J. E. DOYLE.

MEANS FOR PREVENTING OFFSET IN PRINTING.

APPLICATION FILED DEC. 29, 1913.

1,222,746. Patented Apr. 17, 1917.

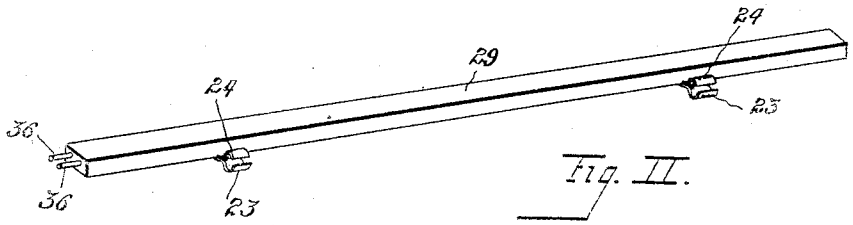


Fig. II.

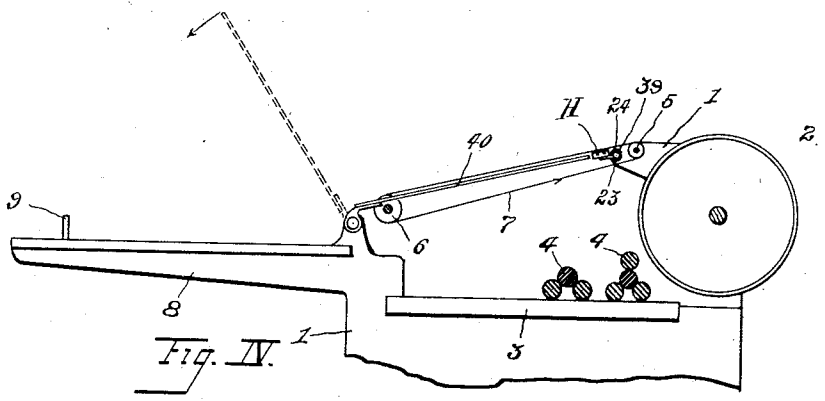


Fig. IV.

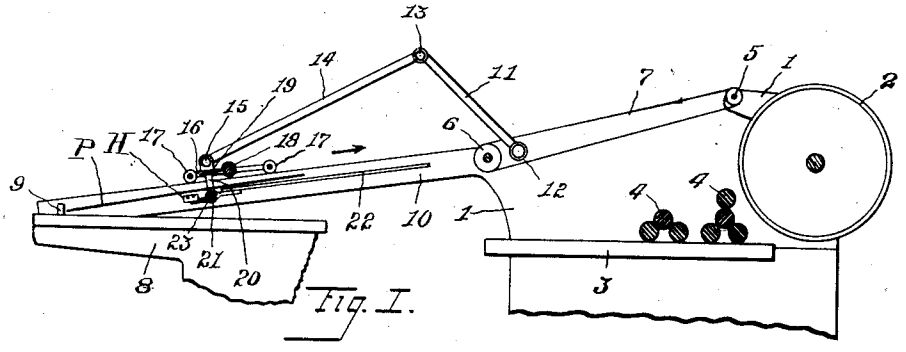
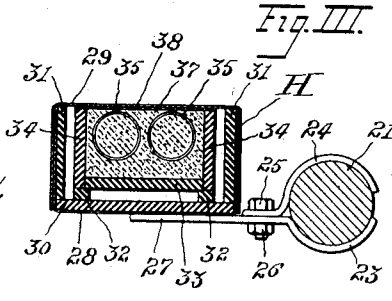


Fig. I.

Fig. III.



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UNITED STATES PATENT OFFICE.

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MEANS FOR PREVENTING OFFSET IN PRINTING.

1,222,746. Specification of Letters Patent. **Patented Apr. 17, 1917.**

Application filed December 29, 1913. Serial No. 809,160.

To all whom it may concern:

Be it known that I, JAMES E. DOYLE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Means for Preventing Offset in Printing, of which the following is a specification, the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The general nature of this invention is adequately set forth by its title. It involves an electrically heated bar and mechanism for operatively supporting the same. One object is to prevent offsets of the finished impression as successive sheets are deposited to form a pile. Another object consists in concentrating the radiation of heat so as to make it most effective. Further objects are the provision of a contrivance which is simple hence economical of manufacture and readily attachable to any standard press.

The construction of the heating member proper corresponds precisely in principle save for one improving detail with that shown, described and claimed in my copending application filed December 22, 1913, Serial Number 808,159.

The inventive conception is embodied in means which are hereinafter explained and variously combined in the claims, while the annexed drawing and particular description thereof together set forth in detail several means constituting my invention the disclosed means, however, being but some of various mechanical forms in which the principle of my invention may be applied.

On the drawing:

Figure I is a diagrammatic view in part elevation and part section showing the preferred form of my invention associated with a cylinder press.

Fig. II is a perspective view of the heating bar and attaching medium.

Fig. III is a cross section of Fig. II.

Fig. IV is a view similar to Fig. I representing a modified application of the invention.

With consideration first of Fig. I, bare mention is made of the necessary supporting parts and some few others which aid in indicating the relative positioning of my invention. So much of the main frame of a printing press as is shown in outline I have designated by the reference numeral 1. A further portion of the frame is seen to overhang the first mentioned portion adjacent the cylinder 2. The platen 3 is seen somewhat below and superimposed upon it a number of inking rolls 4 are visible. Rotatably mounted upon the over-hanging portion 1 and a portion of the frame removed forwardly therefrom are a pair of rollers 5 and 6 respectively. These rollers actuate the conventional type of belt conveyer 7, the upper portion of which is designed to travel in a direction away from the cylinder. Positioned somewhat farther beyond and in the direction of travel of the conveyer 7 is a deposit table 8. The upper surface of this table is provided near its outer edge with an abutting rail 9. Disposed above the table 8 and inclined upwardly toward the cylinder are a pair of lateral supporting members 10 which incidentally answer as guides for the side edges of the moving paper sheets.

A gripping device whose function consists in carrying paper sheets forwardly beyond the location of the roller 6 will now be described. Generally speaking, it involves a traveling carriage provided with gripping fingers and a pair of linked arms capable of reciprocating it when actuated in a manner not shown since common to the art. One arm 11 is pivotally mounted to the frame at 12. The free extremity of the arm 11 articulates through the medium of a pivot pin 13 with the second arm 14, and the extremity of this arm articulates in a similar manner through the medium of a pin 15 with the carriage 16. The carriage 16 involves in its construction forwardly and rearwardly disposed rollers 17 which are adapted to travel upon the members 10. Intermediately of the rollers 17 the carriage is provided with an oscillating rod 18 extending transversely in the direction which the paper sheet is to

follow. The rod 18 supports a plurality of gripping fingers 19 which are in Fig. I shown in their elevated position. This position they assume automatically and in a manner also well known to such as are conversant with the art. When the carriage is returning, as indicated by the arrow, in the direction of the conveyer 7, the carriage 16 is provided with a depending bracket 20 which supports a rod 21 extending between the members 10. Secured along the rearward portion of the rod 21 and fixedly maintained in an inclined position are a plurality of alined arms 22. These arms constitute a movable table upon which the sheet of paper P is supported during transit. A pair of clamps 23 and 24 envelop opposite ends of the rod 21 and are bound to the same through the medium of bolts 25 and nuts 26. This connection is best shown in Fig. III. The lower clamps 23 are longer than the others and extend some distance beyond. Such added extensions of the clamps 23 I have designated as 27. Supported upon these extensions and extending across from one to the other is the electrically heated bar H which very nearly corresponds to that of my earlier application identified near the beginning of this specification. It involves two telescoping channel spaced members 28 and 29 which together form a closed compartment containing a preferred arrangement for the generation and concentrated distribution of heat. Interiorly the following parts may be tersely explained as a bottom insulating strip 30, two side strips 31, spacer bars 32 disposed upon the strip 30 and short distances from the strips 31 respectively, a second insulating strip 33 resting upon the spacer members 32, and two further side insulating strips 34 likewise resting upon the spacer members 32. The arrangement of the interior parts so far mentioned necessarily involves the three air spaces clearly seen in Fig. III. A pair of resistance coils 35 extend lengthwise between the strip 33 and the strips 34 to be connected at one end and at the other provided each with a terminal 36. These resistance coils 35 are shown symmetrically held in place by means of a secret packing in the nature of a heat conserving composition 37. The composition packing is covered with a strip of mica 38 and this latter is snugly held in place against the former by the middle portion of the outer member 29. As so constructed by electrically heated bar it is compelled to radiate all of its heat upwardly through the mica and member 29. By reason of this circumstance the maximum of heat is utilized.

The operation of the preferred form of my invention assuming all movable parts to have been actuated into the position in which they appear in Fig. I, is as follows:

A close inspection of Fig. I reveals that the sheet of paper has passed off of the conveyer 7, been carried beyond upon the arms 22 until its forward edge was near the abutting rail 9 and thereafter been released from the shoving engagement of the fingers 19 which have already begun their return travel in order to grasp the succeeding sheet. A further inspection discloses that the sheet P is being left in its most advanced position to ultimately settle upon the table 8. Directly following the instant in which the carriage 16 began its return movement the heating bar H began to travel across the under-surface of the sheet of paper and thus began to impose a lineal zone of heat sufficient to completely dry the inked impression and preclude subsequent offset. During the continuation of the return movement of the bar H in proximity to the under-surface of the sheet, the remaining portion of the latter will have become similarly dried. The degree of heat which my heating bar can radiate should be limited by the amperage but may be varied at will. Mention is made of the fact that the application of my invention serves to remove whatever static electricity the paper itself might have.

In the modification shown in Fig. IV the rod 39 is not movable but fixed to the overhanging portion of the frame 1 near the rollers 5 and between oppositely moving portions of the conveyer 7. Aside from its location with respect to the press as a whole the heating bar H is similarly mounted and of like construction throughout to that shown in section in Fig. III. This mode of applying my invention is best suited for that type of mechanism involving oscillating arms 40 upon which the sheet is deposited immediately upon leaving the surface of the cylinder 2.

My invention being thus described with sufficient thoroughness, what I desire to secure by Letters Patent and therefore claim specifically, is:

1. Means for preventing offset in printing comprising in combination, a carriage, a gripping device carried thereby and disposed on one side of a sheet, and a heater also attached to said carriage and disposed on the opposite side of the sheet.

2. Means for preventing offset in printing comprising in combination, a sheet conveyer, a bar adjacent thereto, a heating member, a pair of complementary clamping members enveloping said bar and secured to said member, means for drawing said members together, said heating member being disposed below and extending across said sheet.

3. Means for preventing offset in printing

comprising in combination, mechanism for conveying a sheet, a bar attached for movement therewith, a heating member detachably carried by said bar, said heating member being disposed immediately below and extending across the line of travel of said sheet.

Signed by me, this 26th day of December, 1913.

JAMES E. DOYLE.

Attested by—
C. F. FRANKE,
MARY COLEMAN.