

(No Model.)

2 Sheets—Sheet 1.

J. L. FIRM.

DEVICE FOR REMOVING OFFSETS FROM FOLDING MACHINES.

No. 580,938.

Patented Apr. 20, 1897.

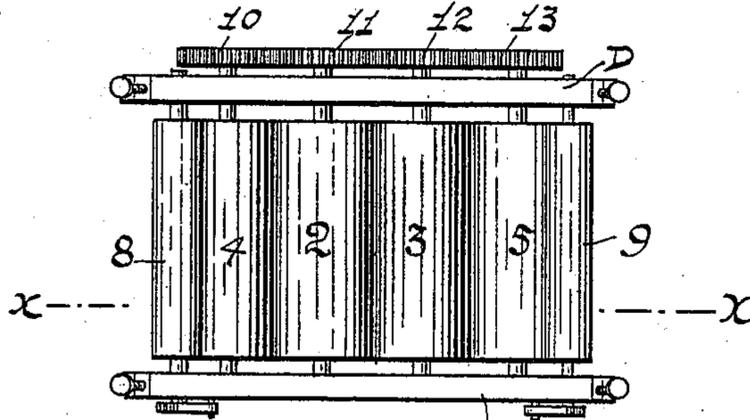


Fig. II.

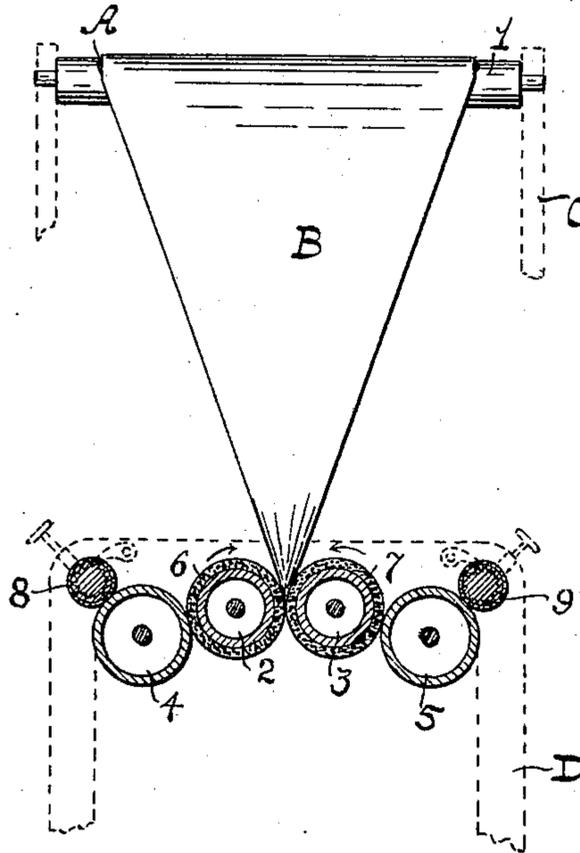


Fig. I.

WITNESSES:

*Robt. Warren*  
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INVENTOR

*J. L. Firm.*

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FIG. V.

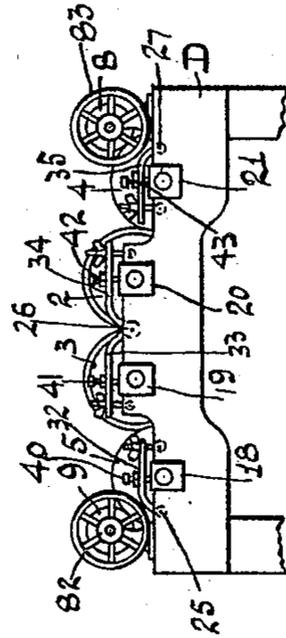


FIG. VI.

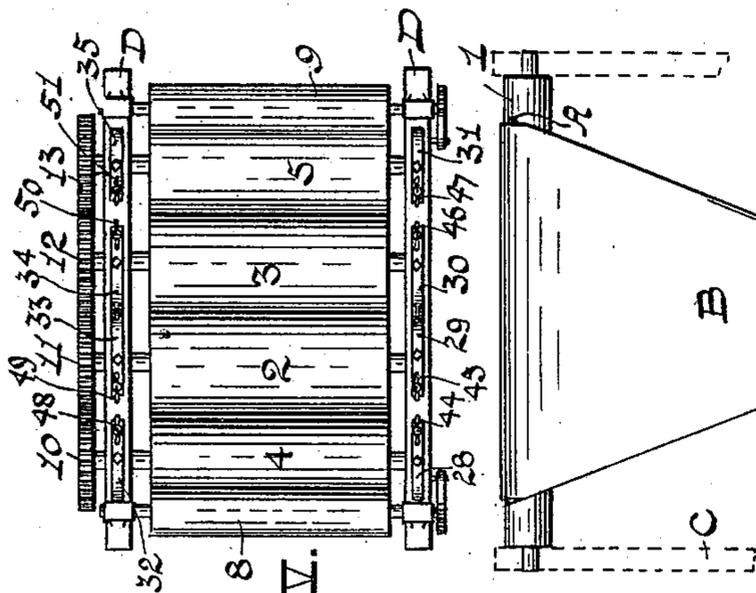


FIG. IV.

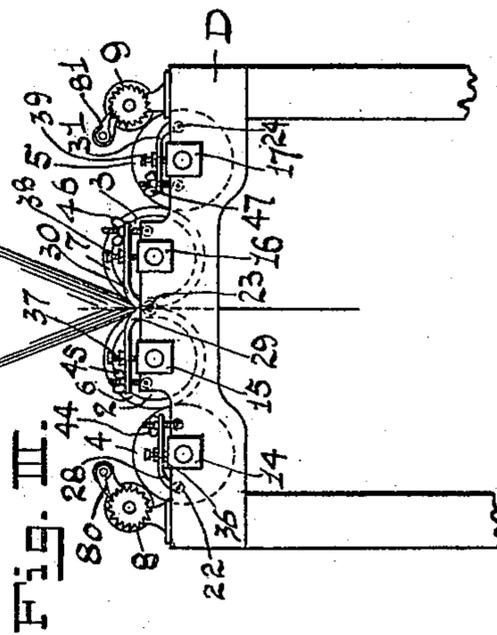


FIG. III.

WITNESSES:

*Chas. W. Thomas.*  
*Robert W. ...*

INVENTOR

*J. L. Firm.*

# UNITED STATES PATENT OFFICE.

JOSEPH L. FIRM, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS.

## DEVICE FOR REMOVING OFFSETS FROM FOLDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 580,938, dated April 20, 1897.

Application filed April 2, 1895. Serial No. 544,166. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH L. FIRM, a citizen of the United States, residing in Jersey City, county of Hudson, State of New Jersey, have invented certain new and useful Improvements for Removing the Offsets from Folding-Machines, of which the following is a specification.

My invention relates generally to folding-machines which fold a web longitudinally, either by internal guides or internal and external guides, imparting a longitudinal fold by rollers from said guides, and specifically to the offset.

The object of my invention is to provide certain improvements whereby the offset will be removed from said folding-rollers for a longitudinal folder and web-printing mechanism, all of which will be fully understood from the following description.

In folding-machines of this class the web that is to be folded passes over forming-blocks, V-shaped guides, or converging bars to rollers which impart the fold to the web. These rollers in some cases are directly united at the apex of the longitudinal folders, and in other cases have been placed some distance apart and below the apex of the longitudinal folder. I have discovered that the web received direct from the printing mechanism which has heavy cuts or displayed advertisements imparts the fresh ink from said printed papers directly to these folding-rollers and transfers it back and smuts and soils the printed web on each side of the longitudinal fold. To overcome this difficulty, I use the ordinary two rollers at or near the apex of the longitudinal folder, which I cover with a jacket or stocking made of cloth or any suitable fabric, that can readily be removed when soiled, a pair of receiving cylinders or rollers which coact and run in surface contact with each of said folding-rollers and are kept clean by wipers in the usual manner. When it is required to remove the folding-rollers to change the jacket or stocking, I arrange them in boxes. (Shown in Figures 3 and 4 in detail as applied to the folding-rollers.) These boxes are secured in recesses in the frame of the folder and are held in position by arms, which are also pivoted to the frame and ex-

tend across the top of the boxes, and at the other end detachably secured to said frame by thumb-screws. By screwing off the thumb-nuts the pivoted arms may be lifted up and swung backward and the individual roller easily removed from the frame and readily recovered, returned, and used until it becomes foul again.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Fig. 1 is a front elevation, partly in section, on the line X X of Fig. 2 of the offset mechanism. Fig. 2 is a plan view of the same. Fig. 3 is a front elevation. Fig. 4 is a plan view of the same. Fig. 5 is a detail view of one of the folding-rollers. Fig. 6 is a reverse side view of Fig. 3.

In the accompanying drawings, A represents a longitudinal folder for folding the web B, which passes over the roller 1, set in the frame C.

2 3 are folding-rollers with my invention applied thereto at the apex of the longitudinal folder.

4 5 are receiving cylinders or rollers which are in face-to-face contact with the longitudinal folding-rollers 2 3 and parallel to them.

6 7 are the jackets or stockings applied to the folding-rollers 2 3.

8 9 are wipers which are in contact with the receiving cylinders or rollers 4 5 and keep them clean.

10 11 12 13 are the gears which impart motion to the folding-rollers 2 3 and the offset cylinders or rollers 4 5, Figs. 2 and 4.

14 15 16 17 are boxes set in the frame D on one of its sides, and 18 19 20 21 similar boxes set on the opposite side, and tend to hold the journals of the folding-rollers 2 3 and the receiving cylinders or rollers 4 5 in their proper positions.

In the side pieces or supports of the frame D are secured a number of studs 22, 23, 24, 25, 26, and 27, to which are pivotally secured arms 28, 29, 30, 31, 32, 33, 34, and 35, adapted to lie down on and across the upper faces of the journal-boxes 14, 15, 16, 17, 18, 19, 20, and 21 to keep them in their seats and formed with apertures in their free ends to engage over set-screws 36, 37, 38, 39, 40, 41, 42, and 43, fixed in the frame, the said screws being

provided with thumb-nuts 44, 45, 46, 47, 48, 49, 50, and 51, so that when the pivoted arms are laid over and on the boxes with the set-screws projecting through the apertures in their free ends they may be removably secured in such position by the thumb-nuts.

Fig. 4 is a plan view of Fig. 3 and shows like parts.

In detail I show in Fig. 5 one of the rollers 2 covered with a jacket or stocking 6 and fastened at 54 55 by being drawn over the roller and tied thereto.

The operation of my invention is as follows: The web B having been printed passes over the roller 1 to the longitudinal folder-frame A and is there folded by the rollers 2 3 at the apex, the fresh ink transferring itself to the jackets or stockings 6 7, with which these rollers have been covered. The rollers revolving as indicated by the arrows, the receiving-cylinders 4 5 coact and run in surface contact with the folding-rollers 2 3, said folding-rollers transferring the ink received on their surface directly to the receiving-cylinders, which are kept clean by the wipers 8 9 and are held in position by pawls 80 81, which are fastened to the frame of the folder D at one of its ends. On the opposite side there are hand-wheels 82 83, which can be turned as often as required by the operator

of the machine and present a clean surface to the receiving-cylinders 4 5.

I am aware that metal rollers and various devices have been used to remove the offset from impression-cylinders when the ink from the first side of the printed sheet or web has left its first imprint on said impression-cylinders. This, being old, I do not claim.

That which I regard as new, and desire to secure by Letters Patent, is—

In combination in a longitudinal folder, a V-shaped folding-frame, a pair of folding-rollers 2, 3, located at the apex of said frame, and provided with removable coverings, a pair of offset-rollers journaled in contact with the folding-rollers to take the set-off therefrom, wiper-rollers 8, 9, provided with hand-wheels, and journaled in contact with the set-off rollers to clean the ink from their surfaces, and pawls and ratchets to hold the wipers against rotation with the set-off rollers, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 18th day of March, 1895.

JOSEPH L. FIRM.

Witnesses:

WM. A. COURTLAND,  
ROBERT WARREN.