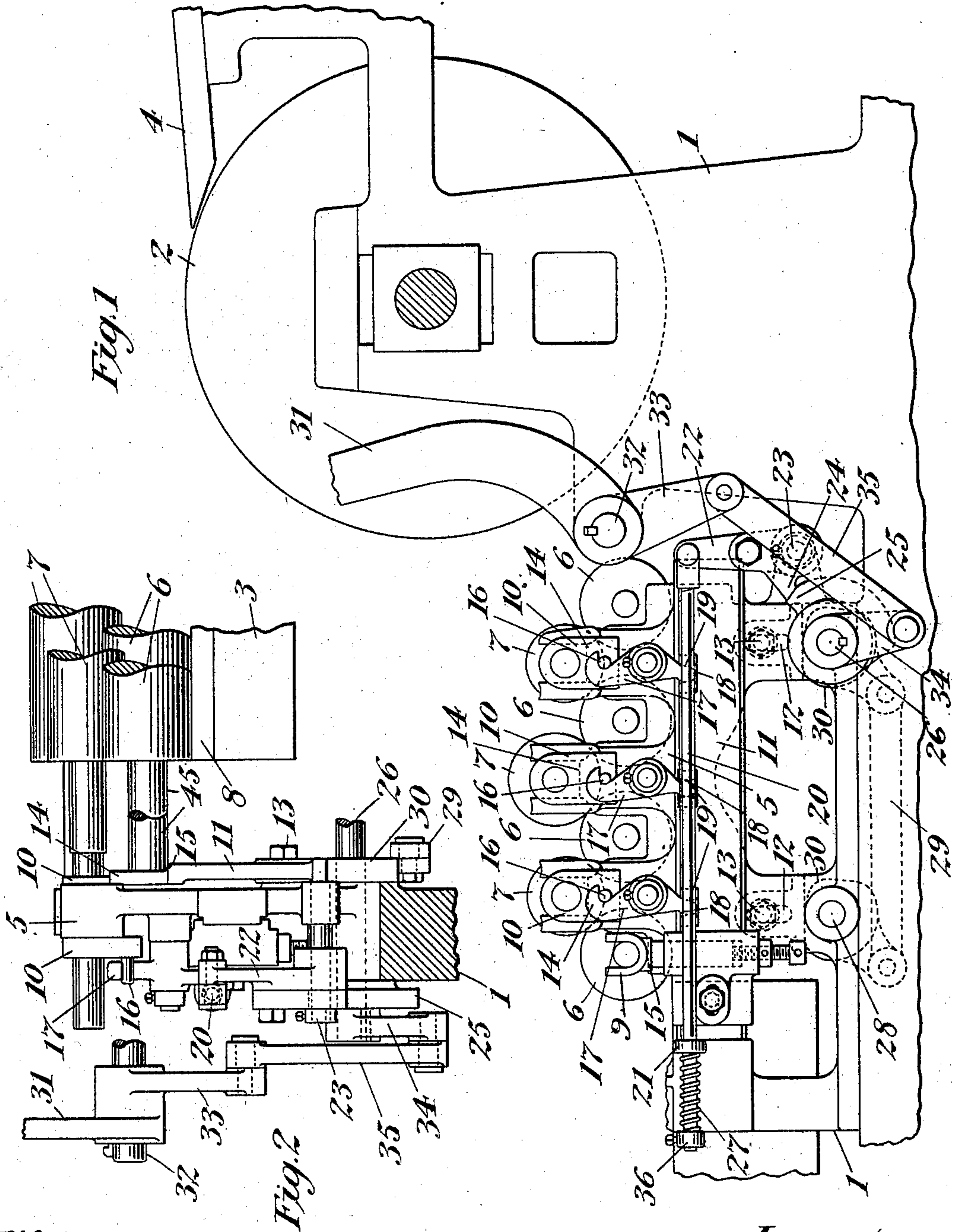


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W. SCOTT.
PRINTING MACHINE.
APPLICATION FILED MAY 5, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,401, dated January 26, 1904.

Application filed May 5, 1903. Serial No. 155,757. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States of America, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

My invention relates generally to printing-machines, and has more particularly reference to the form-rollers used in connection with the reciprocating bed of a bed-and-cylinder press.

In printing-machines, whether lithographic or letter-press, in which the form is placed on a flat bed and caused to reciprocate back and forth underneath the impression-cylinder it is well known that the form-rollers and the rider-rollers are often raised up suddenly or will jump away from the form by reason of the said form coming suddenly in contact with the rollers, the result being that the form is not properly inked. This is especially true in lithographic presses where the rollers are usually made of solid steel covered with leather and where a great pressure is required to cause the ink to adhere to the stone or other printing-surface used as a substitute. Accordingly my invention comprises in part means whereby the rollers will be locked positively when in their lowermost or working position, which position is in a line with the upper surface of the form. It is desirable, however, that the rollers should be capable of being raised up and out of contact with the form at the will of the operator—for instance, while inking up the rolls—so as not to place ink on the form.

To this end my invention comprises not only means for preventing the raising of the rollers when in their working position, but also means for releasing the rollers from their locked position and for raising the said rollers either when the machine is in operation or at rest. Other features of construction and combination of parts will appear as the specification proceeds.

In the drawings, Figure 1 shows a side elevation of part of a bed and cylinder-press sufficient to show the application of the device and the form-rollers and other means embodying my invention. Fig. 2 is an end view

of the operating parts broken away and partly in section to facilitate the illustration of my invention.

Similar characters of reference indicate corresponding parts of the different views. 55

The invention comprises, broadly, means for normally locking the rollers in their working position and means for unlocking and releasing the rollers and raising the same by an uninterrupted movement of an operating-lever or the like and for returning the rollers to their normal position by an uninterrupted movement of the operating-lever in the opposite direction. 60

While the invention is capable of wide variation in its embodiment, the following construction is the preferred one: 65

1 indicates a framework of any suitable construction mounting the impression-cylinder 2, reciprocating bed 3, feed-board 4, and other necessary elements (the latter not shown) such as are generally used or which may be found advantageous to the proper operation of the press. 70

5 indicates a roller-stand such as is generally used in the art. 75

6 indicates the form-rollers, and 7 the superposed rider-rollers. These two sets of rollers are mounted in the roller-stand in a well-known manner, so as to be capable of a vertical motion toward and away from the form 8. In the present instance the rollers 6 rest in the open bearings 9 on both sides of the machine, while the rollers 7 are supported in sliding boxes 10, so that they can be lifted independently of the form-rollers. The means which act directly to lift the two sets of rollers comprise in the present case a lifting-frame 11 on both sides of the machine, only one of which is seen in the drawings. These lifting-frames are slidable in a vertical direction in the main framework 1 by reason of the slots 12 and bolts 13 and are provided with the lifting-surfaces 14 and 15, engaging, respectively, the boxes 10 of the rider-rollers and the shanks 45 of the form-rollers when moved in an upward direction. The foregoing is well known in the art and need not be further described. 85 90 95

To keep the rollers locked in their working 100

position, I provide the boxes 10 with the pins 16 and pivot upon the roller-stand the hooks 17 to engage with the pins 16. The hooks 17 are provided with the projections 18, which enter the apertures 19 in the rod 20, disposed longitudinally and sliding at one end in the bushing 21 on the framework and supported at its other end by the lever 22, pivoted at 23 in the framework and provided with the toe 24, resting against the cam 25 on the transverse rock-shaft 26. A spring 27 between the bushing 21 and a collar 36 tends normally to keep the hooks in locking engagement with the pins 16, so that the rider-rollers are held locked against the form-rollers, whereby upward displacement of both sets of rollers is prevented. The spring 27 further keeps the toe 24 in engagement with the cam 25. A device similar to the one just described is of course located on the opposite side of the machine. The rock-shaft 26 extends transversely of the machine from one side to the other and carries a second cam 25 on the said other side.

28 is a second rock-shaft extending parallel with the shaft 26 and connected with the latter on both sides of the machine by means of the links 29. The shafts 26 and 28 carry each a cam 30 on both sides of the machine to engage with the lifting-frames 11.

31 is an operating-lever mounted on the shaft 32, provided with the arm 33 and connected with the arms 34 of the shaft 26 by means of the link 35.

The operation of the device is as follows:

The hooks will normally keep the rollers in their locked position by reason of the spring 27. A forward and downward movement of the lever 31 will cause the cams 25 to engage the toes 24, thereby releasing the rollers by moving the hooks out of engagement with the pins on the boxes 10. The continued movement of the lever will then cause the cams 30 to lift the lifting-frame, whereby the surfaces 14 will first lift the sliding boxes 10, and with them the rider-rollers, up and out of contact with the form-rollers, when the continued movement of the lever 31 will cause the surfaces 15 to engage with the shanks 45 of the form-rollers, thereby lifting the latter out of working position. The return movement of the lever 31 causes the reverse operation to take place, the form-rollers moving down first, then the rider-rollers, and finally the hooks locking the rollers in working position.

An uninterrupted movement of the lever 31 thus causes the rollers to be unlocked and then causes the two sets of rollers to be lifted independently up from the form. An uninterrupted movement of the lever in the opposite direction will cause the elements to assume their normal position in their regular order.

It is not absolutely necessary to have the pins 16, hooks 17, &c.—that is, the locking means—on both sides of the machine. In

some instances they are needed on one side only, the side on which the operating-gears for the rollers are located, as that is the side on which the rollers are most apt to jump up and away from the bed.

Having thus described my invention, what I claim is—

1. In a printing-machine, the combination with a plurality of rollers, of means for moving said rollers into and out of working position with relation to the plate on the bed, and means for automatically locking the rollers when in their working position.

2. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers, of means for moving said rollers into and out of working position with relation to the plate on the bed, and means for automatically locking the rollers when in their working position.

3. In a printing-machine, the combination with a plurality of rollers, of means for normally keeping said rollers locked in their working position with relation to the plate on the bed, and means which, when uninterruptedly operated, unlocks said rollers and moves them away from the said bed.

4. In a printing-machine, the combination with two sets of rollers, one set superposed above the other, of means for normally keeping said rollers locked in their working position with relation to the plate on the bed, and means which, when uninterruptedly operated, unlocks said rollers and moves them away from the said bed.

5. In a printing-machine, the combination with a plurality of rollers, of means for lifting and lowering said rollers into and out of working position with relation to the plate on the bed, means for locking and unlocking the said rollers when in their working position, and a common operating device for locking and unlocking and for lifting and lowering the rollers.

6. The combination with a plurality of form-rollers and a plurality of rider-rollers, of means for lifting and lowering said rollers into and out of working position with relation to the plate on the bed, means for locking and unlocking the said rollers when in their working position, and a common operating device for locking and unlocking and for lifting and lowering the rollers.

7. In a printing-machine, the combination with a plurality of rollers mounted in sliding boxes, of pins on said boxes, hooks arranged to normally keep the rollers locked by engaging with the pins, and means for disengaging said hooks from the pins.

8. In a printing-machine, the combination with a plurality of form-rollers and a plurality of rider-rollers mounted in sliding boxes, of pins on said boxes, hooks arranged to normally keep the rider-rollers locked against the

form-rollers by engaging with the pins, and means for disengaging said hooks from the pins.

5 9. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers mounted in sliding boxes, of means for raising and lowering said rollers, pins carried by the boxes of the rider-rollers, hooks engaging said pins when the rollers are
10 in their working position, and an operating-lever and connections for causing the hooks to disengage the pins and the rollers to be raised when moved in one direction, and for
15 causing the rollers to be lowered and the hooks to engage the pins when moved in the other direction.

10 10. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers mounted in sliding boxes, of
20 means for raising and lowering said rollers,

pins carried by the boxes of the rider-rollers, hooks engaging said pins when the rollers are in their working position, a horizontally-disposed rod having apertures, projections on the hooks entering said apertures, a spring 25 normally causing the rod to maintain the hooks hooked over the pins, and an operating-lever and connections, for moving the rod so as to cause the hooks to disengage the pins and the rollers to be raised, when moved in one direc- 30 tion, and for causing the parts to assume their normal position, when moved in the other direction.

Signed at New York this 20th day of April, 1903.

WALTER SCOTT.

Witnesses:

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