

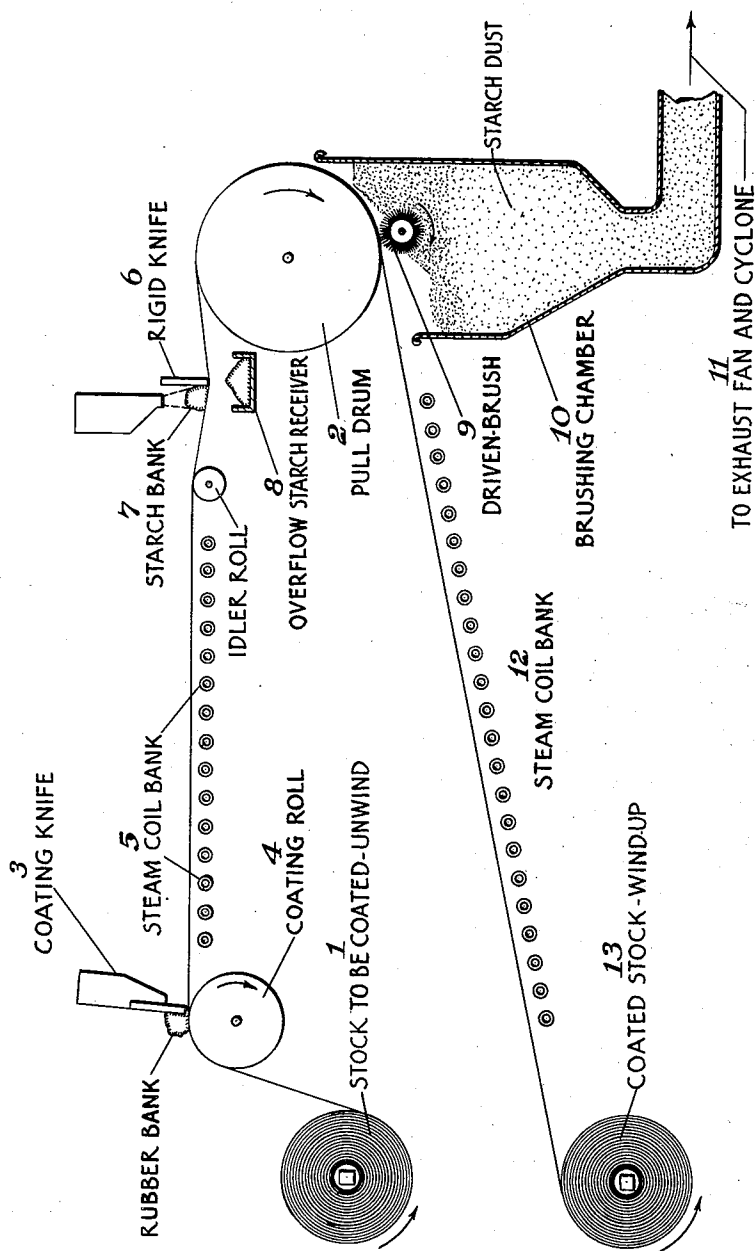
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RUBBER SPREADING MACHINE

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RUBBER SPREADING MACHINE

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3 Claims. (Cl. 91-18)

This invention relates to the coating of fibrous sheet materials and more particularly to an improved machine and method for coating and treating such coated fibrous sheets.

In the production of certain types of rubber composition coated fabrics or so called rubberized fabrics it is common practice to apply the rubber composition film to the fabric by spreading a rubber dough or cement under a spreader knife and then evaporating the solvent by passing the coated fabric over steam coils or other suitable means of furnishing heat. By rubber dough or cement is meant a dispersion of a rubber composition in gasoline or other suitable dispersing medium. After the application of the rubber composition and the evaporation of the solvent, the rubberized fabric or base is transferred to another machine where talc, mica, starch or a similar dusting agent is applied to the rubberized surface. This application is either for the purpose of preventing the sticking of the rubberized surface or for imparting a special finish. After this treatment the rubberized material is vulcanized in the customary manner by exposure to sulphur chloride vapors, by contact with sulphur chloride liquor, by dry heat or in other known ways.

This invention has as an object the provision of a machine for the application of a rubber composition film and the finishing material as talc, starch, etc., in a continuous manner on a single machine. A further object is to provide a compact machine for carrying on the process of applying a rubber coating to a textile fabric and finishing the rubberized fabric by dusting agents in a single operation.

These objects are accomplished by the following invention in which the fibrous base is coated with a rubber composition, subjected to heat to remove the volatile material used in the rubber composition, passing under a dusting agent applicator which applies an excess of the dusting agent to the surface of the coated fabric and removing the excess dusting material by means of a rotating brush and suction.

The drawing shows diagrammatically the machine assembly set up for operation. In the drawing 1 is a roll of fabric which is to be coated, 2 indicates a tension drum, 3 is a coating knife, 4 represents a coating roll, 5 indicates steam coils for supplying heat, 6 is a rigid knife for spreading the dusting agent and 7 is the position of the dusting agent in front of the knife 6; 8 indicates the overflow box for dusting material, 9 the rotating brush, 10 the dusting chamber, 11 the exit duct

leading to exhaust fan and cyclone separator, 12 the additional steam coils for supplying heat and 13 is the wind up roll of coated and dusted material.

Reference to the accompanying diagrammatic drawing will illustrate more clearly the invention. In the operation of the machine assembly the fibrous base material is unwound from the roll 1 and is passed over the coating roll 4, and under the coating knife 3. The rubber composition which is to be spread on the base piles up as a bank in front of the knife. The coated base material is then passed over steam coils where it is heated, to remove the volatile material from the coating composition. After passing over the heating coils the coated base is passed under the rigid knife 6 in front of which is a bank of dusting material. Here the coated side of the base is covered with an excess of the dusting material which is later removed as it passes over or around the pull drum 2 and is brushed by the rotating brush 9. The excess dusting powder falls or is swept into the brushing chamber 10, and then exhausted through the exit 11 to a cyclone separator (not shown). The dusted base after passing over the brushing chamber 10 again is passed over steam heated coils to dry it further and then to the wind up roll 13. From here the material is taken to the vulcanizing equipment or subjected to other treatments well known in the industry. The vulcanizing and other operations form no part of this invention since these procedures are well known in the art.

The thickness of the film of rubber composition to be applied to the fabric is determined by the clearance between the knife 3 and the base passing over the roll 4. The excess finishing or dusting agent 7 applied to the coated base falls from the edges of the material as it passes under the knife 6 into the receiver 8 from whence it is returned to the position as shown at 7 as needed. The finishing agent as recovered by the cyclone separator (not shown) can, of course, be reused as its quality has not been impaired. The bristle brush 9 rotates in a direction opposite to that of the travel of the coated base to which the finishing agent has been applied. This brush is so arranged as to extend across the entire width of the material which is being brushed.

Different embodiments of this invention may be made without departing from the spirit thereof so that no limitation is made to the specific embodiment except as found in the appended claims. Modifications will be readily apparent to

those skilled in the art, for example, means for heating the coated base may be a steam chest or electrically heated plates in place of the steam coils. The position of the brushing chamber may be changed to suit conditions of arrangement and position, and two brushing rolls may be used in place of one if desired.

The machine of the invention has been successfully used for the coating and finishing of fibrous bases in a single operation as described.

This invention presents as an advantage over prior art the coating and finishing of rubber coated fibrous base material in a single unit operation in place of the two operations now necessary. It further provides a more compact unit for coating and finishing, requiring less floor space which is an important item in any production operation. The economic advantage of the single unit operation in permitting increased production and lower labor costs will be readily apparent to those skilled in the art. This also applies to the requirements of less floor space for the machine of the invention than is required for the two machines as now used.

A further advantage is that the single unit machine requires less power for operation than is required for single disconnected units. The economic advantage in lowered production costs is readily apparent. A further advantage is the elimination of the possibility of the coated base sticking together when rolled up after being coated due to the presence of the finishing agent on the otherwise sticky coating.

I claim:

1. A machine for coating and finishing rubber composition coated fibrous base material com-

prising an unbatch roll, a coating knife for applying a rubber composition, means for drying the spread composition, a knife for spreading an excess of starch on the rubber composition, a brush for removing the excess starch, means for withdrawing the starch from the brushing stage, and means to heat the coated material after it has left the said brush.

2. In a machine for continuously coating fibrous sheet material an unbatch roll, means comprising a coating coating knife and coating roll for applying a coating comprising rubber and volatile material to the fibrous sheet material, means for heating the atmosphere about the coated fibrous material after it leaves the rubber coating means to remove a portion of the volatile material, means including an idler roll, a pull roll and a spreader knife for spreading a dusting powder on the coated partially dried fibrous sheet material in excess of the amount required to prevent sticking of the coated surface, means comprising a rotating brushing device for removing the excess of the dusting powder over the amount required to prevent sticking of the coated surface, means to collect and carry away the excess dusting powder, means for heating the atmosphere about the dusted coated fibrous sheet material to remove the excess volatile material and a wind-up roll, the said elements of the machine being arranged to operate on the continuous sheet of fibrous material in the order named.

3. The machine of claim 2 wherein the second heating means is placed underneath the first heating means.

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