Sept. 2, 1930. O. C. ROESEN 1,774,762

COUNTER CONTROLLED PRESS STOPPING DEVICE

Original Filed Nov. 15, 1926 3 Sheets-Sheet 1

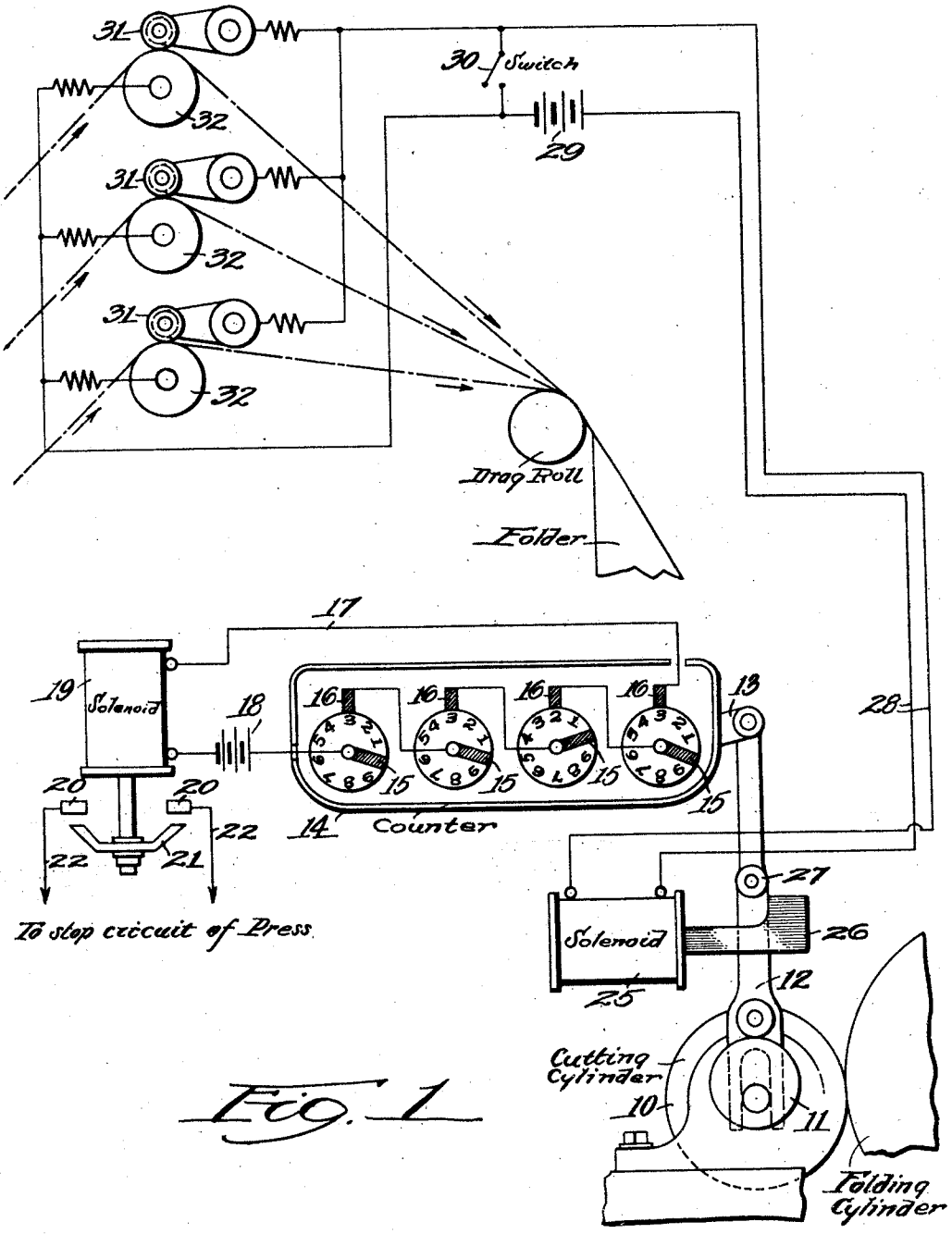


Fig. 1

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Original Filed Nov. 15, 1926 3 Sheets-Sheet 2

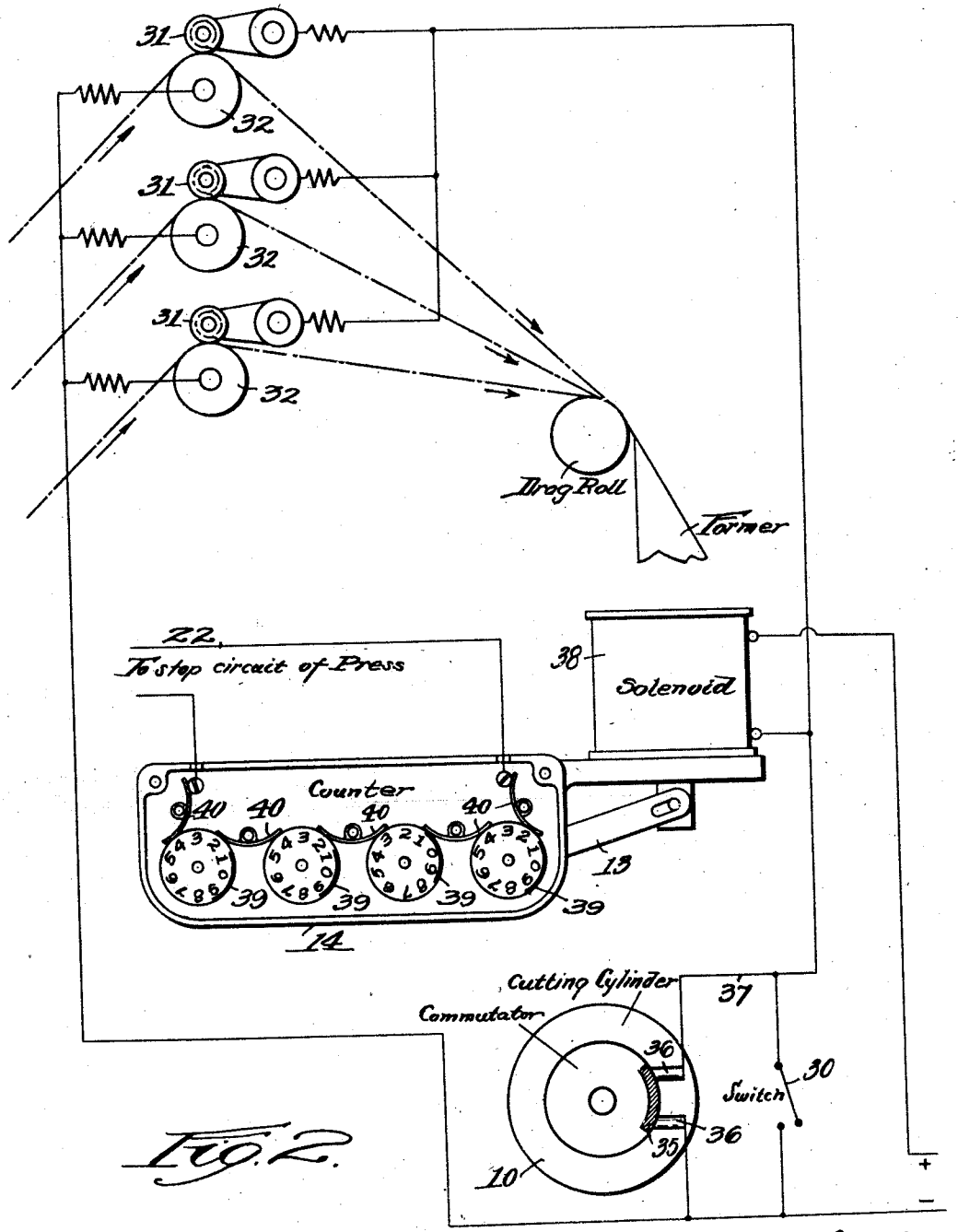


FIG. 2.

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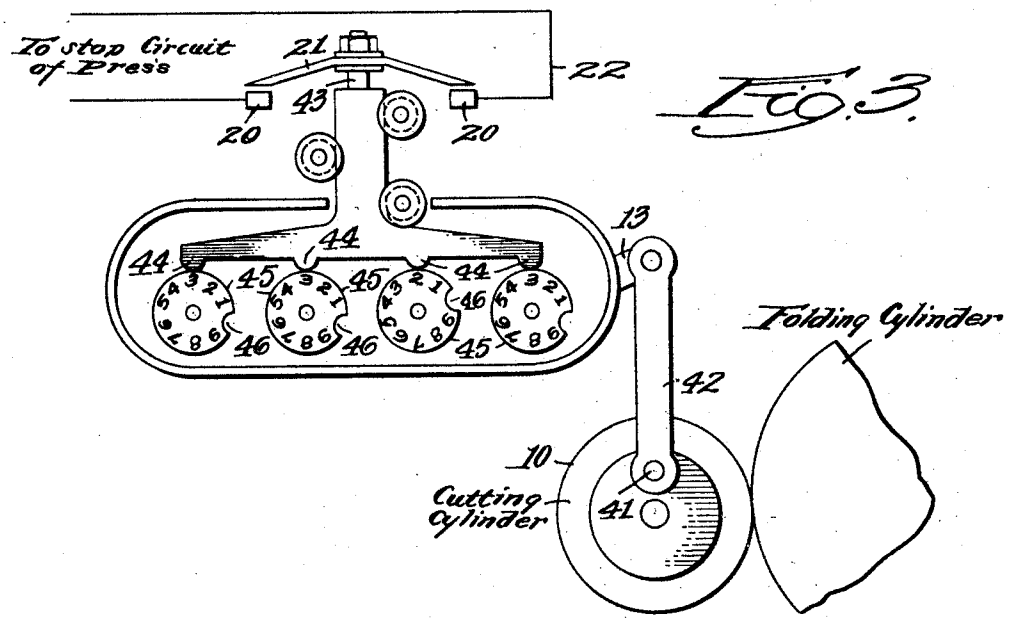


Fig. 3.

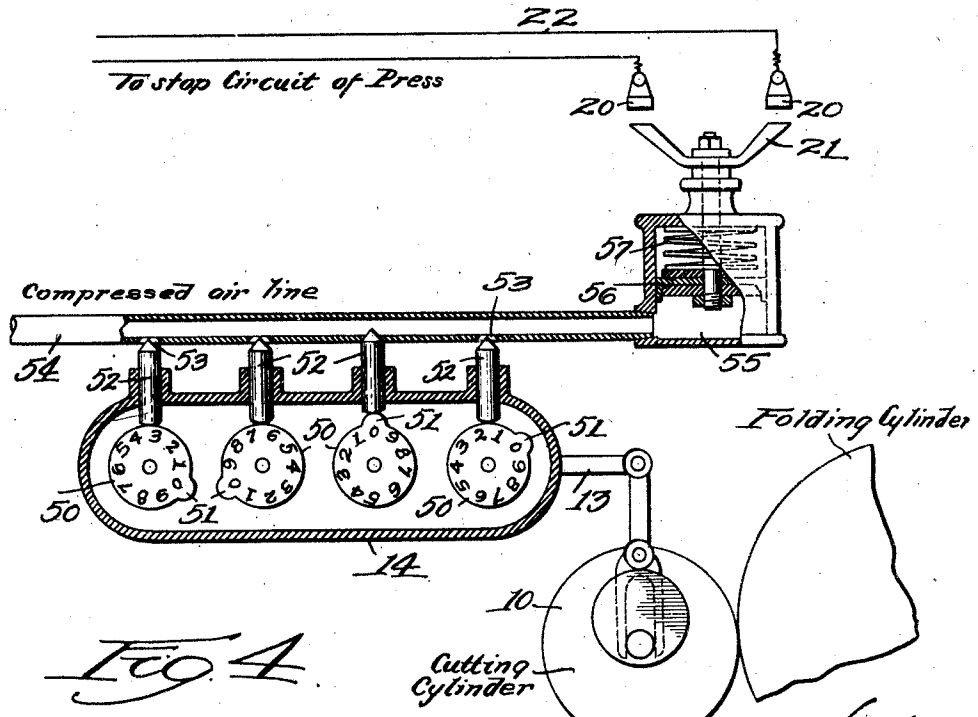


Fig. 4.

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UNITED STATES PATENT OFFICE

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COUNTER-CONTROLLED PRESS-STOPPING DEVICE

Application filed November 15, 1926, Serial No. 148,451. Renewed February 5, 1930.

This invention relates to means for stopping a printing press when a predetermined number of papers have been delivered from it. The principal object of the invention is to provide for stopping the press automatically when the desired number of papers have been delivered and especially for correcting the count for defective papers, idle revolutions and papers taken out for inspection. The invention involves several ways of accomplishing these results all designed to provide for carrying them out efficiently and with very little addition to the mechanism.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 shows diagrammatically the connections for controlling the stopping of a press in accordance with this invention by electric means;

Fig. 2 shows a similar arrangement with modifications in details;

Fig. 3 shows a mechanically controlled device for producing the same result; and

Fig. 4 is a pneumatically controlled one.

The invention involves the use of a counter having several dials adapted to be set and connected so as to stop the press when a predetermined number of papers have been delivered. In some forms shown this is accomplished automatically, although some features of this invention are of importance in those cases where the press-man stops the press when the count registers the proper number of papers. The difficulty in the latter case has been due to the fact that when the press-man sees the counter indicating the number of papers that it is desired to produce, he does not know that that number has been delivered. It makes no allowance for the defective papers that may have been delivered caused by the pasters during the run of the product and also insufficient and improper inking at the beginning of the run. It makes no allowance for idle revolutions made by the press when the web breaks, in which case the press revolves several times without delivering any papers. It also makes no allowance for any papers taken out for inspection.

In the form of the invention shown in Fig. 1 these difficulties can be avoided. On the cutting cylinder 10 of the folding couple is an eccentric 11 which raises a rod 12 once during each revolution of the cutting cylinder. This is connected up with the counter so as to cause the counter lever 13 to be operated and count one paper for each revolution. At the beginning of the run, the several dials of the counter 14 are moved by hand to a position which will indicate the number of papers required for this particular run.

Each counter wheel is provided with a metallic connection 15 extending from the center to the circumference. At the starting point is provided a metallic contact member or brush 16, which will be in contact with the member 15 when the wheel has rotated a certain number of steps. If these contact members 15 are placed at the zero points as indicated in Fig. 1, each counter disc can be turned at the beginning of the run to indicate the number of papers to be run off before the press is stopped. It will be observed that I have shown the counter thus set up at the beginning of the run to produce a total of 3,323 papers. When that number of papers have been delivered, all the contacts 15 will be in engagement with their respective brushes 16. This completes an electric circuit 17 through a battery 18 and energizes a solenoid 19. The action of this solenoid closes a pair of contacts 20 by a contacting piece 21. These contacts are in the stop circuit 22 and when the circuit is closed in this way will stop the press.

This would stop the press when the required number of operations have been performed without regard to whether they resulted each time in the delivery of papers available for distribution. Therefore I provide means for preventing the count from registering during the periods above mentioned. For this purpose I provide an additional solenoid 25 having a plunger 26 constituting a stop for a roller 27 on the link 12. When this plunger is drawn inwardly from the position shown in the figure, it will pre-

vent the cutting cylinder from operating the counter. Now this solenoid is connected by an electric circuit 28 with a battery 29 and also with a switch 30. Now when the fly boy takes out a paper for inspection, he closes the switch 30 during one operation and this prevents the count from registering. The switch 30 is also thrown to close the contact when defective papers are being delivered as mentioned above. Normally this switch 30 is open and the circuit 28 is divided in parts extending to several riding rollers 31 which normally rotate on the several webs. Whenever any one of the webs break, the corresponding riding roller will contact directly with the forwarding or guide roller 32 beneath it. As that roller in each case is connected with the other side of the line 28, the electric circuit will be established and the solenoid 25 energized to prevent the counter from registering during that revolution. Therefore the several revolutions made by the press during the time when the switch 30 is closed or when the webs are not passing between the metal rolls 31 and 32 will not be registered on the counter. This insures that the count shown on the counter will be correct for the actual number of papers delivered by the press. It will be seen therefore that as shown, the press will be stopped automatically when the desired number of papers in good condition are delivered irrespective of what interruptions may have occurred. It will be seen also that, even without the automatic closing of the press stopping circuit, the invention can be used by a press-man to show him when the proper number of papers are delivered.

In the form shown in Fig. 2 several modifications are illustrated but the general arrangement accomplishes the same purposes. In this case a commutator 35 is mounted at the end of the cutting cylinder. At every revolution it makes a contact between two brushes 36 and completes the circuit 37 which energizes a solenoid 38. This solenoid operates the counter arm 13 mechanically but it is itself electrically operated. This permits the use of the same electric circuit for the purpose of momentarily stopping the count by operating the switch 30, and of making the contacts 31—32 when the web breaks as explained above. In this case the counter itself is somewhat modified from the form shown in Fig. 1, each counter disc being equipped with a commutator 39 in the form of a segment, which several segments complete the circuit between the series of metal brushes or conductors 40 as will be understood readily. This is the press stop circuit.

In the form shown in Fig. 3, the arrangement is mechanical but the results are substantially the same. The cutting cylinder is provided with a crank 41 which by a link 42 operates the counter arm 13 as before. A plunger 43 is provided with a base having several projections 44, each adapted to rest on one of the counter discs 45. Each counter disc has a recess or notch 46. These are set exactly the same as in Figs. 1 and 2 and when the notches are all brought into vertical position, the several lugs 44 will register in them and the plunger can descend. As long as any one of them is held up by the circular part of its counter disc, the plunger is held up and the contacts 20 of the press stopping circuit 22 are kept open.

In the form shown in Fig. 4 a similar arrangement is provided but controlled pneumatically. In this case the operation of the counter need not be described but each counter disc 50 is provided with a projection 51 and they are set as previously indicated. As there discs rotate, each one finally lifts a plunger 52. These plungers are provided with valves on their ends controlling outlets 53 for air in a compressed air pipe 54. As long as any of these valves are open, air will escape. As long as the air escapes, the pressure in a cylinder 55 will not be enough to lift the piston 56 therein against its spring 57 and move the contact 21 against the contacts 20 in the press stopping circuit 22. When the proper number of papers have been delivered, all the plungers are raised and the various valves closed. There will be an increase of pressure in the air cylinder 55 and the press stop circuit 22 will be closed so as to bring the press to a stop in a manner previously described.

The forms shown in Figs. 3 and 4 are merely mechanical and pneumatic equivalents of the electrical arrangement of the counter shown in the first two figures.

It will be seen that in all these forms the counter is itself provided with means by which the press stop circuit can be connected up by the counter, when the desired number of products have been delivered, and the press stopped. Dependance does not have to be placed on the operation of the press for this, but when the press operates and no product is produced that is to be used, the counting can be corrected for that deficiency in a very simple manner. The press is stopped when the predetermined number of products are actually delivered.

Although I have illustrated and described several forms of the invention, I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. In a printing press, the combination with a counter connected for showing the number of operations of the press, a stop circuit for stopping the press, means con-

trolled by the counter for closing said stop circuit when a predetermined number of products have been delivered, and means for preventing the operation of the counter at will.

2. In a printing press, the combination with a counter, of means for operating the counter, means operated by the counter for stopping the press when a predetermined number of products have been delivered, and manually controlled means for interrupting the operation of the counter.

3. In a machine, the combination with a counter, of means for operating the counter, an electric circuit connected with the counter and adapted to be completed thereby when the desired number of products have been delivered, and means operated automatically for interrupting the operation of the counter while the machine continues to operate.

4. In a printing press, the combination with means for folding the products and a counter, of means operated by the folding means for operating the counter in accordance with the operation of the press, an electric circuit connected with the counter and adapted to be completed thereby when the desired number of products have been delivered, means operated by said circuit for stopping the press, and means for interrupting the operation of the counter while the folder continues to operate.

5. The combination with a printing press and a folder therefor, of a counter, a link connecting the counter with the folder for operating the counter, a member movable to two positions in one of which it prevents the operation of said link and counter, and means for operating said member for the purpose of preventing the operation of the counter when the press runs without delivering.

6. The combination with a printing press folder and a printing press, of a counter operated by the folding couple, a solenoid having a plunger movable to two positions in one of which it prevents the operation of said counter, an electric circuit connected with the solenoid for operating it, and means for closing said circuit for the purpose of preventing the operation of the counter when a paper delivered is not to be used.

7. The combination with a printing press and a folder, and a cutting cylinder of a counter, a link connected with the counter for operating it, means operated by the cutting cylinder for moving said link to operate the counter in accordance with the operations of the cutting cylinder, and means whereby the operation of the counter can be interrupted to prevent the operation of the counter when the folder and printing press are continuing to operate.

8. The combination with a printing press and a folder, and a cutting cylinder, of a stop circuit for the printing press, a counter, means to operate the counter in accordance with the rotation of the cutting cylinder, means whereby the operation of the counter can be interrupted to prevent the operation of the counter when the folder and printing press are continuing to operate, and means controlled by the counter for closing the stop circuit when the desired number of products have been delivered.

9. The combination with a printing press and a folder, and a cutting cylinder, of a stop circuit for the printing press, a counter, a link connected with the counter for operating it, means operated by the cutting cylinder for moving said link to operate the counter in accordance with the rotation of the cutting cylinder, means for automatically interrupting the operation of the counter to prevent the operation of the counter when the folder and printing press are continuing to operate for the purpose described, and means controlled by the counter for closing the stop circuit when the desired number of products having been delivered.

10. The combination with a printing press and a folder, and a cutting cylinder, of a stop circuit for the printing press, a counter, a link connected with the counter for operating it, means operated by the cutting cylinder for moving said link to operate the counter in accordance with the rotation of the cutting cylinder, manually actuated means for interrupting the operation of the counter to prevent the operation of the counter when the folder and printing press are continuing to operate for the purpose described, and means controlled by the counter for closing the stop circuit when the desired number of products have been delivered.

In testimony whereof I have hereunto affixed my signature.

OSCAR C. ROESEN.