

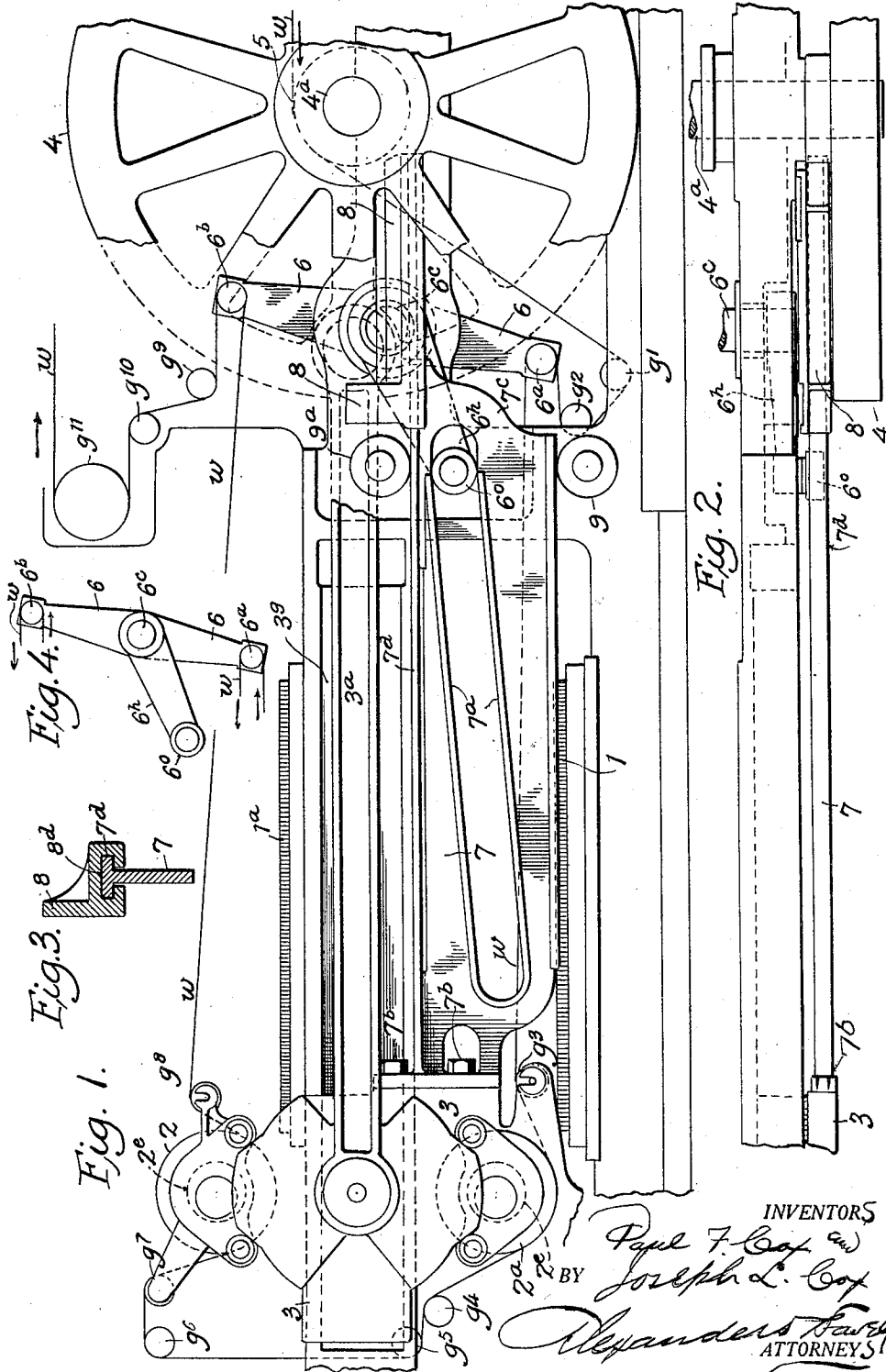
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WEB LOOPING MECHANISM FOR TRAVELING CYLINDER WEB PRINTING PRESSES

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WEB-LOOPING MECHANISM FOR TRAVELING-CYLINDER WEB-PRINTING PRESSES

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Our invention relates to web printing presses of the type shown in Cox Patents No. 988,548 of April 4, 1911; No. 1,457,501 of June 5, 1923; and No. 1,475,566 of November 27th, 1923; in which the web is printed by means of traveling impression cylinders from flat forms of type or plates, resting upon stationary beds. In such presses the impression cylinders are "on impression" during one stroke of such cylinders, and preferably "off impression" during the return stroke, so as not to contact the printing forms.

The invention is an improvement upon the web looping or compensating mechanism described in Cox's Patent No. 1,475,566, and provides a reciprocating closed or slotted cam for operating such looping rollers, on both movements thereof, and means for supporting and guiding said cam in correct relation to the looping rollers at all points of its movement. The invention also obviates the use of spring devices for operating the looping rollers in one direction, the web looping rollers being controlled and moved in proper time with relation to the web printing and feeding devices without requiring any springs.

While the invention is primarily designed for use in perfecting presses, it is also applicable to single acting presses; and to other types of machines in which such web looping mechanism may be employed.

We will explain the invention with reference to the accompanying drawings which illustrate so much of a web perfecting press of the type referred to as will enable the invention to be clearly understood; and summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In the drawings:

Fig. 1 is a partial side elevation of a web printing press equipped with our novel mechanism for actuating the web looping rollers.

Fig. 2 is a detail top plan view of the closed cam and its actuating devices.

Fig. 3 is a detail sectional view and

Fig. 4 is a detail view of the web looping devices.

The press shown in the drawings has parallel type beds 1, 1^a arranged one over the

other in a suitable main frame. Cooperating with bed 1 is a traveling impression cylinder 2, and cooperating with bed 1^a is a traveling impression cylinder 2^a. The cylinders are mounted in bearings in crossheads 3 which are guided in longitudinal guideways in the sides of the press frame and are reciprocated longitudinally of the frame so as to move the cylinders 2 and 2^a back and forth over the beds by any suitable means; preferably by means of pitmen 3^a connecting the crossheads 3 with crank wheels 4, which may be driven by any suitable means as usual.

The cylinders are usually journaled in eccentric bushings 2^c and means (not shown) are provided whereby the cylinders are "on impression" during one stroke and "off impression" during their return stroke, as explained in the aforesaid patents. The general construction and arrangement of the aforesaid parts are well known and disclosed in the aforesaid patents and need no further detailed explanation herein.

In the press shown the web *w* is led from the web supply to the infeed roll 5 mounted upon the shaft 4^a carrying the crank wheels 4; and then the web *w* is led under a guide roller *g*¹ to a guide roller *g*², and then back over a looping roller 6^a rotatably mounted in one end of oscillating arms 6 mounted on a rock shaft 6^c. From looping roller 6^a the web is led outward to and over a guide roller *g*³ mounted on the crossheads 3; then under cylinder 2^a, up over a guide roller *g*⁴ mounted on the crossheads 3; thence to and over guide roller *g*⁵, *g*⁶ mounted on the rear end of the main frame; thence inwardly to and over guider *g*⁷ mounted on the crossheads; then under cylinder 2; and up over a guide *g*⁸ mounted on the crossheads 3; and then to and around a looping roller 6^b mounted on the upper ends of the arms 6; then back under a guide roller *g*⁹ and over an adjustable tensioning roller *g*¹⁰, to the delivery roll *g*¹¹, the rollers *g*⁹, *g*¹⁰, and *g*¹¹ being mounted on the main frame. From roll 8 the web *w* passes to the folding and delivering devices, not shown. The aforesaid web guiding devices are all arranged and operated as more specifically

shown and described in the aforesaid Patent No. 1,475,566.

On one end of the shaft 6^c is fixedly secured an arm 6^b which extends downwardly toward the crossheads and is provided with pin or roller 6^a engaging a cam slot 7^a in a reciprocating cam member 7.

The cam member 7 is preferably disposed beside but exterior to the adjacent side member of the main frame. The outer end of cam member 7 is fastened by means of bolts 7^b to the outer edge of one of the crossheads. The inner end of cam member 7 is provided with a guide rib 7^d on its upper edge which engages a slot 8^d in a guide 8 secured to the main frame. The guide rib 7^d and slot 8^d may be of any suitable cross section so that the cam member is both guided in its movements and held against lateral movement.

If desired, guide rollers 9 and 9^a may be attached to the frame above and below the cam member 7 and respectively bear upon the top and bottom edges of the guide member as indicated in Fig. 1.

The cam member 7 extends parallel with the guideways for the crossheads, and is moved by and with the crossheads. The slot 7^a in the cam member is so inclined that as the crossheads and cylinders move inwardly toward the shaft 4^a, the arm 6^b is depressed, thereby rocking shaft 6^c and moving the looping roller 6^a to the right and roller 6^b to the left. When the crossheads and cylinders move outwardly away from shaft 4^a, the slot in the cam member 7 moves arm 6^b upwardly, thereby rocking shaft 6^c in the opposite direction and moving the roller 6^a to the left and roller 6^b to the right.

The cam member 7 being reciprocated by and with the crossheads positively operates the looping rollers 6^a, 6^b in both directions, and causes them to properly take up and give out loops of the web during both strokes of the cylinders, the cam 7 operating the web looping rollers in proper time with the printing, feeding, and delivering mechanism so that the web may be constantly fed in and delivered while part of the web between the rollers 6^a, 6^b is intermittently stopped and accelerated.

In operation, when the cylinders are on impression and moving across the beds 1, 1^a, the web is stopped between the rollers 6^a and 6^b by the action of the looping rollers 6^a, 6^b, which move in opposite directions, one giving out web from its loop as required by the delivery, and the other taking up in its loop the web fed in by the feed roll, as required by the continuous infeed and outfeed of the web. After the cylinders have cleared the forms and are off impression, the web is shifted forward by the combined action of the looping rollers simultaneously giving out and taking up web, and the continuous action of the outfeed and delivery mechanisms;

these operations are well understood in the art and need no further detailed explanation herein.

It will be seen that with this construction the looping rollers are operated positively by the cam in both directions, or on both movements; that no springs are required to move the looping rollers in either direction; that the cam member 7 is accurately supported and guided at all times throughout its length, and that the fixed guide for the cam member is closely adjacent the shaft 6^c and the roller on the arm 6^b.

We claim:

1. A traveling cylinder web printing press having a cylinder, a reciprocating crosshead for operating the cylinder; and a device for looping the web; a cam member connected at one end to the crosshead; a guide on the press frame slidably engaged by the free end of said cam member; and means controlled by the said cam member for actuating the looping device.

2. A traveling cylinder web printing press having a cylinder, a crosshead for reciprocating the cylinder; and devices for looping the web; a cam member having one end attached to the crosshead and reciprocated thereby, a slotted guide for supporting the free end of the cam member and preventing lateral movement thereof, and means engaging said cam slot for actuating the looping devices in both taking up and giving out web.

3. In a flat bed web printing press having a traveling impression cylinder, means for feeding and delivering the web, and a web looping device; a cam member reciprocated with the cylinder and having a guide rib, a fixed guide on the frame slidably engaging said rib, and an arm for operating the said looping device engaging said cam member whereby the looping device is actuated.

4. A traveling cylinder web printing press having a cylinder, a crosshead for reciprocating the cylinder; and devices for looping the web; a slotted cam member having one end attached to the crosshead; a slotted guide on the frame, a rib on the free end of said cam member slidably engaging said guide, and means engaging the cam slot for positively actuating the looping devices in both taking up and giving out web.

5. In a flat bed web printing press having a traveling impression cylinder, means for feeding and delivering the web, and a web looping device; a cam member reciprocated with the cylinder and having a cam slot and a guide rib, a fixed guide slidably engaging said rib, and an arm for operating the said looping device engaging said slot whereby the looping device is positively actuated in both movements.

6. In a flat web printing press having traveling impression cylinders, reciprocating crossheads for operating said cylinders,

means for feeding the web, means for delivering the web, and oppositely movable looping rollers for looping the web; a cam member attached at one end to the crosshead and reciprocated thereby with the cylinders, said
5 cam member having a cam slot and a guide rib; a fixed guide slidably engaging said rib, and an arm for operating the said looping roller engaging said slot, whereby the looping rollers are positively actuated both in
10 taking up and in giving out the loops of web.

7. A traveling cylinder web printing press having a reciprocating cylinder, and means for reciprocating the cylinder; a device for
15 looping the web movable in opposite directions, a reciprocating cam member having a cam slot connected to and reciprocating with the cylinder, and a lever for operating said looping device, said lever engaging the said
20 cam slot and positively actuated thereby in both directions of movement of said reciprocating cam member.

8. In a flat web printing press having a traveling impression cylinder, means for reciprocating said cylinder, means for feeding
25 and delivering the web; and a web looping device; a cam member connected to said reciprocating means and moving therewith said cam member having a closed cam slot, and
30 an arm for operating the said looping device, said arm engaging said slot whereby the arm is caused to positively actuate the looping device during each and both movements of said cam.

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