Jan. 14, 1930. P. F. COX 1,743,656

SMUT REMOVER FOR TRAVELING CYLINDER WEB PRINTING PRESSES

Filed March 30, 1929

Fig. 1.

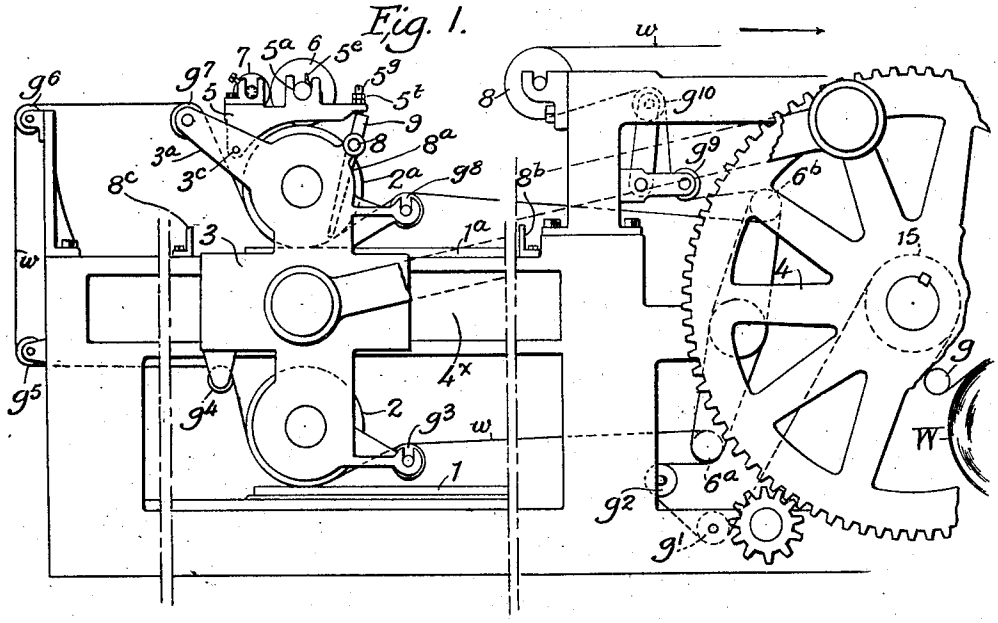


Fig. 2.

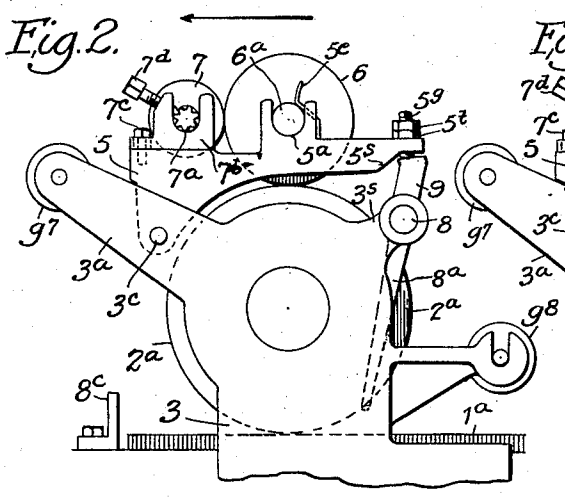


Fig. 3.

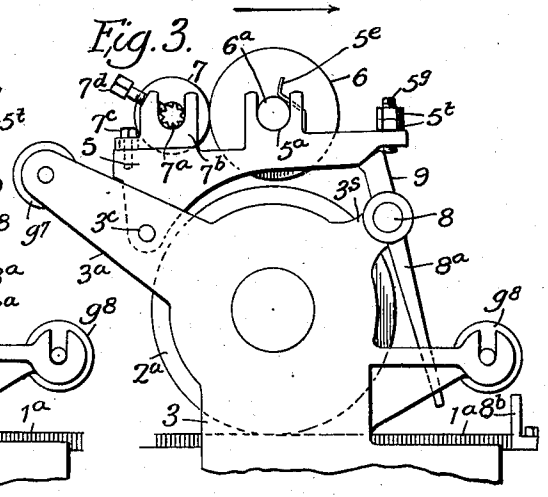
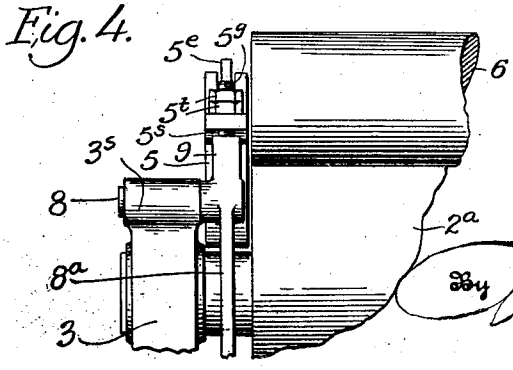


Fig. 4.



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UNITED STATES PATENT OFFICE

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SMUT REMOVER FOR TRAVELING CYLINDER WEB PRINTING PRESSES

Application filed March 30, 1929. Serial No. 351,229.

This invention is an improvement in traveling cylinder web printing presses; and its object is to provide novel means for removing the "smut" or offset ink from the surface of the perfecting impression cylinder, or any cylinder that contacts with a freshly printed web. The invention is particularly designed for use in that type of presses in which the impression cylinders are reciprocated back and forth over the type beds, and the web is led successively between the cylinders and beds, one side of the web being printed by the first cylinder and bed, and the other side printed by the second cylinder and bed, and as the side of the web which has been printed by the first cylinder contacts with the second impression cylinder some of the fresh ink adheres to the surface of said cylinder, and if not removed would smudge the paper.

My present invention provides novel means for removing such offset ink or smudge from the surface of the second or perfecting cylinder as hereinafter explained.

I will explain the invention with reference to the accompanying drawings which illustrate one practical embodiment of my invention and summarize in the claims the essentials of the invention, and the novel features of construction and novel combinations of parts, for which protection is desired.

In said drawings:

Fig. 1 is a detail diagrammatic side elevation of a press equipped with my smudge removing devices.

Fig. 2 is an enlarged end view of the upper cylinder with the smudge removing devices in operative position.

Fig. 3 is a similar view showing the smudge removing devices in effective position.

Fig. 4 is a detail top view of Fig. 2.

The press shown has parallel type beds 1, 1^a arranged one over the other, and traveling impression cylinders 2 and 2^a cooperating with these beds. The cylinders are mounted in bearings in cross-heads 3, which are guided in longitudinal guide ways 4^x in the side frames of the press. The cross-heads 3 may be reciprocated so as to move the cylinders 2 and 2^a back and forth over the beds by means of pitmen 3^a connecting the cross-heads with crank gears 4 or other suitable means.

The web w may be led from a roll W under guide g to a feed roll 15, then under a guide g', to a guide g^2; and then over a looping roller 6^a, then to a guide g^3 mounted on the cross-heads adjacent cylinder 2, and under cylinder 2 to and over a guide g^4 on the cross-heads; then over a guide g^5 at the rear end of the frame, to and over a guide g^6; thence inwardly to a guide g^7 on the crossheads adjacent cylinder 2^a; and under cylinder 2^a up over a guide g^8 on the cross head; then to and around a looping roller 6^b, back under a guide g^9; to and over an adjustable roller g^{10}; to the web delivery roll 8; from which the web is led to folding and delivering devices not shown. The general construction and arrangement of all the aforesaid parts are well known and require no further detailed explanation or illustration herein.

The side of the web printed by the lower cylinder 2 and bed 1 comes into contact with the surface of the upper cylinder 2^a which rolls upon the freshly printed surface of the web while impressing it upon the forms on bed 1^a, and also while the web is shifted past such cylinder, and ink from the freshly printed web will offset onto, and accumulate upon, the surface of cylinder 2^a, and ultimately smudge the web. To prevent this I provide novel devices to remove the ink or "smut" from the surface of cylinder 2^a.

In the construction shown a transverse shaft or rod 3^c is attached to arms 3^a on the crossheads 3 adjacent the cylinder 2^a, and upon this rod 3^c are pivoted castings 5 which extend toward and above the cylinder 2^a. Each casting 5 is preferably provided with a bearing 5^a for the reception of the shaft 6^a of a cleaning roll 6, preferably a composition roller, which is adapted to contact with the surface of cylinder 2^a when the latter is moving in one direction (see Fig. 2). A spring 5^e attached to the casting 5 and projecting into the bearing 5^a retains the shaft 6^a of the roll in the said bearing.

A wiper 7 (preferably a roll covered with felt or other suitable material) that will remove the smut from the composition roll 6 is

mounted in holders 7^b preferably adjustably secured to the castings 5 by means of bolts 7^c passing through slots in the holders 7^b; and enable the roller 7 to be adjusted to or from the roll 6, and held there against any desired pressure. Suitable means are provided to prevent wiper 7 being rotated by frictional contact with the roll 6. As shown a screw 7^d tapped into the holder 7^b engages one of a series of notches in the shaft 7^a of wiper 7 and prevents it turning.

Wiper 7 removes the smut and ink from the surface of roll 6. At intervals, varying according to the accumulation of smut or ink thereon, the wiper can be partly turned to bring a fresh surface thereof into contact with roll 6. Both roll 6 and wiper 7 can be readily removed for cleaning, and to permit packing the cylinder 2^a.

It is desirable that the roll 6 should contact with cylinder 2^a only during one stroke of the cylinder. This is important because if the roll 6 was in contact with the cylinder 2^a on both strokes it would on one stroke of the cylinder take smut therefrom and on the return stroke of the cylinder would redeposit the smut thereon. To prevent this I provide means whereby the roll 6 is moved and held in contact with the cylinder 2^a on one stroke of the cylinder (see Fig. 2) and is moved and held out of contact with the cylinder on its return stroke (see Fig. 3).

In the example shown each cross-head is provided with a boss 3^s below the free end of the adjacent casing 5, and in this boss is a pin 8 on which is mounted a depending lever 8^a which is adapted to alternately contact with suitable stops 8^b and 8^c attached to the frame of the machine at points adjacent the ends of the stroke of the cross-heads, and so located that the lever 8^a will be alternately arrested by the stops as the cross-heads near the ends of their strokes.

On the upper end of lever 8^a is a cam member 9 which is adapted to engage the underside of the free end of the adjacent casting 5, see Figs. 2 and 3. The casting 5 has a cam surface 5^s adjacent its free end, on its under side, which is adapted to be engaged by the cam 9. When the cam 9 is in one position it will engage the lower end of the cam, see Fig. 3, and in its other position will engage the higher end of the cam, see Fig. 2.

In the example shown when the cylinder is traveling to the right lever 8^a will be arrested by stop 8^b and move cam 9 to the position shown in Figs. 1 and 2 so that it underlies the high portion of the cam surface 5^s and will permit the casting to drop and permit roll 6 to contact with the rest upon the periphery of the cylinder 2^a, and the roll will remain in this position during the outward stroke of the cylinder (say to the left). When the cylinder nears the limit of its outward stroke lever 8^a will contact with stop 8^c and be arrested, while the cylinder moves further to the left, thus rocking lever 8^a and shifting cam 9 from the low to the high part of the cam surface 5 (Figure 3) thus rocking casting 5 upwardly, and lifting the roll 6 out of contact with the cylinder 2^a, and the roll will be held out of contact with the cylinder 2^a while the cylinder is moving inward (say to the right) and until lever 8 is again shifted by contact with the stop 8^b. Thus the wiper roll 6 will be alternately moved into and out of contact with the cylinder 2^a. While the cylinder 2^a is moving in one direction (outward) the smut will be removed from the periphery of the cylinder 2^a and transferred to the wiper 7. On the return (inward) stroke of the cylinder the roll 6 is out of contact with the cylinder 2^a and does not rotate and cannot redeposit smut thereon nor retake smut from the wiper 7.

The contact pressure of roll 6 upon cylinder 2^a can be regulated by any suitable means. As shown a bolt 5^g is tapped through the end of the casting 5 in position to engage the cam 9 when lever 8 is shifted to position to lower the roll 6 into contact with the cylinder 2^a. This bolt 5^g may be locked in adjusted position by means of nuts 5^t.

The invention provides a traveling cylinder with a smut removing roll and means whereby the roll is moved into and out of position to contact with the impression cylinder on alternate strokes of the cylinder which can always remain "on impression"; and I do not consider the invention restricted to the specific devices shown for raising and lowering the smut removing roll.

I claim:

1. In a printing press having a bed and a traveling cylinder cooperating with the bed; a smut remover adapted to clean the cylinder while it is moving in one direction, and means for moving and holding the smut remover out of contact with the cylinder while it is moving in the other direction.

2. In a machine as set forth in claim 1, said smut removing devices comprising a roll adapted to be moved into and out of contact with the periphery of the cylinder, and a wiper contacting the said roll.

3. In a web printing press having a bed, an impression cylinder cooperating with the bed, means for leading a web between the bed and cylinder, and means for reciprocating the cylinder back and forth over the bed, of smut removing devices adapted to clean the cylinder while it is moving in the other direction, and means for moving and holding the smut remover out of contact with the cylinder while it is moving in the other direction.

4. In a machine as set forth in claim 3, said smut removing devices comprising a roll adapted to be moved into and out of contact with the periphery of the impression cylinder, a relatively fixed wiper beside the roll,

and means for rotatably adjusting and holding said wiper in contact with said roll.

5. In a web printing press having stationary beds and reciprocating cylinders, and cross-heads for reciprocating the cylinders over the beds, smut removing devices comprising a composition roll adapted to be moved into and out of contact with the periphery of the adjacent impression cylinder, a relatively fixed non-rotatable wiper roller mounted beside the composition roll, means for rotatably adjusting and holding said wiper roll, and means whereby the wiper roll is moved and held in contact with the impression cylinder on one stroke thereof and moved and held out of contact with the impression cylinder on the return stroke thereof.

6. In a web printing press having a stationary bed and reciprocating cylinder, and cross-heads for reciprocating the cylinder; smut removing devices comprising movable supports beside the cylinder, a composition roll mounted on said support, a relatively fixed non-rotatable wiper mounted on the support beside the composition roll, and means whereby the support is moved so as to lower the roll into contact with the impression cylinder on one stroke thereof, and moved to hold the roll out of contact with the impression cylinder on the return stroke thereof.

7. In a printing press having a bed, an impression cylinder cooperating with the bed, means for leading a web between the bed and cylinder and reciprocating cross-heads for moving the cylinder back and forth over the bed; smut removing devices adapted to clean the cylinder including a roll, a suport for said roll pivotally mounted on the cross-heads, a lever pivotally mounted on a cross-head, a cam carried by said lever engaging the roll supports, and means for shifting said lever near the ends of the strokes of the cylinder to rock the support and lift the roll out of contact with the cylinder when moving in one direction, and to lower the support to permit the roll to contact the cylinder when moving in the opposite direction.

8. In a printing press having a bed, a traveling cylinder cooperating with the bed, and reciprocating cross-heads for moving the cylinder; castings pivotally mounted on the cross-heads, a roll carried by said castings, a wiper, carried by said castings and engaging the roll, a rock shaft pivoted on the cross-heads, a cam on said shaft adapted to engage the adjacent casting, a lever on said shaft; and relatively fixed stops adjacent opposite ends of travel of the cylinder adapted to alternately engage said lever to rock the shaft and cause the cam to raise the roll out of contact with the cylinder, or lower the roll into contact with the cylinder.

PAUL F. COX.