

May 2, 1933.

C. B. COTTRELL, 3D

1,907,245

BED AND CYLINDER PRINTING PRESS

Filed May 27, 1931

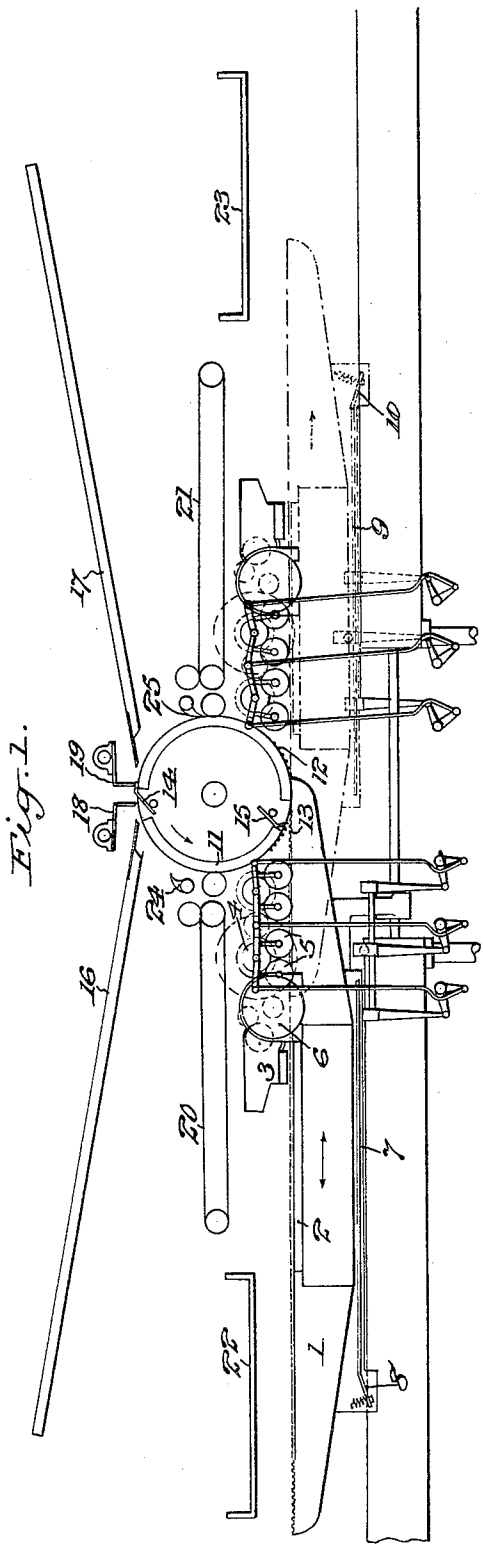


Fig. 4.

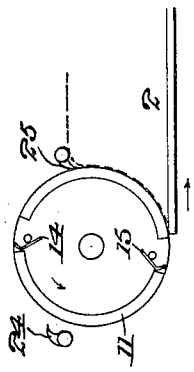


Fig. 3.

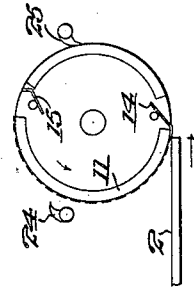


Fig. 2.

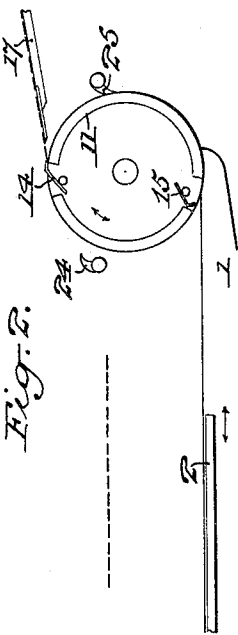
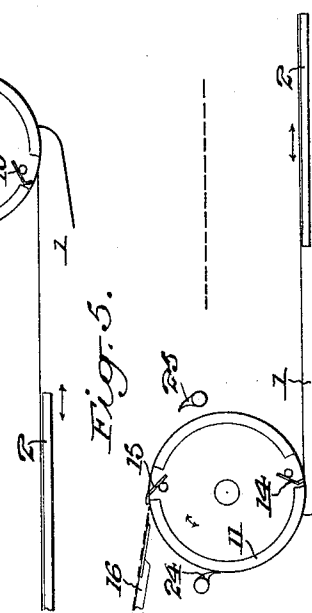


Fig. 5.



INVENTOR
Leahurt B. Cottrell 3rd
BY
Thomas Edward
ATTORNEYS

UNITED STATES PATENT OFFICE

CALVERT B. COTTRELL, 3D, OF WESTERLY, RHODE ISLAND, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF WESTERLY, RHODE ISLAND, A CORPORATION OF DELAWARE

BED AND CYLINDER PRINTING PRESS

Application filed May 27, 1931. Serial No. 540,264.

The object of my invention is to provide certain improvements in a bed and cylinder printing press whereby the product of the press may be materially increased with a minimum movement of the impression cylinder and form bed.

My invention comprises an impression cylinder which oscillates substantially one and one-half revolutions on each of its opposite strokes, said cylinder being operable, on each stroke, to successively take, print and deliver a sheet.

My invention more particularly comprises a bed and cylinder printing press having two inking mechanisms, a pair of opposed sheet feeders and a pair of opposed deliveries, all coacting to feed, print and deliver a sheet for each stroke of the impression cylinder, the sheet feeders being arranged to feed the sheets alternately to the upper side of the impression cylinder and the deliveries being arranged to take the sheets alternately from the upper side of the said impression cylinder.

My invention further comprises means for alternately raising and lowering the two inking mechanisms whereby their form rollers may be driven continuously in one direction, one inking mechanism being operable for inking the form on one stroke of the bed and the other inking mechanism being operable for inking the form on the opposite stroke of the bed.

A practical embodiment of my invention is represented in the accompanying drawing in which:

Fig. 1 represents a detail side elevation of my improved bed and cylinder printing press, the parts being in the positions they assume when the bed and cylinder have reached the limit of their left hand stroke (as the drawing is viewed) and are about to start on their right hand stroke, the form rollers of the left hand inking mechanism being lowered into position to ink the form and the form rollers of the right hand inking mechanism being raised out of position to ink the said form as the bed travels to the limit of its right hand movement; the position of the

form bed as it approaches said right hand limit being shown in dotted lines;

Fig. 2 represents a detail diagram showing the relative positions of the several parts as the form bed and cylinder reach the limits of their left hand stroke and are about to start on their right hand stroke;

Fig. 3 represents a similar view showing the relative positions of the parts in the right hand stroke of the bed, as the sheet taken from the upper right hand feeder is about to be printed, the impression cylinder having rotated about one-half of a revolution;

Fig. 4 represents a similar view showing the relative positions of the parts in the right hand stroke of the bed as the sheet is being delivered, the impression cylinder having rotated about one revolution; and

Fig. 5 represents a similar view showing the relative positions of the parts as the bed reaches the limit of its right hand stroke and a sheet is being taken from the upper left hand feeder; the bed and cylinder being about to start on their left hand stroke, the said cylinder having rotated about one and one-half revolutions.

The reciprocating form bed is denoted by 1 and its form by 2. This bed may be reciprocated by any suitable means, not shown herein.

Two inking mechanisms are provided, one for inking the form on the right hand stroke of the bed and the other for inking the form on the left hand stroke of the bed. Each inking mechanism comprises an ink fountain 3, distributing rollers 4, form rollers 5 and an electric motor 6, which motor is independent of the bed reciprocating means and drives both the distributing rollers and the form rollers continuously in one direction, to ensure an even application of the ink to the form.

Any suitable means may be provided for lowering the form rollers 5 of the left hand inking mechanism into position to ink the form 2 on the right hand stroke of the bed and for raising the form rollers out of position to contact with said form on the left hand stroke of the bed, said means in the pres-

ent instance including a cam plate 7 having a yielding end member 8.

Similarly, any suitable means may be provided for lowering the form rollers 5 of the right hand mechanism into position to contact with the form 2 on the left hand stroke of the bed and for raising the said form rollers out of position to contact with the said form on the right hand stroke of the bed, said mechanism in the present instance including a cam plate 9 having a yielding end member 10.

The oscillating impression cylinder 11 is geared at all times to the reciprocating bed 1 through the usual gear and rack connection 12, 13. The movement of the bed is sufficient to rotate the impression cylinder substantially one and one-half revolutions in each direction.

This oscillating impression cylinder 11 is provided with two diametrically opposed sets of tumbler actuated grippers 14, 15 for taking, printing and transferring a sheet on each stroke of the impression cylinder.

The pair of opposed sheet feeders are denoted by 16, 17 and they are provided with the usual sheet stops 18, 19, which may be operated in the usual manner at the proper times to feed the sheet to the upper side of the cylinder, by means not shown herein. The upper right hand feeder 17 is arranged to feed the sheets to the grippers 14 on the right hand stroke of the cylinder and bed and the upper left hand feeder 16 is arranged to feed the sheets to the grippers 15 on the left hand stroke of the cylinder and bed.

A pair of opposed sheet deliveries 20, 21 are provided for taking the sheets alternately from the upper side of the impression cylinder 11, the left hand delivery being provided with a suitable table 22 and the right hand delivery with a suitable table 23. A stripper 24 is provided for taking the printed sheets from the impression cylinder 11 and directing them to the delivery 20 and a sheet stripper 25 is provided for taking the printed sheets from the impression cylinder and directing them to the delivery 21. Any suitable means, not shown herein, may be provided for operating the strippers 24 and 25 at the proper times.

From the above description it will be seen that I have provided means whereby a sheet may be taken, printed and delivered on each stroke of the impression cylinder and bed, the sheets being alternately taken from the feeders 16 and 17 and alternately transferred to the deliveries 20 and 21. This arrangement permits a maximum product to be fed, printed and delivered with a minimum movement of the bed and cylinder.

It will furthermore be seen that by providing two inking mechanisms having their distributing and form rollers driven continuously in one direction only, the proper appli-

cation of the ink to the form on each stroke of the bed is ensured.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:

1. In a bed and cylinder printing press, a reciprocating form bed and an impression cylinder which oscillates substantially one and one-half revolutions on each of its opposite strokes, said cylinder having two diametrically opposed sets of grippers operable to successively take, print and deliver a sheet on each stroke of the cylinder.

2. In a bed and cylinder printing press, a reciprocating form bed and an impression cylinder which oscillates substantially one and one-half revolutions on each of its opposite strokes, said cylinder having two diametrically opposed sets of grippers operable to successively take, print and deliver a sheet on each stroke of the cylinder, and two inking mechanisms alternately operable to ink the form on the printing strokes of the bed.

3. In a bed and cylinder printing press, a reciprocating form bed and an impression reciprocating form bed and an impression and one-half revolutions on each of its opposite strokes, said cylinder having two diametrically opposed sets of grippers operable to successively take, print and deliver a sheet on each stroke of the cylinder, a pair of opposed feeders for alternately feeding the sheets to their respective impression cylinder grippers, and a pair of opposed deliveries for taking the printed sheets alternately from their respective grippers.

4. In a bed and cylinder printing press, a reciprocating form bed and an impression cylinder which oscillates substantially one and one-half revolutions on each of its opposite strokes, said cylinder having two diametrically opposed sets of grippers operable to successively take, print and deliver a sheet on each stroke of the cylinder, a pair of opposed feeders for alternately feeding the sheets to their respective impression cylinder grippers, a pair of opposed deliveries for taking the printed sheets alternately from their respective grippers, and two inking mechanisms alternately operable to ink the form on the printing strokes of the bed.

In testimony, that I claim the foregoing as my invention, I have signed my name this 20th day of May, 1931.

CALVERT B. COTTRELL, 3d.

CERTIFICATE OF CORRECTION.

Patent No. 1,907,245.

May 2, 1933.

CALVERT B. COTTRELL, 3d.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 96, claim 3, strike out the words "reciprocating form bed and an impression" and insert instead "cylinder which oscillates substantially one"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23rd day of May, A. D. 1933.

M. J. Moore.

(Seal)

Acting Commissioner of Patents.