

UNITED STATES PATENT OFFICE.

BENNO BORZYKOWSKI, OF CHARLOTTENBURG, GERMANY.

PROCESS OF PRODUCING DYED CELLULOSE ESTER.

1,041,587.

Specification of Letters Patent.

Patented Oct. 15, 1912.

No Drawing.

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To all whom it may concern:

Be it known that I, BENNO BORZYKOWSKI, a subject of the Emperor of Russia, and resident of Charlottenburg, Germany, have invented a certain new and useful Improvement in Processes of Producing Dyed Cellulose Ester, of which the following is a specification.

Several processes are already known for dyeing acetyl cellulose or for producing it in a dyed condition. For example cellulose has first been dyed and then etherized or prepared acetyl cellulose has been dyed by using swelling means or organic solvents which are intended to produce receptiveness of the cellulose esters which are otherwise indifferent to dyes.

In accordance with the present process dyed cellulose esters which are exceedingly fast against light and washing are produced in a single process the dye being dissolved for example directly in the acidylizing mixture or in a portion of the acetic acid and thereafter the cellulose, hydro- or oxy-cellulose (hereinafter referred to as a cellulosic material) is brought into this coloring solution by heating. As there are now a large number of fast dyes which resist acids, by the use of such suitable dyes products brightly dyed and of exceedingly fast properties are produced by this very simple process without special precautionary measures.

By introducing such a dyed solution of formyl-, acetyl- or propionyl-cellulose, etc., into one of the usual precipitating media such as water, benzol, alcohol and so on a bright and clearly dyed product in the desired form such as yarn, film, etc., which do not bleed in the precipitating bath, do not give up the dye on further treatment, and possess the same strength as in the undyed condition. On treatment with the usual solvents such for example as chloroform, acetone, dichlorethylene, etc., the dyed cellulose products pass clearly into the solution and can be further treated without alteration of the tint.

Example: 100 parts of cleaned and dried cotton is introduced and stirred into a mixture of 450 parts of acetic acid anhydrid and

400 parts of acetic acid which contains 2% of concentrated sulfuric acid; at the same time a solution of a dye such for example as Bismarck brown in 100 parts of acetic acid is added and the whole mass is heated in the water bath until a clear brown solution is produced.

Instead of dissolving the dye separately it can be added directly to the acetylizing mixture and can be stirred in. The same results are obtained when the dye is added before heating or to the prepared acetylizing mass.

The same process is carried out with other dyes, as, for example, "metanile yellow", "chrysophenin G", "fast scarlet colors", "substantive blacks", etc.

The solutions of dyed acidylized cellulose thus obtained can be further treated directly.

I claim—

1. A process of producing dyed cellulose esters, said process comprising the simultaneous treatment of a cellulosic material with a suitable dye and an acidylizing agent.

2. A process of producing dyed cellulose acetate, said process comprising the simultaneous treatment of a cellulosic material with a suitable dye and an acetylizing agent.

3. A process of producing dyed cellulose esters, said process comprising the simultaneous treatment of cellulose with a suitable dye and an acidylizing agent.

4. A process of producing dyed cellulose esters, said process comprising the simultaneous treatment of a cellulosic material with a suitable dye and a mixture of acetic acid, acetic anhydrid and sulfuric acid.

5. A process of producing dyed cellulose esters, said process comprising the simultaneous treatment of a cellulosic material with an acid-soluble dye and an acidylizing agent.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BENNO BORZYKOWSKI.

Witnesses:

CLARENCE CORRIGAN,
MARIUS HERMAN.