Sept. 22, 1931. H. C. JORDHOY 1,824,669

BRAKE FOR PAPER GUIDE ROLLS

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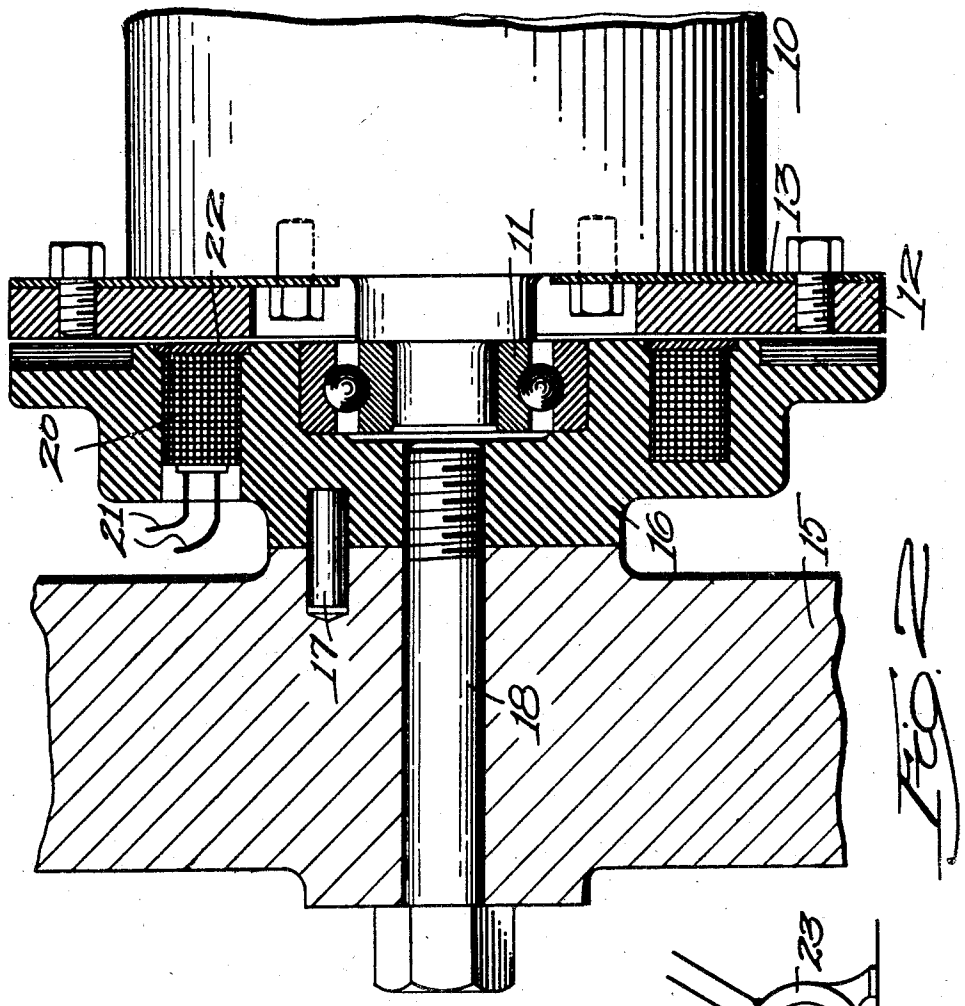


Fig. 2

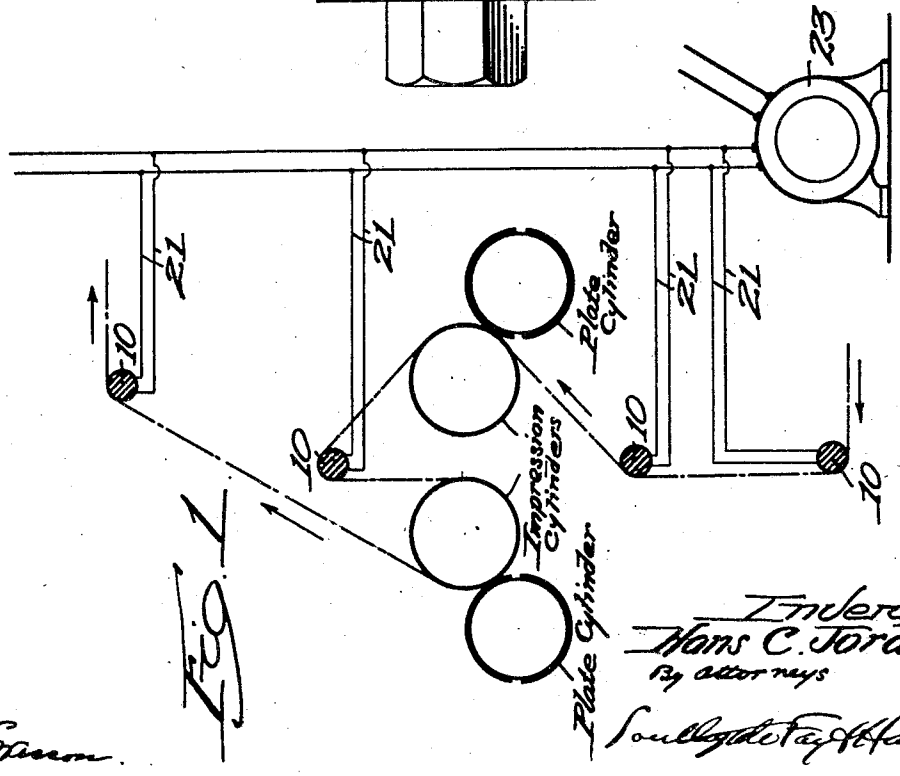


Fig. 1

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UNITED STATES PATENT OFFICE

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BRAKE FOR PAPER GUIDE ROLLS

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This invention relates to the paper guide or bending rolls about which the web of paper of the printing press is passed to change its course, or to similar rolls used in other machinery.

The principal objects of the invention are to avoid or reduce the frequent breakage of the web due to the spinning of these rolls after the press has been brought to a sudden stop; also to provide means whereby these guide rolls will be provided with a braking action operated only during the period between the shutting off of the current from the press motor and the actual stopping of the machine and then setting the rolls free so that they will run freely as usual when the press starts.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a diagrammatic side view of a part of a printing press showing how several of these guide rolls are used, and

Fig. 2 is a diametrical sectional view of the mechanism by which the above named objects can be secured in accordance with this invention.

I have shown in Fig. 1, a part of a printing press with a series of guide rolls 10, each one of which is so located as to change the course of the web passing over it. These guide rolls may be the usual pipe rolls and are mounted ordinarily to rotate freely in their bearings so that they will not have any retarding effect on the web and they are not used for assisting in driving the web.

When the press comes to a sudden stop these rolls, on account of the momentum, have a tendency to continue to spin. This causes breakage of the web due to the pulling action of these rolls on the web after the web has come to stop. At that time, of course, the printing cylinders are stopped and the web rolls also. Therefore the rotation of these guide rolls over which the web is drawn taut is always likely to cause this trouble.

For the purpose of avoiding this difficulty I have provided a brake, shown in the drawings as of the electric type, for each of the paper guide rolls. This brake is adapted to be energized by the current generated by the motor when coasting after the current has been shut off therefrom. This causes the guide rolls to be put under the braking action during the period between the shutting off of the current of the motor and the actual stopping of the machine. At that time the brake is released and the guide roll is free to rotate in its usual manner as if it had no brake.

In the form of the brake shown in Fig. 2 the guide roll is mounted in anti-friction bearings 11 and has fixed to it an iron plate 12 of annular form which is secured by means of a ring 13 of sheet metal or at least comparatively thin metal. The frame 15 of the machine has fixed to it a bracket 16. This hub or bracket is concentric with the guide roll 10 and is secured in position in the form shown by a central bolt 18 and kept from turning by a pin 17. This bracket 16 is provided with an annular electro-magnet 20, or a plurality of magnets arranged in a circle and the magnet is connected by wires 21 with the motor 23 that operates the press. This magnet is provided with an armature 22 of annular form, in the present case, adapted to attract the iron plate 12 in the manner mentioned.

When the current is shut off from the main motor of the machine, the motor will continue to rotate until brought to a stop by the usual brake mechanism. While so rotating it is capable of generating a current and this current is delivered to the electro-magnet 20 through the wires 21. This magnet then causes a pull on the rotating ring 12 and tends to stop the rotation of the same, which is otherwise free.

When the driving motor comes to stop, this generated current also stops. This disconnects the guide roll from the brake and leaves it free to rotate under running conditions.

It will be seen, therefore, that the free running pipe rolls constituting the guide rolls 10 are automatically braked during the period between the shutting off of the current

from the motor which actuates the press and the actual time of the stopping of the motor. Then the brake is released and the guide roll is free to rotate as usual.

Although I have illustrated and described only a single form of the invention and shown it as applied to a particular machine I am aware of the fact that modifications can be made therein and that it can be applied to other machines without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited in these respects but what I do claim is:—

1. The combination with a printing press and a motor for operating it, of a freely rotatable web guide roll and an electric brake fixed in position and electrically connected with said motor to be energized by the current generated thereby when the current is shut off from the motor and the motor is still running, and means whereby the brake will exert a pull on the guide roll to decrease its rotation or bring it to a stop.

2. In a printing press, the combination with a motor for operating it and a series of guide rolls for engaging the web passing through the press, of an electric brake for each roll and electrically connected with the motor to be energized when the motor is running with the current turned off and means for setting the guide rolls free when the motor stops.

3. The combination with a printing press and a motor for operating it, of a freely rotatable guide roll and an electric brake electrically connected with said motor to be energized by the current generated thereby when the current is shut off from the motor, and the motor is still running, and a soft iron plate fixed to the end of the guide roll in a position to be influenced by the electromagnet to brake the guide roll when the motor is running with the current turned off.

4. In a printing press, the combination with printing couples, a motor for operating them and guide rolls for the web located at a distance from the printing couples, of means for automatically slowing up said guide rolls when the printing couples have slowed up for stopping purposes.

In testimony whereof I have hereunto affixed my signature.

HANS C. JORDHOY.