

W. H. SHEPPARD.
PRINTING PRESS.
APPLICATION FILED FEB. 15, 1909.

946,882.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 2.

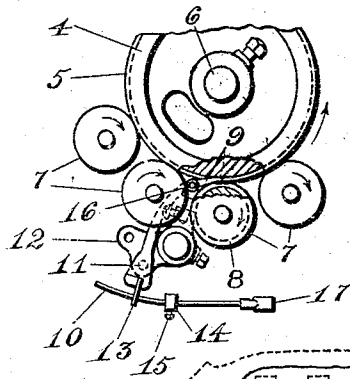


Fig. 3.

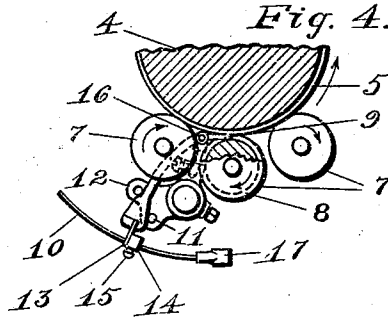


Fig. 4.

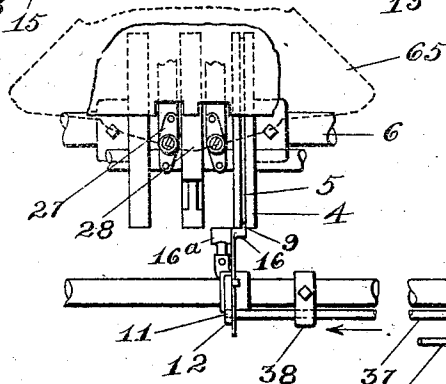


Fig. 5.

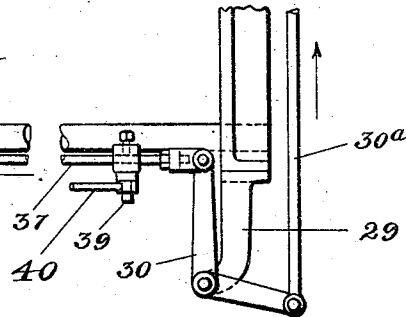


Fig. 6.

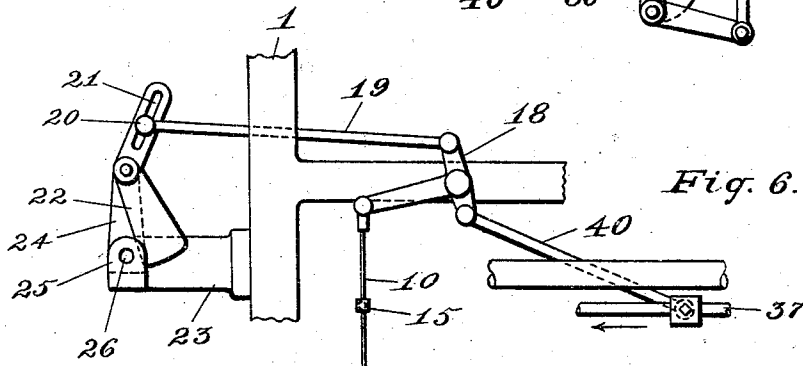


Fig. 7.

Witnesses:

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UNITED STATES PATENT OFFICE.

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PRINTING-PRESS.

946,882.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed February 15, 1909. Serial No. 477,957.

To all whom it may concern:

Be it known that I, WILLIAM H. SHEPPARD, citizen of the United States of America, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Printing - Presses, of which the following is a specification.

This invention relates to printing presses and particularly to a press designed for printing envelopes, the same being of the rotary type and having novel means for controlling the inking mechanism and the feeding mechanism upon failure of the said feeding mechanism to properly operate.

An object of this invention is to provide novel means for actuating a controller for the inking mechanism and simultaneously therewith for operating guards which limit the movement of certain parts which, owing to said limitation, causes the mechanism and particularly the feeding mechanism to move in order to guard against the operation of the printing mechanism if the feeding action is not normal.

To the end stated, I provide a series of links and levers and two guards or shutters, one of which operates in conjunction with the envelop carrier and the other of which operates in conjunction with means for controlling the inking mechanism whereby the objects indicated are attained by comparatively simple and inexpensive parts to prove strong and durable as well as efficient and satisfactory in use.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, in which—

Figure 1, illustrates a fragment of a frame of a printing press with parts of the operating mechanism in elevation and other parts shown in dotted lines back of the frame; Fig. 2, illustrates a fragment of a printing frame taken from the side opposite to that shown in Fig. 1, parts of the mechanism being shown in elevation and other parts in dotted lines; Fig. 3, illustrates an end view of a feed roll with guide rolls in assembled relation therewith; Fig. 4, illustrates a view

similar to Fig. 3, except that the feed roll is shown in section as is also one of the guide rolls, the guard mechanism being shown in a different position from that in which it is illustrated in Fig. 3; Fig. 5, illustrates a view in elevation of a feed roll and the guard operating mechanism operating in conjunction therewith; Fig. 6, illustrates a plan view of a fragment of the mechanism for controlling the guard; and Fig. 7, illustrates a top plan view of a lever and a cam acting in conjunction with the lever.

In these drawings 1, denotes a frame, 2, the envelops to be printed, and 3, the finished product.

The envelops are fed from one side of the printing mechanism carried by the frame to the other side of said printing mechanism and in order to accomplish the result, the frame is provided with a feed roll 4, having a peripheral groove 5, the said feed roll being mounted on a shaft 6, and in conjunction with the feed roll a series of guide rolls 7 operate. One of the guide rolls 7, is provided with a peripheral groove 8, which aligns with a peripheral groove 5, of the feed roll 4. A guard or finger 9, is movable with relation to the feed roll 4, and the guide roll containing the peripheral groove, the said guard being oscillated to move into contact with the wall of the groove of the feed roll or the wall of the groove of the guide roll according to the relation of other parts of the mechanism to be hereinafter described, and the action of the guard when it is in contact with the feed roll is to cause the separation of the rolls of the printing mechanism as will be presently explained.

The outer end of the guard, that is to say, the end of the guard remote from the feed roll is connected to a thrust rod 10, in order that the said guard may be moved with relation to an aperture 11, formed in a bracket 12. The thrust rod is slidable through a loop 13, on the outer end of the guard and said thrust rod is provided with a collar 14, which is adjustably secured to it by means of a screw 15, and when the thrust rod moves in the loop 13, until the collar 14, abuts the loop, further movement of the thrust rod will communicate motion to the guard and oscillate it on its pivot 16, in order to carry the outer end of said rod from alinement with the aperture 11, in the bracket, so that the unguarding of the aperture permits the admission of a bar to the

aperture. The pivot for the guard projects from the post 16^a, which is integral with or attached to the bracket 12. As shown in Fig. 4, when the guard is in the position there illustrated, the aperture 11, is unguarded whereas the inner end of said guard is out of the groove 5, in the feed roll and is lying in the groove 8, of a guide roll, whereas in Fig. 3, the inner end of the guard is shown as lying in the grooves of the feed roll 4, with the outer end of said guard obstructing the aperture 11.

The thrust rod 10, projects from an arm 17, which arm is preferably integral with the lever 18, pivotally mounted on the frame 1. One end of the lever 18, has a link 19, extending to the side and projecting beyond the frame, the outer end of said lever having a pin 20, operating in a slot 21, of a pivotally mounted guard 22. A bracket 23, has an arm 24, to which the guard is pivoted and said bracket is also provided with a lug 25. The guard 22, oscillates on its pivot between the lug 25, and the bracket 23, the said lug being provided with an aperture 26, which, under certain conditions, is obstructed by the guard 22, that is to say, when the guard is moved on its pivot to underlie the lug, the aperture 26, is obstructed.

27, illustrates a suction tube which picks up the envelop and 28, is the gripper which receives the envelop from the suction tube and carries it in conjunction with the feed roll.

The frame has a depending arm 29, to which a bell crank lever 30, is pivoted. One arm of the bell crank lever has a rod 30^a, connected to it, the upper end of which rod is pivotally connected to the lever 31, pivoted to the frame at 32. The end of the lever opposite that to which the rod is connected is provided with an anti-friction roller 33, which rides on the periphery of an eccentric 34, which eccentric is rotated in conjunction with the impression cylinder 35, and the impression cylinder is mounted to rotate in conjunction with and normally in contact with the form cylinder 36. As the lever 31, is oscillated at each rotation of the eccentric 34, the rod 30^a, is reciprocated and motion is imparted to the bell crank lever 30. The arm of the bell crank lever opposite the arm to which the rod 30^a, is connected is provided with a reciprocating rod 37, which travels in a guide 38. The rod 37, acts in conjunction with the outer end of the guard 9, and the aperture 11, that is to say when the guard is not over the aperture 11, the rod 37, is free to pass into the aperture, but if the guard is over the aperture, movement of the rod 37, is prevented.

The rod 37, is provided with a wrist pin 39, for the link 40, which link has its opposite end pivoted to the lever 18, hence as the

rod 30^a, is reciprocated, and the bell crank lever is operated, motion is communicated to the thrust rod 10, to the guard 22, and to the rod 37, and when the aperture 11, is unguarded to permit the rod 37, to enter, the said rod will travel a sufficient distance to oscillate the lever 18, and thus communicate motion to the guard 22, in order to throw said guard in line with the aperture 26, to prevent the entrance therein of a regulating device (to be presently explained).

The shaft 6, containing the feed roll has mounted on its end a compound cam composed of two side cams 41 and 42, an eccentric 43, and a round wheel 44. A lever 45, has an angular portion 46, connected to a shaft 47, and the outer end of said lever has a plunger 48, which is designed to reciprocate in the aperture 26, of the lug on the arm 23, the movement of the said plunger being controlled by the guard 22, heretofore described. The lever 45, is also provided with an anti-friction roller 49, which is controlled by the cam on the shaft 6, and said anti-friction roller moves the lever as the said cam is rotated.

In order to hold the anti-friction roller in contact with the cam, I provide a cam 50, which is mounted on the shaft 47, and said cam has an apertured ear 51, adapted to receive a spring 52, which spring has its opposite end connected to a stud 53, rising from the frame 1. The spring pulls the cam 50, and as the lever 45, is mounted on the shaft 47, the anti-friction roller is held in contact with the cam heretofore described. The cam 50, is also provided with a connecting rod 54, which has its outer end in engagement with the lever 55, for actuating the feeding mechanism of an ink fountain 56. The lever 55, is pivoted to the stud 57, and has its lower end slotted as at 58, to receive a pin 59, on the disk 60, and as the disk is rotated, the lever 55, will be oscillated and as the upper end of the said lever is provided with a pawl 61, designed to engage the ratchet teeth 62, of the feeding roll of the fountain, and the feeding roll of the fountain is given a step by step rotation as the said lever oscillates.

The inking rollers may be of any well known type, but are here shown as comprising a series of contacting rotating members 63.

The cylinder 36, is journaled in the swinging arms 64, which have their ends pivotally connected to the frame and the inner ends of said arms are connected to the cams 50, it being understood that a cam such as 50, is situated near each end of the shaft 47, and that as said shaft is partially rotated under the influence of the lever 45 acted on by the cams heretofore referred to, the said cams 50, will lift the inner ends of the arms 64, until the periphery of the form cylinder is

clear of the impression cylinder and when such action takes place, the plunger 48, has passed into the aperture of the bracket 23, and the guard 9, has permitted the rod 37, to enter the aperture 11, of the bracket.

In operation when the envelop or sheet of paper numbered 65, in Fig. 5, is passing through the machine, the guard 22, will prevent the plunger 48, from descending and the anti-friction roller 49, after being shifted by the cam 41, will follow the outside cam 44. When, however, the cam has traveled a sufficient distance to cause the opening 44^a, to pass the anti-friction roller, the said anti-friction roller will ride over the track 44, which spans the opening 44^a. When, however, the sheet or envelop 65, does not go through the machine, the aperture 26, will be unguarded and the plunger 48, will be free to pass therein in which event the anti-friction roller 49, will follow the eccentric 43, and contact the side cam 42, which will move the anti-friction roller to one side and cause it to pass out without coming in contact with the track.

I claim—

1. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, and mechanism controlled by the guard for regulating the action of the camming mechanism.

2. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, and means whereby the camming mechanism controls the action of the cylinder separating means.

3. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means,

and means for connecting the lever to take motion from the camming mechanism.

4. In an envelop printing press, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for connecting the lever to take motion from the camming mechanism, and means for regulating the position of the lever with relation to the camming mechanism.

5. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, a plunger connected to the lever, means for controlling the plunger, and means under the control of the guard of the feed rolls for moving the plunger controller.

6. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for moving the lever, a plunger on the lever for holding it free of the means for moving the lever, a guard for the plunger, means for moving the guard, and means whereby the guard of the feed roll limits the movement of the means for moving the plunger guard.

7. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever

for actuating the cylinder separating means, means for moving the lever, a plunger on the lever for holding it free of the means for moving the lever, a guard for the plunger, means for moving the guard, an eccentric, a lever actuated thereby, and connections between the lever and the guard moving means.

8. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating the motion of the camming mechanism to the cylinder separating means, and means whereby the camming mechanism controls the action of the cylinder separating means.

9. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, and means for connecting the lever to take motion from the camming mechanism.

10. In an envelop printing press, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for connecting the lever to take motion from the camming mechanism, and means for regulating the position of the lever with relation to the camming mechanism.

11. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for moving the lever, a plunger on the lever for holding it free of the means for moving the lever, a guard for the plunger, means for moving the guard, an eccentric, a lever actuated thereby, and connections between the lever and the guard moving means.

rating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means taking motion from the camming mechanism, a plunger connected to the lever, means for controlling the plunger, and means under the control of the guard of the feed roll for moving the plunger controller.

12. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, means for separating the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for moving the lever, a plunger on the lever for holding it free of the means for moving the lever, a guard for the plunger, means for moving the guard, and means whereby the guard of the feed roll limits the movement of the means for moving the plunger guard.

13. In an envelop printing machine, a frame, a form cylinder and an impression cylinder acting in conjunction, means for movably mounting one cylinder to permit separation of the cylinders, feed and guide rolls, a guard acting in conjunction with the feed roll, a camming mechanism comprising a cam and an eccentric acting in conjunction with the feed roll, means for communicating motion of the camming mechanism to the cylinder separating means, a lever for actuating the cylinder separating means, means for moving the lever, a plunger on the lever for holding it free of the means for moving the lever, a guard for the plunger, means for moving the guard, an eccentric, a lever actuated thereby, and connections between the lever and the guard moving means.

In testimony whereof, I affix my signature in the presence of two witnesses.

WILLIAM H. SHEPPARD.

Witnesses:

O. A. TAFT,
IRENE KNIGHT.