PATENT SPECIFICATION

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Complete Specification Accepted: June 29, 1937.

COMPLETE SPECIFICATION

Improvements in and relating to Machines for Rolling Rubber Coagulum

I, CHARLES KENNEDY MORRISON, a British subject, of 52/54, Gracechurch Street, London, E.C.3, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in or modifications of machines forming the subject of Patent No. 447,921.

In the rubber coagulum rolling machine forming the subject of the Letters Patent just referred to, a chute is provided which extends from one pair of rollers to another. The chute is inclined at an angle such that the rubber has a tendency to slide downward thereon, this sliding action being ensured by providing the chute with a number of discs, upon the peripheries of which the rubber rests, and which discs are so mounted as to rotate with a minimum of friction.

The discs are so arranged as to ensure that the slab or sheet of coagulum will, as it travels, remain more or less in the centre of the chute.

In one form of the invention forming the subject of the aforesaid Letters Patent, the chute is pivotally mounted at the entrant end, suitably adjusted springs being provided to permit it to move under the weight of the coagulum, as soon as it is covered with the latter, into an inclined position such that its discharge end is conveniently located to ensure the delivery to and the passage of the coagulum between the next pair of rollers.

Now, according to the present invention, instead of the springs being adjusted as just described, they are so adjusted that the chute will neither swing about its pivot as soon as it is covered with the coagulum nor after the latter has entered between the forward rolls, but will only swing against the action of said springs when the sheet of coagulum becomes subjected to abnormal tensile stress due to the rate of feed of the material between the forward rollers for any reason increasing with respect to that of the feed of the material between the rear pair of rollers.

The arrangement is such that during the movement of the chute against the action of the springs the effective distance between the rear and forward rollers is being decreased, thus, during the said movement of the chute, the tensile stress upon the material is being relieved.

If, therefore, the attendant sees the chute moving into its lowermost position, this is an indication to him that he should either stop the machine or take what other action he can to ensure that the tensile stress shall not thereafter increase to such an extent as to break or deform the strip of coagulum.

Obviously, if desired, electrical mechanical, or any other suitable means may be associated with the chute whereby, when the latter pivots into a predetermined position, as a result of the tensile stress upon the material becoming abnormal, the machine will be automatically stopped or a bell will be rung, or other signal given to indicate the state of affairs.

The invention will now be described with reference to the accompanying drawings, in which:—

Fig. 1 is a part sectional view showing the chute in a machine in which the springs for holding said chute in its normal position are adjusted according to the present invention.

Fig. 2 is a diagrammatic view showing details of a modification.

Referring to Fig. 1 of the accompanying drawings, in which only such parts of the machine are shown as are necessary to the proper understanding of the invention, the machine illustrated comprises a battery of rollers indicated by 1, 2 and 3.

4 indicates generally the chute, which is provided with rollers 5 on which the material *x* passes from the rear pair of rollers 1 to the succeeding pair of rollers 2.

The rear portion of the chute 4 is secured to a transverse spindle 6 journaled at its ends in the side members of the frame 7, and is supported at each side near its forward end wth a spring such as 8, each of these springs being attached at its lower end to said chute and at its upper end to a hook 9 secured to an upper part of the said frame.

The springs 8 are of such strength as normally to hold the chute in the position shown in Fig. 1.

When, however, the tensile stress upon the material x increases abnormally as a result of the rate of feed of the material x between the rollers 2 increasing over its rate of feed between the rollers 1, the chute swings into the position shown by the interrupted lines.

During the time that the chute is moving into the position shown in interrupted lines, it relieves the stress upon the material, and consequently prevents the material from becoming deformed or torn.

Instead of the springs 8 being employed, any suitable mechanical equivalent of these may be employed, for example cords passing over pulleys arranged at the upper part of the frame and carrying counterweights at their free ends.

In Fig. 2 is shown an arrangement whereby, as the chute moves into its lowermost position, the machine will be automatically stopped.

This arrangement comprises an arm 10 carried by means of a bush 11, of insulating material, upon the end of the spindle 6, the said arm carrying a pillar 12 through which passes an adjustable screw 13 carrying a contact 14.

The contact 14 is designed to co-operate with a contact 15 carried by a contact screw 16 which latter is in turn carried by a bracket 17 carried upon but insulated from the machine frame.

These contacts 14 and 15 are so adjusted as to move together and complete a circuit from a battery 18, through the winding of an electro-magnetic switch, indicated generally by 19, to pull the arm 19a thereof away from the contact 20, and disconnect the driving motor 21 from its source of electric power.

Obviously, instead of or in addition to the arrangement just described automatically stopping the machine, it may be designed to operate a suitable signal.

A similar chute to the chute 4 is provided between the pairs of rollers 2 and 3.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A machine forming the subject of Letters Patent No. 447,921, characterized in that the springs holding the chute in its normal position are so adjusted that said chute will only swing about its pivot when the sheet of coagulum becomes subjected to abnormal tensile stress due to the rate of feed of the material between the rollers at the forward end of the chute increasing with respect to the rate of feed of material between the rollers at the rear end of said chute.

2. A machine according to claim 1, characterised in that means are associated with the chute whereby when the latter swings about its pivot into a predetermined position, as a result of the tensile stress upon the material becoming abnormal, the machine will be automatically stopped or a signal will be operated.

Dated this 12th day of February, 1937.

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