Patented Dec. 26, 1939 2,184,586

UNITED STATES PATENT OFFICE

2,184,586

CONVERSION OF WASTE REGENERATED CELLULOSE TO CELLULOSE XANTHATE

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No Drawing. Application June 22, 1938, Serial No. 215,271. In Italy July 23, 1937

1 Claim. (Cl. 260—217)

It is known that in spinning rayon from viscose the threads which coagulate in the spinning bath and are then wound on the spools or conveyed on a belt to the staple fiber cutting machines, fall off from time to time by reason of the construction of the nozzles or other reasons and coagulate in the bath forming waste threads which, if subjected to drawing, have no strength or elongation.

These waste threads have not been directly utilized heretofore and were discarded with useless refuse from the factories.

It is further known that in the production of staple fiber a large quantity of fibres are carried along by the washing liquors into the drains and abandoned, as it is thought useless to recover said fibres which are impregnated with the acid or alkaline waters running in drains that make it impossible to transform them into normal threads.

The object of this invention is to utilize these waste threads from rayon spinning machines or staple fibre machines, as well as the fibres from the staple fibre bleaching operations which were allowed to run to the drains, as a cellulose which is subjected approximately to the same operations undergone by cellulose sheets for preparing rayon and staple fibre.

The process according to this invention may be carried out in the following manners:

1st example.—The waste threads are collected from the acid baths of spinning machines, washed in running water and dried. They are then soaked in baths containing 16 to 17.50% caustic soda during about an hour and a half and thereafter they are wrung to remove the excess caustic soda. An alkaline cellulose is thus obtained which is composed by one third of cellulose recovered from the regeneration of the waste threads and two thirds of 14–15.50% soda. The product is passed to crushers in which it is treated for two hours at a temperature of 18–20° C.

An alkaline cellulose is now obtained consisting of 26 to 27% cellulose and 14–15% soda, that is allowed to ripen during about 25–35 hours at a temperature of 18–20° C. whereupon it is treated with carbon sulphide employing to 100 kgs. alkaline cellulose about 7 litres carbon sulphide.

The duration of treatment of alkaline cellulose with carbon sulphide varies between 1 h. 40 min. to 2 hrs. at a final temperature of about 22–24° C. After the carbon sulphide treatment the xanthogenate obtained is conveyed to the mixing machines containing about 130 litres 0.40–0.50% soda to 100 kgs. sulphurated alkaline cellulose obtained as above.

After stirring the mixture at 15–17° C. during about 3 hrs. a viscose is obtained which is successively filtered three times and fully evacuated, the temperature being maintained always at a temperature not over 17–18° C.

The viscose treated as above is ready for spinning on ordinary spinning machines and coagulation in ordinary baths. Threads are obtained which are very similar to rayon threads and are subject to the same finishing operations undergone by ordinary rayon, whereupon they are used in weaving fabrics like usual rayon.

2nd example.—The waste fibres collected in drains are subjected to the same treatment in order to transform them into a raw material for use instead of cellulose employed for making rayon.

The fibres should first be washed well and transformed into alkaline cellulose in soda baths containing 17 to 17.50% caustic soda.

All further treatments for transforming them into ordinary rayon are the same as described in Example 1.

What we claim is:

Process for manufacturing artificial textile fibres consisting in washing in running water and drying waste threads collected in the manufacture of rayon, treating said waste rayon threads in a caustic soda bath at 16 to 17.5% for about an hour to an hour and a half, wringing the waste threads to expel the excess of caustic soda, disintegrating the alkaline cellulose for about two hours at a temperature of 18 to 29° C., allowing said cellulose to ripen for 25 to 35 hours at said temperature, treating the ripened cellulose in a bath containing about 7 litres carbon sulphide to 100 kilo alkaline cellulose for about 1.5 to 2 hours while increasing the temperature to 22° to 24° C., and treating the resulting xanthogenate for about three hours in mixing machines containing 0.40 to 0.50% caustic soda per 130 liters of water to 100 kilo alkaline suphuretted cellulose to obtain a cellulose suitable for spinning.

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