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PRODUCING THREADS AND THE LIKE FROM VISCOSE

Jürenus Harms, Berlin-Wilmersdorf, Germany; vested in the Alien Property Custodian

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The present invention relates to a method of producing threads, tapes or ribbons and the like from viscose.

Numerous methods have been proposed to increase the strength of artificial threads obtained from cellulose and cellulose derivatives by subjecting them to a suitable kind of stretching.

So for instance, in a method proposed by Ernst in the year 1905 the thread spun in accordance with the viscose method had already been stretched by guiding same, between the bath and the winding member, over glass rods of circular cross section and so subjecting the thread to a gradually increasing tension. Later on various methods have been proposed according to which this stretching is carried out in a more definite manner for instance by guiding the thread, after leaving the precipitation bath, over two or more rolls rotating one after another with always increasing circumferential velocity.

When carrying out the above mentioned methods it is of great importance that, in the moment of stretching, the thread is not yet in its final condition but in a plastic state. This feature has particularly been mentioned in the various Lilienfeld-Patents according to which strong sulphuric acid serves as plastifying bath in which a particularly effective stretching may be carried out.

The further development in the field of extremely strong fibres then is directed to the fact that the stretching is no longer to be carried out in air but in other suitable media. So for instance in the viscose field various methods have become known according to which the thread not yet or not yet completely decomposed to cellulose hydrate is subjected to baths, for instance hot water, salt solutions, acids, alkalines or organic reagents, and subjected therein to a stretching as high as possible.

The common feature of all the above mentioned methods is the fact that before the indicated special stretching measures the thread being formed is already strongly stretched in the spinning bath. The acceleration of the thread effected in the spinning bath by drawing beyond the discharge velocity of the viscose or coagulate is characteristic for all methods from the very start of the artificial fibre industry until to-day.

Now, it is a well known fact that as a rule with all stretching methods mentioned above an increase of the strength of the thread is accompanied by a rather strong, undesired reduction of the stretchability. With a relatively slight stretching and a correspondingly low strength, therefore, the minimum of the stretchability absolutely necessary for useful threads of fibres is obtained already. A further increase in strength at the sacrifice of stretching has often already lead to textiles which, it is true, are tear-proof but have not stand the test.

Now, it has been found that threads of special good qualities of use having a high strength and an excellent stretchability are obtained, if the viscose is spun into a coagulatively acting precipitation bath then, contrary to the hitherto known methods, the product so formed is guided through the coagulating bath with the same speed with which is was introduced into the same and that, moreover, after leaving the precipitation bath is subjected to a stretching for instance between rolls in suitable media. The viscose, without being drawn off from the nozzle, may also be pressed into the precipitation bath and the coagulate formed is collected for a certain time in the precipitation bath and after complete coagulation is supplied to the stretching members. Instead of rolls any other stretching device may be used.

As precipitation bath solutions of any salt coagulatively acting upon viscose, for instance ammonium sulphate, ammonium chloride, sulphate of sodium, sulphate of magnesium and so on may be used alone or in combination with each other, eventually also in the presence of small amounts of acids.

As bath for effecting the stretching all hitherto used media may be employed and the stretching may also be carried out in gaseous media. The decomposition of the product to cellulose hydrate make take place during or after the stretching operation or in the last phase or state of the latter.

JÜRENUS HARMS.