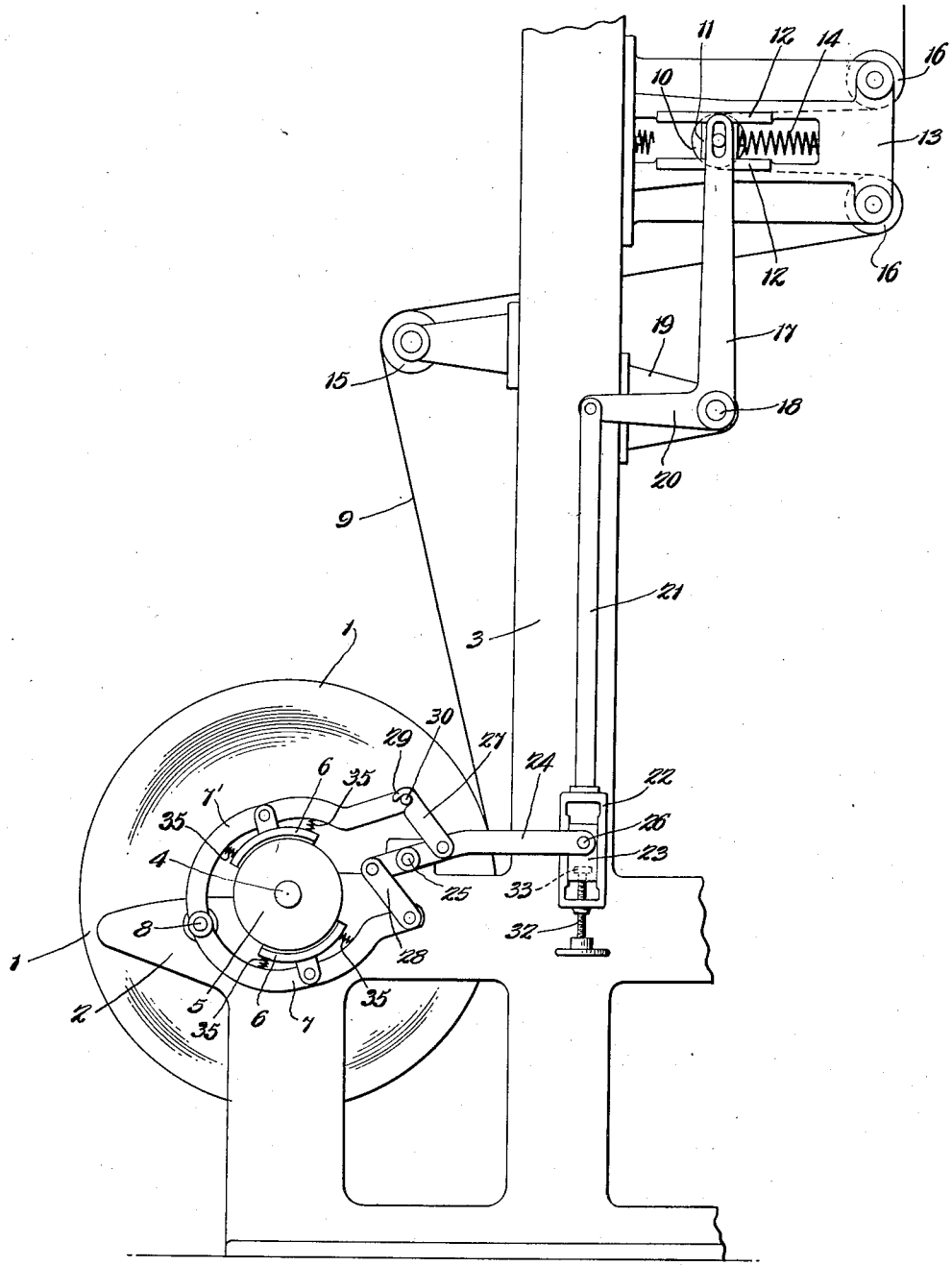
Jan. 8, 1935. H. FANKBONER 1,987,329

WEB ROLL BRAKING MECHANISM

Filed Sept. 23, 1931



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Patented Jan. 8, 1935 1,987,329

UNITED STATES PATENT OFFICE

1,987,329

WEB ROLL BRAKING MECHANISM

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Application September 23, 1931, Serial No. 564,520

3 Claims. (Cl. 242—75)

The present invention relates to web controlling mechanism and more particularly to a novel and improved web roll braking mechanism particularly adapted for use with printing presses.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

The single figure of the drawing is a side elevation of the present preferred and illustrative embodiment of the invention.

The present invention has for its object the provision of a novel and improved braking mechanism controlling the rotation of web rolls and the tension of the web fed therefrom to produce a more positive control of the tension of the web fed therefrom. A further object is the provision of a web roll braking mechanism in which one of the brake members is positively moved away from the other, so that the brakes may be completely released. Still another object is the provision of a braking mechanism controlled by the tension of the running web which permits wider variations in the braking pressure than the brake mechanisms now generally employed.

In the present embodiment of the invention, the web roll braking mechanism comprises a pair of pivotally mounted brake shoes coacting with a brake pulley on the roll shaft, and toggle mechanism for releasably connecting the brake shoes together at one end and for positively moving the brake shoes toward and from each other. The toggle mechanism is connected to a pilot roller moved by changes in tension of the web fed from the web roll. Means are also provided for releasing the toggle mechanism from one of the brake shoes so that new web rolls may be easily moved into place, and suitable means are provided for varying the normal tension created by the brake mechanism.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restricted thereon.

Referring now in detail to the drawing showing the present preferred and illustrative embodiment of the invention, the web roll 1 is rotatably supported in the usual journals formed in supporting brackets 2 projecting laterally from the side frames 3 of the printing press. Web roll shaft 4 projects for some distance beyond one of the brackets 2, and has mounted thereon a brake pulley 5. Brake shoes 6 bearing against the pulley 5 are movably mounted in brake arms 7, 7' pivotally supported on a pin 8 projecting from one bracket 2 and below the level of the roll shaft 4, thereby facilitating the movement of new web rolls into web feeding position.

Means are provided for controlling the pressure of the brake shoes against the brake pulley in accordance with the tension of the web 9 fed from the web roll to the printing press, and the drawing shows a conventional form of pilot roller mechanism operatively connected with the brake mechanism. As embodied, the pilot roller 10 is rotatably journalled in end blocks 11 which are slidable between the horizontal guides 12 in brackets 13 extending laterally from the press frames 3 at either end of the roller. Pilot roller 10 is normally held in a central position against the tension of the running web by means of springs 14, compressed between the slide blocks 11 and the brackets 13.

In passing through the press, the running web 9 passes over a guide roller 15, rotatably mounted at one side of the press frame 3 and then passes over guide rollers 16 rotatably mounted at the end of brackets 13, the web being looped around the pilot roller 10 between the guide roller 16. The ends of the pilot roller project beyond the slide blocks 11 and are received within the slots in the upper end of levers 17 which levers are securely fastened to a shaft 18 journalled in brackets 19 projecting from the press frame 3.

For operatively connecting the pilot roller to the brake mechanism, a link 21 is pivoted on a laterally projecting arm integral with one of the levers 17, and at its lower end, link 21 is provided with a yoke 22 in which is slidable a pivot block 23. A toggle lever 24 is pivotally mounted on bracket 2 by means of pivot 25, and one end of lever 24 is pivotally connected to pivot block 23 by pin 26, thereby transmitting movements of the pilot roller to the lever 24. A pair of links 27 and 28 are pivoted to the lever 24 a short distance from the pin 25, and extend in opposite directions, link 28 being permanently pivoted to the outer end of brake arm 7, and lever 24, while link 27

is releasably pivoted to the outer end of the upper brake arm 7' and permanently pivoted to lever 24. For facilitating the release of link 27, its upper end is formed as a hook 29 which can be slipped over and held in engagement with the pin 30 at the outer end of brake arm 7'. This connection between link 27 and brake arm 7' permits the arm to be easily released and laid back for the insertion of new web rolls between the brake arms, and at the same time permits the brake arm to be moved in either direction by the pilot roller.

Means are also provided for varying the normal tension of the web fed from the web roll, and for this purpose pivot block 23 is variably positionable within yoke 22. For this purpose, a hand screw 32 is threaded in the lower end of yoke 22 and projects inwardly into pivot block 23, within which its inner end is rotatably mounted and held against axial movement by collar 33. By turning the hand screw 32, block 23 can be variably positioned within its yoke 22, thereby changing the normal setting of the brake and the normal web tension.

For insuring that the brake shoes can be moved entirely clear of the brake pulley by the action of the pilot roller, compression springs 35 are provided between the brake shoes 6 and their supporting arms 7 and 7'. The brake shoes thus have a definite normal position and the friction exerted by them is changed in accordance with movement of the pilot roller at all times.

In the operation of the mechanism described, the toggle connecting the movable ends of the brake arms 7 and 7' moves these arms exactly in accordance with the movements of the pilot roller, and any abnormal increase in the tension of the web will cause the arms to be moved positively away from and entirely clear of the brake pulley, while a decrease in the tension of the web will cause the arms to be positively moved with increased pressure against the pulley. The pressure of the arms is thus rendered exactly proportional to the movement of the pilot roller, and a much wider variation in the braking force is possible than with the mechanisms heretofore generally employed. In most of these mechanisms, there is always a minimum pressure between the brake arms and the brake pulley which can never be released by the pilot roller, but this undesirable condition is completely avoided by the present invention.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:

1. Web roll controlling mechanism including in combination a brake pulley mounted on a web roll shaft, a pair of brake shoes mounted on pivoted arms and coacting with said pulley to control rotation of the web roll, a pilot roller moved by changes in the tension of the web fed from the web roll, a lever pivotally mounted between the ends of the brake arms and connected to the pilot roller, and links positively connecting the brake arms and lever for moving the brake arms toward and from each other.

2. Web roll controlling mechanism including in combination a pilot roller moved by changes in the web tension, a brake pulley mounted on a web roll shaft, a pair of brake shoes mounted on pivoted arms and coacting with said pulley to control rotation of the web roll, a lever pivotally mounted between the ends of the brake arms and connected to the pilot roller, links connecting the brake arms and lever for positively moving the brake arms toward and from each other and means connecting said lever and pilot roller for moving said lever in accordance with changes in web tension.

3. Web roll controlling mechanism including in combination a pilot roller moved by changes in web tension, a brake pulley mounted on a web roll shaft, brake shoes cooperating with said pulley, a series of levers forming a closed figure on which said shoes are mounted, certain of said levers being movable to move the brake shoes relatively to said pulley, means for supporting said levers on both sides of said pulley and means connected with said pilot roller and moved thereby for moving said levers.

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