Aug. 20, 1946. H. M. GRIMSHAW 2,406,287

METHOD OF APPLYING GLUE

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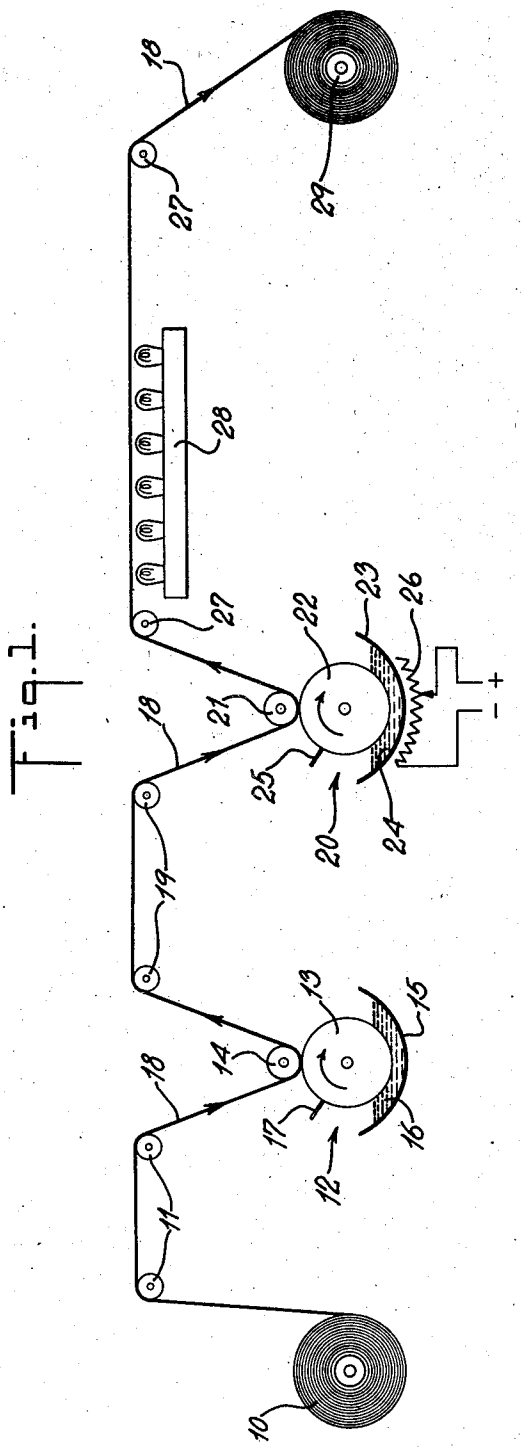


Fig. 1.

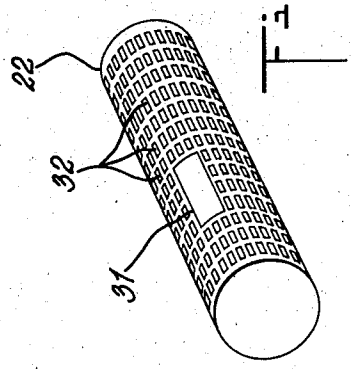


Fig. 3.

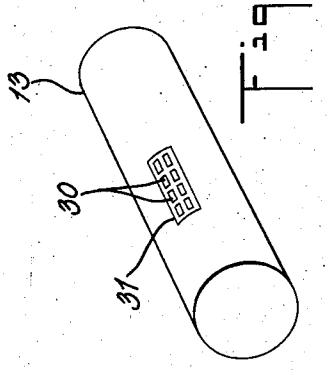


Fig. 2.

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METHOD OF APPLYING GLUE

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1 Claim. (Cl. 117—15)

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The present invention relates to a method of applying glue to a desired surface and more specifically to an improved method by means of which glue may be applied to surfaces of a continuously moving web.

More especially, the invention embodies an improved method for applying glue as aforesaid wherein glue is applied to portions only of the web as it moves through one or more desired stations.

Yet another object of the invention is to provide a method of applying glue, as aforesaid, wherein printed matter is applied to a portion of the web and, while the web continues to move, glue is applied to certain portions, the sum total of the area of which is less than the area of the web.

Still another object of the invention resides in the provision of a method for applying glue, as aforesaid, wherein printed matter is applied to certain portions of the web and glue to other portions of the web, all while the web moves continuously.

A further object of the invention resides in the provision of an improved method of applying the glue to the surface of a continuously moving web wherein the glue is applied by a cylinder formed with a plurality of indentations, pockets, or recesses, over the area corresponding to that area of the web which is to receive glue and the remaining portion, or portions, of the cylinder which are not formed with pockets corresponding in area and position with the areas of the web which are not to receive glue.

Further objects and advantages of the invention will be apparent as it is described in greater detail in connection with the drawing, wherein,

Figure 1 is a diagrammatic illustration of a mechanism by means of which the present invention may be accomplished.

Figure 2 is a perspective view of a cylinder which may be utilized for applying printed matter to certain portions of the web.

Figure 3 is a view similar to Figure 2 showing a companion cylinder that is formed to apply glue to the desired portions of the web, in the instances shown, to the unprinted portion thereof.

Referring to the above drawing, the present invention will be seen to utilize one or more stations by means of which glue may be applied to a continuously moving web. The invention contemplates that printed matter is to be applied to the web on certain portions thereof and, while the web continues to move, a glue is to be applied, at a separate station, to portions of the web less in area than the entire web. The method may be carried out by utilizing apparatus such as typified in the drawing.

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Referring to Figure 1, for example, a roll of paper 10 may be carried by suitable web supplying mechanism and directed over guide rollers 11 to the printing unit 12 of a rotary intaglio press. This printing unit is illustrated schematically as including a printing cylinder 13, an impression cylinder 14, an ink fountain 15 containing a suitable printing ink 16, and a doctor blade 17. The web of paper 18 is fed between the impression cylinder 14 and the cylinder 13 and then directed over guide rollers 19 to a glue applying unit illustrated generally at 20. The glue applying unit includes an impression cylinder 21, a gluing cylinder 22, a glue fountain 23 containing a suitable glue 24, a doctor blade 25, and a suitable heating element 26.

From the gluing unit 20 the web 18 is carried over guide rollers 27 and adjacent a suitable heating mechanism 28 to increase the rate of evaporation of the glue solvent in order to effect drying of the glue.

From the drying unit 28 the web 18 is directed to a suitable receiving mechanism, shown generally at 29. This mechanism may be a rewind mechanism or may be any other suitable mechanism for treating the web as desired. The web may, for example, be cut and stacked or folded and trimmed, or it may be handled in any other desired way with which the present invention is not concerned.

The printing cylinder 13 is illustrated in Figure 2 as being a rotary intaglio cylinder having pockets or recesses 30 formed in a manner well known in the art so that desired printed material may be impressed upon the web in the areas as desired. For purpose of illustration, the cylinder 13 is shown and has been sketched so that specified pockets 30 thereon will form a rectangle in the general area indicated by the rectangular line 31. In the specific method herein described, it is contemplated that the printed matter within the area 31 is not to receive glue thereover but upon all other portions of the web 18 glue is to be applied.

The gluing cylinder 22, in order to accomplish the foregoing result, is formed with pockets or recesses 32 over its entire area except the area delineated by the rectangular line 31, which corresponds in position and shape to the same rectangular line on the cylinder 13. During operation, the impression made by the cylinder 13 and

the impression made by the cylinder 22 are properly registered so that the web as it comes from the gluing unit 20 is coated entirely with glue except over the areas which register with the area delineated by the rectangular line 31. In the area delineated by this line the printed matter formed by the recesses 30 appears.

From the foregoing it will be seen that the web 18 is treated in such fashion that printed matter is applied to certain portions thereof and glue to the remainder of the web. A unique advantage of the foregoing method is that the glue, as applied by the recesses 32, dries in a coating of extremely nonuniform thickness. The separate deposits of glue from the recesses 32 flow into contact to form a continuous film of non-uniform thickness, the points of greatest thickness corresponding in location to the position of the corresponding recesses 32. As a result objectionable curling of the printed product is avoided. Breaking up of the glued surface is greatly facilitated by reason of the formation of the coating of glue thereon as described hereinabove and annoying difficulties in the after handling of the web are thus avoided.

While the invention has been described with specific reference to the method hereinabove mentioned and with reference to the structure illustrated in the diagrammatic drawing, it will

be apparent that the particular relationship between the printed and glue areas may vary in accordance with the requirements of particular operations. For example, glue may be applied in register with a desired portion of the web which has been printed, that is, the spot application of glue may be accomplished over an area on the web which may contain printed, unprinted, and both printed and unprinted portions, and the invention is not to be limited, save as defined in the appended claim.

I claim:

A method of preparing a substantially non-curling web having an area coated with glue and a printed area free from glue comprising moving a web continuously past a printing station and a gluing station, applying printing to an area of said web at said printing station, thereafter applying glue at said gluing station directly to a portion of said web less than the total area of said web, said portion including at the most only a part of said printed area, said glue being applied in a fluid state in a pattern of disconnected dots which flow together to cover said portion, and drying said glue quickly to form a coating of non-uniform thickness in which glue is thicker where applied as dots than between said dots.

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