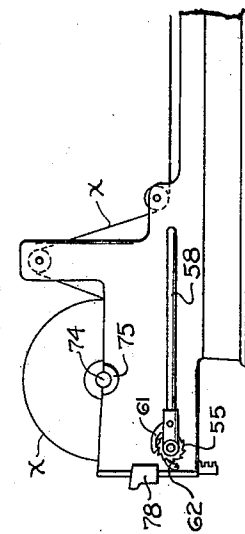
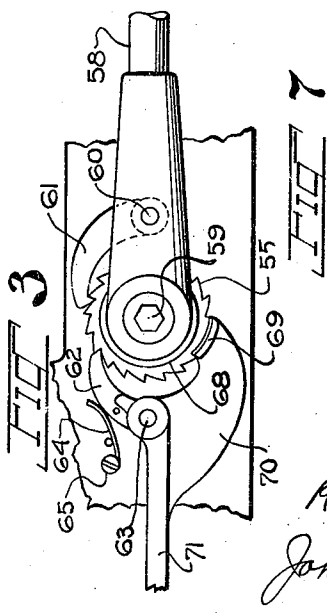
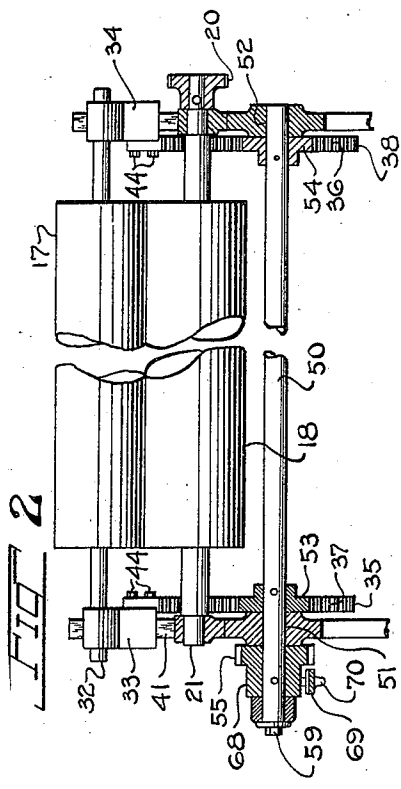
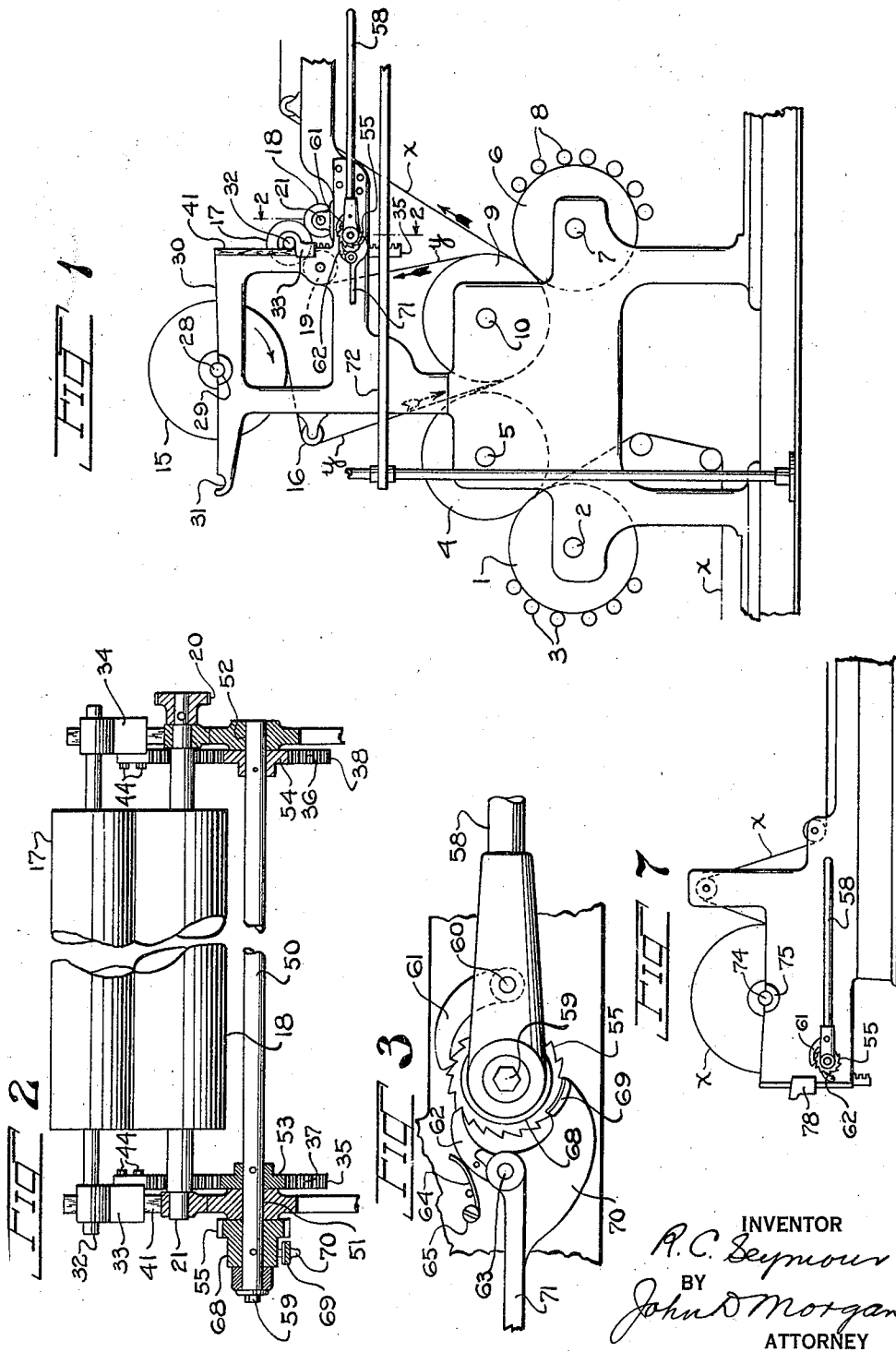


Mar. 13, 1923.

R. C. SEYMOUR.
PRINTING PRESS.
FILED AUG. 24, 1920.

1,448,006.

2 SHEETS—SHEET 1.



Mar. 13, 1923.

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2 SHEETS—SHEET 2.

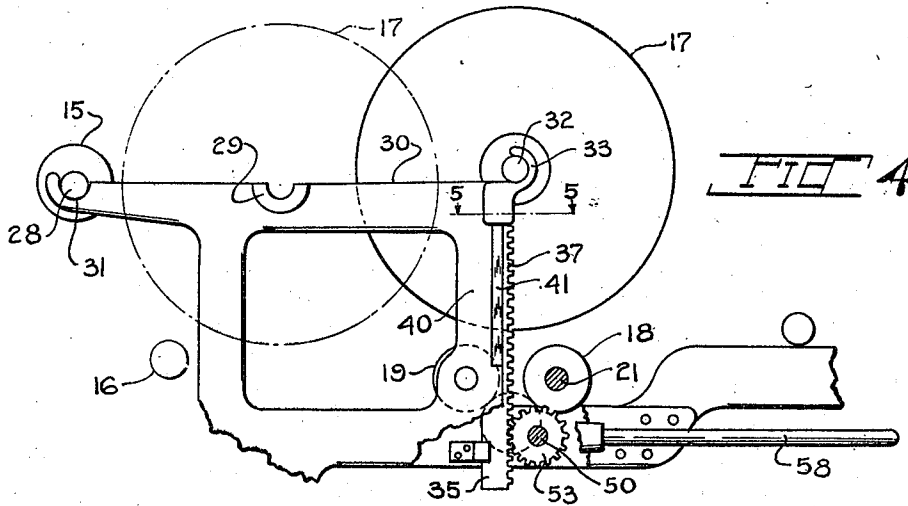


FIG. 6

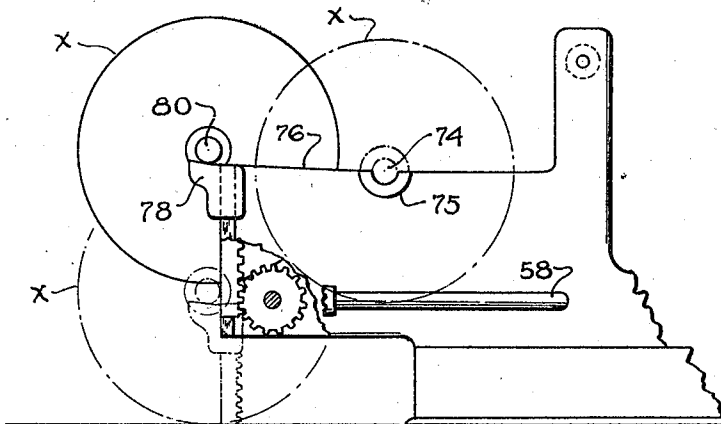
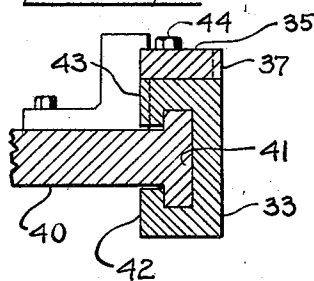


FIG. 5



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PRINTING PRESS.

Application filed August 24, 1920. Serial No. 405,638.

To all whom it may concern:

Be it known that I, RALPH C. SEYMOUR, a citizen of the United States, residing at Larchmont, in the county of Westchester and State of New York, have made certain new and useful Improvements in Printing Presses, of which the following is a specification.

The invention relates to improvements in rotary perfecting printing presses, and more especially in such a press to novel mechanism for handling heavy paper rolls, such as the offset web which is run through the second couple of a rotary perfecting press to prevent the ink from the side of the web which has been previously printed by the first printing couple offsetting on the impression cylinder of the second printing couple.

Objects and advantages of the invention will be further set forth hereinafter in part, and in part will be obvious herefrom or may be learned by practice with the invention, the same being realized and attained through and 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:—

Fig. 1 is a side elevation of a rotary perfecting printing press, comprising an embodiment of the invention applied to an offset web mechanism, the showing being to some extent diagrammatic;

Fig. 2 is a fragmentary elevation, greatly enlarged, and with parts in section, looking at the upper right hand part of Fig. 1, from the right, being taken on line 2—2 of Fig. 1, and showing the roll lifting mechanism in relation to the offset web in the early stages of winding the web;

Fig. 3 is a fragmentary detail, greatly enlarged, of the actuating mechanism for the roll lifting mechanism;

Fig. 4 is a fragmentary elevation of the mechanism shown in the upper part of Fig. 1, but on a larger scale, and showing the parts in a different position;

Fig. 5 is a horizontal section, greatly enlarged, taken on line 5—5 of Fig. 4;

Fig. 6 is a fragmentary elevation showing the application of the invention to lifting a roll of the printing web to the supply position for the press; and

Fig. 7 is a similar view to Fig 6 showing a different position of the parts.

Referring now in detail to the embodiment of the invention illustrated by way of example in the accompanying drawings, the invention is shown applied to the offset web roll of a rotary perfecting printing press.

In Fig. 1, two rotary printing couples are shown more or less diagrammatically, printing upon both sides of the web α . The form or plate cylinder 1 of the first printing couple has its shaft mounted in bearings 2 upon the machine frame. The inking mechanism may be of usual or other suitable and adequate form, and is indicated generally by the rollers 3. The cooperating impression cylinder 4 has its shaft 5 journaled in the machine frame, the web α passing between the cylinders 1 and 4 to be printed thereby upon the first side.

The plate or form cylinder 6 of the second printing couple has its shaft 7 journaled in bearings on the machine frame. The inking mechanism for this plate cylinder may likewise be of usual or suitable form, and is indicated generally by reference numeral 8. The cooperating impression cylinder 9 has its shaft 10 journaled in bearings in the machine frame. The web α passes from the first impression between the plate cylinder 1 and its cooperating impression cylinder 4, (whereby it is printed on one side), about the impression cylinder 4 and about the impression cylinder 9, and passes through the impression between the plate cylinder 6 and the impression cylinder 9 whereby it is printed upon the second side. In passing through the second printing couple the freshly printed first side of the web would contact with the surface of the impression cylinder 9, were not some medium interposed to prevent it and such con-

tact would soil the surface of the cylinder 9 with the fresh ink from the web *x* offsetting thereon, and in turn this ink would offset back again upon the web and deface or
5 destroy the product.

It is usual in such machines where high class printing is desired to run an offset web *y* through the second printing couple, between the surface of the impression cylinder
10 9 and the previously freshly printed side of the web *x*, the web *y* being of absorbent material, such as porous paper. This web *y* receives the offset from the fresh ink upon the just printed side of the web *x*, and the
15 surface of the impression cylinder 9 is thus kept clean.

For the sake of efficiency, the offset web *y* is usually of great length, so that the press may be run for a relatively long period of
20 time without stopping. In addition, in presses of this general type, wherein the page capacity is being gradually increased, it has become practically impossible to handle the wound offset roll by direct manual
25 power. In a ninety-six page press, the wound offset roll weighs a ton or more, and the mechanical means herewith provided for handling the roll directly in the press without direct lifting makes the handling
30 of the roll practically possible easily, simply and expeditiously.

Suitable mechanism is provided for winding the offset web *y*, after it has passed with the freshly printed web through the second
35 printing couple, at the same surface speed as the printed web *x*. The offset web *y* is primarily unwound from a roll 15, passing over a guiding roller 16, and about the impression cylinder 9, between said cylinder
40 and the web *x*, and is rewound upon a roll 17.

The roll 17 is driven at the same surface speed as the web *x*, notwithstanding the constantly increasing diameter of the roll. For
45 this purpose the roll is provided with a frictional surface drive, comprising a pair of rollers 18 and 19, arranged transversely of the press, horizontally disposed and parallel with each other. Either one or both
50 of the rollers 18 and 19 are driven, by suitable gearing, indicated herein by the gear wheel 20 fixed on shaft 21 of the roller 18. The offset web comes in from the impression cylinder 9 over the roller 19, thereby
55 giving an additional frictional drive upon the offset web to keep it at the same surface speed as the printed web.

As the press continues to run, the roll 17 grows in diameter as the offset web *y*
60 unwinding from the roll 15 passes through the printing couple and winds up upon the roll 17. Due to the length of the offset web, the roll 17 becomes very heavy, increasing in weight to many hundreds of pounds. As
65 the roll 15 becomes exhausted, it is necessary

to replace it with the roll 17 upon which now practically all of the offset web has been wound. The offset web is then led through the press again and a new roll 17 is formed in the same manner as that already 70 described.

Means are provided by the present invention for lifting the large and completely wound offset roll 17 to the place of exhausted roll 15. In the embodied form of such
75 means, the shaft 28 of roll 15 is mounted in half bearings 29 on the machine frame, the top faces of the horizontal reaches of the two side frames, extending to the right from the bearings 29 in Figs. 1 and 4, forming a trackway 30 along past the bearing 29
80 and forwardly to the point where the completely wound roll 17 is lifted, whereby the lifted roll may be slid or rolled along to the bearing 29. An additional bearing 31 is
85 also provided along the trackway 30.

As embodied, the mandrel or shaft 32 of the roller 17 at each end thereof is supported or journaled in a saddle or block 33 and
34, which in the form shown in Figs. 1, 2
90 and 4 hook over the shaft 32, so that the supports are lifted or drawn upwardly as the roll 17 increases in size during the winding on of the offset web. Fixed to each of the saddles 33 and 34, respectively, and extending
95 downwardly therefrom, are two bars 35 and 36, having formed on their front edges, respectively, straight racks or gear teeth 37 and 38. The bars 35 and 36 are vertically slidable on guides formed on
100 the machine frame.

As embodied, the vertical webs 40 at either side of the frame terminate in vertically disposed T shaped guides along which
105 the saddles 33 and 34 slide. Each of these saddles is internally apertured to receive the T-shaped, vertically disposed guides 41, the saddles being provided with inwardly projecting flanges 43 that extend behind the corresponding guides to hold the saddles
110 thereto. The geared bars 35 and 36 are secured to the inner side of the saddles, respectively, by bolts 44, the bars extending downwardly from their saddles.

Means are provided for lifting the wound
115 roll 17 by power applied thereto, either manual or mechanical, and which at the same time provides or allows for the growth or increase in diameter of the roll 17 as the offset web is wound thereonto. In the embodied form of such means, a shaft 50
120 is journaled at 51 and 52 in the machine frame. Fixed on shaft 50 are two gear wheels 53 and 54, which mesh, respectively, with the straight gears 37 and 38 upon the
125 bars 35 and 36. Fixed on shaft 50, at one end thereof is a ratchet wheel 55, and also fixed to the shaft, and preferably pivotally mounted upon the end of shaft 50, is a lever 58 which is held in place upon the shaft
130

by a screw bolt 59, screwed into the end of the shaft. Pivotaly mounted at 60 upon the lever 58 is a hook pawl 61, engaging with the ratchet wheel 55.

Cooperating with the ratchet wheel 55 also is a detent pawl, 62, pivoted at 63 on the machine frame, which is pressed into yielding engagement with the ratchet wheel by a spring 64, mounted at 65 upon the machine frame.

Suitable braking mechanism may also be provided if desired, and as embodied a brake wheel or pulley 68 is fixed on shaft 50 and may conveniently be integral with the ratchet wheel 55, and is so shown. A brake shoe 69 is adapted to cooperate with the brake pulley 68, the shoe 69 being mounted on an arm 70, fixed to a foot lever 71, this structure being conveniently integral with the detent pawl 62, and having a common supporting pivot 63.

The manner of operating of the mechanism just described is substantially as follows:

The ends of the shaft 32 are held in the hooked supporting portions of the saddles 33 and 34, and the roll of offset web 17 may be regarded as being very small. As the press runs, the bite of the printing couple cylinders 6 and 9, and the action of the winding cylinders 18 and 19 will wind up the offset web upon the roll 17 at the same peripheral speed as the linear speed of the printed web x running through the press. This condition is shown substantially in Fig. 1.

As offset roll 17 grows, due to the fact that its periphery rests upon the driving rollers 18 and 19, the shaft 32 will slowly and gradually be lifted. This causes the saddles 33 and 34 and the geared bars 35 and 36 to be lifted with shaft 32, and gear wheels 53 and 54 are thereby idly rotated. This likewise rotates the ratchet wheel 55 in clockwise direction in Fig. 3, the ratchet wheel rotating easily in such direction under the hook pawl 61 and under the detent pawl 62, as will be clear from Fig. 3.

When the entire offset web is wound upon the roll 17, or the greater portion thereof, the shaft 32 will be somewhere along the vertical side of the frame more or less near the track 30. The shaft 28 of the now exhausted or nearly exhausted roll 15 is moved into the bearing 31, as shown in Fig. 4, leaving the bearing 29 free. The workman now operates lever 58, and through pawl 61 rotates ratchet wheel 55, and therewith gear wheels 53 and 54. This raises the rack bars 35 and 36, and therewith the saddles 33 and 34 carrying the shaft 32 of the roll 17 to the position shown in Fig. 4, that is, to a level with the tracks 30 on the machine frame. The roll 17, supported by its shaft 32 on the trackways 30, as shown in Fig. 4, is then

easily skidded or rolled until the shaft 32 is in the bearings 29. The offset web y is again threaded through the machine, and the former roll 15 is placed upon the driving rollers 18 and 19 and becomes the new roll 17 as the offset web is re-run through the press.

To restore the saddles 33 and 34 to position to receive the shaft 32 of the new winding on roll 17 of the offset web, it is dropped downwardly from the position of Fig. 4 to the position of Fig. 1. For this purpose, the feeding pawl 61 is thrown backwardly from the position of Fig. 3 out of engagement with the ratchet wheel, and the lever 71 is stepped on by a workman on the foot board 72, or is grasped by the hand of the workman from the floor, and is rocked downwardly about the pivot 63. This throws out the detent pawl 62 and applies the brake 69 so that the mechanism will descend easily and without slamming.

In Figs. 6 and 7 the invention is shown in modified form applied to lifting rolls of printing paper into position to supply the press. In the embodied form thereof, the roll of web supply has its shaft or mandrel 74 supported at each side in a bearing 75 in the press frame, the top reach of the frame forming a track 76 at each side. The saddles 78 corresponding in part to the saddles 33 and 34, may be of somewhat different form. The mechanism is so proportioned or positioned that when the saddles 78 are run down to their lowermost position (Fig. 6) they will be just below the level of the shaft or mandrel of a web supply roll resting upon the floor. The roll is then positioned with its mandrel 80 just above the saddles 78, and by means of the lever 58 the roll is elevated to the level of the track 76. The previous roll or web supply is nearly exhausted at this time, and as it becomes exhausted, its mandrel 74 is lifted from the bearing 75, and the new roll of web is rolled forward on the track 76 until its shaft or mandrel rests in the bearing 75. The lead end of the new web is pasted or otherwise attached to the tail end of the exhausted web and is thereby led through the press, all in a well-known manner.

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 as my invention is:—

1. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll, means for winding the winding up offset web roll on a mandrel, guiding means for said winding up roll, a trackway upon which the

mandrel of the wound offset roll travels, and mechanism for delivering the wound up offset roll to said trackway.

2. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll, means for winding the winding up offset web roll on a mandrel, guiding means for said winding up roll, a trackway upon which the mandrel of the wound offset roll travels, and manually operated mechanism for delivering the wound up offset roll to said trackway.

3. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft, from whence the offset web is led through said printing couple, means for driving the winding up offset web roll which receives the web from said printing couple, a support for the shaft of said winding up roll, means for vertically lifting said support and therewith the offset roll, and means for rolling the fully wound offset roll from said support into said bearings for the supply offset roll.

4. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft, from whence the offset web is led through said printing couple, means for driving the winding up offset web roll which receives the web from said printing couple, a support for the shaft of the winding up offset web roll moving freely with the roll as it is wound, means for positively lifting the roll by said support, and means for rolling the fully wound offset roll from said support into said bearings for the supply offset roll.

5. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft, from whence the offset web is led through said printing couple, means for driving the winding up offset web roll which receives the web from said printing couple, a vertically movable support for the shaft of the winding up offset web roll moving freely with the roll as it is wound, means for positively lifting the roll by said support, and means for rolling the fully wound offset roll from said support into said bearings for the supply offset roll.

6. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft,

from whence the offset web is led through said printing couple, means for driving the winding up offset web roll which receives the web from said printing couple, a vertically movable support for the shaft of the winding up offset web roll moving freely with the roll as it is wound, and means for positively lifting the roll by said support.

7. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft, from whence the offset web is led through said printing couple, means for driving the winding up offset web roll which receives the web from said printing couple, a support for the shaft of the winding up offset web roll moving freely with the roll as it is wound, and means for positively lifting the roll by said support.

8. A rotary printing press including in combination a rotary printing couple, fixed bearings for an offset web supply roll shaft, from whence the offset web is led through said printing couple, means for winding the winding up offset roll by its periphery, and means including supports for the shaft of said winding up roll and manually operable lifting mechanism for said supports for conveying the wound offset roll by means of its shaft into the bearings of the spent offset roll.

9. A rotary printing press including in combination a press frame, a rotary printing couple, fixed bearings on the press frame for an offset web supply roll shaft, from whence the offset web is led through said printing couple, supports for the shaft of the offset web winding up roll movably mounted on said frame, manually operable means for lifting said supports, and a trackway formed on the frame for rolling the fully wound up roll from said supports into the bearings for the supply roll.

10. In an offset web handling mechanism in a printing press and in combination, an offset web supply roll, an offset web rewinding roll, means for winding said rewinding roll by friction contact with its periphery, saddles which move with the rewinding roll shaft as the roll grows, and means for lifting said saddles to lift the rewound offset web roll.

In testimony whereof, I have signed my name to this specification.

RALPH C. SEYMOUR.