

Nov. 24, 1931.

H. V. BALL

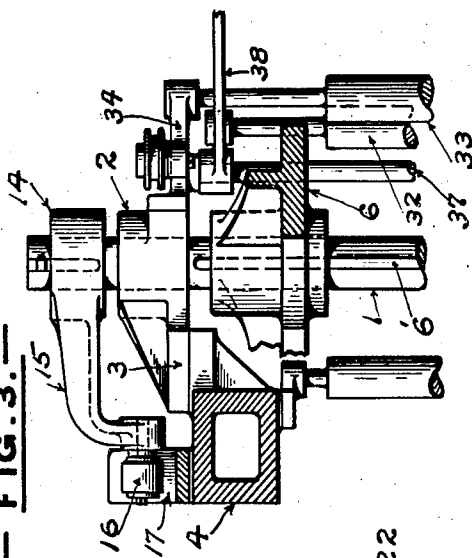
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WEB ROLL SUPPORTING AND PASTING MECHANISM

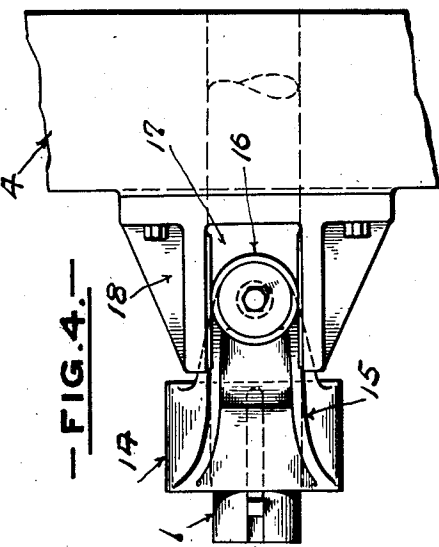
Filed June 9, 1928

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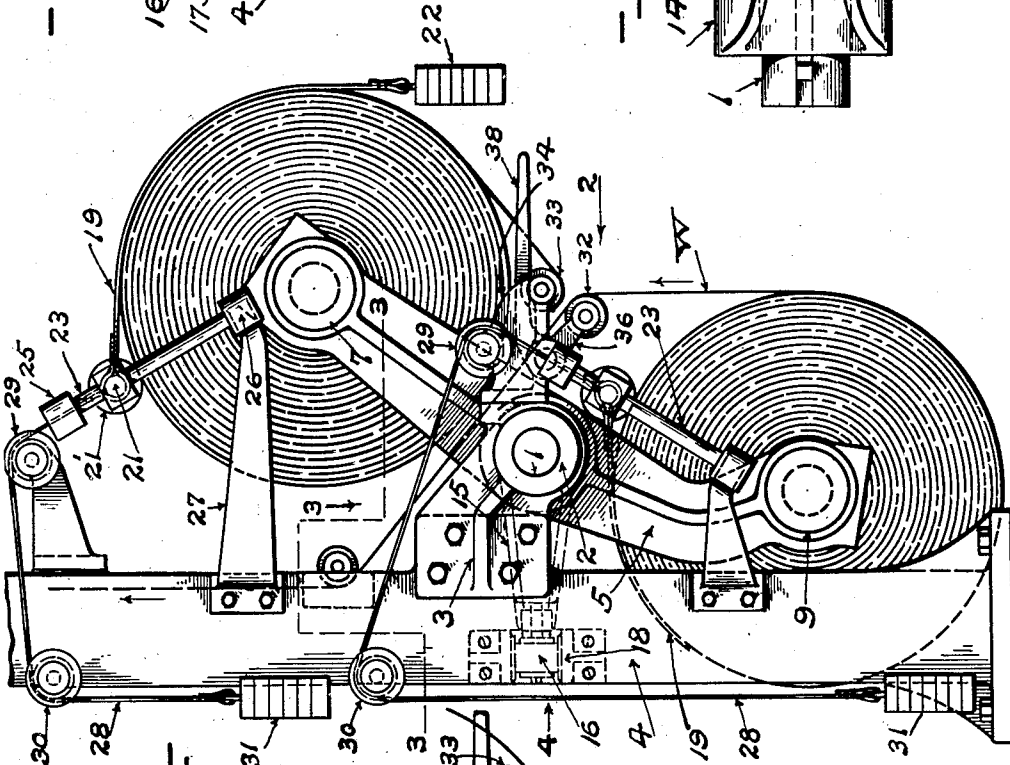
— FIG. 3.—



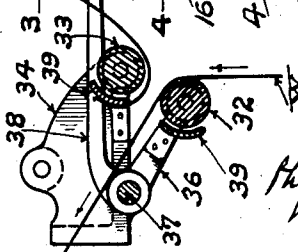
— FIG. 4.—



— FIG. 1.—



— FIG. 5.—



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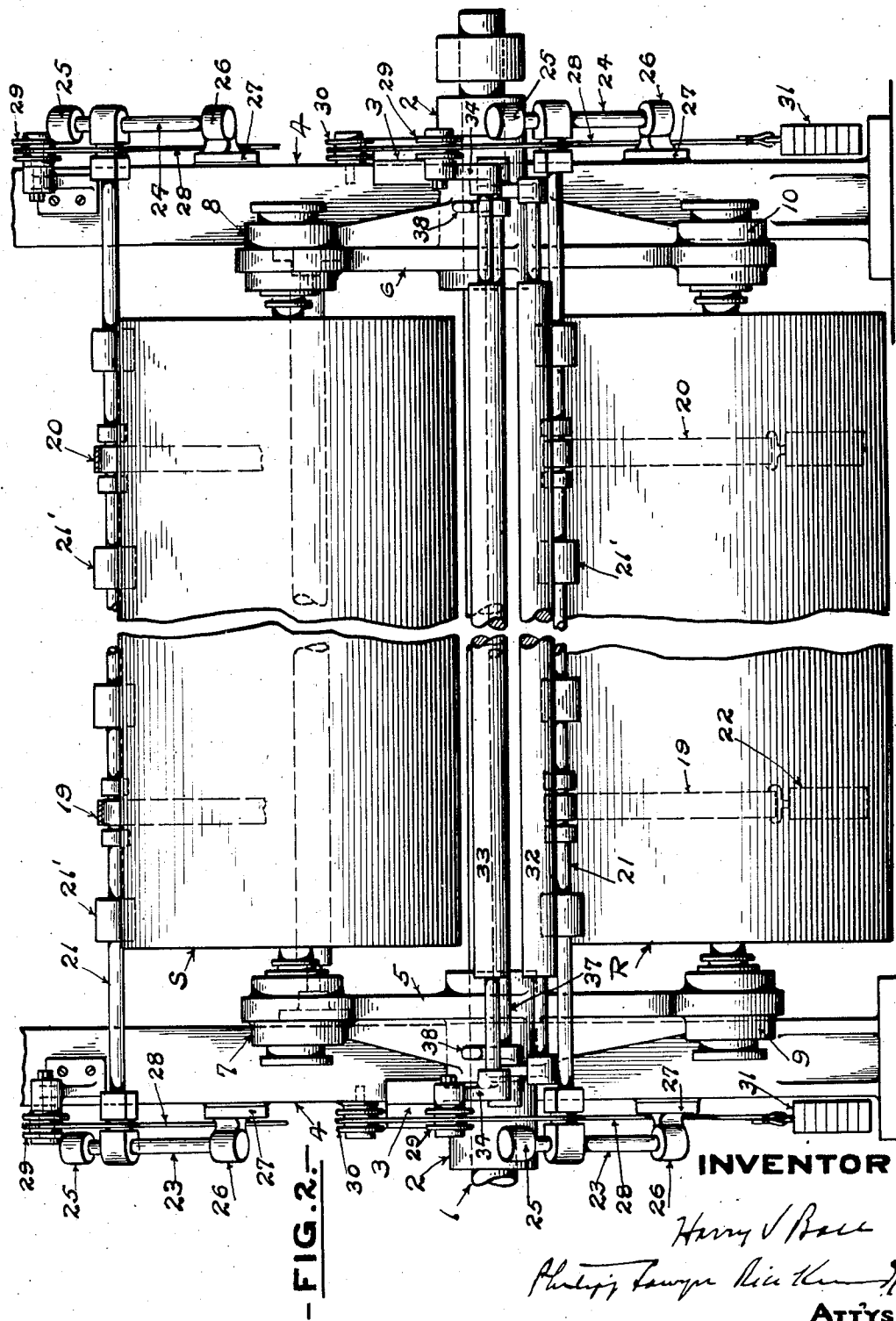
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WEB ROLL SUPPORTING AND PASTING MECHANISM

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

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WEB ROLL SUPPORTING AND PASTING MECHANISM

Application filed June 9, 1928. Serial No. 284,187.

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, particularly in the modern high speed presses, it is important that an expiring web be pasted to a spare web roll in a very short time so as not to lessen the press product
10 more than is necessary for effecting the pasting operation. Furthermore, where large multi-unit machines are used, space in the press room is a matter of importance and it is desirable that these roll changers or re-
15 newers occupy as small a space as possible, particularly where there is but little room above or below the press available for the roll changing mechanism because of the close association of the units. It is, furthermore,
20 desirable that these mechanisms be so arranged that new or spare web rolls may be readily and quickly loaded into position.

It is the especial object of the present invention to provide a web roll changing mechanism which includes a support for supporting
25 a spare web roll and a running web roll in superposed relation but out of alignment so that but a narrow space is taken up by the web rolls and the web roll changing
30 mechanism, the support being held against rotation to hold the web rolls in the desired position.

It is the further object of the present invention to provide an improved mechanism,
35 located between the spare web roll and the running web roll, by which the end of a spare web may be united to a web running to the press.

A further object of the invention is to provide
40 tension devices engaging the surface of the running web roll which can be readily moved out of the way so that a web roll may be quickly loaded into the support.

With these and other objects not specifically
45 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
50 hereunto annexed.

In the drawings,—

Figure 1 is a side elevation of the improved mechanism showing a web roll running to the press in the lower position and a spare web roll in the upper position;

Figure 2 is an end view of the mechanism shown in Figure 1 looking in the direction
55 of arrow 2 of that figure;

Figure 3 is a plan view, partly in section and partly broken away, taken on the broken
60 line 3—3 of Figure 1;

Figure 4 is an end view, partly broken away, of part of the construction shown in Figure 3, the view being taken in the direction
65 of arrow 4 of Figure 1, and

Figure 5 is a view partly in section showing a modified arrangement of the mechanism by means of which the end of a spare web roll is pasted to the web running to the
70 press.

Referring now to these drawings, there is provided a roll support capacitated to carry a spare web roll and a running web roll arranged in superposed and offset relation with each other, this support being held against
75 rotation, this arrangement economizing in space in the press room and permitting the use of tension devices for a web roll in each position, hereinafter referred to, without interference with each other. While the support
80 may assume various shapes, in the particular construction shown it includes a shaft 1 having hubs 2, at each end, supported by brackets 3 bolted or otherwise secured to main
85 frames 4, the mechanism in this particular instance being supported below the printing press (not shown) one such mechanism being provided for each printing unit or other
printing mechanism.

Supported on opposite ends of the shaft 1
90 are arms 5, 6. These arms, at their opposite ends, are provided with chucks 7, 8, 9, 10, for supporting a running web roll R and a spare web roll S. As shown, the arms 5, 6 are positioned on the shaft so that the upper chucks
95 7, 8, are offset relatively to the lower chucks 9, 10, this arrangement being adopted for purposes hereinafter referred to. This arrangement causes an unbalanced condition, the position of the upper web roll S being
100

to one side of the axis of the shaft 1, and means are provided to prevent the shaft from turning and to hold the parts in the position shown in Figure 1. These arms are keyed to the shaft, as by a key 6', so that they do not rotate on the shaft, but are movable thereon sidewise so as to accommodate half or quarter width rolls without spindling. Furthermore, means are also provided to allow the shaft to have a sidewise movement for web adjustment. Various means may be provided for preventing the rotation of the shaft 1 and for permitting an endwise movement of this shaft in its supports. In the particular construction illustrated there is provided, beyond the bracket 3, the hub 14 keyed to the shaft 1 and carrying an arm 15 which supports a roll 16 which engages in a guide or holding slot 17 of a bracket 18 suitably secured to one of the frames 4. With this construction the shaft is prevented from turning but may have a sidewise movement in the supporting bracket 3 so that it can be moved sidewise for side adjustment of the running web.

Constructions embodying the invention will include tension devices which engage the roll surface and control the unwinding of the running web, and in the best constructions separate tension devices are provided for both the running and the spare web rolls. While these devices may vary in character, as shown, they include a pair of narrow belts or straps 19, 20, which are supported so as to follow the web roll as the web roll decreases in size, weights or similar devices being employed to cause the straps to engage the surface of the roll with the desired tension. These belts or straps may be supported so as to follow the roll in various ways. In the particular construction shown the straps are secured at one of their ends to a floating rod 21, the other ends of the straps having fastened thereto tension producing devices, as weights, indicated at 22. The rod 21 is freely movable so that it will follow the web roll as the roll decreases in size. While various expedients may be provided for permitting this movement of the rod 21, as shown, there are provided, at each side of the machine, short inclined rods 23, 24 which are fastened in upper and lower hubs 25, 26, the lower of these hubs being supported in brackets 27 bolted or otherwise secured to the side frames 4, before referred to.

When it is desired to load a new web roll into the supports, the belts are lifted and the rod 21 moved upwardly out of the path of an entering or spare web roll. Located on the rod 21, and preferably outside and inside the belts or straps, are a plurality of guide rolls 21', these being spaced as indicated in Figure 2 and riding on and engaging the web roll. These rolls 21' are of larger diameter than the rod 21 and act to space the rod and the

ends of the belts carried thereby from the surface of the roll, as clearly shown in Figure 1.

In the best constructions, means are provided for holding the belt rod 21 out of the way when a web roll is to be loaded into the support, which means may be varied somewhat in construction. As shown, the rod 21, outside the frames 4, has secured thereto one end of cables 28, these cables passing over pulleys 29, 30 suitably secured to the side frames 4, the other ends of these cables having secured thereto weights 31. With this construction, when the belt rod 21 is lifted, the weights 31 act to hold the rod 21 in an elevated position and out of the way, so that a new roll may be readily loaded into the support. It will be understood that the weight of the belt rod 21 and the weights 22 is greater than the lifting power of the weights 31, so that the belt rolls 21' engage with and follow the web roll as it decreases in size.

In accordance with the invention, means are provided whereby the end of a new web roll may be united to a web running to the press, and in the best constructions these means are located between the running and the spare web rolls. While these means may be of various characters, in the preferred construction and as shown there is provided a pair of pasting rolls 32, 33 which are arranged to have a relative movement toward and from each other. In the particular construction illustrated the roll 33 is a stationary roll, being supported in extensions 34 of the brackets 3, before referred to. The roll 32 is mounted so as to have a movement toward and from the roll 33, being supported in arms 36 on a rock shaft 37 pivoted in the extensions 34 of the brackets 3, this shaft being given a rocking movement by an operating handle 38.

These rolls 32, 33 are normally separated, the running web, indicated by the letter W, passing between these rolls and around one or the other of them depending on which of the rolls R or S is feeding to the press.

In the use of these rolls, one end of the web of the spare roll, as for instance the roll S, is lightly secured to the idle pasting roll, the roll 33 in the particular construction shown, by grease or the like, and a portion of the outside of the spare web roll has adhesive applied thereto. In the operation of this mechanism, when it is desired to make a paste, the speed of the press is reduced, and by the operation of the hand lever 38 the movable pasting roll is pressed against the running web, which causes the new web to be drawn through the machine and thus start the spare or new roll. As soon as the portion of the new web having adhesive applied thereto comes in contact with the running web it will be pasted thereto and carried on into the

press, and the old web may then be broken in any suitable or desired manner. Of course, if desired, the new roll can be moved, either by hand or in any other suitable manner, to start and accelerate it in order to lessen the drag or pull of the pasted portion of the new and old webs.

4. In a web roll changing mechanism, the combination of a shaft, arms on the shaft movable sidewise thereof for supporting a spare web roll and a running web roll, an arm keyed to the shaft, a roll carried by the arm, an abutment with which the roll cooperates to hold the shaft against rotation, and pasting mechanism for joining the end of a new web roll to the expiring web.

5. In a web roll changing mechanism, the combination of a support for supporting a spare web roll and a running web roll in superposed and offset relation, a pair of pasting rolls located between the web rolls between which pasting rolls the web runs to the press, and means adjacent the rolls to which one end of a new web may be lightly secured pending the making of a paste between it and the running web.

6. In a web roll changing mechanism, the combination of a support for supporting a spare web roll and a running web roll in superposed and offset relation, a pair of pasting rolls located between the web rolls between which pasting rolls the web runs to the press, and curved plates adjacent the rolls to which one end of a new web may be lightly secured pending the making of a paste between it and the running web.

In testimony whereof, I have hereunto set my hand.

HARRY V. BALL.

While the invention has been shown and described in its preferred form, it will be understood that various changes may be made in the specific construction shown and described without departing from the invention as defined in the appended claims.

What I claim is:

1. In a web roll changing mechanism, the combination of a support held against rotation for supporting a running web roll and a spare web roll out of alignment, means for permitting a sidewise adjustment of the support, and a pair of pasting rolls located between the web rolls, one of which is movable toward and from the other for joining the end of a new web roll to the expiring web.

2. In a web roll changing mechanism, the combination of a support held against rotation for supporting a running web roll and a spare web roll out of alignment, means for permitting a sidewise movement of the support, a pasting mechanism located between the web rolls for joining the web of a new web roll to the expiring web, and a tension device engaging the surface of the running web roll and supported at one end to follow the web roll as it decreases in size, the other end of the tension device being connected to tension producing means.

3. In a web roll changing mechanism, the combination of a support held against rotation for supporting a running web roll and a spare web roll out of alignment, means for permitting a sidewise movement of the support, a pasting mechanism located between the web rolls for joining the end of a new web roll to the expiring web, a tension strap engaging the surface of the running web roll, a bar to which one end of the strap is secured, guides for the bar to permit it to follow the web roll as it decreases in size, and means for holding the bar out of the way of a roll loaded into the support.