

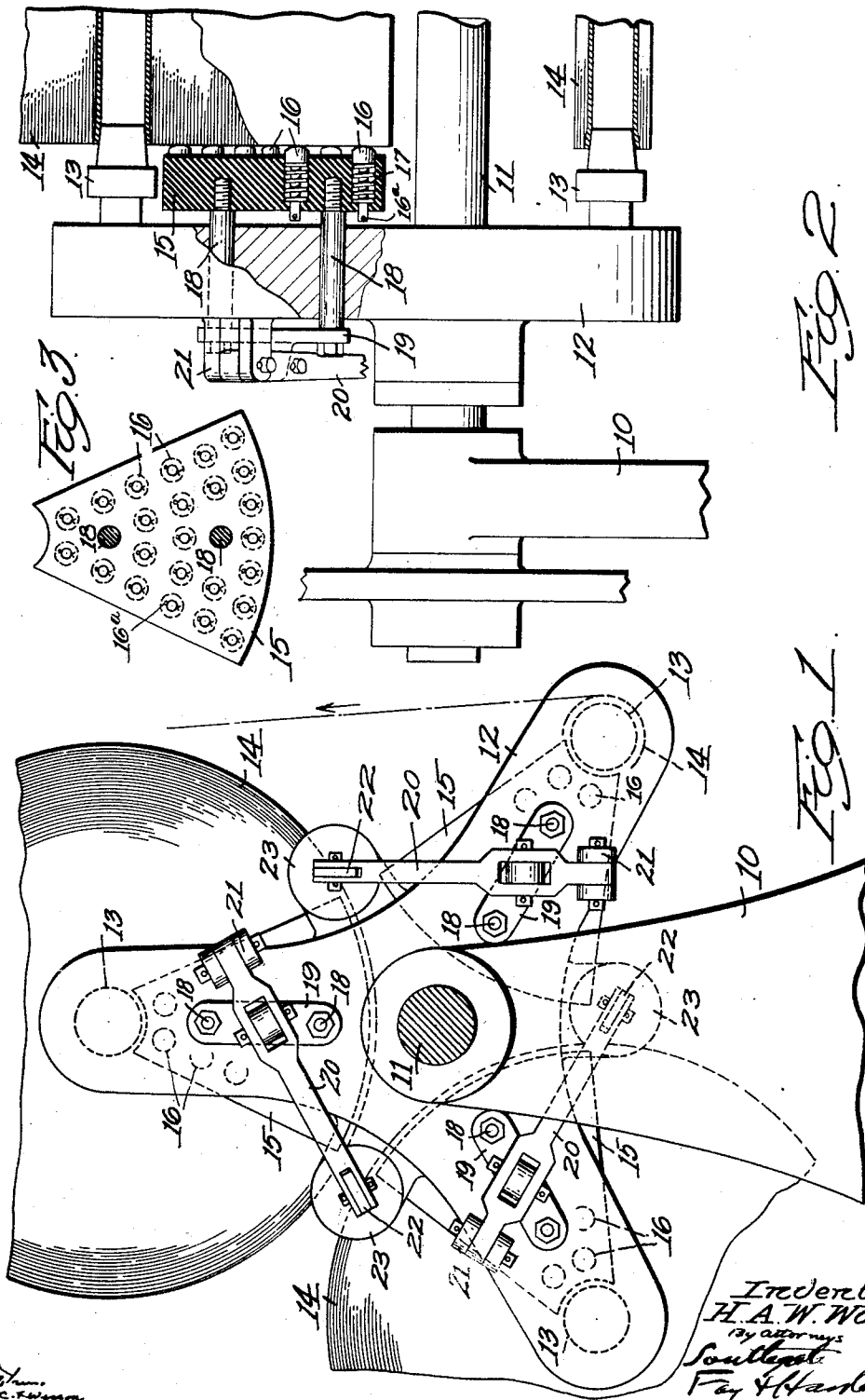
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PAPER ROLL BRAKING DEVICE

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UNITED STATES PATENT OFFICE

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PAPER ROLL BRAKING DEVICE

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This invention relates to means for applying a brake to a heavy rotating paper roll used with a printing press or other machine.

The principal object of the invention is to provide a braking device, the effect of which is proportional to the size of the paper roll so that a full size paper roll will receive a larger braking effect than will a roll when it has been partly used up; also to provide a construction which can be operated electromagnetically so that it can be connected up to operate automatically when required or to be connected and controlled by a hand switch or the like.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is an end view of a reel equipped with brakes according to this invention for three rolls which may be placed thereon;

Fig. 2 is a side view of the same with parts in section, and

Fig. 3 is an end view of one of the brakes with parts in section.

One of the problems which arises in the operation of high speed printing presses with large heavy web rolls is the provision of proper braking for the web rolls when sudden stops occur. Obviously a brake applied to the shaft or stud will operate the same whether the roll is large or small and a brake applied to the surface of a variable diameter roll would be subject to many difficulties. If the braking is too heavy, the web will be broken, while if it is too light a flood of paper is delivered and this usually results also in the breaking of the web. This invention is made for the purpose of providing means whereby the size of the roll will itself affect the extent of the braking action applied to it, so that a roll partly used up will receive less braking action than a full sized roll. Thus the above mentioned difficulties will not be present.

The invention is shown as applied to a well known type of paper supplying reel comprising a pair of pedestals 10 and a shaft 11 on which are mounted two spiders 12 each having means for supporting three sets of paper

roll spindles 13. The device is shown as usual as supplied with three paper rolls 14, one nearly exhausted in Fig. 1 and delivering to the press, one a fresh roll just ready to be pasted to the expiring web and a third one a spare roll just supplied to the reel. Obviously the application of a brake to the exhausted roll is an entirely different matter from the application of a brake to a roll of full size.

In the present form the brake is made in the form of a sector support 15, one being shown as located adjacent to each of the three arms of the spider and reaching in the present case from practically the center of the roll to the circumference of a roll of the maximum size. This sector is provided with a series of plungers 16 with springs 17 behind them to press them against the end of a roll for the purpose of braking the same. Each plunger has a stem which is provided with a crosspin 16^a or cotter pin to prevent the plungers from being separated from the sector when not in contact with the roll.

Each sector is secured to a pair of slides 18 which pass through the spider arm and are adapted to slide therein. These slides are connected with a plate 19 arranged preferably parallel with the length of the spider arm. This plate is pivotally connected with a lever 20 in each case which is pivoted on a bracket 21 fixed to the spider arm, this pivot being at one end of the lever. At the other end of the lever it is pivotally connected with the plunger 22 of an electro-magnet 23 or solenoid. This solenoid can be wired up in any desired way so as to operate automatically under certain conditions, or by hand. When it is energized it pulls the slides 18 inwardly so that the plungers 16 will bear on the end surface of the rotating roll 14. At other times it is held back by a spring.

It will be understood of course that the parts are connected up so that only the solenoid which operates the sector on the running roll can be energized as there is no necessity for braking any roll except the running roll. However, by comparison of two of the rolls in Fig. 1 it will be seen that the

top roll, which is full sized, will be acted on by all the plungers 16 carried by its segment 15, whereas the small nearly exhausted roll, shown at the lower right hand side, would be operated on by only two of these plungers. This serves to show that the braking action is proportional to the diameter of the roll. The number of plungers 16 which contact with the end of the roll being dependent on the size of the roll, a variation of the braking power of the device is made proportionate to the rotative energy of the web roll.

Although I have illustrated and described only one form 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:—

1. In a braking device for a paper roll, the combination of means for applying pressure for braking purposes to various points unconnected with and isolated from each other at different distances from the center of the paper roll and on the end surface thereof, whereby the amount of braking action will be dependent upon the diameter of the roll.

2. In a braking device for a paper roll, the combination of a series of spring pressed plungers arranged at different distances from the center of the roll and adapted to engage the end of the roll for applying braking pressure thereto and means for moving the series of plungers as a whole into or out of contact with the roll.

3. In a braking device for a paper roll for a printing press, the combination of a segmental support, a series of spring-pressed braking plungers carried thereby and located at different distances from the axis of the roll and adapted, when said support is moved in, to engage the end of the paper roll for reducing its speed and electro-magnetic means for moving the support toward the end of the roll.

4. In a braking device for a paper roll, the combination with a segmental support located at the end of the roll on one side of the center, a series of spring-pressed plungers carried by said support and adapted to be forced by their springs against the end of the paper roll to apply braking action thereto, slides to which said support is fixedly connected, a lever connected with said slides and a solenoid connected with the lever for operating it to move the support toward the paper roll from inactive position when the brake is to be applied.

In testimony whereof I have hereunto affixed my signature.

HENRY A. WISE WOOD.