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METHOD AND MEANS FOR COATING PAPER

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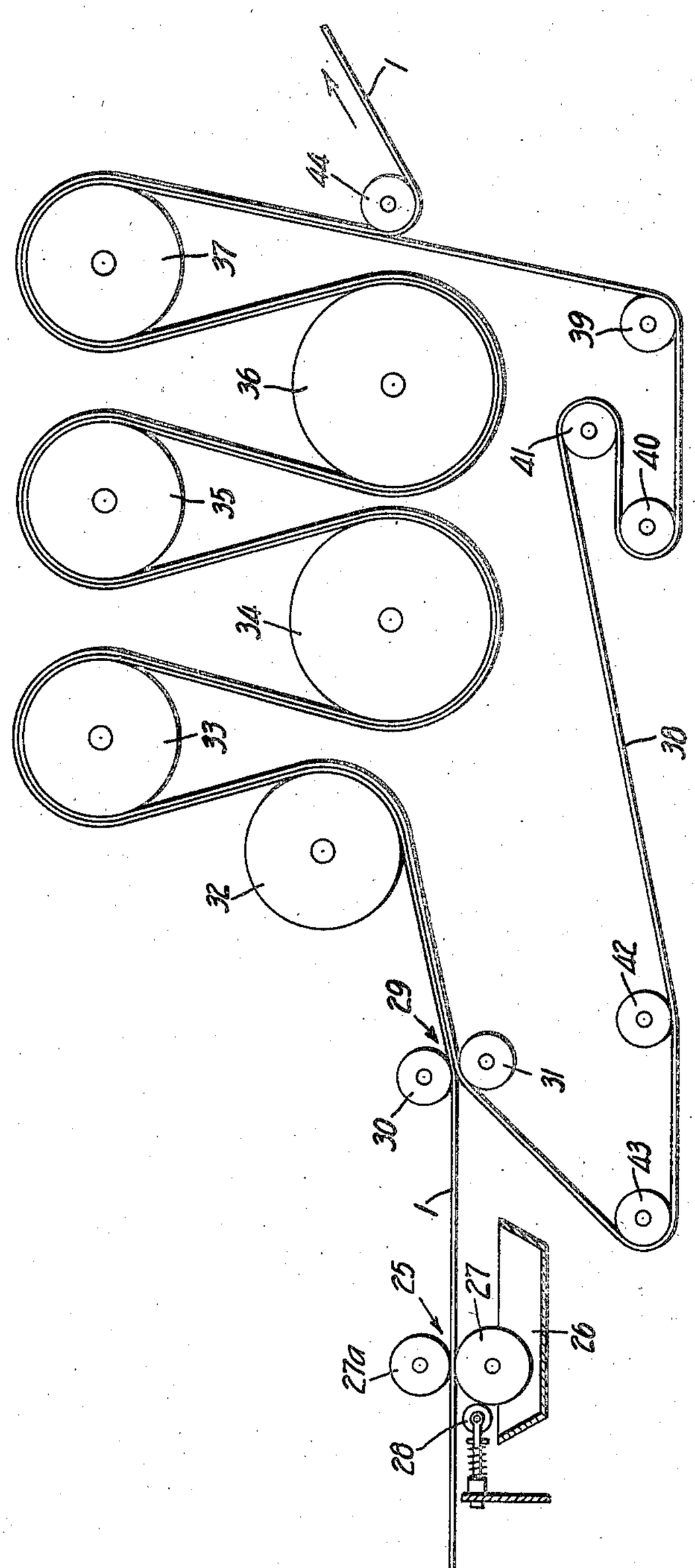

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METHOD AND MEANS FOR COATING PAPER

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2 Claims. (Cl. 91—55)

This invention relates to the coating of paper and has to do with the production of an improved finish of the paper coating. The invention is applicable to coatings applied for the purpose of coloring or for any of the other purposes for which coatings are customarily applied.

It is the usual practice in the manufacture of coated paper to apply a wet coating material to the paper web and then to pass the coated web through drying apparatus for evaporating the moisture from the coating.

In accordance with the present invention, the coating is applied as heretofore, but before being dried a smooth, freely flexible, non-porous pressing sheet or web is pressed against the coating and passed through the drier in contact with the coating, being thereafter separated from the coated face of the web. This treatment results in the production of a very smooth and superior finish.

The pressing sheet or web may be fed from a supply reel and accumulated upon a take-up reel for reuse, or a continuous endless web may be employed.

The drier may be of any usual form such as a drying cabinet or a festoon drier.

Where usual finishing coating materials are employed, as for making printing paper, a smooth and improved surface finish is produced by the practice of the invention without impairing in any way the utility of the paper for printing purposes.

Other objects and advantages will hereinafter appear.

In the drawing forming part of this specification and illustrating more or less diagrammatically certain apparatus embodying the invention, and useful in practicing the invention, the single figure is a diagrammatic view in side elevation of a coating, laminating and drying machine embodying the invention.

In the illustrated form of the invention, a paper web **1**, is fed through a coating device **25**. This device comprises a receptacle **26** for the web coating material, a take-up roller **27** running in the receptacle, an adjustable regulating roller **28** mounted in juxtaposition to the roller **27**, and an upper guiding and pressing roller **27***a* opposed to the roller **27** at the opposite side of the web **1**. The wet coated paper, with the coated side downward, is fed through a laminating press **29** diagrammatically illustrated as consisting of upper and lower rollers **30** and **31**, and is thence passed through a festoon drier comprising heated rollers **32** to **37**, inclusive.

An endless web or belt **38** of freely flexible smooth, non-porous material is trained upon the rollers **32** to **37**, inclusive, and also upon additional rollers **39** to **43**, inclusive. The web **38** meets the web **1** at the laminating press and is pressed firmly against the coated face of the web **1**, by the opposed rollers **30** and **31**. The two webs travel in unison through the festoon drier until a roller **44** is reached. At that point the web **1**, is separated from the web **38**, and is delivered to a take-up reel (not shown).

In the illustrated form of the invention, there is a tendency toward relative creep of the webs in passing around each of the rollers **32** to **37**, inclusive. The character of the pressure upon the coating and the manner of its application is varied according to the direction of curvature of the webs at the several rollers, so that the coating is worked more or less. The choice of the type of drier to be employed depends upon the character of the coating, and especially upon the amount of working which it will stand and which can be usefully applied to it.

For the pressing web **38** suitable materials are very thin "Cellophane," "Kodapak," "Sylphrop," or thin flexible metallic, sheet material; or, in some instances, a highly finished, water-proof paper may be advantageously employed and it is to be understood that other materials which are freely flexible, smooth, and non-porous may be advantageously used. The material chosen should, however, be so freely flexible as to be completely conformable to the surface of the coating after the coating has passed through the laminating press.

We have described what we believe to be the best embodiment of our invention. We do not wish, however, to be confined to the embodiment shown, but what we desire to cover by Letters Patent is set forth in the appended claims.

We claim:

1. The method of producing glossy-surfaced coatings on paper and similar sheet material which comprises applying a coating of gloss forming solution to a strip of the material, covering the coating while it is moist with a smooth dry surface of a band of preformed flexible foil material, pressing the coated material and said band of foil together to bring the moist coating into intimate contact with said foil surface, drying the coating while maintaining said contact and simultaneously causing the foil to be advanced at a slightly different speed than the coated material by passing the coated sheet material and foil along a partly curved drying path, and thereafter separating the coated material and said foil.

2. Apparatus for coating a continuous paper web to produce a smooth surface finish comprising, in combination, means for applying a wet coating to a face of the web, an elongated band of thin, freely flexible foil material having a smooth surface, means for continuously pressing the foil material against the coated face of the web to cause adhesion between the foil and web, the foil material being more flexible than the paper web and being conformable to variations in the surface of the wet coating, a plurality of heated rollers arranged out of alignment with each other, means for advancing the web while in contact with the foil against the surface of said rollers, the surfaces of said rollers being of such curvature as to cause a slight displacement of the foil with reference to the web while passing thereover, and means beyond said rollers for separating the foil from the paper web.

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