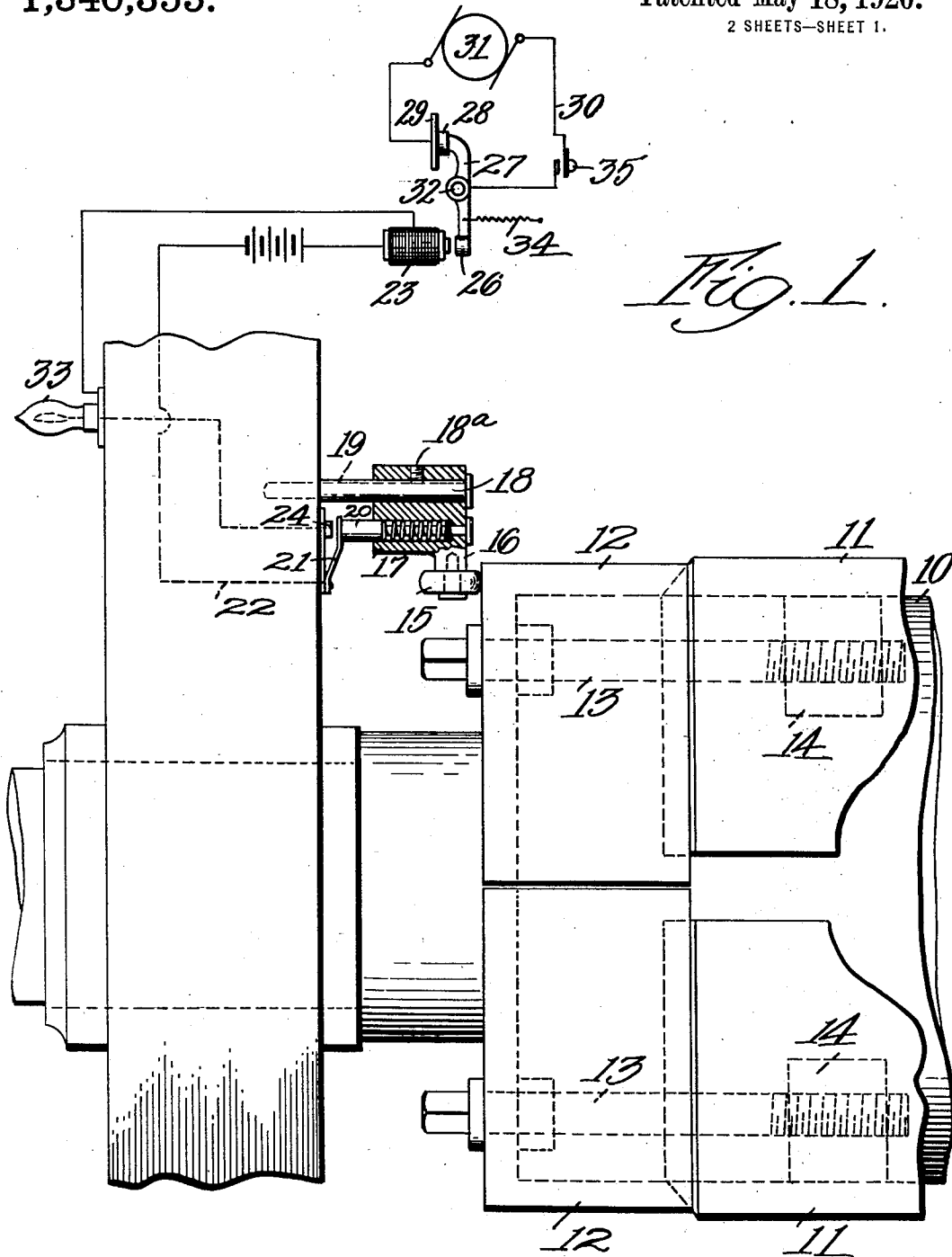


H. A. W. WOOD.
SAFETY DEVICE FOR PRINTING PRESSES.
APPLICATION FILED SEPT. 18, 1918.

1,340,355.

Patented May 18, 1920.
2 SHEETS—SHEET 1.



Inventor
Henry A. Wise Wood
by attorneys

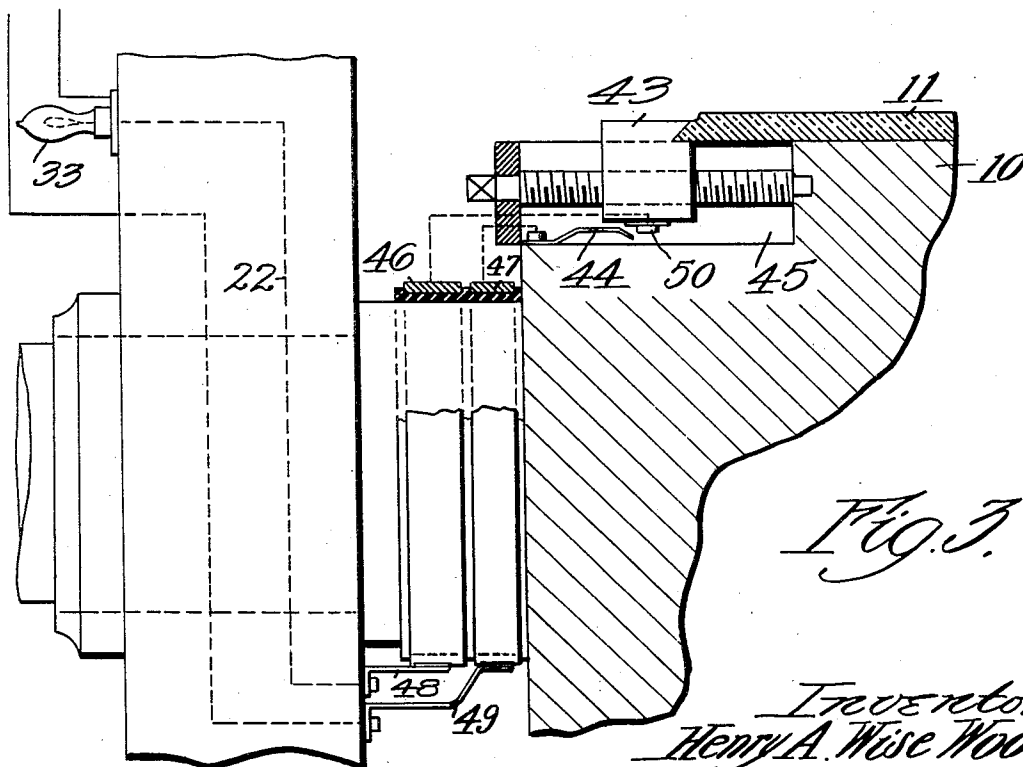
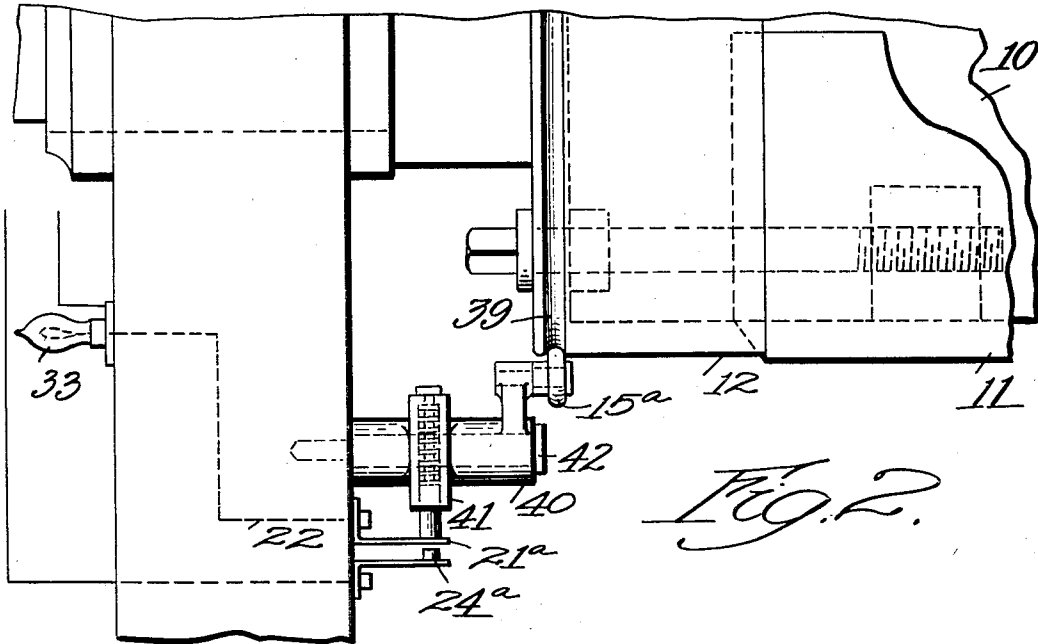
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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO WOOD NEWSPAPER MACHINERY CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF VIRGINIA.

SAFETY DEVICE FOR PRINTING-PRESSES.

1,340,355.

Specification of Letters Patent.

Patented May 18, 1920.

Application filed September 18, 1918. Serial No. 254,550.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Safety Device for Printing-Presses, of which the following is a specification.

This invention relates to a safety device for printing presses, and the principal object thereof is to provide means for preventing accident due to the failure to fix the plate clamps firmly before the press is started, or to their becoming loosened afterward. More specifically stated the invention involves means whereby whenever a plate cylinder has a plate clamp in anything but the normal position for firmly clamping a plate the press will be stopped or the plate cylinder prevented from rotating.

Further objects and advantages of the invention will appear hereinafter.

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

Figure 1 is an elevation of the end of a plate cylinder with a preferred embodiment of this invention applied thereto and shown in section and the electrical connections indicated diagrammatically;

Fig. 2 is a similar view showing a modification, and

Fig. 3 is a similar view with the parts in section showing another modification.

As is well understood stereotype printing plates are clamped at their ends on plate cylinders of printing presses by clamps which are tightened up by means of screws. Accidents occasionally occur on account of the fact that the clamps are not securely fastened when the press is started or that the screws work loose after having been originally tightened sufficiently. When this occurs one or more of the plates fly off the cylinder, pass between the plate and the impression cylinders, or otherwise injure the machine and even sometimes the attendants.

The object of this invention is to prevent these accidents and this is carried out by placing a safety device in such relation to the clamps at the end of the plate cylinder that if they are not properly set the press cannot be started and furthermore if they work loose after the press is started it will stop automatically. For this purpose I take advantage of the fact that all newspaper

presses are now driven by electrical motors which are so arranged that the press is put into motion by them at a slow speed by pressing a button in a starting circuit. I provide electro mechanical contacts operating on the feed line or circuit which controls the running motor and coöperating with the plate clamps in such a manner that if these clamps are out of position this circuit is opened or closed as may be necessary so as to prevent the motor from running. This will stop the motor if it is already going or prevent its being started if it is not in operation.

Referring particularly to Fig. 1 of the drawings I have shown the invention applied to a plate cylinder 10 having plates 11 and clamps 12 thereon. These clamps are tightened up by screws 13 working in bosses 14. The ends of these clamps are located in a plane when the clamps are in normal clamping position.

In the form shown in this figure, I have provided a roller 15 rotating on an axis axially disposed with respect to the cylinder and adapted to substantially contact with the end surface of the two plate clamps 12. The roller freely revolves on a stud 16 which extends from and is a part of a longitudinally reciprocating slide 17. This slide moves back and forth on a stud 18 fixed in the frame of the machine which is kept from turning by a set-screw or pin 18^a working in a longitudinal groove 19. A spring-seated pin 20 is supported by and movable with the slide 17, but in the position shown in this figure it is held forward by a stronger flat spring 21 so that when the plates are clamped properly the roller 15 will just touch the flat end thereof and will rotate on its stud without causing any action.

The spring 21 forms one end of an electric circuit 22 operating an electro-magnet 23. The other end of this circuit terminates in a button 24 in position to be engaged by the spring 21 when forced back by the roller 15, due to any irregularity in the setting of the clamps 12 or to any displacement of them from their normal positions. Such displacement or misplacement of either one of the clamps therefore will move the slide 17 and the pin 20 back when the cylinder rotates part of a revolution so as to cause the spring 21 to engage the contact button 24

and close the circuit. This causes the magnet 23 to attract the adjacent end 26 of a lever 27 pivoted at 32 and force the opposite end 28 out of contact with the plate 29, thus
 5 breaking the main electric circuit 30 of the high speed or running motor 31. This motor is connected with the shaft of the cylinder 10 and operates it so that if the motor is running at the time this action occurs it
 10 will stop, and if the clamp is misplaced in the beginning the motor cannot be started, it being understood that the starting button 35 is in the circuit 30 in series with the contacts 28 and 29. A signal light 33 is shown
 15 in the circuit 30 in series with the contact 24 for the purpose of indicating that a clamp is open on that line. It will be understood that there is one of these circuits for each plate cylinder, and therefore the light, preferably a red light, indicates what cylinder
 20 clamps need attention.

When the open clamp is closed the flat spring 21 forces the slide 17 back into the position shown in Fig. 1, and the circuit
 25 22 is broken. The spring 34 connected with the lever 27 causes the lever to turn on its pivot and close the circuit 30 at that point so that the motor is ready to be started by operation of the usual push button 35. In
 30 this way it will be seen that the press cannot be started by the usual means when one of the plate clamps on any cylinder is misplaced in any way, and that if one of them becomes loosened when the machine is run-
 35 ning and gets out of place sufficiently to release a plate the motor will be stopped immediately and the attendants will be notified of the particular location of the difficulty so that it can be remedied at once.

40 Only a slight modification is shown in Fig. 2 so that detailed description will not be necessary. Here the plate clamp is provided with a groove 39 in its circumference in which runs the roller 15^a. Any slight
 45 side motion of the clamp causes the roller 15^a to climb out of the groove. This necessarily turns the crank 40 with its arm 41 on a pivot stud 42. This closes a circuit 22 at the contacts 24^a and 21^a.

50 In the form shown in Fig. 3 the plate clamp 43 is connected with one end of the circuit 22 indirectly through an insulating ring 46 and brush 48. The other end of the circuit is connected to a flat spring 44 in the
 55 bottom of the clip screw groove 45 through an insulated ring 47 and brush 49. On the clamp 43 is a terminal 50 which will engage the spring 44 at all times except when the clamp is in proper clamping position. The
 60 operation of the device is the same as in the other cases subject to the modifications above indicated. It will be noted however that in the other cases the cylinder can in some cases, be rotated a part turn when one

plate clamp is out of position but in Fig. 3 65 even this cannot occur.

It will be understood of course that it is usual to provide printing machines of this character with another motor which can operate the cylinders independently. This 70 is called the "inching system", and is used in plating up the press. While plating a man will touch the button of the inching system once and the press will move just as far as he wishes to have it move at a very 75 low rate of speed. This enables him to turn the press over by means of this inching motor into the various positions necessary for plating. This motor is entirely independent of the running motor 31 and my device is so 80 arranged that while it will prevent the starting or accomplish the stopping of the running motor it will not interfere with the inching motor used to propel the press through parts of a revolution during the 85 plating thereof when one or more of the clamps must necessarily be open. The circuit 22 is not connected with the inching motor, which is not shown in the drawing, so that it does not interfere with its opera- 90 tion.

Although I have illustrated and described only three forms of the invention I am aware of the fact that 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:— 100

1. The combination with a printing press having a plate cylinder and plates thereon and its running motor circuit, of a starting and stopping circuit adapted to open the motor circuit and prevent the motor from 105 running, a roll normally running in contact with the plate clamps, and means whereby when one of the plate clamps is out of normal clamping position it will move said roll out of normal position and complete the 110 starting and stopping circuit.

2. The combination with a printing press and its plate cylinder and plate clamps, of an electric circuit having means for controlling the operation of the press, a slide located at the end of the cylinder and longitudinally movable, a freely rotatable roller carried by said slide and engaging the ends of the plate clamps, a reciprocable pin mounted on the slide, a movable terminal in 120 position to be operated by said pin when the slide moves out of position, and a stationary terminal adjacent thereto, said terminals being arranged to open and close said circuit.

In testimony whereof I have hereunto 125 affixed my signature.

HENRY A. WISE WOOD.