

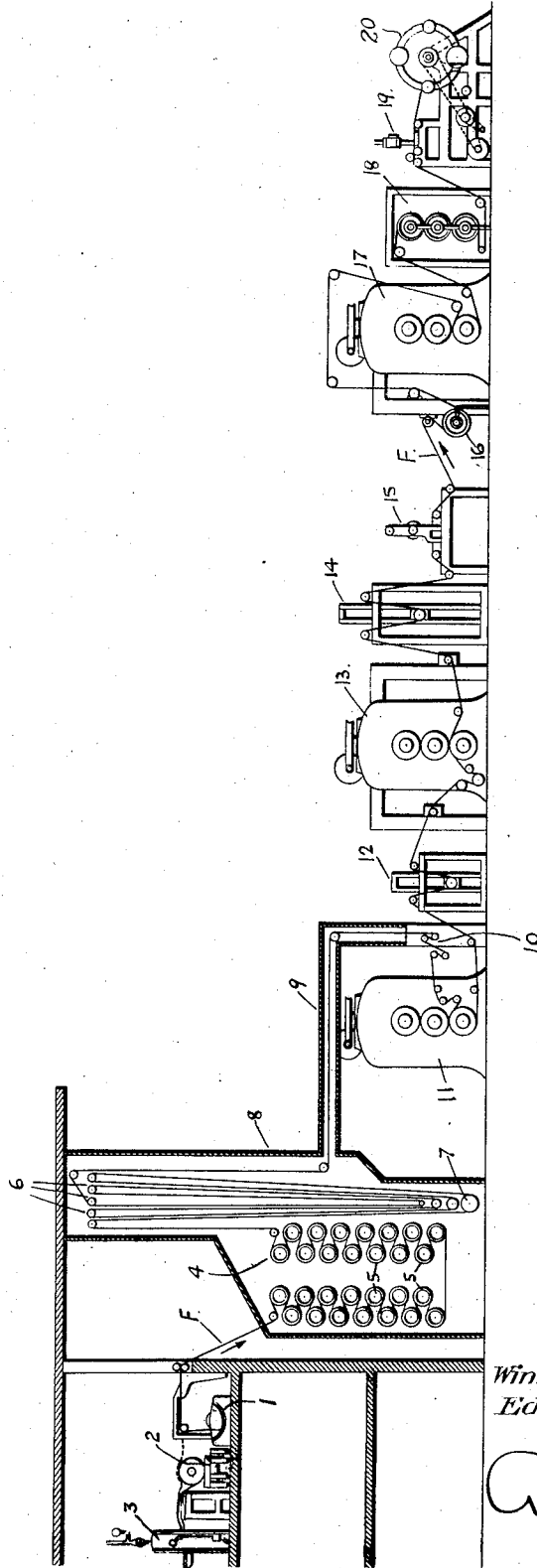
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METHOD AND APPARATUS FOR THE RUBBERIZING OF FABRIC

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METHOD AND APPARATUS FOR THE RUBBERIZING OF FABRIC.

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This invention relates to apparatus and method of preparing fabric, particularly for rubberizing fabric preparatory to manufacturing articles therefrom, such as automobile tires.

The object of the present invention is to add certain features to prior known processes of rubberizing fabric so that the operations can be carried on continuously and so that superior results may be obtained. These and other objects will be apparent from the description of the apparatus and process, it being understood that changes and modifications may be made without departing from the essential features of the invention.

In the drawings the single view represents, in side elevation, a complete calender train, together with accompanying apparatus which permit the process of calendaring the fabric to be carried out without cessation.

The fabric is indicated generally by the letter F and as shown extends in a complete unbroken line from the first operation to the last. The fabric is received in rolls, one roll from which the fabric is being drawn being illustrated as seated in a stand or cradle 1. A second roll is indicated on a carriage 2 and a splicing device is indicated by the numeral 3. This device may be of any preferred form, but that shown is designed to unite the end of the exhausted roll to the beginning of a new roll by a vulcanized splice, the two rolls being unwound sufficiently to enable this act to be accomplished. For a further description of this device, which forms no part of the present invention, except as a splicing means, reference is made to our prior copending application, Serial Number 605,058, filed December 5, 1922. After the splice is made, the roll on the carriage 2 is substituted in place of the exhausted roll in the cradle 1.

From this roll the fabric passes into a drying and compensating mechanism, indicated generally by the numeral 4. This comprises a large number of heated rolls 5 around which the fabric passes in a circuitous path. From the rolls 5 the fabric passes to a compensating or storage device, comprising a series of stationary rolls 6 and a plurality of movable or dance rolls indicated diagrammatically at 7. The rolls 7 are capable of rising or falling and serve as

a storage device for maintaining a large supply of fabric in the train. This device is not shown in detail here, reference being had to our Patent Number 1,637,892, granted August 2, 1927, in which the construction and operation is fully described. It is sufficient to state here that the supply of fabric contained in the compensator is sufficient to afford a reserve supply on which the calenders may draw in case the splice is not completed as rapidly as contemplated. In this manner the continuous operation of the mechanism may be carried out without interruption. The drier and compensator is housed in a casing 8 so that the heat from the rolls is confined about the fabric which is thus maintained in proper condition to receive the rubber coating up to the very moment that it passes into the first calender.

From the housing 8 is extended a closed passageway 9 along which the fabric passes on its way to the calender, the passage thus keeping the fabric dry and warm until it enters the calender, thereby facilitating the operation of frictioning as performed by the first calender.

On leaving the passageway 9, the fabric passes in a circuitous path through a suitable tensioning device 10 and into and between the rolls of the first calender 11, at which point the fabric receives the initial friction coating of rubber on one side.

From calender 11 the fabric goes to a compensating device 12 and then into a second calender 13 where the reverse side of the fabric receives its friction coat. From calender 13 it passes through a second compensator 14, the two compensators being designed to take up or accommodate slight variations in speed between the several calenders of the train.

After leaving the compensator 14 the fabric may have its selvage edge removed, any suitable mechanism for this purpose being indicated by the numeral 15. From this point it is passed around or through a cooling device, here represented by a chilled roll 16, and then to the third or skim coating calender 17 where the heavy outer layer or skim coat of rubber is applied. It will be noted that instead of conducting the fabric to the calender direct, it is led up over the rolls and into the calender from the rear so that the surface of the fabric

which received the first frictioning will be the one to receive the skim. In this way a better skim coat is obtained.

The fabric then goes through a cooling device, indicated as a stack of rolls 18, from which it goes through any suitable device 19 for severing the fabric at will and into a winding up apparatus 20 where the fabric is rolled up between the usual liners. The device 19 or a knife in the hand of the operative may be used to cut the fabric as each roll is completely wound up. The cooling received at 18 prevents, in a large measure, the rubber coating from sticking to the liner in which the fabric is wound up.

It will be apparent to those skilled in the art that the mechanism and process shown and described affords a rapid and easily operated calender train by which fabric is continuously prepared for the manufacture of tires or the like. Improved results are obtained by the preheating and drying of the fabric as well as by other features which have been fully described.

The invention is broader in aspect than the details as set forth and is therefore entitled to a range of equivalents as will be understood.

What is claimed is:

1. In an apparatus for the purposes set forth, the combination of a heating device, a compensator for storing a quantity of fabric and a calender, and a housing about the heating device and the compensator to enclose the fabric in the heated chamber until it passes to the calender in a continuous length.

2. In an apparatus for the purposes set forth, the combination of a splicing mechanism, a heating device and a compensator for storing a quantity of fabric and a calender, and a housing about the heating device and the compensator and serving to enclose the fabric in the heated chamber until it passes to the calender in a continuous length.

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