

T. J. BEREKH, JR.
PAPER FEED CONTROLLING APPARATUS.

APPLICATION FILED APR. 21, 1915. RENEWED APR. 10, 1917.

1,228,173.

Patented May 29, 1917.

2 SHEETS—SHEET 1.

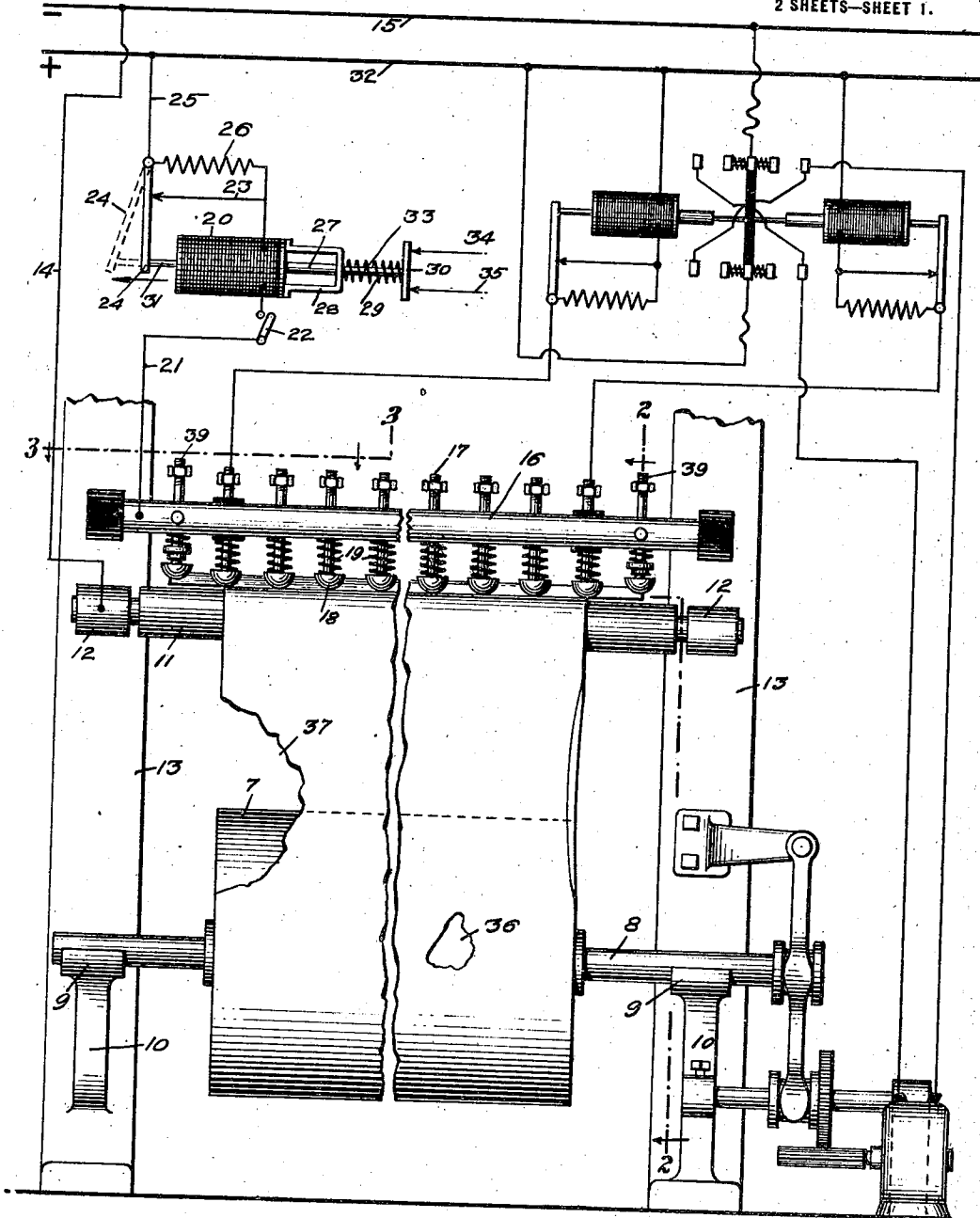


Fig. 1—

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Fig-2-

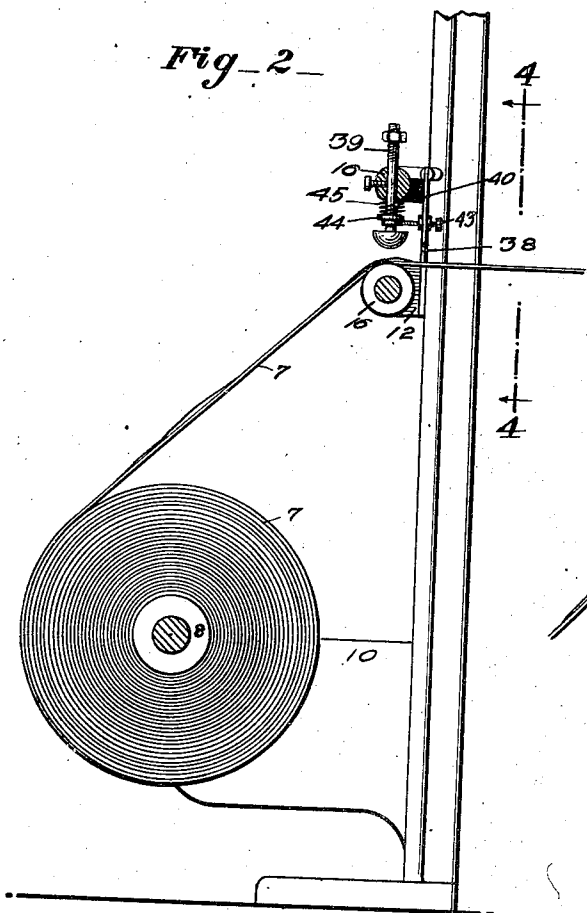


Fig-5-

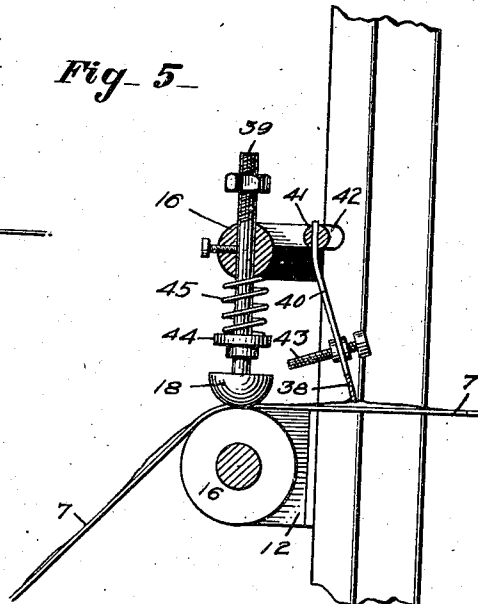


Fig-4-

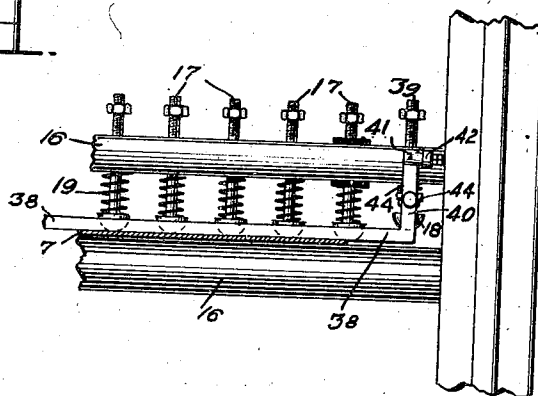
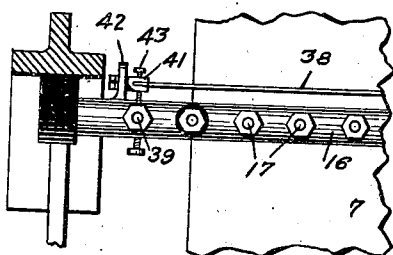


Fig-3-



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UNITED STATES PATENT OFFICE.

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PAPER-FEED-CONTROLLING APPARATUS.

1,228,173.

Specification of Letters Patent.

Patented May 29, 1917.

Continuation in part of application Serial No. 852,356, filed July 22, 1914. This application filed April 21, 1915, Serial No. 22,806. Renewed April 10, 1917. Serial No. 161,062.

To all whom it may concern:

Be it known that I, THEODORE J. BERECH, Jr., a citizen of the United States, and a resident of the city of New York, Woodhaven, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Paper-Feed-Controlling Apparatus, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to avoid feeding paper in a damaged condition to printing presses; and to arrest the operation of said presses in the event that paper in a damaged condition is being fed thereto and prior to the damaged portion of said paper reaching the platen of said presses.

Drawings.

Figure 1 is a rear end view of a press having a controlling apparatus constructed in accordance with the present invention;

Fig. 2 is a vertical section taken as on the line 2—2 in Fig. 1;

Fig. 3 is a horizontal section taken as on the line 3—3 in Fig. 1;

Fig. 4 is a vertical section taken as on the line 4—4 in Fig. 2;

Fig. 5 is a detail view on an enlarged scale showing the active position of the stopping circuit closer operable by an accidental thickness of the paper being fed to the press.

Description.

As shown in the accompanying drawings, the paper supplied is delivered in the shape of a roll 7, which is mounted on a spindle 8 supported in bearings 9 of brackets 10. The paper is fed to the printing rolls over a pipe roll 11. The pipe roll 11 is mounted in bracketed bearings 12 extending from the uprights 13 of the press frame. One of the brackets 12 is represented in the drawings as being placed in circuit by means of a wire 14 forming part of an electric supply, and being connected with the main 15 thereof.

Disposed in parallel relation to the roll 11 is a rail 16 perforated to form guides for plungers 17. The plungers 17 are disposed in position perpendicular to the axis

of the rail 16. The plungers 17 are each provided with a rounded head 18. Said plungers and the heads 18 thereof are normally pressed by springs 19 toward the roll 11, with which they form electrical contacts unless prevented by the interposition of the paper being printed.

If in the operation of the printing press and during the feed of the paper from the roll 7, a blemish such as a hole or marginal tear is present, one or more of the heads 18 in the path of said blemish makes contact with said roll and completes an electric circuit incorporating a solenoid 20.

The solenoid 20 is electrically connected by a wire 21 with the rail 16 when the master switch 22 is closed. The circuit incorporating the solenoid 20 includes a branch wire 25 and a resistance 26. The resistance 26 operates to balance the current or lessen the influence thereof on the solenoid 20 when said solenoid operates to withdraw the switch 30 from contact with the wires 34 and 35.

The branch wire 23 closes with the switch 24 to cut out the resistance 26 when the switch 30 is closed by the spring 33. The spring 33 is wrapped about the reduced end 29 of the solenoid core 27. The core 27 and end 29 pass through a perforation in a U-shaped yoke 28, all as best seen in Fig. 1 of the drawings.

The switch 24 is connected to the core 27 by a rod 31. The wire 25 is connected to the main 32 of the supply current. The wires 34 and 35 are in circuit with any suitable form of electro-actuated stopping mechanism for arresting the operation of the press.

From the diagram it will be seen that when, as under normal conditions, the spring 33 maintains the switch 30 in closed relation to the wires 34 and 35, the switch 24 is in contact with the branch wire 23. When in the course of operation the circuit comprising the wire 21, switch 22, wire 14, roll 11 and the rail 16, is completed, the current flows through the branch wire 23 to rapidly saturate the solenoid 20. When the solenoid 20 is thus saturated, the core 27 is drawn into the solenoid, and the switch 24 is forced by the rod 31 backward to the position shown by dotted lines in Fig. 1 of the drawings, after which movement the

contact with the wire 23 is terminated. After the wire 23 has been cut out, the circuit is still maintained through the solenoid 20 if the electric connection between the roll 5 11 and rail 16 remains established, and the flow of current is materially reduced by passing through the resistance 26.

From the foregoing it will be seen that when the paper being fed to the printing 10 machinery has a blemish such as the hole or tear in the body of the paper or on the edge thereof, one or other of the plungers 17 drops through the hole or tear and completes the electric circuit in which the solenoid 20 is incorporated. The result of 15 completing this circuit is to operate the stopping mechanism by operating the switch 30 to that effect.

While the mechanism above described am- 20 ply provides for protecting the work against blemishes such as the hole 36, or a marginal tear such as 37, it does not provide for a defect in the paper such as results from an added thickness adhering to the paper when 25 rolled, or a crumpled section wherein two or three thicknesses of paper become pressed together. It is to avoid such paper passing to the platen and printing mechanism that I provide a band 38 and plungers 39, which 30 plungers are disposed laterally from the path of the paper being fed. The band 38 is suspended by spring supports 40 mounted in suitable split studs 41 on the ends of the arms 42, as shown best in Fig. 5 of the 35 drawings.

Normally, as seen best in Fig. 2 of the drawings, the band 38 and supports 40 there- 40 for are arranged so that said band bears very lightly or just misses the surface of the running paper. In this position, the end of a screw 43 is inserted beneath collars 44 on the plungers 39. Springs 45 are compressed and alert to force the plungers 39 45 down so that the heads 18 with which said plungers are provided will contact with the rail 16 to complete the electric circuit incorporating the solenoid 20.

From the foregoing it will be seen that in addition to the system and mechanism for arresting the operation of the printing 50 press in the event of a tear or other opening in the paper, provision is also made for arresting the printing mechanism when a blemish such as described as a thickened section of the paper, undertakes to pass to the 55 press.

Claims.

1. An apparatus as characterized, comprising an operating circuit; a pipe roll for 60 guiding paper, constituting a terminal of said circuit; a plurality of movable plungers forming the other terminal of said circuit and normally suspended in line with 65 and in separated relation to said pipe roll to engage the same when permitted; a plurality of latches for suspending said plungers; and a member for operating said latches to disengage the same from said 70 plungers, said member normally resting in juxtaposed relation to the surface of the paper, to be engaged by any uncalculated thickness thereof, for releasing said latches.

2. An apparatus as characterized, comprising an operating circuit; a pipe roll for 75 guiding paper, constituting a terminal of said circuit; a plurality of movable plungers normally suspended in line with and in separated relation to said pipe roll to engage the same when permitted; a plurality 80 of latches for suspending said plungers; and a band extending across said paper in juxtaposed relation thereto adapted to engage any uncalculated thickened portion of said 85 paper; for disengaging said latches and plungers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

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Witnesses:

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