

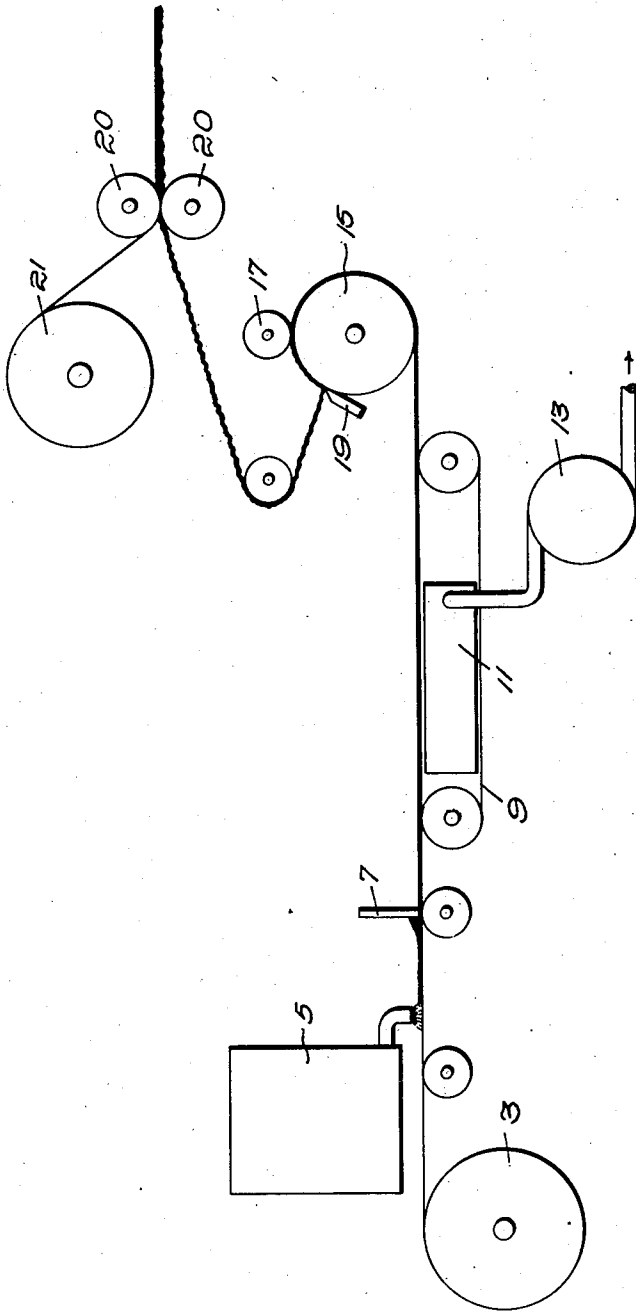
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MANUFACTURE OF CREPED PAPER

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MANUFACTURE OF CREPED PAPER

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6 Claims. (Cl. 154—33)

The object of this invention is to provide an advantageous process for producing creped paper having asphalt or similar water-resisting material associated therewith.

5 The invention will be well understood by reference to the following description taken in connection with the accompanying drawing in which I have shown a diagram of the process.

10 For many years paper of the kraft type has been creped by the roll and doctor creping process, essentially as described in the patent to Arkell 790,021, granted May 16, 1905. The process involved wetting the paper to bring it to a semi-pulpy condition, pressing the damp web
15 into adherence with the creping roll and crowding it back on itself while adherent thereto. When water-resistant paper was required, two sheets had been duplexed together by means of an intervening layer of asphalt applied in melted
20 form and the duplex layer was then treated as above described and creped as a unit. In my Patent 1,003,932, dated Oct. 19, 1926, I have described combining together two webs of paper by means of an asphalt emulsion applied cold,
25 that is, at room temperature, which were then creped before the asphalt had entirely set or precipitated from the emulsion. One advantage of this process was that it could be practised at room temperature without heat, whether
30 to melt the asphalt or to soften the paper.

I have discovered that I may prepare a creped paper having asphalt distributed throughout the surface thereof by utilizing asphalt emulsion both to coat the paper on one side and to secure
35 its adhesion to the creping roll.

The process will be well understood from the diagrammatic showing in the drawing. A sheet of paper is drawn from the mill roll 3. Asphalt emulsified by being beaten up in water with a
40 suitable emulsifying agent such as bentonite to provide a fluid suspension of solid particles in water is flowed onto one surface of the paper, as here indicated by the diagrammatic showing of the tank 5. Conveniently the emulsion as here
45 applied may be quite fluid. The web of paper may then pass under a suitable scraper 7 by means of which the suspension is distributed evenly over the face of the paper web. The paper blots up to a certain extent some of the
50 water from the emulsion which thus tends to coagulate and become viscid. Coagulation may further be promoted by permitting the web to travel as desired, for instance, on the carrier belt 9, which may be similar to the wire of a Four-drainer paper making machine. I have herein

shown the belt as passing over a suction box 11, the character of which is diagrammatically illustrated by the showing of the exhaust pump 13. Suction will thus tend to draw the water out from the emulsion and into the body of the
60 paper, aiding in preparing it for the creping operation.

When the web of paper arrives adjacent the creping roll 15 the asphalt in the suspension has been partly precipitated and the material on the
65 paper is more or less viscid or tacky. The coated face is led directly into contact with the roll 15 and a squeeze roll 17 may, if desired, be provided to assure its uniform adhesion thereto. The paper is advanced to the doctor blade 19 and is
70 crowded back on itself in the customary manner while held against the surface of the roll by the adhesiveness of the now partly coagulated and more or less viscid emulsion. It will be noted that the asphalt is not completely passed into
75 the solid phase from the original fluid emulsion and it will not adhere to the smooth metal creping roll 15 in preference to the web of paper with which it is already more or less united. The extent of the coagulation or set is properly regulated so that it will not stick or gum up the
80 machinery. Since the process is continuous, paper coated with the semi-fluid material constantly arrives on the creping roll so that conditions there are constant and readily regulated
85 to provide the proper degree of adhesion. It may be pointed out that the operations referred to may be carried out in the cold, that is, at room temperature.

The creped material may be led away from
90 the roll to be disposed of in any desired manner, for instance, to dry further to permit complete coagulation or precipitation of the asphalt. I have herein shown it as led between the squeeze rolls 20 and a web of burlap 21 also passed to the
95 rolls to be applied to the coated face of the paper to adhere thereto since the asphalt has not completely set and thus has not lost its adhesive properties. This particular arrangement provides a
100 compound product consisting of creped paper secured to burlap by means of asphalt which forms a water-resisting film throughout a surface of the paper.

The asphalt commonly used commercially in
105 the preparation of waterproof paper is the pitchy residue of petroleum distillation known by that name. By "solid material" in the following claims I refer thereto and to similar pitches and gums which are normally solid at room tempera-
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tures and which in coagulating from a suspension pass through a more or less viscid phase.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A method of producing water-resistant creped paper by roll and doctor which comprises coating the paper with a suspension of finely divided, normally solid, water-resisting material, depositing the same on a creping roll with said coating in immediate contact with the face of the roll and crowding the paper back on itself while adherent to the roll.

2. A method of producing water-resistant creped paper which comprises spreading on the paper a suspension in a watery vehicle of finely divided, normally solid material, effecting partial precipitation of the suspended material, depositing the paper on a creping roll with said coating in immediate contact with the face of the roll and crowding the paper back on itself while adherent to the roll.

3. A method of producing water-resistant creped paper which comprises spreading on the

paper a suspension in a watery vehicle of finely divided, normally solid material, effecting partial precipitation of the suspended material by withdrawal of the vehicle into the body of the paper.

4. A method of producing creped paper having a film of solid material extending thereover which comprises preparing a fluid suspension of such material in a suitable liquid vehicle, flowing such suspension over a surface of the paper, developing viscosity in the coating by elimination of a part of the vehicle, causing the paper to adhere to a creping roll by adhesion of such viscous coating and crowding the paper back on itself while so adherent.

5. The method of producing creped paper having a film of solid material thereover characterized by the facts that the material is permitted to coagulate on the paper from a suspension thereof and that creping is effected by utilizing the adhesiveness of the partly coagulated material to tack it to the creping roll for operation of the doctor thereon.

6. The method of producing creped paper having a film of solid material thereover characterized by the fact that such material is spread thereon in the form of a cold, partly viscous coagulation of particles and effects adherence of the paper to the creping roll.

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