July 16, 1940. P. H. DURUP 2,208,047

PRINTING ROLL

Original Filed Jan. 29, 1938

Fig. 1.

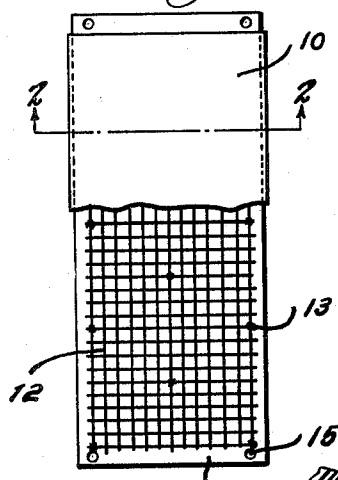
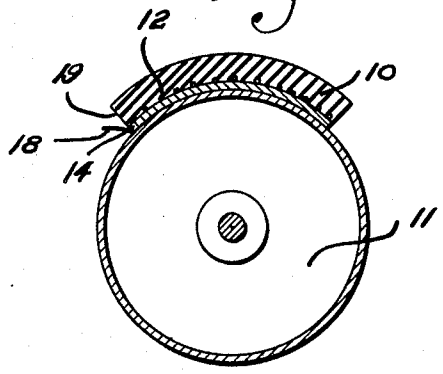


Fig. 2.



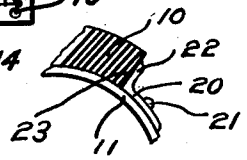


Fig. 4.

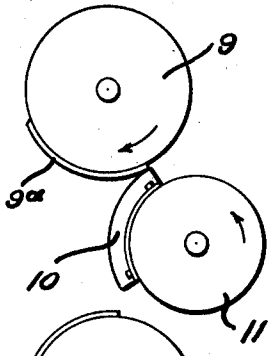


Fig. 7.

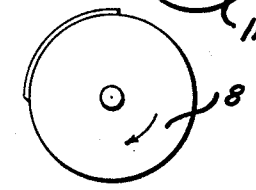
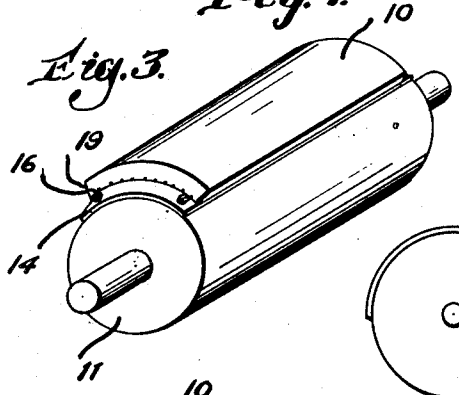
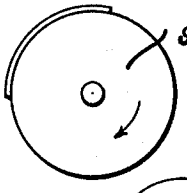


Fig. 3.





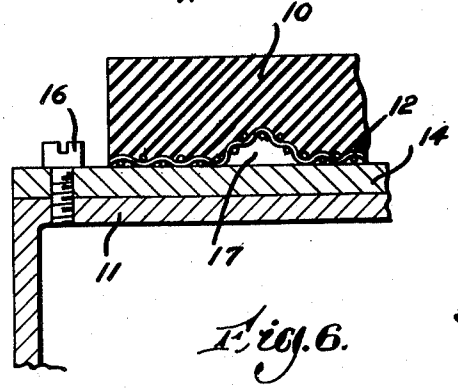


Fig. 6.

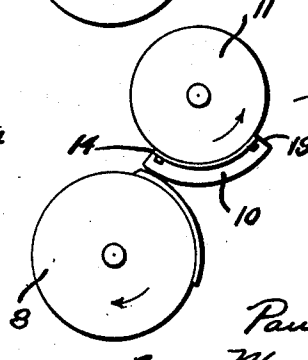


Fig. 5.

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PRINTING ROLL

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Substitute for abandoned application Serial No. 187,667, January 29, 1938. This application November 13, 1939, Serial No. 304,184

8 Claims. (Cl. 101—217)

This invention relates to printing rolls and transfer printing surfaces.

It is a principal object of the invention to improve printing rolls and transfer surfaces for offset printing, and to combine in a transfer printing surface cheapness, efficiency and adjustability, with improved ventilating character, adapting itself to high speed operation, and simplified make-ready preparation for specialty printing of subject matter having uneven, irregular or non-uniform surfaces as envelopes, cards, and like sheets of material.

The invention comprises means and combinations suitable for accomplishing the foregoing objects as explained in the following specification, and includes not only the specific embodiment so described but all substantial equivalents thereof within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is a plan view illustrating a transfer blanket mounted on a roll, and indicating means for securing the blanket to the roll.

Fig. 2 is a transverse cross section taken on the line 2—2 of Fig. 1.

Fig. 3 is a perspective view further illustrating the construction illustrated in Figs. 1 and 2.

Fig. 4 is a diagrammatic view illustrating an offset printing roll assembly with which the constructions illustrated in Figs. 1, 2 and 3 have been associated.

Fig. 5 is a view similar to Fig. 4 diagrammatically illustrating a further position of the roll assembly.

Fig. 6 is a fragmentary detail cross section illustrating ventilating means for the transfer blanket; and

Fig. 7 is a fragmentary detail view of a blanket segment similar to that shown in Fig. 2 having supporting means illustrated therewith.

Referring more in detail to the drawing, 10 indicates a soft resilient material such as gelatin or other suitable composition comprising a transfer blanket mounted on an offset roll 11. In Figs. 4 and 5 I have diagrammatically illustrated an offset printing roll assembly consisting of a printing plate roll 9 and a pressure plate roll 8 cooperating with the offset roll 11, in a conventional manner. The blanket construction and roll assembly shown are intended to be applicable to various types of rotary printing. However, their use is particularly intended in connection with specialty printing as of envelopes, cards and like materials, and the following description of the invention will particularly relate to printing of such subject matter.

In accordance with the invention, the transfer blanket 10 is formed to provide a peripheral surface area which is only slightly greater than the peripheral surface area of a printing plate member 9a, and the thickness of the blanket is considerably increased relative to the thickness of conventional rubber transfer blankets. As a result of forming the blanket 10 with increased thickness, the rolls 8 and 9 become spaced farther apart from the roll 11, which is advantageous for the reason that there is room for greater ventilating action between all of the peripheral surfaces of the rolls. This is particularly pertinent where a material sensitive to temperature fluctuations, such as gelatin, is employed. In addition thereto the increased thickness provides a highly desirable resiliency which adapts itself to simplied make-ready. Such adaptability of the thickened blanket to uneven surfaces is highly desirable in printing on the back sides of envelopes, for instance, owing to the irregularity of the envelope flaps.

By making the blanket segment 10 of a peripheral area only slightly larger than that of the printing plate, a very considerable saving in the amount of material utilized is realized and a direct result is to relate the size of the blanket to the size of subject matter to be printed. For instance, in the case of envelopes, the width of the envelopes will determine the size of the printing plate and the blanket may be sized to substantially correspond with this dimension. Inasmuch as the increased thickness of the blanket provides a roll of larger circumference, the shortened blanket segment comprises a relatively smaller part of the circumferential dimension and there is a longer period of time elapsing in which the blanket is not in contact with either of the rolls.

These advantages while of a minor nature at low speed printing become of much greater importance in handling envelopes at a speed of from 9,000 to 12,000 envelopes per hour as is now being accomplished in connection with this type of transfer roll. To further facilitate high speed operation, it will be noted that the blanket 10 is so arranged relative to rolls 8 and 9 that it is in contact with only one of the rolls at any one time as well as being completely out of rolling contact with them for another period of time.

The blanket 10 has been further designed such that it may be detachably secured to roll 11 and as one example of an adjustable mounting I have shown reinforcing 12 comprising a heavy wire mesh joined together at several points as 13, upon

which the blanket 10 may be secured by being applied thereto in a plastic state and hardened. If desired these two elements may be further secured to some suitable base means as plate 14 which is provided with openings 15 and screws 16 adapted to be tightly engaged with the drum surface. The reinforcing 12 may be employed with blanket 10 directly on the roll 11 without the use of the plate 14 and also other suitable sheet means or form of base adapting itself to being solidly associated with the blanket and at the same time tightly engaging the roll may be employed. For instance, this might be effected by upstanding strips embedded in the blanket member and having fastening means along the edges for engaging the roll.

This type of adjustable blanket construction is highly advantageous for the reason that the transfer roll when adjusted in register with the other two rolls may be rotated around into that position where it is not in contact with either of them and in this open position the blanket may be readily removed according to the means referred to above and replaced by another blanket without interfering with the register of the rolls or removal of any mechanism.

In addition to the improved cooling of the blanket already referred to, I have designed additional means for further facilitating ventilation. As one example I have shown the forward edge 19 of blanket 10 formed with openings 17 extending rearwardly back through the blanket which provide air passages. This type of construction has been particularly illustrated in Fig. 6 and is intended to be illustrative of a plurality of such openings occurring all along the edge 19. It may further be desired to employ a lip 18 disposed longitudinally along the front edge of blanket 10. The action of this lip is to entrap air as the roll is rotating and force it through openings such as 17, thereby increasing cooling effects.

In utilizing the thickened blanket 10 in the segmental form, there may be a tendency for its front and rear edges to be flattened out more than the middle portion of the blanket, and it may be desirable to provide supporting means along these front and rear edges in the manner shown in Fig. 7. 20 indicates a plate member which may be adjustably located, for instance, on the roll 11 by means of screw 21. The under side of the support member 20 will be of a circular formation adapted to coincide with the periphery of roll 11 and preferably may be constructed with an upstanding portion 22 which extends upwardly against the edge 23 of the transfer segment. In practice it has been found that this upstanding portion may extend to a point within one-eighth of an inch of the top of the edge. It will be understood that Fig. 7 is intended to be illustrative of any satisfactory means of support and applied at either front or back edge or both edges of the transfer blanket. When a transfer segment having air passages provided is supported in such manner, the supporting means may be coincidentally slotted. It will be seen that improved blanket construction is present which increases the life of the blanket, decreases its cost and improves the operation of a transfer member.

While I have shown a preferred embodiment of the invention it should be understood that various changes may be resorted to in keeping with the spirit of the invention.

Having thus described my invention, what I claim is:

1. A printing member comprising a body of resilient material presenting a smooth outer peripheral surface and means for detachably fixing the resilient body to a printing roll, said resilient body having provided therein air passages for effecting ventilation.

2. A printing member comprising an arcuate segment of soft resilient material presenting a smooth outer peripheral surface, supporting means for receiving the arcuate segment and detachably securing the said body to a printing roll, said arcuate segment being provided with ventilating air passages extending through the printing segment from the forward edge thereof to the rear edge.

3. A printing member comprising an arcuate segment of soft resilient material presenting a smooth outer peripheral surface, means for detachably securing the segment to a printing roll, said arcuate segment being provided with ventilation openings extending through the printing segment from the forward edge thereof to the rear edge and means located adjacent said forward edge of the printing segment for directing air into said ventilation openings when the roll is in rotation.

4. A printing member comprising an arcuate segment of soft resilient material presenting a smooth outer peripheral surface, backing means associated with the under side of said arcuate segment, supporting means detachably secured to said backing means and being adapted to be removably fixed to a printing roll, said backing means being shaped such that ventilation openings are provided between itself and the supporting means, the said openings extending from the forward edge of the printing segment to the rear edge thereof.

5. A transfer printing member comprising an arcuate segment of soft resilient material mounted on a printing roll and presenting front and rear edges, and supporting means in contact with front and rear edges of said segment adapted to be adjustably mounted on the roll.

6. A transfer printing member comprising an arcuate segment of soft resilient material, base means for receiving said arcuate segment and means for solidly securing the segment to the said base means, said base means being adapted to be secured to a printing roll, and means located adjacent the segment edges for stiffening the edges.

7. A printing member comprising an arcuate segment of soft resilient material presenting a smooth outer peripheral surface, supporting means for receiving the arcuate segment and detachably securing the material to a printing roll, and means for supporting the front and rear edges of the said segment comprising plate means adjustably located thereagainst.

8. A transfer printing member for use in offset printing comprising in combination a body of resilient material presenting a smooth outer peripheral surface, a roll, a base member on the roll for receiving the said resilient body, reinforcing means for solidly mounting the resilient body on the base member, and supporting means for stiffening one or more edges of the body of material.

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