

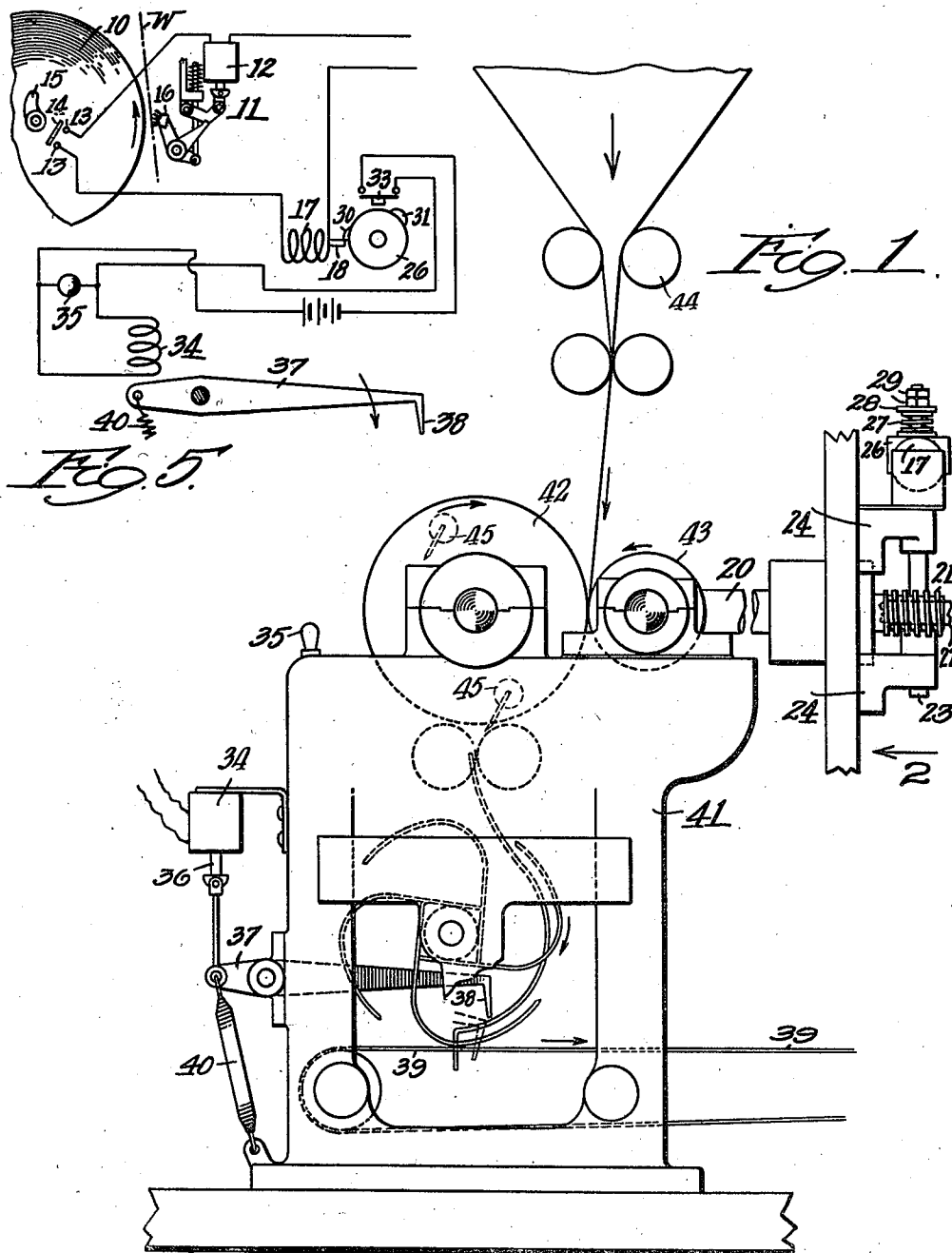
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PAPER THROW-OUT DEVICE

Original Filed Feb. 25, 1931 2 Sheets-Sheet 1



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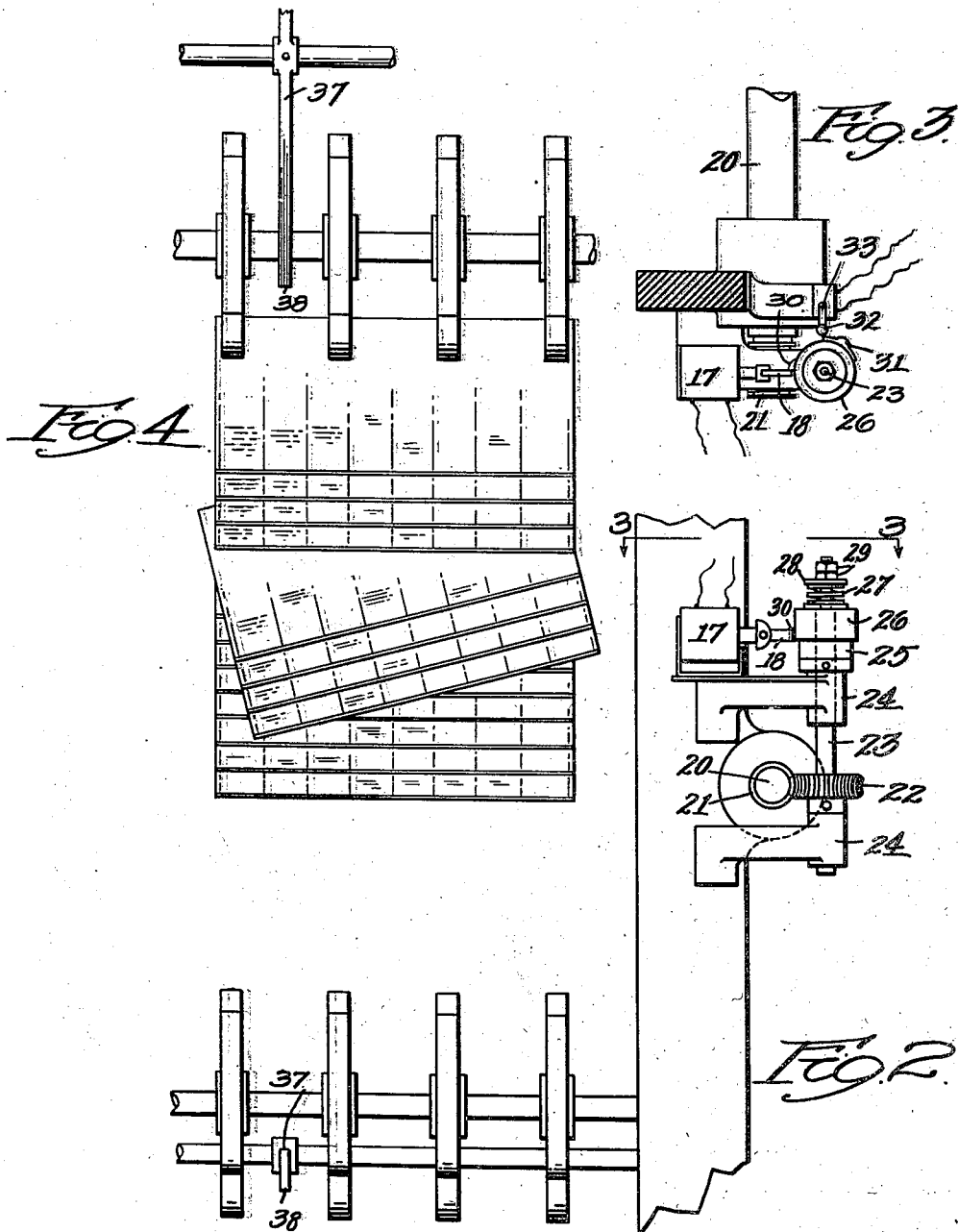
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## UNITED STATES PATENT OFFICE

2,048,765

## PAPER THROW-OUT DEVICE

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19 Claims. (Cl. 271—63)

This invention relates to printing machines, particularly large newspaper printing machines and folders.

The principal object of the invention is to provide a device which will indicate at the folder when a splice is being made; and to provide means for setting askew the papers containing this splice on the delivery so that these papers may be recognized and lifted out, either in the press room or the delivery room. The invention also involves the provision of these features in a simple and inexpensive construction.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is an end view of a folder with a throw-out device thereon constructed in accordance with this invention;

Fig. 2 is a front view of part of the same, taken in the direction of the arrow 2 in Fig. 1;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a plan of the delivery showing several papers thrown out in accordance with this invention, and

Fig. 5 is a wiring diagram showing how the throw-out device is operated in conjunction with the pasting mechanism.

When the expiring web is pasted to a new web roll one or more of the papers produced are spoiled because of the fact that the two webs are pasted together. These papers are not intended to be sold and they have to be picked out and thrown away.

This invention provides an automatic means for identifying these papers so that no search will have to be made for them and for displacing them on the delivery belts so that they can be taken out very easily.

Of course the running web W and the web roll 10 are associated with a pasting device 11 which involves a solenoid 12 located in an electric line. In series with this solenoid are a pair of contacts 13 which are adapted to be closed by a switch 14 operated by a cam 15 rotating with the web roll. The roll 10, after it gets into the proper position, is started into rotation in the proper direction and once during each rotation the cam 15 closes the contacts 13 and 14. This occurs when the pasted spot on the roll 10 reaches the proper position for attachment to the web W. I have shown the pasting device in a form involving a brush 16 for finally bringing the parts together. It will be understood that this is not

all the mechanism involved and that the particular pasting mechanism shown is not essential, but I have merely illustrated these parts to show how one form of pasting mechanism can be made to cooperate with the rest of the machine. This invention is applicable to those constructions in which the roll 10 rotates only through one complete revolution.

When the contacts 13 and 14 are closed, which is only for a short time, a current will be set up in this electric line and a solenoid 17 energized. The result of this is to pull in a toe 18. It will be understood that this toe is pulled in only when the paster is being operated.

On the folder 41 is a folding and cutting couple 42—43 to receive the web from the folder rolls 44 and to cut the web into the desired folded product, as newspapers. The folding couple can be formed in any desired way, as for example, in my prior Patent 1,937,456, patented November 28, 1933, to cut the web with such cutters 45 as are shown therein. This constitutes means for converting the web into newspapers or signatures.

A shaft 20 is mounted on the frame of the folder 41 and connected with the press to run in proportion to the speed of the press, so that whether the press is running slowly or rapidly this shaft will rotate in synchronism therewith. On this shaft is a worm 21 operating a worm wheel 22 on a shaft 23. This shaft is rotatably carried in brackets 24 attached to the frame of the machine and has pinned to it a friction disc 25. Also loosely mounted on it is a cylinder 26 which is pressed against the friction disc by a spring 27, washer 28, and nuts 29; thus when the shaft 23 rotates the cylinder 26 tends to rotate also. This cylinder carries a projection 30 which abuts against the toe 18 operated by the solenoid 17. Normally these parts are in the position shown in Fig. 3. Energizing of the solenoid 17 pulls the toe 18 to the left in that figure, thereby freeing the projection 30 and allowing the cylinder 26 to rotate in synchronism with the shaft 23, that is, in direct proportion to the speed of the press.

When the cylinder 26 has rotated through a predetermined arc, which is governed by the distance from the reel to the delivery bucket, a projection 31 or cam thereon bears against the roll 32 of a limit switch 33. This closes a contact in another circuit to operate a solenoid 34 and, preferably, a light, bell or other signal 35. This solenoid is connected through its plunger 36 to a lever 37 and pulls the outer end 38 of this lever down. This end 38 constitutes a kicker located

at one side of the delivery belts 39, and when it comes down it sets a few papers askew as they travel along, as shown in Fig. 4 on the delivery 39. The length of the cam 31 determines the duration of the activity of the kicker 38.

When the cam 31 passes beyond the switch roller 32 the solenoid 34 is deenergized and a spring 40 returns the kicker to its inactive position shown in full lines in Fig. 1. The cylinder 26 continues its rotation until the projection 30 again contacts with the toe 18. This toe has been returned to operative position by the fact that the cam 15 has passed beyond the switch 14. The light 35 or bell can be placed conspicuously on the folder or in any other desired position and is connected up in parallel with the solenoid 34, when used.

It will be understood, of course, that the time taken for the papers to pass from the paster to the folding machine 41 must be determined and the cam 31 set accordingly, so that when the pasted paper or papers get to the delivery belts 39 the kicker will act to throw those particular papers out and also one or two more papers ordinarily.

It is to be understood that without departing from the scope of this invention papers might be diverted out of the path of the regular delivery by a device of this description as stated, or that the light or bell or both may be placed at the folder or in the delivery room for notification of the arrival of the pasted papers when, without displacement, they can be taken off by hand. Either of these things can be used alone, but it is desirable to use them together.

It will be seen that as the operation of the cylinder 26 is proportional to the press speed, the length of time that the switch 33 is closed is proportional to the speed of the press. Whether the press is running fast or slow, the same number of papers will be set askew in the delivery. In this way a simple and accurate device is provided for locating and displacing the papers, or both, which are spoiled by pasting.

Although I have illustrated and described only one form of the invention I am aware of the fact that changes 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 the exact form shown, but what I do claim is:—

1. In a printing machine, the combination with a folder, its delivery means, and a pasting device for attaching the running web to a new web roll, of means for displacing the papers on the delivery device which are made imperfect by the pasting operation.

2. In a printing machine, the combination with a delivery, of a pasting device and means controlled by the action of pasting the expiring web to a new roll for displacing the papers on the delivery that have been spliced by the pasting device.

3. In a printing machine, the combination with a folder, its delivery device, and a pasting mechanism, of a kicker adapted to be brought into position adjacent to the delivery device for displacing papers thereon, and means controlled by the operation of the pasting mechanism for actuating said kicker into operative position at such a time as to displace the papers on the delivery device which are printed on the paper to which the paste is applied.

4. In a folding and delivering device for a

printing press, the combination with a pasting device and the delivery, of a kicker therefor, electro-magnetic means for operating the kicker to displace certain papers, and means controlled by the pasting of the old web to the new roll for energizing the electro-magnetic device.

5. In a folding and delivering machine for a printing press, the combination with the delivery belts, of a kicker adjacent thereto for displacing papers on the belts, of a device for moving the kicker into operative position, a shaft rotatable at a speed proportional to that of the press, and means connected with said shaft for connecting up the kicker moving device with a source of power, and means for preventing the last named means from operating until the time when the papers that have been pasted reach the delivery belts.

6. In a folding machine, the combination with the delivery belts thereof and a kicker therefor, of an electro-magnetic device for operating the kicker, a shaft rotatable in proportion to the speed of the press, a cylinder centered on the shaft and loose thereon, friction means for normally connecting said cylinder with the shaft to rotate therewith, a toe for preventing the rotation of said cylinder, means for releasing said toe when the web is pasted, and means on said cylinder for connecting the electro-magnetic device with a source of power after a predetermined period from the time of pasting.

7. In a folding machine, the combination with a delivery and a kicker for displacing papers thereon, of a solenoid for operating the kicker, a contact for closing the solenoid circuit, a shaft connected with the printing press to operate at a speed proportional to the speed of the press, a cylinder free on said shaft, means for normally applying friction to the cylinder to cause it to rotate with the shaft, means for holding the cylinder against rotation, means for releasing the holding means, and a cam on the cylinder for operating said contact to close the solenoid circuit at a predetermined time after the holding means is released.

8. In a printing machine, the combination with a delivery means, and a pasting device for attaching the running web to a new web roll, of means for displaying a signal when the spoiled papers reach the delivery means.

9. In a machine of the character described, the combination with a web splicing device, of intermittently operating means for showing when a predetermined length of web has been fed to the machine from the splicing device.

10. In a machine of the character described, the combination with a shaft of said machine, of an intermittently operative device for displacing the products of the machine intermittently, magnetic means for operating said intermittent device, and means on said shaft, and consequently operating in proportion to the speed of the machine, for controlling the timing of said magnetic operating means.

11. The combination with a web splicing mechanism and a machine for receiving the spliced web, said machine comprising means for acting on the paper, and means for actuating the last-named means, of a shaft, means for rotating the shaft at a speed proportional to the speed of the machine, means operated by said shaft for timing the actuating means, and means timed by the splicing mechanism for controlling the time of action of the timing means, whereby a measured

length of paper will be delivered after splicing before the acting means will operate.

12. The combination with a web splicing mechanism and a machine for receiving the spliced web, said machine comprising means for acting on the paper and a solenoid for operating said acting means, of a shaft, means connected with the machine for rotating the shaft at a speed proportional to the speed of the machine, means operated by the shaft for connecting the solenoid with a source of power, and means operated by the splicing mechanism for controlling the time of operation of said connecting means so that at any speed a predetermined length of web will be delivered to the machine after splicing before the solenoid will be energized.

13. In a machine of the character described, the combination with a machine and a device for acting on an article in the machine, of a solenoid for operating said device, a shaft rotatable in proportion to the speed of said machine, a rotary member loose on the shaft, means for connecting said member with the shaft to rotate frictionally therewith, said rotary member having a projection, a toe adapted to be projected into the path of the projection to stop the member, means for withdrawing the toe, a cam on the member, and an electric contact adapted to be closed by the cam and located in the circuit of the solenoid.

14. In a printing machine, the combination with a folder and a splicing device for attaching the running web to a new roll, of means operating on the folded product to distinguish the papers made imperfect by the splicing operation.

15. In a printing machine, the combination with a splicing device for a web, means for converting the web into papers, and means for distinguishing the papers made imperfect by splicing, of means for operating the distinguishing means subsequent to the operation of the splicing device.

16. In a printing machine, the combination with a splicing device for a web, means for converting the web into papers, and means for distinguishing the papers made imperfect by splicing, of means for operating the distinguishing means a predetermined number of revolutions of the printing machine subsequent to the operation of the splicing device.

17. In a printing machine, the combination with a splicing device for a web, means for converting the web into papers, and means for displaying a signal, of means for causing the display of the signal to take place subsequent to the production of the papers that contain the splice.

18. In a printing machine, the combination with a splicing device and means for displaying a signal, of means for causing the display of the signal to take place during a predetermined number of revolutions of the printing machine subsequent to the operation of the splicing device.

19. In a web printing machine, the combination of means for supporting a fresh web roll with intermittently operative means for measuring predetermined lengths of the web and means for controlling said intermittent means by the fresh web roll itself.

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