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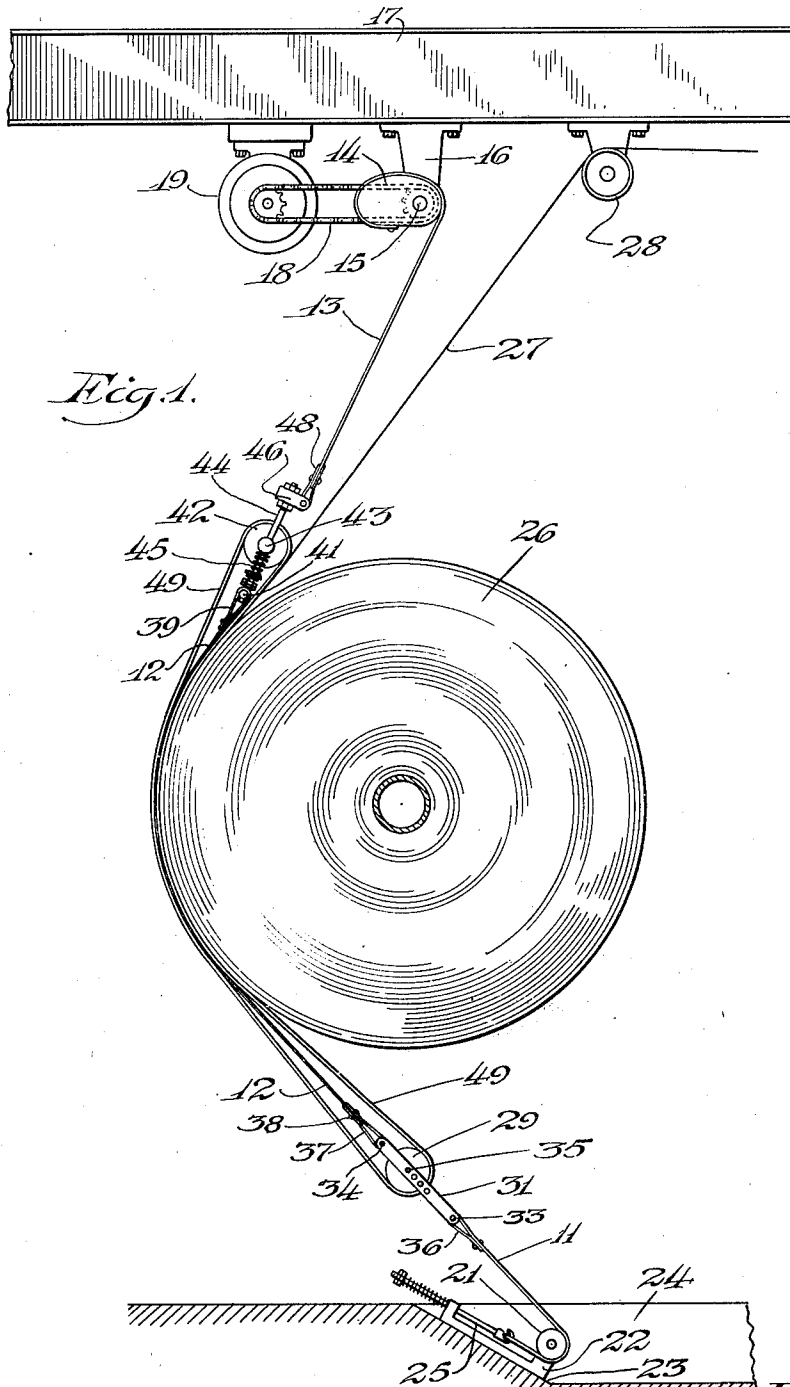
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WEB-TENSION EQUIPMENT

Filed Jan. 17, 1941

2 Sheets-Sheet 1



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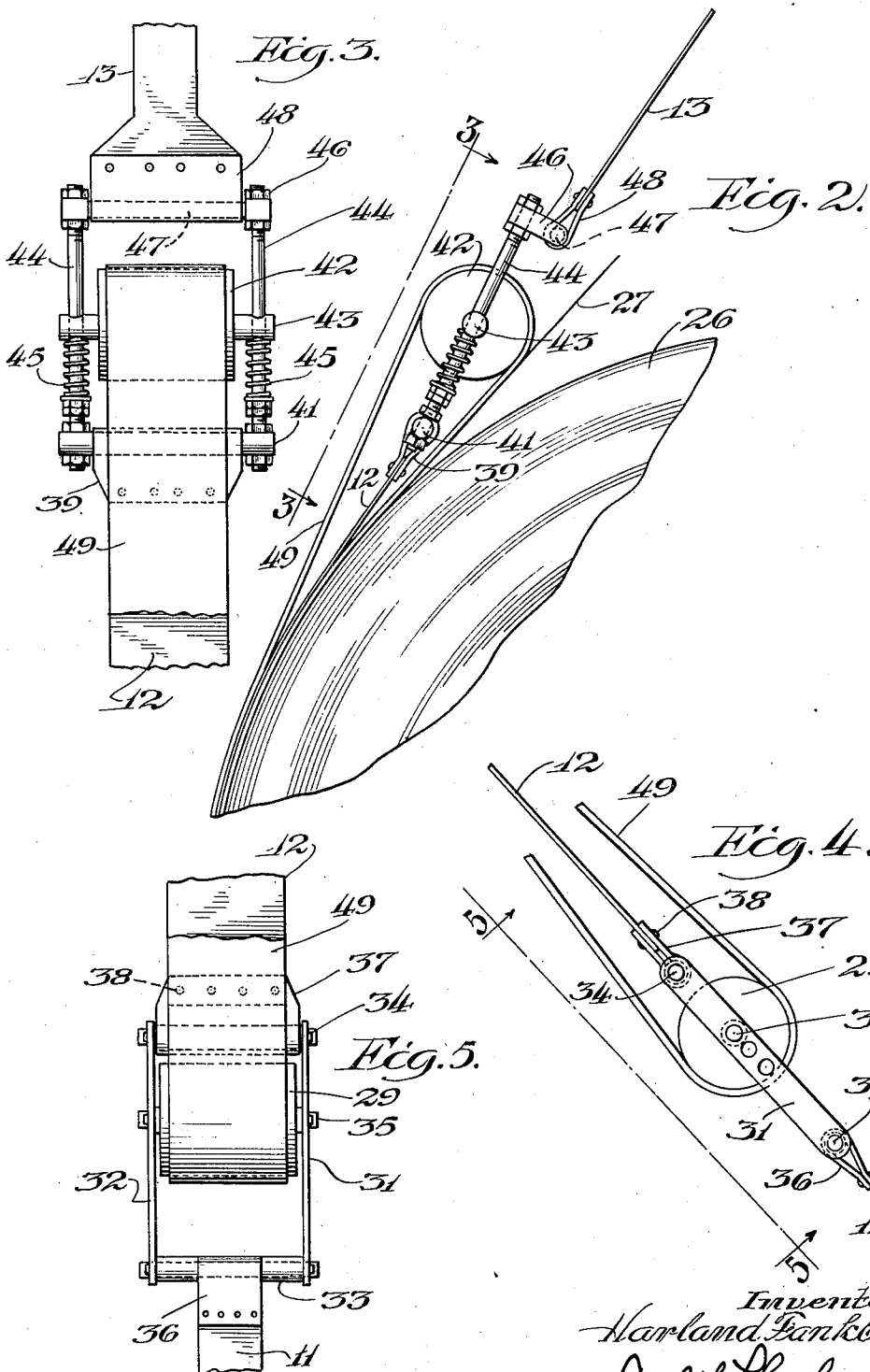
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WEB-TENSION EQUIPMENT

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8 Claims. (Cl. 242—75)

This invention relates to web-tension equipment of the general type disclosed in United States Patents Nos. 1,550,241 and 1,618,975 in which the rotation of a web roll from which paper is fed to a printing press is controlled by means of tension straps which apply braking pressure to the surface of the roll.

This type of tension equipment has been extensively used and is satisfactory for the control of web rolls such as rolls of ordinary newsprint from which paper is delivered into rotary printing presses. However, the tension straps which have been employed in such equipment are stationary, that is, they do not move with the surface of the roll as the latter is rotated, and with certain classes of paper with highly calendered or specially prepared surfaces the friction of such stationary straps tends to cause flaking of the paper and marring of the surface to a noticeable extent. To overcome this difficulty the present invention provides in conjunction with each of such stationary straps a running belt which may be disposed on the exterior of the portion of the strap through which braking pressure is applied to the roll or may replace such portion of the strap, the belt traveling with the surface of the roll so that there is no slippage which could cause marring of the surface of paper of the special types above mentioned.

Other objects and advantages of the invention will be apparent as it is better understood from the following description which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

In the drawings:

Fig. 1 is a side elevational view of a web-tension equipment in which my invention is embodied;

Fig. 2 is a fragmentary view showing the mounting of the upper pulley over which the running belt extends;

Fig. 3 is a front elevational view taken on the plane 3—3 of Fig. 2;

Fig. 4 is a view showing the mounting of the lower pulley; and

Fig. 5 is a face view thereof taken on the plane 5—5 of Fig. 4.

I have shown as an illustrative embodiment of the invention a tension equipment comprising a strap consisting of a lower section 11, a middle section 12 and an upper section 13, the end of the latter extending around a cam member 14 mounted on a shaft 15 supported in brackets 16 depending from the press frame 17, said shaft being adapted to be driven by means of a chain 18 connecting the same with a torque motor 19 ar-

ranged to function as disclosed in the above-mentioned Patent No. 1,618,975, to thereby automatically apply variable tension to said strap as conditions require. The lower end of said strap extends around a pulley 21 mounted in a bracket 22 attached to an inclined wall 23 of a pit 24 provided in the floor, the end of said strap section being attached to a yieldingly mounted bolt 25 in manner which is well-known in the art.

The middle section 12 of the strap is positioned to apply braking pressure to a web roll indicated by the reference character 26, which, in accordance with the usual practice, is mounted on a three-arm reel (not shown), which reel is adapted to be rotated to bring a replacement roll into the position shown in the drawings when required. The web 27 leading from said roll to the press is shown as passing over a guide roller 28, it being understood that normally the press exerts sufficient pull on the web to cause rotation of the roll and unwinding of the web, although means (not shown) may be, and often are, provided to start the rotation of the new roll when the feed is changed from one roll to another.

A pulley 29 is mounted in a frame which is interposed between the strap sections 11 and 12 and consisting of side members 31 and 32 and cross members 33 and 34, the pulley being mounted for rotation on a shaft or rod 35, the ends of which are supported in said frame members 31 and 32. The belt section 11 has a loop 36 formed in the upper end thereof and the cross piece 33 is positioned in said loop to provide a connection between the pulley frame and said belt section 11.

The middle section 12 of the strap, which, as shown, consists of a metal band, is connected with the upper end of said pulley frame by means of a fastening device 37 extending around the cross member 34 and fastened to the lower end of the strap section 12 by means of rivets or other suitable securing means 38.

The upper end of the strap section 12 is similarly attached by means of a fastening member 39 to a cross piece 41 of a framework for an upper pulley 42, which is mounted for rotation on a shaft or rod 43 through which vertical side rods 44 extend, cushion springs 45 being mounted on the lower parts of said rods 44 beneath the shaft 43 so as to permit yielding movement of the latter on said rods 44. Secured to the upper ends of said rods 44 are brackets 46 in which there is mounted a cross rod 47 disposed in a loop 48 on the lower end of the upper strap section 13.

An endless belt 49, made of leather or other flexible material, extends around the pulleys 27

and 42, the inner reach thereof being disposed in contact with the web roll when the latter is in the position shown in Figs. 1 and 2 of the drawings. Rotation of the roll serves to drive said belt and cause the same to travel at the same linear speed as that of the surface of the roll, thus avoiding slippage which might cause flaking of the paper and consequent marring of its calendered or other special surfacing.

The middle strap section 12 of the belt could be omitted without departing from the scope of the invention, the braking pressure in that event being applied through the belt. However, it has been found advantageous to use the middle section as shown, which preferably is made of metal having a smooth surface upon which the belt may readily slide.

The foregoing description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

I claim:

1. Web-tension equipment for printing presses comprising braking means including a strap arranged to apply braking pressure to the surface of a rotating web roll, and a belt arranged over the strap and in contact with the roll at the point of application of such pressure thereto, said belt being movable with the roll to thereby prevent marring of the surface of the web by the frictional contact of the braking means therewith.

2. Web-tension equipment for printing presses comprising braking means including a strap arranged to apply braking pressure to the surface of a rotating web roll, and a belt arranged over the strap and in contact with the roll at the point of application of such pressure thereto, said belt being arranged to be driven by the roll when the latter is rotated so as to move therewith and to thereby prevent marring of the surface of the web.

3. Web-tension equipment for printing presses comprising braking means including a strap arranged to apply braking pressure to the surface of a rotating web roll, pulleys mounted in said strap above and below the portion thereof through which such pressure is applied to the roll, and a belt extending over said pulleys and over said braking portion of the strap, said belt being movable with said roll and lengthwise of said strap when the roll is rotated to thereby prevent marring of the surface of the web by the frictional contact of the braking means therewith.

4. Web-tension equipment for printing presses comprising braking means including a strap arranged to apply braking pressure to the surface of a rotating web roll, pulleys mounted in said

strap above and below the portion thereof through which such pressure is applied to the roll, a belt extending over said pulleys and over said braking portion of the strap, and means for applying tension to said strap to regulate the braking effect thereof, said belt being movable with said roll and lengthwise of said strap when the roll is rotated to thereby prevent marring of the surface of the web by the frictional contact of the braking means therewith.

5. Web-tension equipment for printing presses comprising a support for a web roll from which paper is supplied to the press, an endless belt positioned to engage the surface of the roll and adapted to travel therewith when the latter is rotating, and means including a non-traveling strap member and automatic tension mechanism for exerting variable tension on said strap member lengthwise thereof to urge said endless belt toward the axis of the roll and thereby cause a braking pressure to be applied to the surface of the roll through said belt.

6. Web-tension equipment for printing presses comprising a support for a web roll from which paper is supplied to the press, an endless belt positioned to engage the surface of the roll and adapted to be driven thereby when the latter is rotating, and means including a non-traveling strap member and automatic tension mechanism for exerting variable tension on said strap member lengthwise thereof to urge said endless belt toward the axis of the roll and thereby cause a braking pressure to be applied to the surface of the roll through said belt.

7. Web-tension equipment for printing presses comprising a braking member non-traveling in linear direction but movable toward the axis of the roll as the roll decreases in size, an automatically-acting brake applying and regulating device connected to said member and operable to cause the same to apply proper braking pressure to the surface of a web roll regardless of the size of the roll, and a traveling member between said braking member and the roll to prevent marring of the surface of the roll by said braking member.

8. Web-tension equipment for printing presses comprising a support for a web roll from which paper is supplied to the press, an endless belt positioned to engage the surface of the roll and adapted to travel therewith when the latter is rotating, and means including a non-traveling braking member and automatic tension mechanism for exerting variable tension on said braking member lengthwise thereof to urge said endless belt toward the axis of the roll and thereby cause a braking pressure to be applied to the surface of the roll through said endless belt.

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