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DRYING MECHANISM FOR PRINTED MATTER.

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Fig. 1.

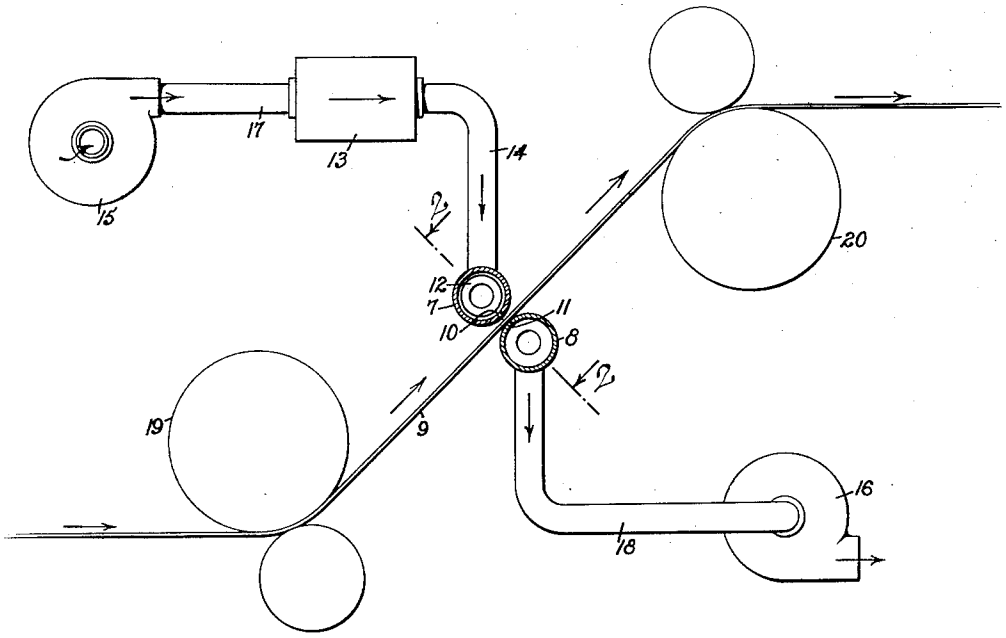
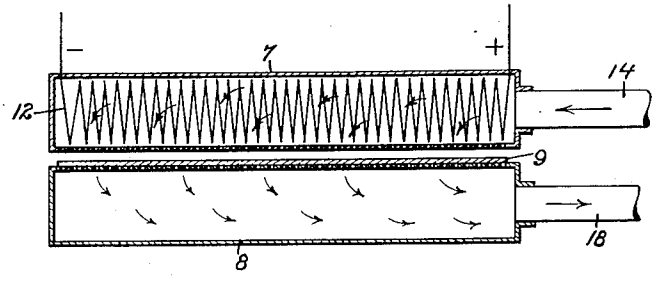


Fig. 2.



WITNESSES

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DRYING MECHANISM FOR PRINTED MATTER.

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To all whom it may concern:

Be it known that I, THEODORE J. BEREGH, Jr., a citizen of the United States, and a resident of the city of New York, Woodhaven, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Drying Mechanism for Printed Matter, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to avoid smudging of printed surfaces on multiple impression presses; to avoid the use of offset webs in multiple cylinder presses; and to provide a simple and efficient apparatus for drying printed surfaces as they are delivered from the type bed.

Drawings.

Figure 1 is a view showing diagrammatically the printing cylinders and impression rolls therefor as employed in a multiple cylinder printing press, and in conjunction therewith a drying mechanism constructed and arranged in accordance with the present invention;

Fig. 2 is a longitudinal section on an enlarged scale of coöperative drying cylinders employed in the disclosed construction, the section being taken as on the line 2—2 in Fig. 1.

Description.

As seen in the drawings, a heating tube 7 and a vacuum tube 8 are used conjunctively. The tubes 7 and 8 are disposed transverse the path of a printing web 9 and at opposite sides thereof. The tubes are each provided with perforations 10 and 11. The perforations are arranged in series and in service are disposed in opposed relation to form substantially a passage from each perforation 10 to a corresponding perforation 11. The tube 7 is provided as a heating unit, and to this end an electric heating hollow coil 12 is mounted in said tube 7. Current for heating the said coil is supplied thereto by wires connected to any suitable source.

In practice it is found advantageous to pre-heat the air delivered to the tube 7 and to this end a pre-heater 13 is employed and operatively connected with the tube 7 by means of a pipe 14.

In the perfect operation of a mechanism of the character herein described, air or other suitable medium is circulated through the tubes 7 and 8 and from one to the other in the order named. To facilitate the movement of the air or other medium, blowers 15 and 16 are employed, the former to deliver air under pressure to the pre-heater 13, and the latter to draw air from the interior of the tube 8. The blower 15 has a delivery pipe 17 connecting the said blower 15 and pre-heater 13. The blower 16 is operatively connected by means of a pipe 18 with the tube 8 in such manner as to draw the air or other medium from said tube.

In the drawings two blowers are employed. It will be understood that one blower may be employed, so arranged with reference to the pipes 17 and 18 as to receive from the latter and deliver to the former. Suitable and well-known arrangement may be made whereby the characteristic work may be effected by mechanisms employing the one blower for circulation purposes.

In the drawings a drying battery comprising one tube 7 and one tube 8 is shown. It will be understood that batteries employing a series of coupler tubes of the character mentioned may be interposed between the printing cylinders 19 and 20. It will also be understood that the mechanism may be employed for drying printed sheets delivered from a printing press of the type employing a reciprocating platen. In such employment it will be understood that the tubes 7 and 8 would be disassociated from the printing mechanism of the press but placed conveniently with reference to the operating station.

Operation.

When constructed and arranged as shown in the drawings, the operation of the mechanism is as follows: The web 9 is threaded over the cylinders 19 and 20 and between the tubes 7 and 8. The tube 8 is placed in service adjacent the unprinted side of the sheet or web. By this arrangement the heated air delivered through the perforations 10 in the tube 7 is drawn through the paper of the sheet or web into the tube 8. The result of this is that the moisture or the volatile element in the ink is carried off and the heat of the drying medium employed is transmitted to the sheet or web 9 for the beneficial effect which may be imparted to the printing surface by the residual heat remaining in the sheet or web

after passing from the influence of the tubes 7 and 8 and before engaged by the cylinder 20.

While the mechanism herein shown and described is employed primarily for drying the ink on the surface of the printing sheet, it performs another and valuable function, to wit, the removal or neutralization of static electricity induced or remaining in the web 9. Electricity of the character referred to is directly influenced by the current of air which is passed through the texture of the web 9 in a plane or lines cutting the path of said web.

It has been found that by placing the tubes 7 and 8 in advance of the last cylinder of a multi-cylinder press, the electricity referred to is absorbed or neutralized to an extent which prevents the adhesion of the web or sheet to the following printing cylinder and the avoidance of the troubles consequent upon the adhesion of the web or sheet to the same cylinder.

Claims.

1. A mechanism as characterized comprising a tubular member extended adjacent the path of the web being printed between the printing stations therefor; means for extracting the air from said tubular member; and means for introducing air into said tubular member by passing the same through said web, said means embodying perforations through the wall of said tubular member, said perforations being arranged to be covered by said web while passing over said member, and means for heating the air delivered to said tubular member through said web.

2. A mechanism as characterized comprising an air-circulating system embodying a plurality of opposed hollow chambers, said chambers being provided with longitudinally-disposed perforations, said perforations being opposed in juxtaposed relation; means for transferring air from one of said chambers to the other of said chambers by way of said perforations; and means for dehydrating said air prior to said transfer.

3. A mechanism as characterized comprising an air-circulating system embodying a plurality of opposed hollow chambers arranged for transfer of air from one to the other of said chambers across an intervening space adapted for guiding the web of a printing machine; means for transferring air from one chamber to the other across an intervening space; and means for rendering the air anhydrous prior to transferring the same.

THEODORE J. BEREGH, JR.