Patented Mar. 26, 1940 2,194,988

UNITED STATES PATENT OFFICE

2,194,988

TREATMENT OF DRIVING BELTS

Curt Schülein, Bopfingen, Wurttemberg, Germany

No Drawing. Application June 8, 1938, Serial No. 212,597. In Germany August 27, 1935

7 Claims. (Cl. 106—7.5)

This invention relates to the treatment of driving belts.

Belts of leather, balata, jute and the like after being in use for a short time become smooth, so that they easily slip on the belt pulleys and a loss in power results.

In order to overcome this disadvantage the most varied agents have already been proposed and employed, by means of which greater adhesive power has been imparted to the belts, but which have reduced the life of the belts. Conversely the most varied belt preservatives have been used for increasing their life, but these in general have reduced the adhesive power.

The present invention concerns a coating material for treating driving belts, which consists of a specially prepared oil mixture, and also to a process for producing the same. The material consists of a viscous, sticky mass, obtained by heating a mixture of drying oil and castor oil for several hours at temperatures of from 250° C. to 340° C.

During the heating operation partial polymerisation of the drying oil and chemical conversion of the castor oil take place. The polymerisation of the drying oil, such as linseed oil or wood oil, requires prolonged heating to temperatures above 250° C. It may be promoted by adding siccatives, for example cobalt and manganese resinates; when using these, however, the heat treatment must be very exactly controlled. In any event the drying oil must be prevented from passing over into the solid resinous condition and as a precautionary measure the polymerisation should be interrupted before this stage is reached.

With regard to the castor oil, conversion of the ricinoleic acid contained therein into ricinic acid (octadekadien-acid) apparently takes place on heating to above 250° C. and this conversion may be promoted by the addition of polybasic organic acids, which in turn enables a lower heating temperature of from 250° C. to 280° C. to be employed. Phthalic acid, maleic acid and succinic acid and the like may for example be employed as polybasic acids.

When adding siccatives to the mixture the heating temperature should also be limited to about 280° C.

The following example serves to illustrate the production of the coating material for driving belts according to this invention:

A mixture of 110 kgms. of castor oil and 65 kgms. of linseed oil is introduced into a closed vessel and slowly heated up to 340° C. This temperature is maintained for about 6 hours until appreciable thickening of the oil mass has taken place. In the absence of special admixtures particular care must be taken to ensure that the temperature does not rise above 340° C. The progress of the reaction is controlled by taking samples; heating is interrupted when a product is formed which on cooling sets as a viscous sticky mass. The hot mass is introduced directly into a tightly closed container provided with cooling devices and rapidly cooled therein. The cooled mass is ready for use.

The consistency of the product, which produces high adhesive powers, as well as its particular chemical nature, which has a preserving effect on the belts, render it particularly suitable for use as a coating material for driving belts. The material is easily applied and very economical in use; it promotes the flexibility of the belt, particularly when made of leather, and prevents any hard encrusted masses from forming.

The use of the material according to this invention is attended with particular advantages with regard to the adhesive powers of the belt. Such adhesive powers are moreover substantially higher than in the case of the known heated products obtained from only incompletely drying oils, such as rapeseed oil, which have been heated at a relatively low temperature with introduction of air. The contrast however also applies to rapeseed oil, which has been subjected to heating at the same temperature as the mixture to be employed according to this invention.

I claim:

1. A coating material for treating driving belts consisting of a viscous, sticky mass obtained from a mixture of drying oil and castor oil by heating the mixture for several hours to temperatures of from 250° C. to 340° C.

2. A coating material for treating driving belts consisting of a viscous, sticky mass obtained from a mixture of linseed oil and castor oil by heating the mixture for several hours to temperatures of from 250° C. to 340° C.

3. A process for the production of a coating material for the treatment of driving belts, characterised in that a mixture of drying oil and castor oil is converted into a viscous sticky mass by heating for several hours to temperatures of from 250° C. to 340° C.

4. A process as claimed in claim 3, wherein a mixture of linseed oil and castor oil is heated for several hours to temperatures of from 250° C. to 340° C.

5. A process as claimed in claim 3, wherein siccatives are added to the mixture and the heating is carried through at temperatures of from 250° C. to 280° C.

6. A process as claimed in claim 3, wherein polybasic organic acids are added to the mixture and the heating is carried through at temperatures of from 250° C. to 280° C.

7. A process as claimed in claim 3, wherein siccatives and polybasic organic acids are added to the mixture and the heating is carried through at temperatures of from 250° C. to 280° C.

CURT SCHÜLEIN.