

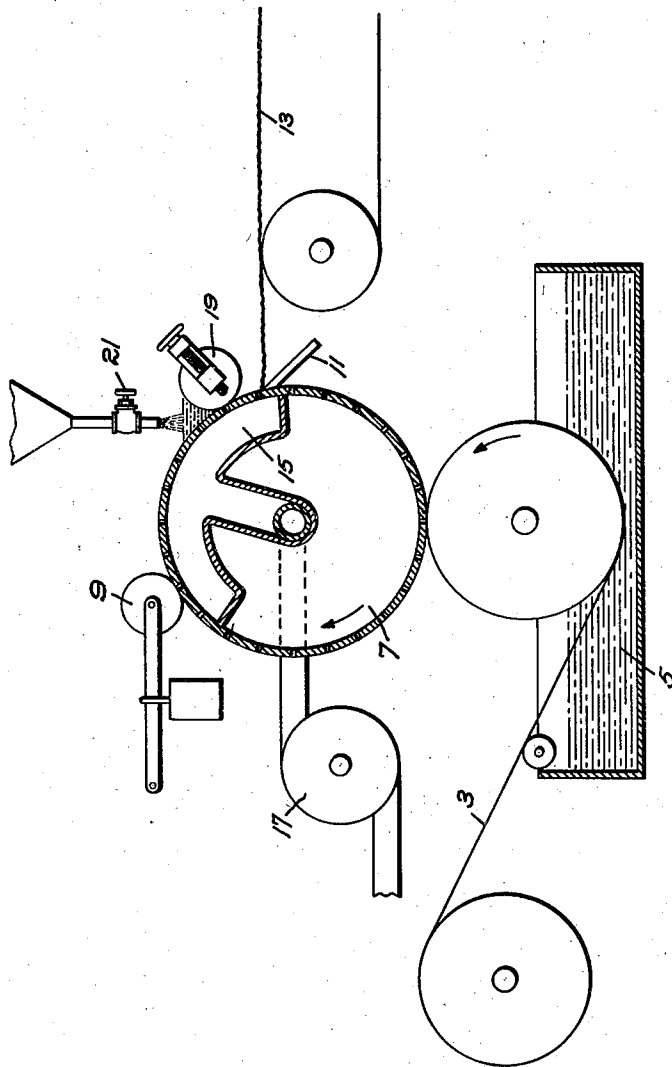
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PRODUCTION OF COATED CREPED PAPER

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PRODUCTION OF COATED CREPED PAPER

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Trust, designated as Angier Laboratories

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2 Claims. (Cl. 154—33)

This invention provides a means and mechanism for producing a creped paper having a coating of insoluble or otherwise water-resisting material thereon. The nature of the invention and the advantages thereof will be understood by those skilled in the art from the following description (wherein, on account of the convenience attending the use of a specific word, reference be made to the coating as of rubber) taken in connection with the accompanying drawing representing diagrammatically, partly in side elevation and partly in section, a mechanism for the practice of the invention.

The method involved will be understood from a description of the mechanism shown and the manner of operating the same. The machine illustrated is of the general type of known creping machines of the roll and doctor type, the paper web 3 being led from a supply roll through a saturating tank 5 where it is prepared for the subsequent creping operation and then thence to the surface of the creping roll 7. It is brought into suitable adherence to the creping roll as, for instance, by the squeeze roll 9 located adjacent the top of the creping roll and moves thence with the roll 7 in a generally downward path to the doctor blade 11 by means of which it is crowded back on itself and stripped from the roll and thereby creped and passes to the dryer, a portion of which is indicated at 13. All which has been so far described is conventional. Alternatively or in addition to the squeeze roll adhesion of the paper may be effected by means of fluid pressure and I have herein shown the roll 7 as minutely perforated and turning about a stationary suction box 15 from the interior of which air is exhausted, as indicated by the diagrammatic showing of an exhaust blower 17. The differential of pressure thus created is adapted to press the paper into firm adherence to the surface of the creping roll for operation of the doctor 11 thereon.

The coating material, which may be an aqueous dispersion or suspension of rubber and compounding agents, either prevulcanized or compounded with vulcanizing agent providing for its vulcanization as hereafter described, is flowed onto that side of the paper which lies outwardly of the creping roll. Adhesion of the paper to the creping roll is effected without contact with this coating layer. In other words, in the case of the apparatus illustrated in which a squeeze roll 9 is utilized, the coating material is flowed onto the paper as it lies on the surface of the creping roll after it has passed the squeeze roll and

before it arrives at the doctor. This arrangement not only permits the paper to be prepared for the creping operation by wetting as herein, but the coating may be easily and uniformly applied to the smoothly adhering sheet on the creping roll and it is not displaced by the action of the squeeze roll acting in the manner of a squeegee. The thickness of the coating may be regulated by a spreading device which herein takes the form of a roller 19 which opposes the creping roll and may be adjustably spaced therefrom as indicated by the showing of the adjusting screw 20 to regulate the thickness of the coating which may pass this roller. In the embodiment of the invention shown the creping roll moves downwardly toward an upwardly slanting doctor blade and the roller 19 is adapted to turn with the same surface speed as the creping roll but in the opposite direction thereto and opposes the creping roll on an arc succeeding the position of the squeeze roll and which leads downwardly to the doctor blade 11, the roll 7 and the roller 19 defining between them an upwardly facing trough. This trough is adapted to receive a supply of coating material which may be maintained at a constant level therein, as indicated diagrammatically by the showing of the valve supply pipe 21. The roller 19 thus constitutes a dam or weir holding back the supply of material, but as the creping roll 7 turns, the fluid coating material escapes from the bottom of the trough at the joint between the rolls and is carried down with the paper in a thin layer spread over the same.

The specific arrangement shown and just described in which the roller 19 opposes the arc of the creping roll which extends downwardly toward the doctor blade is believed to have particular advantages in practice. The organization of the various mechanisms is facilitated and the point at which the coating material is flowed onto the paper may conveniently be made quite close to the doctor blade 11. Thus the coating material, even if quite fluid, does not drain away and off the surface of the paper. The supply, of course, is constantly replenished at the location of the trough so that any draining will tend to affect the thickness of the layer supplied which may be regulated by adjustment of the roller 19. It will be also understood that the material tends to flow downwardly, viewing the figure. The paper itself carried by the roll is also moving downwardly in the same direction so that any relative movement of the fluid material to the paper under the action of gravity on the latter is minimized in the short distance and time involved.

At the doctor 11 the paper is stripped off and carried away in a generally horizontal plane, the coating material being permitted to coagulate or set by evaporation of the vehicle in the dryer.

5 In the case of rubber not prevulcanized the character of the ingredients of the suspension may be such as to provide for vulcanization in the dryer. In the case of rubber suspensions, as I have hitherto used them, presumably there is some ebbing

10 of the coating at this stage of the operation by which it moves from the high spots of the creping to the low spots, as is indicated by a greater body of the solidified coating material in the valleys of the creping as compared with the crests

15 which may be noted when the creped material is stretched out. I have not found such a result objectionable for the purposes for which the material is desired. It will be understood that the coating is not of a thickness to mask and drown out

20 the crepings which appear as surface roughness in the finished product, but is in the form of a film distributed more or less evenly over the irregular creped surface.

In the example of the invention illustrated the

25 use of a suction box 15 in opposition to the point where the material is flowed upon the surface of the paper tends to draw out the liquid vehicle from the suspension of solid coating material into the paper as such and partly to deposit or coagulate the suspended particles, thus promoting the

30 application of a uniform coating and the maintenance of such uniformity until the paper is crinkled. In the embodiment of the invention shown the suction box 15 is associated with the

35 creping roll and arranged at least in part in opposition to the arc between roller 19 and the doctor 11 where the material is flowed upon the surface

of the paper. When so arranged, it acts to maintain the adhesion of the paper to the creping roll as it advances to the doctor without the presence of any exterior physical device to make disturbing contact with the coating on the outer surface of the paper prior to its being creped.

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

10 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. The method of producing coated creped paper by roll and doctor characterized by the step of maintaining a suction on the paper to cause it to adhere to the roll until stripped by the doctor and also to maintain distributed over the outer

20 surface thereof a coating of at least partly fluid insoluble coating material.

2. The method of producing a rubber coated creped paper which comprises distributing finely

25 divided rubber with vulcanizing agent in the form of an aqueous suspension over the surface of the paper as it is advanced to a creping doctor, withdrawing at least a portion of the vehicle into the paper whereby partially to deposit the rubber and at least in part condition the paper for the creping

30 operation, creping the paper by the action of the doctor while the rubber is distributed substantially evenly over the surface thereof and thereafter drying the crepe paper and vulcanizing the rubber.

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