WEB TENSIONING MEANS

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Application December 7, 1931, Serial No. 579,487

10 Claims. (Cl. 242—75)

The object of this invention is to provide a braking mechanism for a roll of paper and means co-operating with the braking mechanism to resiliently hold the paper web under tension. As shown the invention is used in connection with a cash register of conventional make but it should be understood that it is so shown by way of illustration only and it may be applied to any roll of paper from which a web is unwound.

Referring more particularly to the drawing,

Figure 1 is a side elevational view of a cash register mounted on a box containing the paper rolls and from which the paper web passes to the cash register, and

Figure 2 is a perspective view of the brake and paper tensioning means.

A cash register 1 is mounted on a box or container 2 in which paper rolls 3 and 4 are mounted on spindles 5 and 9 respectively. The webs 7 and 8 extend from the paper rolls through slots 9 and 10 respectively in the top of the box 2 to an oscillating printing carrier 11 and thence to feed rollers 12 and 13 respectively, which feed rollers are rotated by a conventional means to draw the paper webs from the rolls.

A shaft 14 is secured to the side wall 15 of the box and has a depending arm 16 rotatably mounted thereon and carrying a brake 17 which may be of rubber or other suitable material. This arm 16 is provided with a slot 18 which receives a pin 19 carried by an arm 20 which is provided with a guide bar 21 at its forward end and with a tail 22 at its rear end, which tail 22 is attached to a spring 23 which urges the arm 20 and the parts thereof to the right of the shaft 14 downwardly.

The paper web, after leaving the roll 3, passes over the shaft 14 and beneath the bar 21 and thence through the slot 19 as heretofore described. A similar brake and tensioning mechanism is applied to the roll 4 and shows the same parts except that they are modified to accommodate a roll 4 which rotates in an opposite direction from the roll 3. As a matter of fact, each of the parts is identical except that the mechanism faces an opposite direction. The shaft 14 and the bar 21 are provided with enlarged ends 24 and 25 which act as a means to prevent the paper web from sliding off the ends thereof.

In operation the feed rolls 12 and 13 draw the paper from the rolls 3 and 4. During the first part of the time that the paper is so drawn, the arm 20 will be raised which elevates the pin 19 to the upper end of the slot 18 and rotates the arm 16 so as to disengage the brake from the periphery of a metal disk 26 carried by the spindle 5. The paper from the roll 3 is now fed forward, rotating the feed roll. This relieves the tension on the paper web 7 and the spring 23 aids gravity in pulling the arm 20 downwardly thereby again placing the paper under tension. If the paper is fed very fast the arm 20 will oscillate up and down and each time it moves up it releases the brake and the moment the brake is released, the arm 20 falls, so that the paper is at all times held under tension.

I realize that many changes may be made in the specific form of this invention shown and described by way of illustration in this application and I, therefore, reserve the right to make such changes in the specific form of the invention as shown herein as I may find to be desirable. I, therefore, claim the invention broadly except as I may limit myself by the appended claims.

Having now described my invention, I claim:

1. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface and adapted to rest normally the unwinding movement of said roll, means including a pin and slot connection to intermittently release said brake.

2. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface adapted to resist normally the unwinding movement of said roll, means including a pin and slot connection to intermittently release said brake, and means whereby said means is controlled by said web.

3. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface adapted to resist normally the unwinding movement of said roll, a lever to intermittently release said brake, and means whereby said lever is controlled by said web.

4. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on
said shaft, a brake attached to said arm and adapted to resist normally the unwinding movement of said roll, a lever, a pin and slot connection between said lever and said arm whereby when said lever is elevated the brake will be released and when said lever is lowered the brake will be operative, and means whereby said lever is controlled by said web.

5. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on said shaft, a brake attached to said arm and adapted to resist normally the unwinding movement of said roll, a lever, a pin and slot connection between said lever and said arm whereby when said lever is elevated the brake will be released and when said lever is lowered the brake will be operative, means whereby said lever is controlled by said web, and spring means to constantly urge said lever in a direction so as to cause the brake to be operative.

6. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a shaft around which said web is trained, an arm mounted on said shaft, a brake attached to said arm and adapted to resist normally the unwinding movement of said roll, a lever rotatably mounted on said shaft, a pin and slot connection between the lever and the arm, and a bar carried by the lever and so spaced from the shaft that the web may be trained over said shaft and under said bar.

7. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to cause the unwinding movement, a shaft, a lever rotatably mounted on said shaft, a bar carried by said lever, a spring to urge said lever in one direction, a brake member, a pin and slot connection between said brake member and said lever, so that when the paper is trained over the shaft and under the bar and the paper feeding mechanism is operated the lever will be raised so as to cause the brake member to be inoperative and when there is a slack in the paper the spring will cause the lever to be lowered and the brake member to become effectual.

8. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a disk associated with said roll and adapted to move therewith, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface adapted to engage said disk and to resist normally the unwinding movement of said roll, and means including a pin and slot connection to intermittently release said brake.

9. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a disk associated with said roll and adapted to move therewith, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface adapted to engage said disk and to resist normally the unwinding movement of said roll, means including a pin and slot connection to intermittently release said brake, and means whereby said means is controlled by said web.

10. In combination with a roll of paper mounted for unwinding movement and a feeding mechanism to draw a web of paper from said roll and to cause the unwinding movement, a disk associated with said roll and adapted to move therewith, a shaft around which said web is trained, an arm mounted on said shaft and having a braking surface adapted to engage said disk and to resist normally the unwinding movement of said roll, a lever to intermittently release said brake, and means whereby said lever is controlled by said web.

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