This invention relates to the production of artificial thread and more particularly to a process of producing artificial thread of a cellulose derivative, such as cellulose acetate, said thread having a reduced or dull luster.

It is well known that the luster, feel and flexibility of artificial thread may be influenced by spinning a solution having foreign materials incorporated therein. If such a mode of procedure were employed in the production of thread of a cellulose derivative, such as cellulose acetate by the well known spinning process, it would be found in addition to obtaining the desirable properties above mentioned other characteristics, and particularly the tenacity or tensile strength of the thread, would be seriously and detrimentally affected.

A method has also been proposed to spin solutions having insoluble substances incorporated therein and subsequently removing, as by washing, said substances from the thread. This procedure has the disadvantage that the spinning is materially hindered by the clogging of the spinnerets.

We have found that by spinning a solution having certain foreign substances dissolved therein and subsequently removing said substances from the thread, we can obtain the above-mentioned desirable results and avoid the difficulties and disadvantages previously encountered.

It is therefore an object of this invention to provide a method of producing artificial thread which comprises spinning a solution having a foreign substance dissolved therein and subsequently removing said foreign substance from the finished thread.

A further object of this invention is to provide a method of spinning artificial thread which comprises spinning a solution of a cellulose derivative, such as cellulose acetate, having dissolved therein a non-volatile substance or a substance having a high boiling point, and subsequently removing said substance by washing with appropriate solvents.

Further objects will appear from the following description and appended claims.

In accordance with this invention, substances which are not volatile, or have high boiling points, and are soluble in the solvents or solvent mixtures employed in the production of the spinning solution, are dissolved in the spinning solution and the resulting solution spun in the usual manner, such as, for instance, by the well known dry spinning process to produce lustrous threads.

The substances which may be added to the spinning solution are compatible with and do not attack or dissolve the cellulose derivative, such as the cellulose acetate. After spinning, the dried thread is subjected to a washing treatment whereby the foreign substance in the thread is substantially removed.

It is, of course, apparent that numerous washing agents may be employed depending upon the foreign substance in the thread. Suitable washing agents are water, dilute acids, dilute solutions of basic salts, organic solvents such as hydrocarbons, ether, and many others.

The foreign substance which is incorporated in the spinning solution must, as previously mentioned, be soluble in the solvent or solvent mixture in which the cellulose derivative is dissolved and should not deleteriously affect the cellulose derivative. In addition, the incorporated substance must be soluble in any of the foregoing washing agents without leaving a residue. Among the many substances suitable for this purpose may be mentioned the salts of magnesium, lithium and the other alkaline earth metals as, for instance, calcium chloride, and a large number of organic compounds such as glycerin, stearic acid, and many others. It is to be noted that the foreign agents are stable, i.e. not decomposed or otherwise chemically changed during spinning.

The amount or quantity of foreign substance added may vary within wide limits. In the three specific modifications of the invention hereinafter set forth, the amount of foreign agent ranges from 6% to 12% based on the cellulose derivative in the solution, though it is obvious that greater or less quantities may be used.

The foreign substance may be incorporated in the spinning solution in many ways. It may be dissolved in the solvent or solvent mixture prior to dissolving the cellulose derivative therein. On the other hand, it may be mixed with the cellulose derivative and the resultant mixture dissolved in the solvent or solvent mixture. As an alternative procedure, the cellulose derivative solution may be produced in the usual manner and the foreign substance subsequently dissolved therein.

In order to more clearly explain the invention, the following specific examples illustrating certain modifications thereof are set forth. It is to be understood that the invention is not restricted to these specific examples which are merely illustrative of the principles of this invention.

Example I.—In a solution of 3 parts anhydrous...
calcium chloride in 15 parts ethyl alcohol and 90 parts acetone, 25 parts acetyl cellulose are dissolved and this solution is spun according to the dry spinning process. The thread obtained is treated with water until the water is free of calcium chloride. After drying, the thread has a whitish dull luster. The tenacity per denier is substantially the same as that for threads spun without additions. Fabrics spun from these threads have a soft feel. The dull luster of the fabrics resists ironing.

Example II.—To a solution of 25 parts acetyl cellulose in 90 parts acetone a solution of 1.5 parts glycerin and 20 parts ethyl alcohol is added. This solution is spun and a thread is produced which is substantially no different in luster than normal acetate thread. After washing the finished thread in luke-warm water and drying, it has a milky dull luster and is very flexible.

Example III.—A solution of 25 parts acetyl cellulose, 1.5 parts stearic acid in 100 parts acetone is spun according to the dry spinning process. The dry thread is treated for a few hours in a bath containing 3% sodium bicarbonate. After washing and drying the thread is very dull.

Since it is apparent that various changes may be made in the specific details above set forth, this invention is not restricted thereto except as set forth in the appended claims.

We claim:

1. A process for producing artificial thread having a low luster which comprises dry spinning a solution containing 25 parts of cellulose acetate and 3 parts of calcium chloride to produce a thread of normal luster and subsequently washing the calcium chloride from said thread, whereby the luster is diminished.

2. A process for producing artificial thread having a low luster which comprises dry spinning a solution containing cellulose acetate and calcium chloride to produce a thread of normal luster and subsequently washing the calcium chloride from said thread, whereby the luster is diminished.

3. A process for producing artificial thread having a low luster which comprises dry spinning a solution containing a cellulose derivative and a salt of an alkaline earth metal soluble in the solvent of the spinning solution to produce a thread of normal luster and subsequently washing the salt of the alkaline earth metal from said thread, whereby the luster is diminished.

HANS ALTWEYGG.

ARMIN EICHLER.