in my United States Letters Patent No. 550,992, issued December 10, 1895—the lower end of the rod 22 may be passed through a swivel 36 on the lower end of the crank-arm 20 and provided with a spiral spring or other cushion 37, sleeved on the rod 22 between the swivel 36 and an abutment-head 38, so as to afford the rod 22 a limited play independently of the arm 18, the rod being also provided with abutment-shoulder 38^a.

39 represents the flexible plate or valve-like portion which constitutes the bottom of the ink-receptacle, commonly called the "ink-blade," and whose edge extends lengthwise of and is adapted to contact with the ink-

fountain roller 6 or to be moved away from such roller a greater or less distance, according to the consistency of the ink employed, it being of course understood that such consistency varies with the character of the job being printed. Hence the amount of ink supplied to the fountain-roller 6 is dependent upon the distance of the edge of the plate 39 from such roller, such distance being ordinarily regulated by the usual adjusting-screws 49, whose upper ends impinge the under side of the blade 39; but in order that the edge of the blade or plate 39 may be forced quickly against the roller 6 for entirely shutting off the ink when the press is at rest, and thus preventing ink of a very fluid consistency from leaking out, I provide means whereby the attendant may at will deflect the edge of the plate 39 upwardly against the roller. This means may conveniently consist of a shaft 40, having eccentric journals 41, journaled in the end frames of the ink-fountain, and having attached to one end a crank-arm 42, connected to an operating-rod 43, which extends to the feeding end of the press within reach of the attendant. When the arm 42 is moved in one direction, the shaft 40, which by reason of its eccentric bearings is constituted an eccentric extending substantially throughout the length of the plate 39, will press the plate 39 upwardly into firm contact with the roller 6 and when moved in the other direction will lower the plate away from the roller. In order that the shaft 40 may have sufficient bearing at its mid-length to avoid bending downwardly under the strain, a bearing-block 44 may be arranged thereunder and be secured to the frame of the fountain, as clearly shown in Fig. 8.

The free end of the rod 43 is supported in a notch 45, formed in a bracket 46, secured to the side of the press, and this bracket is arranged contiguous to the belt-shifting lever 47, which when thrown outwardly starts the press and when thrown inwardly stops it in a well-known manner. The rod 43 is of sufficient length to project across the lever 47 when the press is stopped and the ink is shut off, the rod being pulled toward the left, as shown in Fig. 1, and hence before the operator can again start the press it will be necessary for him to first turn on the ink by pushing the rod 43 toward the right, as shown in Fig. 8, to get it out of the way of the lever 47, which must be thrown outwardly before the press may be started. When it is desired to again stop the press and shut off the ink to prevent wastage, the lever 47 is forced inwardly and the rod 43 is grasped by the hand of the operator and pulled toward the left, as shown in Fig. 1. There are times, however, when it is not desirable to have the rod 43 thus interfere with the starting of the press, and in order that the construction may meet this contingency I provide the bracket 46 with an additional notch 48, located at a point between the extreme inner position of the le-

ver 47 and press-frame, so that the operator, when desired, may lift the rod 43 out of its notch 45 and pass it over the top of the lever 47 and thence drop it into the notch 48, and hence when in this position the shifting-lever may be oscillated in either direction at will.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is--

10 1. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an ink-fountain; mechanism for operating said
15 ink-fountain in unison with the printing mechanism, and means having operative relation to said rising-and-falling member for disconnecting the ink-fountain from its operating mechanism when said impression mem-
20 bers are separated, substantially as set forth.

2. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
25 ink-fountain; mechanism for operating said ink-fountain in unison with the printing mechanism; a rocker-shaft for actuating said rising-and-falling member and means having operative connection with said shaft for dis-
30 connecting the ink-fountain from its operating mechanism when said impression members are separated, substantially as set forth.

3. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
35 ink-fountain; a motion-transmitting device for actuating said ink-fountain and means operating in unison with said rising-and-falling member for disconnecting said motion-transmitting device from said ink-fountain,
40 substantially as set forth.

4. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
45 ink-fountain; a motion-transmitting device for actuating said ink-fountain; an eccentric for actuating said rising-and-falling member and means connected with said eccentric for
50 disconnecting said motion-transmitter from the ink-fountain when the eccentric is turned in one direction, substantially as set forth.

5. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
55 ink-fountain; means operating in unison with the printing mechanism for actuating said ink-fountain; means having operative relation to said rising-and-falling member for dis-
60 connecting the ink-fountain from its operating mechanism when said impression members are separated, and means for rendering the latter means inoperative independently
65 of the movement of said rising-and-falling member, substantially as set forth.

6. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
70 ink-fountain; mechanism for operating said ink-fountain in unison with the printing mechanism; a trip having operative relation to said rising-and-falling member for dis-
75 connecting the ink-fountain from its operating mechanism; means for setting said trip in an inoperative position during the operation of the printing mechanism and means for again
80 throwing said trip into its normal operative position by the movement of said rising-and-falling member, substantially as set forth.

7. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
85 ink-fountain; a pawl or dog operated to actuate said ink-fountain in unison with the printing mechanism; an oscillatory cam arranged to disengage said dog when the print-
90 ing members are separated and means for actuating said cam in unison with the rising-and-falling movement of said rising-and-falling member and causing it to dwell in its
95 movement while the dog moves on, substantially as set forth.

8. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an
100 ink-fountain; mechanism for operating said ink-fountain; a trip for disengaging said mechanism from said ink-fountain; means for actuating said rising-and-falling member, and an extensible connection between the last
105 said means and said trip, whereby said trip may be thrown out of action, substantially as set forth.

9. A printing-press having in combination the printing mechanism provided with im-
110 pression-producing members one of which rises and falls with reference to the other; an ink-fountain; means for actuating said rising-and-falling member, comprising a cam
115 having a dwell whereby said rising-and-falling member will dwell before completing its movement; an oscillatory dog for actuating said ink-fountain in unison with the printing
120 mechanism and an oscillatory cam for holding said dog out of engagement, having operative connection with said means for actuating the rising-and-falling member, sub-
stantially as set forth.

10. A printing-press having in combination the printing mechanism provided with im-
125 pression-producing members one of which rises and falls with reference to the other; an ink-fountain; means operating in unison with the printing mechanism for actuating said
130 ink-fountain; means for actuating said rising-and-falling member, comprising a rocker-shaft; a crank-arm secured to said rocker-shaft; a trip for disengaging from the ink-fountain its said means of actuation and

means for connecting said trip with said crank-arm, substantially as set forth.

11. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an ink-fountain; the cam-disk 16; means for actuating said ink-fountain connected with said disk 16; means for actuating said rising-and-falling member comprising a rocker-shaft; a crank-arm secured to said rocker-shaft and being inwardly offset, and a trip connected with said crank-arm for disengaging from the ink-fountain its said means of actuation, substantially as set forth.

12. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an ink-fountain; a trip for disengaging the last said means from said ink-fountain; a crank-arm operating in unison with the rising-and-falling movement of said rising-and-falling member; and a rod secured to said crank-arm at one end and being movable with relation to and having two points of connection with said trip at its outer end, substantially as set forth.

13. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an ink-fountain; means for actuating said ink-fountain; a trip for disengaging the last said means from said ink-fountain; a sliding portion 25 having the notch 28 and the beveled notch 31; means for actuating said rising-and-falling member; a rod connected to portion 25 and having operative relation to said last said means; said trip having a portion adapted to fit in either of said notches, substantially as set forth.

14. A printing-press having in combination the printing mechanism provided with impression-producing members one of which rises and falls with reference to the other; an

ink-fountain; means for actuating said ink-fountain; a trip for disengaging the last said means; means for actuating said rising-and-falling member; a rod connected with the last said means and having two disengageable points of connection with said trip and a stop for limiting the movement of said trip, substantially as set forth.

15. A printing-press having in combination an ink-fountain provided with a fountain-roller and a movable portion or valve between which and said roller the ink discharges, means for forcing said valve against said roller, a movable device for starting and stopping the press, a connection for operating said means for forcing the valve against the roller, having operative relation to said device for stopping and starting the press, substantially as set forth.

16. A printing-press having in combination an ink-fountain provided with an ink-fountain roller and a movable portion or valve between which and the said roller the ink discharges, means for forcing said valve or portion against said roller, a lever for stopping and starting the press, and a rod for actuating said means for forcing the valve against the roller, extending across the plane of movement of said lever, substantially as set forth.

17. A printing-press having in combination an ink-fountain provided with a fountain-roller and a movable portion or valve between which and said roller the ink discharges, means for forcing said valve or portion against said roller, a rod for operating said means, a bracket for supporting said rod, a lever, for starting and stopping the press, arranged contiguous to said bracket and extending across said rod, said bracket being provided with a notch for receiving said rod on both sides of said lever, substantially as set forth.

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Witnesses:

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