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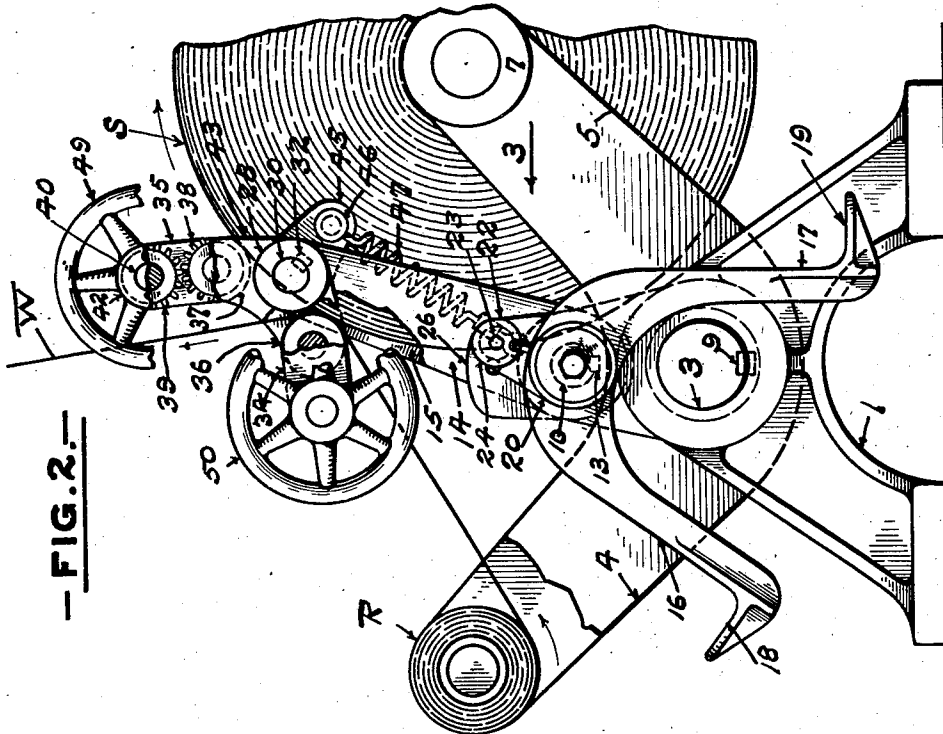
H. V. BALL

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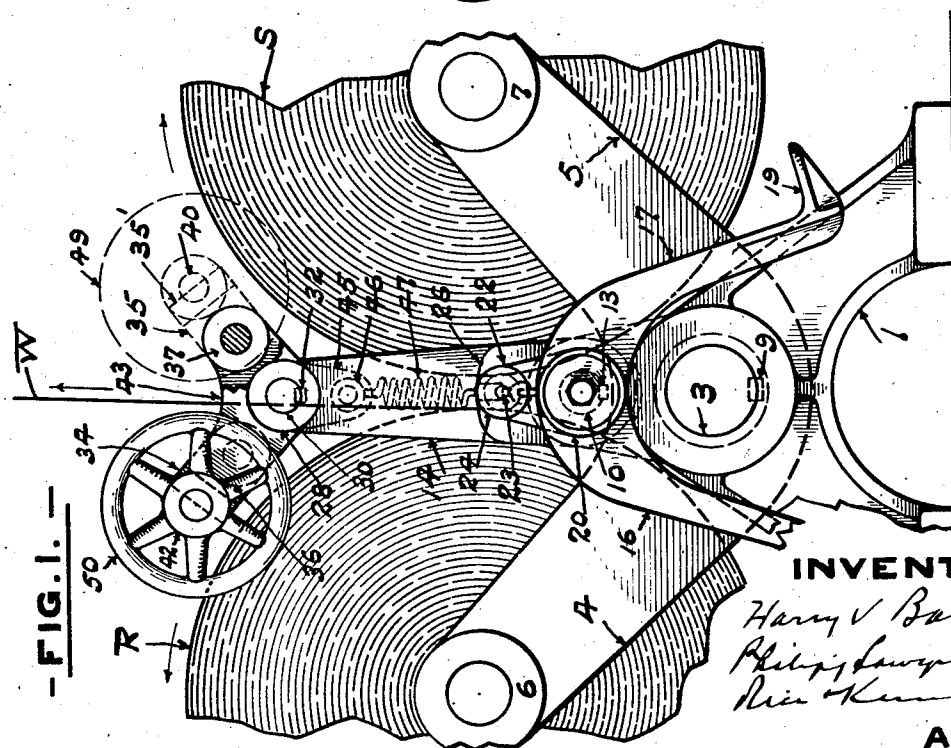
WEB ROLL CHANGER

Filed Sept. 13, 1927

2 Sheets-Sheet 1



-FIG. 2.-



-FIG. 1.-

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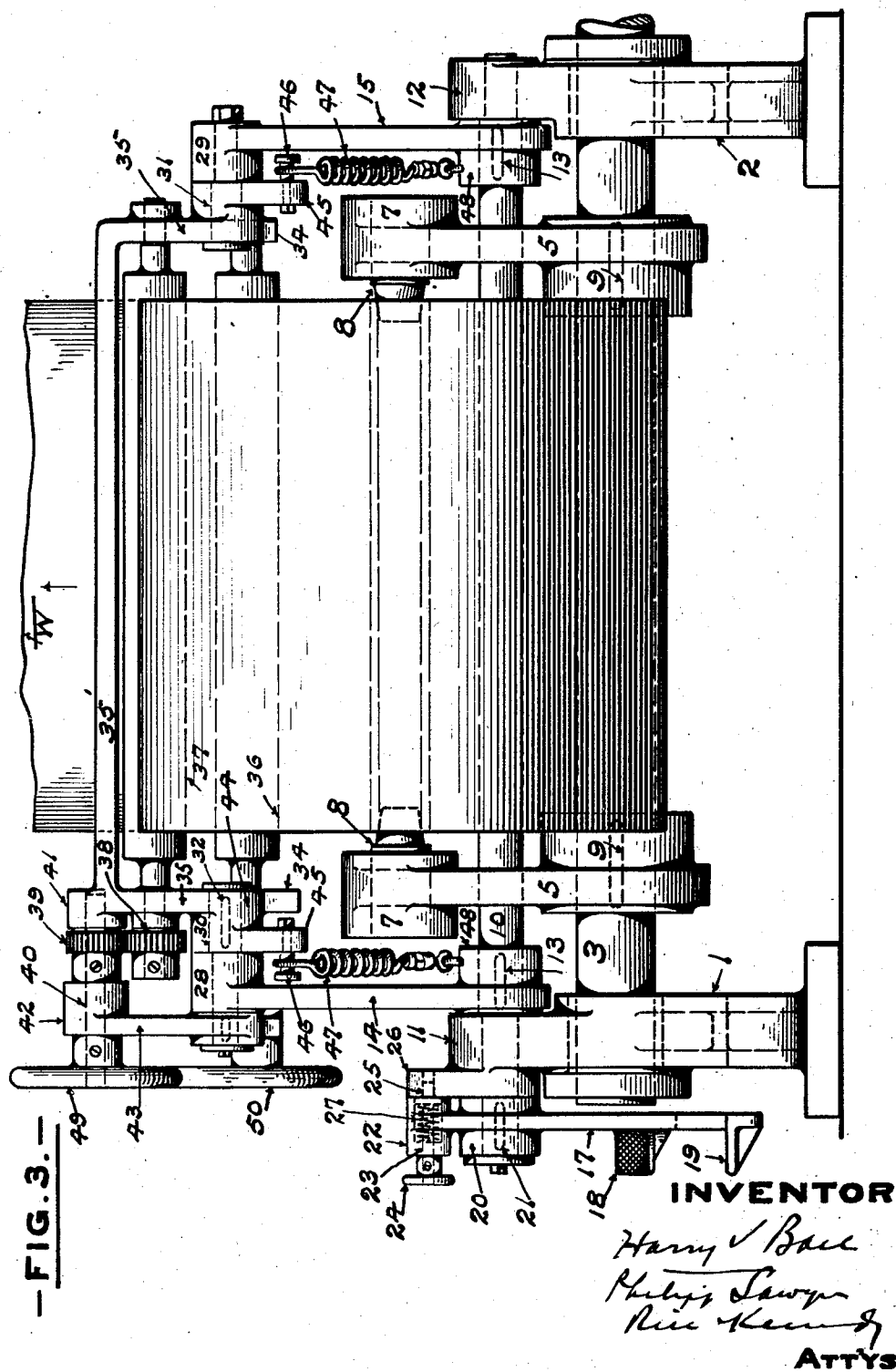
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WEB ROLL CHANGER

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

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WEB ROLL CHANGER

Application filed September 13, 1927. Serial No. 219,219.

This invention relates to certain improvements in web roll changing mechanisms employed for uniting a web from a running web roll to a spare web roll.

5 In the operation of printing mechanisms and particularly the modern high speed rotary machines, it is desirable that an expiring web be united to a spare roll in the shortest possible time so as not to slow down or lessen the press product more than is absolutely necessary. Furthermore, in many press rooms, space is a matter of great importance, and it is very desirable that these web roll changers or renewers occupy as small a space as possible, particularly where they are employed with presses in which there is but little room above or below the press proper.

It is the particular object of the present invention to provide an improved mechanism for pasting or uniting an expiring web to a new web roll which will include devices for effecting the paste and for bringing the new web roll up to the speed or substantially the speed of the running web, these pasting and speed-up devices being located so that they may be moved together into engagement with one or the other of two web rolls, one of the devices acting as a paster when in contact with one roll and as a speed-up device when in contact with another roll, the other of the devices having complementary functions.

A further object of the invention is to provide a construction of few parts which can be readily installed in a small space below a printing press in a press room, and which may be readily manipulated to bring the speed-up and pasting devices into operative position with respect to the desired web roll.

With these and other objects not specifically referred to in view, the invention consists in certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawings and the novel features pointed out in the claims hereunto annexed.

In these drawings,—

Figure 1 is a side elevation, partly broken away, of a web roll changer embodying the invention, the parts being shown in running position with the web running to the press

from the left-hand roll and the spare roll in position on the right;

Figure 2 is a similar view showing the position of the parts when the running roll is about to expire and the web is being pasted to the spare roll, and

Figure 3 is an end view looking in the direction of arrow 3 of Figure 2.

Referring now to these drawings, which illustrate a preferred embodiment of the invention, there is shown a support capacitated to carry a running web roll and a spare web roll. This support may be of various characters, but preferably is one in which the rolls may be located closely adjacent each other, and which is comparatively low down so that it can be used beneath a press where, because of the press construction, but a small space is permitted beneath the press mechanism. In the particular construction illustrated there is provided a pair of low standards 1, 2 suitably supported on the press room floor. These standards support a shaft 3 which, at each side, is provided with a pair of similar bent arms 4, 5, in the ends of which are hubs 6, 7 which carry support bearings 8 for supporting a running roll R and a spare roll S. It will be observed that the shaft 3 is located below the axes of the rolls so that the parts can be accommodated in a low place, and the supporting arms 4, 5 are formed so as to bring the rolls closely adjacent each other. These rolls run from the same position in the arms, that is, a roll loaded into the arm 4 runs from that position, and a roll loaded into the arm 5 runs from the latter position. If desired, means, not shown, may be provided for slightly rocking the shaft 3 to facilitate the loading of the rolls into the roll journals. The arms 4, 5 are secured on the shaft in any suitable manner so as to turn therewith, as by keys 9.

In accordance with the invention, web speed-up and pasting devices are employed for speeding up a new roll to substantially web speed and for pasting a web running from the expiring roll to this new roll, and these speed-up devices and the support are arranged to have a relative movement to effect the operative relation of the devices

with either web roll. In the particular construction shown, the speed-up and pasting devices are moved relatively to the support, and are arranged to move together and to be brought into contact with a web roll in either position. In the best constructions, furthermore, the devices are arranged so that the speed-up device contacts with the new roll, the pasting device following closely after and bringing the old web into contact with the new roll after the latter has been brought up to web speed.

While the particular form and arrangement of these devices may be somewhat varied, in the particular construction illustrated there is provided a rock shaft 10 supported in upper extensions 11, 12 of the standards 1, 2, before referred to. Keyed on this rock shaft, as by keys 13, is a pair of arms 14, 15, these arms, as shown, being preferably located inside the extensions 11, 12. The shaft 10 is operated by a treadle having treadle arms 16, 17 which terminate in foot pedals 18, 19. This treadle is formed on a hub 20 keyed to the shaft by a key 21, and the upper end of this treadle is provided with an extension 22 in which works a pin 23 having an operating head 24. The end of this pin extends into a hole 25 formed in an upright lug 26 rising from the extension 11 of the standard 1, before referred to, and is preferably held in position by a spring 27, the treadle and associated parts being located outside the standard.

The arms 14, 15, at their upper ends, carry hubs 28, 29 which form supports for pivot shafts 30, 31 to which is keyed, at 32, a frame in the form of diverging arms 34, 35, connected by a cross web 35', which support the speed-up or traction devices and the pasting devices. While these speed-up or traction and pasting devices may be of somewhat varied construction, as shown, they are in the form of rolls 36, 37 mounted on opposite sides of the pivots 30, 31, and between which rolls the web W runs as it passes to the press. One of these rolls, where rolls are the speed-up and pasting devices, acts as a speed-up device when in contact with one of the web rolls and as a pasting device when in contact with the other web roll. The other speed-up or traction roll 36 has similar functions.

It will be observed that these rolls, by the swing of the arms 14, 15, are brought into engagement with the web roll in either position. In the best constructions the parts will be so arranged that the roll which is acting as a speed-up device is brought into contact with the web roll which is to be speeded up before the other or pasting roll comes into contact therewith and brings the old web into contact with such new roll, and preferably this movement of the speed-up and pasting rolls is spring controlled. After the speed-up roll has been brought into contact with

the new roll, means are also provided for rotating this roll while in contact with the web roll so as to bring the web roll up to the speed of the running web which is to be united or pasted thereto. While the particular construction for effecting this may be somewhat varied, preferably the speed-up roll is rotated by hand and the rolls are brought into operative position by foot manipulation of the treadle before referred to.

As illustrated, the rolls at one side, as at the left in Figure 3, are provided with a gear 38 which is in mesh with a gear 39 on a shaft 40 supported in bearings 41 formed in the frame 33 and in the hub 42 of an arm 43 keyed to the pivot 30, before referred to. Secured to the hub 44 of the frame 33 is an arm 45 to which is secured, by a pin 46, one end of a spring 47, the other end of the spring being secured to the hub 48 of the arm 14. The shaft 40 is operated by a hand-wheel 49 and it is understood that a similar construction, including a hand-wheel 50, is employed for rotating the other roll.

The operation of the device is as follows: The normal running position of the parts is that shown in Figure 1, in which the web W is being drawn off to the press from the roll R, the web passing between the pasting and speed-up rolls 36, 37. The roll R having been exhausted, as shown in Figure 2, the spring pin 23 is withdrawn from the hole 25 and the operator presses down on the foot pedal 19. This throws the arms 14, 15 to the right from the position shown in Figure 1 to the position shown in Figure 2, which movement of the treadle brings the roll 37 into engagement with the surface of the spare roll S and brings the pasting roll 36 against the web forcing the web toward the spare roll. When the roll 37 has come into engagement with the spare roll, the press is slowed down and the hand-wheel 49 is rotated by hand, which, through the speed-up roll 37, rotates the spare roll bringing the roll up to the speed of the web. It will be understood that paste or other suitable adhesive has been applied to the surface of the new roll, and this rotating of the new web roll brings the pasted portion into proper position to be joined to the running web. A further downward movement of the pedal 19 rocks the frame around the pivots 30, 31 and brings the pasting roll 36 and the web into contact with the pasted portion of the rotating spare roll and effects the paste. This movement of the frame about the pivots puts the spring 47 under tension and, when the parts are rocked back to normal position by means of the pedal 18, the spring causes the parts to assume the position shown in Figure 1. The same operation and the same sequence of movements take place when a running web from a roll in the right-hand position is joined to a new roll in the left-hand position in the construc-

tion illustrated in the drawings. When this is done, however, the roll 36 acts as the speed-up and the roll 37 as the pasting roll, the roll 36 in this instance being rotated by the hand-wheel 50.

It will be seen by the construction described that a simple and efficient roll changer has been provided, one in which there are few parts, and which is simply and easily manipulated to paste a running web to a new web roll. It will also be observed that by operating the parts as described, so that the speed-up roll comes into contact with the web roll before the pasting roll brings the running web into contact therewith, free rotation of the new web roll is permitted by means of the hand-wheel and the connections described, so that this roll is readily brought up to the required speed.

While the invention has been shown and described in its preferred forms, it will be understood that various changes may be made in the specific construction and arrangement of the parts and in the character of the speed-up and pasting devices without departing from the invention as defined in the appended claims.

What I claim is:

1. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll, and speed-up and pasting devices located to be brought into engagement with either roll, one of said devices acting as a speed-up device when in contact with one web roll and as a paster when in contact with another web roll, the other of said devices acting as a paster when brought in contact with one web roll and as a speed-up device when brought in contact with the other roll.

2. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, speed-up and pasting devices located to be brought into engagement with either roll, means for moving the devices together into operative relation with either web roll, and means for rotating the speed-up device to bring the new roll up to the speed of an expiring web.

3. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll, speed-up and pasting devices located to be brought into operative relation with either roll, means for supporting the devices so as to move together with the speed-up device coming first into operative relation with the roll, and means for rotating the speed-up device to bring a new roll up to the speed of an expiring roll.

4. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, speed-up and pasting devices between which the web runs, a swinging support by

which the devices are carried, means for swinging the support to move both devices together so as to bring the speed-up device into contact with a web roll in either position to bring the web roll up to the speed of the running web, and then bring the pasting device and the web into contact with the web roll, and means for rotating the speed-up device.

5. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, a pair of speed-up and pasting rolls between which the web runs mounted to move together, means for moving the rolls to bring both of them into operative relation with a web roll in either position, and means for rotating the speed-up roll.

6. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, a pair of speed-up and pasting rolls between which the web runs, a rocking support for both rolls, means for rocking the support in either direction to bring both the rolls into operative relation with a web roll in either position, and means for rotating the speed-up roll.

7. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, a pair of speed-up and pasting rolls located between the web rolls, a rocking support in which both rolls are mounted, means for rocking the support in either direction, and manually operable means for rotating the speed-up roll in either position.

8. In a web roll changer, the combination of a support for supporting a running web roll and a spare web roll in fixed running positions, a pair of speed-up and pasting rolls located between the web rolls, a rocking support, pivots carried by the rocking support for supporting the rolls, and means for rocking the support so that one of the rolls is first brought into contact with a web roll in either position to speed up the web roll, and the other roll is then brought with the web into contact with the same web roll to paste the web to the speeded up roll.

9. In a web roll changer, the combination of a frame for supporting a running web roll and a spare web roll, a pair of speed-up and pasting rolls located between the web rolls, a rocking support, roll supporting arms pivoted in the support in which the rolls are mounted, means for rocking the support, and a spring against which the arms are rocked about the pivots.

10. In a web roll changer, the combination of a frame for supporting a running web roll and a spare web roll, a pair of speed-up and pasting rolls located between the web rolls, a rocking support, roll supporting arms pivoted in the support in

which the rolls are mounted, means for rocking the support to move the rolls in either direction, gears on the rolls and hand-wheels for rotating the gears.

- 5 11. In a web roll changer, the combination of a frame for supporting a running web roll and a spare web roll, a shaft supported in the frame, arms on the shaft, pivots in the arms, roll supporting arms secured on the pivots, a pair of speed-up and
10 pasting rolls carried in the roll supporting arms, a two armed lever for rocking the shaft in either direction, gears on the rolls, and manually operable means for rotating
15 the gears.

12. Web pasting mechanism including in combination a pair of speed-up and pasting rolls, a single swinging support for the rolls, means for swinging the support to bring
20 both the rolls into operative relation with either of two web rolls located on opposite sides of the support, and means for rotating the speed-up roll.

In testimony whereof, I have hereunto set
25 my hand.

HARRY V. BALL.

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