No. 792,888. Patented June 20, 1905.

UNITED STATES PATENT OFFICE.

CHARLES A. ERNST, OF LANSDOWNE, PENNSYLVANIA.

PROCESS OF MANUFACTURING FILAMENTS FROM VISCOSE.

SPECIFICATION forming part of Letters Patent No. 792,888, dated June 20, 1905.

Application filed April 20, 1905. Serial No. 256,670.

To all whom it may concern:

Be it known that I, CHARLES A. ERNST, of Lansdowne, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Processes of Manufacturing Filaments from Viscose, whereof the following is a specification.

Broadly speaking, the manufacture of such filaments may be characterized as a "two-stage" process—viz., the viscose immediately upon its discharge from the spinneret is primarily "set" with sufficient firmness to undergo the spinning operation, and thereafter at a later stage the complete reversion of the viscose is effected. The so-called "setting" is partly a dehydrating action and partly an elimination of the alkaline constituent of the viscose. The great desideratum is to effect this primary double action rapidly to such an extent that the filaments shall become immediately firm enough to permit proper manipulation by the spinning apparatus. Various dehydrating agents have been employed, among the most advantageous of which is alcohol, and acids have been used in conjunction with alcohol as a setting-bath. It has been found, however, that when a weak acid is used the setting process does not proceed with sufficient rapidity to permit continuous spinning at the most desirable rate of speed, and, on the other hand, if a strong acid is employed to expedite the setting the ultimate product is weakened.

The main object of my present process is to effect the primary setting action to a degree affording sufficient strength for very rapid manipulation of the filaments without impairing their ultimate product, the complete reversion of the viscose at the second stage being also facilitated.

In my process the spinning-bath comprises a dehydrating reagent which is otherwise inert toward the viscose, the preferred ingredient being wood-alcohol. With this is combined an organic acid and a salt of an organic acid in solution in such acid, the preferred reagents being acetic acid and sodium acetate. As a working formula for a bath thus constituted I would state that with ordinary commercial wood-alcohol about six per cent. of acetic acid should be added and the mixture substantially saturated with sodium acetate. Glacial acetic acid is preferably employed in order to minimize the incidental addition of water. The viscose is discharged into this bath in the usual manner through the spinneret, and the spun filaments are wound immediately after their emergence from the setting-bath. The complete reversion of the viscose is then effected, preferably, by immersion in a bath containing an inert dehydrating reagent and an organic acid alone. For this bath I prefer to employ wood-alcohol and glacial acetic acid in the proportions above stated for those ingredients. The reverted filament is then washed and dried.

As will be apparent from the above statement in regard to methods heretofore in use, I do not broadly claim the use of an inert organic reagent, such as alcohol or wood-alcohol, nor do I broadly claim the use of an acid in conjunction therewith.

I claim—

1. The process of setting viscose filaments which consists in subjecting them to a bath containing an inert organic reagent, an organic acid and a salt soluble in such acid.

2. The process of manufacturing viscose filaments which consists in first setting the viscose by immersion in a bath containing an inert organic reagent, an organic acid, and a salt soluble in such acid, and then reverting the viscose by immersion in a bath of an inert organic reagent and an acid.

3. The process of setting viscose filaments which consists in subjecting them to a bath containing wood-alcohol, acetic acid, and sodium acetate.

In witness whereof I have hereunto signed my name, at Philadelphia, in the State of Pennsylvania, this 19th day of April, 1905.

CHARLES A. ERNST.

Witnesses:
JAMES H. BELL,
ANNA F. GETZFREAD.

Correction in Letters Patent No. 792,888.

It is hereby certified that Letters Patent No. 792,888, granted June 20, 1905, upon the application of Charles A. Ernst, of Lansdowne, Pennsylvania, for an improvement in "Processes of Manufacturing Filaments from Viscose," was erroneously issued to said "Charles A. Ernst" as owner of said invention; whereas the said Letters Patent should have been issued to *Silas W. Pettit, of Philadelphia, Pennsylvania*, as owner of the entire interest in said invention, as shown by the assignments of record in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of July, A. D., 1905.

[SEAL.]

F. I. ALLEN,

Commissioner of Patents.