

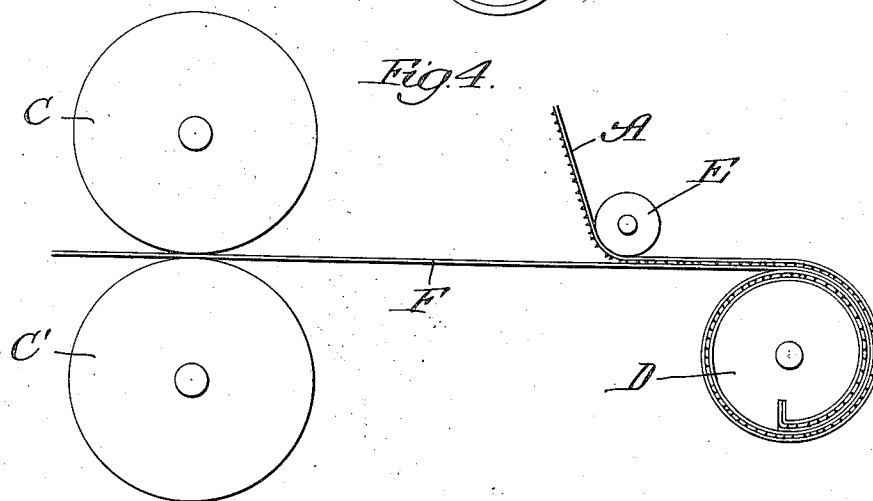
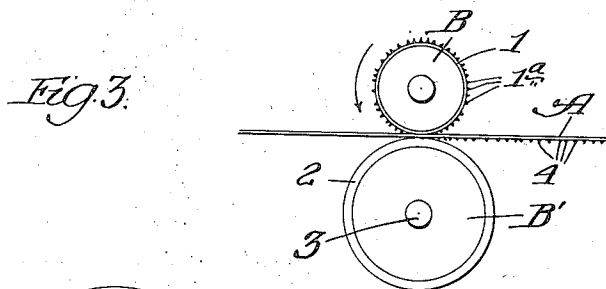
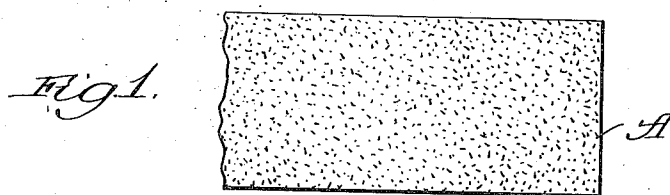
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METHOD OF MANUFACTURING SLIP SHEETS

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METHOD OF MANUFACTURING
SLIP SHEETS

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2 Claims. (Cl. 101—32)

This invention relates particularly to the protection of freshly printed surfaces issuing from a printing-press, or printing-device, and has for its purpose the prevention of smearing, or offsetting, of ink when the freshly printed surface comes in contact with another surface.

While the invention is especially useful in protecting freshly printed artificial cellulose surfaces, or the like, where the ink forming the printed character or design remains mainly on the surface of the sheet, the invention is useful in connection with the preservation of freshly printed surfaces, generally.

In accordance with the present invention, a thin slip-sheet is subjected to a point-embossing operation and in this manner provided on one of its surfaces with a vast number of minute points which are closely associated, but preferably without regularity of position. The point-embossing operation preferably is accomplished by means of a roller having its surface covered with sand-paper of medium coarseness. No. 1½ sand-paper is well adapted to the purpose. The embossing roller, covered with sand-paper, coats with another roller having a yielding surface so that a slip-sheet passed between the rollers will be embossed, without puncturing the slip-sheet.

After the slip-sheet has been produced, it may be used in the ordinary manner as a slip-sheet between successive layers of freshly-printed paper, freshly-printed sheets of cellophane or the like; or the slip-sheet may be wound with the freshly-printed sheet upon a suitable take-up roll. In the use of the slip-sheet, the point-embossments are adjacent the freshly-printed surface and serve to maintain an air film between the freshly-printed surface and the slip-sheet.

The invention is illustrated in a preferred embodiment in the accompanying drawing, in which—

Fig. 1 is a broken plan view of a slip-sheet made in accordance with the invention; Fig. 2, an edge elevational view of the same; Fig. 3, a view illustrating the manner in which the slip-sheet is formed; and Fig. 4, a view illustrating one method of applying the slip-sheet to a freshly printed surface.

In the illustration given, A designates the improved slip-sheet; B and B' a pair of embossing rolls; C and C', a printing-roll and coacting platen-roll;

D, a take-up roll; and E, a guide-roll for directing the slip-sheet into contact with the freshly-printed surface of the sheet being printed, which sheet is designated F.

The slip-sheet may comprise a very thin flexible sheet of any suitable material. It may be of paper, such as kraft paper, or it may be a very thin sheet of celluloid, or it may be a sheet of fabric produced from viscose, or the like. Preferably, the slip-sheet is rather dense and tough, especially where it is to be used repeatedly. Ordinary thin drafting paper, or tracing paper, may be used. A very loose-fibred, soft paper is not so well adapted to the purpose.

Referring to Fig. 3, the embossing-roll B is shown as having its surface covered with a sheet of sand-paper or the like which has its outer surface covered with minute sand-projections 1^a. Ordinary sand-paper of medium grade (medium fineness) serves the purpose very well. This may be adhesively joined to the roll B, or otherwise applied.

The coacting impression-roll B' preferably is provided with a surface of soft material, designated 2. A felt pad serves the purpose very well. The embossing roller B may be positively rotated by any suitable driving means, and the coacting impression-roller B' may be an idler. Preferably, the roller B' is provided with a heating element, designated 3. This element may be a steam pipe, a gas burner, or an electric heating element, as desired. It has been found desirable to apply heat during the embossing operation. Where the slip-sheet is of celluloid, the material is softened, and the embossed points, designated 4, are rather sharply defined and given a permanent set. Inasmuch as most papers contain some sizing, or something in the nature of a binder, the same effect, in varying degree, is obtained with various papers. By using minute embossing points on the embossing-roll, puncturing of the paper is avoided. This is especially desirable where the paper fibre is of a character to absorb ink when the paper is punctured. That is, it is desirable to avoid, as far as possible, getting ink upon or absorbed by the slip-sheet, especially where the slip-sheet is to be used repeatedly.

One very useful application of the invention is to the purpose of preventing smearing or offsetting of ink in the printing of cellulose tubes, such as are used as artificial sausage casings, or the like. Cellulose tubes of this character are highly non-absorptive, so that in the printing operation the ink characters stand upon the surface of the cellulose tube and do not dry quickly. It has been found that danger of smearing is obviated by the use of the improved slip-sheet.

It is preferred to use a very thin sheet of celluloid, because of its cleanly character and endurance.

ing quality. Where paper is used, it may be thinly coated with wax after the embossing operation, if desired. This may be done, for example, by heating the wax and spraying it upon the embossed paper on the side which is provided with the embossed points.

For ordinary printing, where the slip-sheets are to be used only once, or perhaps a few times, thin kraft paper serves the purpose very well.

- 10 Preferably, the embossing-roll B is of small diameter, say about 2" in diameter, which gives something approaching a line contact and tends to produce sharpness in the embossed points formed in the slip-sheet. The embossed points
- 15 need not be raised above the general surface of the slip-sheet more than a very minute fraction of an inch, say .0002" to .0006". In ordinary sand-paper, the sand-points are closely but irregularly spaced, and thus the sand-paper serves
- 20 as a die which will produce irregularly located embossed points in the slip-sheet. This is of some advantage in avoiding contacts with the

ink. The exact height of the embossed points on the surface of the slip-sheet is not important, and ordinarily the height will vary on the same sheet. The height may, in fact, be considerably lower than .0002", but rarely will exceed .0006".

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new and desire to secure by Letters Patent is:

1. A method of producing a slip-sheet for the purpose set forth which comprises passing a thin flexible sheet between an embossing roll covered with sand-paper and a coating impression-roll.

2. A method as specified in claim 1, supplemented by applying heat to the zone where the embossments are being formed.

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