

PATENT SPECIFICATION

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NO DRAWINGS.

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COMPLETE SPECIFICATION.

Improvements relating to Milling of Rubber Latex.

We, FONG CHONG CHENG and FONG FOOK SAN, both Singapore Citizens, of 20 Jalan Kechil, Singapore 15, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a milling machine for rubber latex.

After rubber latex is collected from rubber trees it is normally acidified and given a preliminary milling treatment to convert it to sheets suitable for handling during export.

The conversion to sheet stock is usually achieved by washing the coagulated latex mass with water and passing it through a battery of metal rollers.

It is sometimes desirable during the manufacture of the sheeting to alter the separation of the surfaces of a pair of rollers without altering the relative positions of the roller drive shafts or the drive mechanisms associated with them.

According to one aspect of this invention we provide a method of changing the milling nip between a pair of rollers in a milling machine for rubber latex comprising changing the external diameter of at least one of the rollers by the addition thereto of a metal sleeve.

The sleeve is preferably of an internal diameter which provides an interference fit with the external diameter of the rollers preferably the clipping roller, when the rollers are between 11 and 14" in diameter, that is for the manufacture of pale crepe rubber sheets; the amount of interference between the sleeve and the roller is preferably one thousandth of an inch.

When the rollers are of the order of 7" diameter that is for the manufacture of smoked sheet rubber, the amount of inter-

ference is preferably at least six and a half thousandths of an inch.

The sleeve is preferably fitted to the roller by hydraulic pressure.

Also according to this invention there is provided, a milling machine for latex rubber in combination with at least one metal sleeve having an internal diameter such as to provide an interference fit with a roller to which it is to be fitted to change the nip between the roller and a co-operating roller of the machine.

The sleeve is preferably made of cast-iron to withstand the compressive forces during fitting.

In one embodiment of the invention a cast-iron milling machine battery roller for rubber sheeting is skimmed on a lathe to reach an external diameter of 5.757 inches and a length of 2' 4". Stub shafts project from both ends of the roller. The roller is used with other rollers in a milling machine to mill rubber latex. The latex passes between roller nips.

According to the example, a sleeve for the roller is of cast-iron, of internal diameter 5.750 inches, wall thickness 0.625 inches and of two feet four inches in length. This sleeve when placed on the roller alters the nip between the roller and a co-operating roller by which the latex is milled without the necessity of altering the drive to the rollers.

The sleeve and roller is loaded into a jig and a hydraulic ram working at a pressure of 300 kg/sq.cm., is used to force the sleeve over the roller whereafter the roller is replaced in the roller battery in the machine.

There may be several sleeves each for fitting to the roller and each of different wall thicknesses to give varying nip gaps as required. Also other rollers in the battery may be fitted with sleeves.

For rollers of the order of 7" diameter

[Price 4s. 6d.]

the amount of interference between roller and sleeve should be at least six and a half thousandths of an inch but for larger roller of the order of 11" to 14" diameter, the interference should be only at least one thousandth of an inch.

Other metals than cast-iron could be used for the sleeve and roller and indeed the rollers may be of rubber or synthetic plastics material or the like. Also, the fitting of the liner increases the production of rubber sheeting considerably.

WHAT WE CLAIM IS:—

1. A method of changing the milling nip between a pair of rollers in a milling machine for rubber latex, comprising changing the external diameter of at least one of the rollers by the addition thereto of a metal sleeve.

2. The method of claim 1, in which the sleeve is of an internal diameter which provides an interference fit with the external diameter of the roller.

3. The method of claim 2, in which the amount of interference is at least one thousandth of an inch and the roller is of a diameter in the range 11" to 14".

4. The method of claim 2, in which the amount of interference is at least six and a half thousandths of an inch and the diameter of the roller is of the order of 7".

5. The method of claim 2 or 3, in which the sleeve is fitted to the roller by hydraulic pressure means.

6. A milling machine for rubber latex and for use in the method according to any one of the preceding claims; the machine being in combination with at least one sleeve having an internal diameter such as to provide an interference fit with a roller to which it is to be fitted to change the nip between the roller and a co-operating roller of the machine.

7. A milling machine and sleeve according to claim 6, in which the sleeve is of cast-iron.

8. A milling machine and sleeve according to claim 6 or 7 in which the amount of interference between the roller and sleeve is at least one thousandth of an inch.

9. A milling machine according to claim 8 in which the amount of interference between the roller and sleeve is at least six and a half thousandths of an inch.

10. A method of changing the milling nip between a pair of rollers in a milling machine for rubber latex, substantially as hereinbefore described.

11. A milling machine and sleeve for carrying out the method of claim 11.

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WHAT WE CLAIM IS:—

- 15 1. A method of changing the milling nip between a pair of rollers in a milling machine for rubber latex, comprising changing the external diameter of at least one of the rollers by the addition thereto of a metal sleeve.
- 20 2. The method of claim 1, in which the sleeve is of an internal diameter which provides an interference fit with the external diameter of the roller.
- Thi* 25 3. ~~A~~ method of claim 2, in which the amount of interference is at least one thousandth of an inch and the roller is of a diameter in the range 11" to 14".
- 30 4. The method of claim 2, in which the amount of interference is at least six and a half thousandths of an inch and the diameter of the roller is of the order of 7".
5. The method of claim 2 or 3, in which the sleeve is fitted to the roller by hydraulic pressure means.

6. A milling machine for rubber latex and for use in the method according to any one of the preceding claims, the machine being in combination with at least one sleeve having an internal diameter such as to provide an interference fit with a roller to which it is to be fitted to change the nip between the roller and a co-operating roller of the machine.

7. A milling machine and sleeve according to claim 6, in which the sleeve is of cast-iron.

8. A milling machine and sleeve according to claim 6 or 7 in which the amount of interference between the roller and sleeve is at least one thousandth of an inch.

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