

June 12, 1934.

H. N. DURHAM

1,962,928

WEB RENEWING MECHANISM

Filed Sept. 23, 1931

2 Sheets-Sheet 1

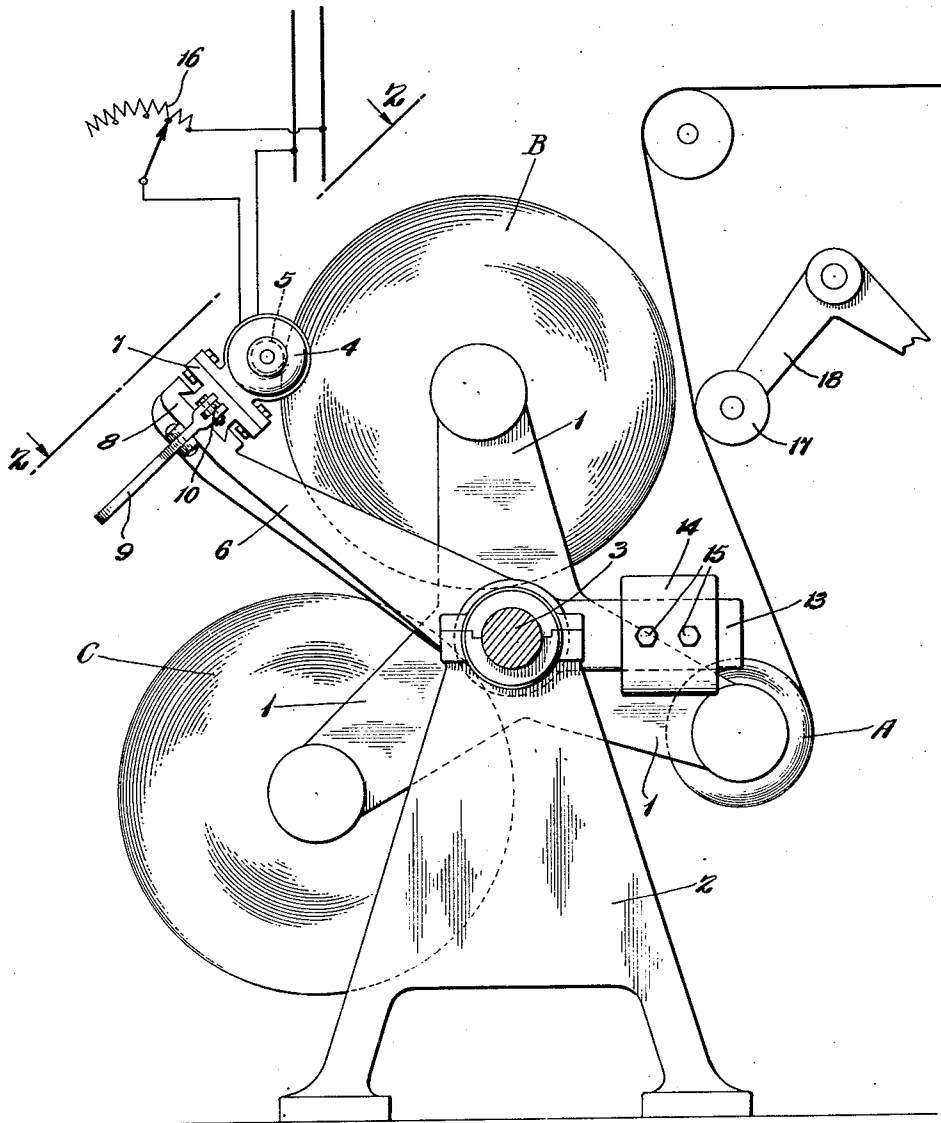


Fig 1

INVENTOR
BY *J. N. Durham*
John D. Morgan
ATTORNEY

June 12, 1934.

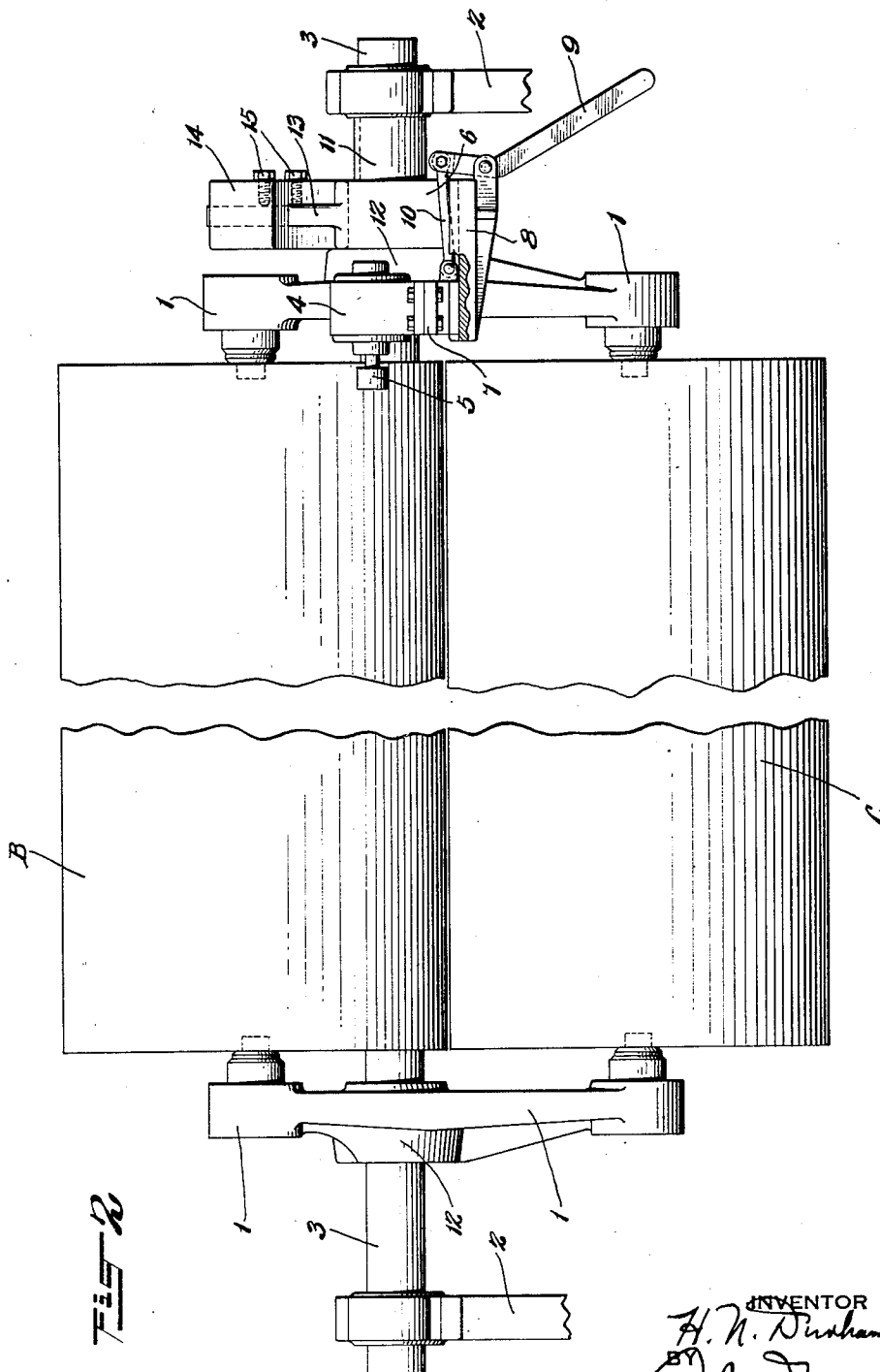
H. N. DURHAM

1,962,928

WEB RENEWING MECHANISM

Filed Sept. 23, 1931

2 Sheets-Sheet 2



INVENTOR
H. N. Durham
BY
John Morgan
ATTORNEY

UNITED STATES PATENT OFFICE

1,962,928

WEB RENEWING MECHANISM

Hobart N. Durham, Jackson Heights, N. Y., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois

Application September 23, 1931, Serial No. 564,493

18 Claims. (Cl. 242—58)

The present invention relates to web renewing apparatus and more particularly to novel and improved mechanism for bringing the reserve web roll up to the speed of the running web preparatory to effecting a flying paster.

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 drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

Figure 1 is a side elevation of the present preferred and illustrative embodiment of the invention, certain of the parts being shown diagrammatically.

Figure 2 is a side elevation of the mechanism shown in Figure 1 with certain parts broken away.

The present invention has for its object the provision of a novel web renewing apparatus. A further object is the provision of a simple, inexpensive and easily operated means for bringing a reserve web roll up to the speed of the running web. Another object is the provision of a single motor means which can be successively placed in operative relation to successive reserve web rolls as they are brought into pasting position. Still another object is the provision of compact reserve roll rotating means carried by the magazine reel.

In accordance with the present invention, the web rolls are rotatably supported so that the reserve web rolls may be brought up to running speed by a motor driven friction member, joined to the running web and then moved into running position, this operation being repeated with successive web rolls without necessarily stopping the running of the web to the printing press or other web using machine. The motor driven friction member is mounted on the web roll supporting means and may be brought into engagement with successive web rolls in pasting position.

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 present preferred and illustrative embodiment of the invention as shown in the accompanying drawings, the web roll supporting means comprises a conventional form of magazine reel in which the running web roll and reserve web roll or rolls are rotatably supported and by which successive web rolls may be brought into pasting, and then running position. As embodied, the multi-armed web roll supporting members 1 are spaced apart to receive the rotatable web rolls A, B and C between them, and the supporting members 1 are rotatably mounted on side frames 2 by means of shaft 3. The details of this mechanism, including the web tensioning devices, side registering devices and reel arm rotating mechanism are not shown as they form no part of the present invention.

As shown, web roll A is the running roll and is in running position; web roll B is a reserve web roll in pasting position; and web roll C is a spare roll which will be successively moved into pasting, and then running, position by clockwise (Figure 1) rotation of the web roll supporting arms. Although shown in connection with three web rolls, any other desired number of rolls may be employed.

The means for bringing the web roll to the speed of the running web, so that the leading end of the reserve web may be joined to the running web while the running web is being supplied to the press, comprises an electric motor which may be successively placed in operative position with respect to successive web rolls, and may be coupled thereto by a friction disc driven by the motor.

The electric motor may be of any desired type having sufficient power and speed for the purpose, but I prefer to employ a motor 4 which is capable of withstanding considerable overloads. At the inner end of its shaft, motor 4 is provided with a rubber-surfaced friction disc 5 adapted to contact with the surface of the reserve web roll at one end of the roll, and is maintained in contact with the web roll until the paster is made. Preferably disc 5 contacts with the roll very close to its end, out of line with the glue applied to the leading end of the reserve web.

Means are also provided for supporting the motor, pressing it into engagement with the reserve web roll and for permitting successive reserve web rolls to be moved into pasting position. As embodied, the motor 4 is slidably mounted on an arm 6, by means of a plate 7 which is dovetailed into a head 8 at the outer end of the supporting arm 6. A lever 9 is pivoted on said head and connected with the plate 7 by means of link

10 to move the motor axially of the web rolls. Arm 6 is pivotally mounted around the reel shaft 3, and is held against longitudinal movement thereon by means of a spacing collar 11, and the hub 12 of the web roll supporting arms 1.

For pressing the friction disc against the surface of the web roll and maintaining it in contact therewith until after completion of the paster, arm 6 is formed with a radially extending portion 13 to which is secured a variably positionable weight 14, held in the desired position on said portion by means of the set screws 15. Weight 14 tends to cause a clockwise (Figure 1) rotation of the arm 6 and motor 4, maintaining motor-driven disc 5 in engagement with the surface of the web roll B during the movement of the web roll from pasting position. Weight 14 may be moved radially on portion 13 to give the necessary pressure between the friction disc 5 and the web roll B.

For varying the speed of the motor, so that the reserve web roll will be driven at the speed of the running web, a variable resistance 16 may be provided in the motor circuit, permitting the operator to control the power supplied to the motor.

The operation of the above described device may be summarized as follows:

With the parts in the position shown in the figures of the drawings, the motor 4 is started when the web roll A is partially exhausted and continues to run until the reserve web roll B is brought up to speed and the paster has been made. The leading end of the web roll B has the usual pasting glue applied to it and a pasting roller 17, mounted in the pivoted arms 18, is moved to press the running web against the surface of the web roll B, thereby picking up the leading end of the reserve web and effecting the joiner of the reserve web to the running web. The old running web is then severed in the usual manner, and the web supporting arms 1 are rotated to bring the reserve web roll B into running position. While this rotation is taking place, weight 14 moves the motor 4 to keep friction disc 5 in contact with the web roll B, until just before the web roll is fully moved to running position.

During the rotation of the web roll supporting arms 1, the web roll C has been moved to pasting position, and the motor 4 may then be moved axially outward to permit arm 6 to be swung counterclockwise (Figure 1) so that motor 4 may be moved inwardly to contact disc 5 with the surface of the web roll C. The motor remains idle in this position until the running web roll is sufficiently exhausted indicating the time for starting the rotation of the reserve web roll.

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 renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll and a motor having on its shaft a friction member to be moved into engagement with the reserve web roll to bring it to running speed.

2. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, an arm

pivotally mounted adjacent to said rolls, weighted means urging said arm towards the reserve web roll, and a motor and friction disc driven thereby mounted on said arm to contact with the reserve web roll.

3. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, an arm pivotally mounted adjacent to said rolls, means urging said arm towards the reserve web roll, a motor driven friction disc mounted on said arm to contact with the reserve web roll and means for varying the speed of the motor to synchronize the reserve roll with the running web.

4. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, means for moving successive reserve web rolls to running position, a motor and friction disc driven thereby mounted adjacent to the reserve web roll and means for pressing the disc into contact with the reserve roll to rotate it.

5. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, means for moving successive reserve web rolls to running position, a pivoted arm carrying a friction disc and driving motor therefor to contact with the reserve roll to rotate it.

6. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, means for moving successive reserve web rolls to running position, an arm pivoted adjacent to the rolls, a motor driven friction member carried on said arm to be pressed into contact with the reserve web roll and means for moving said disc axially of the web rolls to permit the reserve roll to be bodily moved to running position.

7. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, means for moving successive reserve web rolls to running position, means contacting with the surface of the reserve web roll to rotate it and means for moving said contacting means axially of the web rolls and out of the path of the web rolls to permit the reserve web roll to be moved to running position.

8. Web renewing mechanism including in combination means for rotatably supporting a running web roll and a reserve web roll, means movable axially of the web roll and for moving successive reserve web rolls to running position, means contacting with the surface of the reserve web roll to rotate it and positioned within the path of movement of a web roll and means for resiliently pressing said contacting means against the surface of the reserve roll.

9. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven friction member and means mounted on said shaft for supporting said friction member.

10. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a motor driven friction member movable into contact with successive reserve web

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150

rolls and means mounted on said shaft for supporting said friction member.

11. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven friction member, means mounted on said shaft for supporting said friction member and means for resiliently urging said friction member into contact with the surface of the reserve roll.

12. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven member, means for supporting said member on said shaft and weighted means for moving said member into contact with the reserve roll to rotate it and maintain it in contact with the roll throughout a substantial bodily movement of the roll.

13. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven member, means mounted on said shaft for supporting said friction member on said shaft and normally in the path of the web rolls as the arms are rotated, and means for axially moving the member out of the path of a web roll as the arms are rotated.

14. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven member, means mounted on said shaft for supporting said friction member on said path and normally in the path of the web rolls as the arms are rotated, means for axially moving the member out of the path of a web roll as the arms are rotated and means for urging the member into contact with the reserve web roll.

15. Web renewing mechanism including in

combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a driven member, means mounted on said shaft for supporting said driven member on said shaft, means for varying the speed of said driven member and means for axially moving said driven member.

16. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a motor driven friction member, means mounted on said shaft for pivotally supporting said friction member on said shaft, said friction member being movable into contact with successive web rolls and means for moving said friction member axially of the web rolls.

17. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a motor driven friction member, means mounted on said shaft for pivotally supporting said friction member on said shaft, said friction member being movable into contact with successive web rolls, means for axially moving said friction member and means for varying the speed of said member.

18. Web renewing mechanism including in combination a pair of arms spaced apart to receive a rotatably mounted reserve web roll and a rotatably mounted running web roll between them, a shaft by which said arms are rotatably mounted, a motor driven friction member, means mounted on said shaft for pivotally supporting said friction member on said shaft, said friction member being movable into contact with successive web rolls, means for maintaining said friction member in contact with the reserve web roll throughout a considerable bodily movement of the reserve web roll and means for varying the speed of the motor.

HOBART N. DURHAM.

50

125

55

7

60

135

65

140

70

145