APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL SILK

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ATTORNEYS.
In Patent No. 1,553,475, a process of dry spinning of artificial filaments of cellulose derivatives is claimed, the process consisting in admitting into the cell, in view of the evaporation of the volatile solvents of the solution to be spun, an atmosphere already richly laden with vapours of these solvents, instead of admitting to this effect into the cell, as has been the case hitherto, an atmosphere free from solvents, or which has been relieved of them as completely as possible.

It is explained in the specification of the patent referred to above that the various elements of the circuit (spinning cell-condenser-heater) followed by the evaporating atmosphere can be disposed so that the circulation in this circuit takes place automatically by the action of the differences of density.

The present invention has for its object a new apparatus where the circulation of the atmosphere is realized, in a particularly simple manner, according to this principle.

Referring to the drawing left herewith, which illustrate diagrammatically as example how the invention may be carried out.

The solution is expelled by any usual or known means, through the spinning die 1, at the upper part of the spinning cell 2, which can be, for example, a tube of cylindrical or other section. The cell 2 is heated over all or part of its length, either by a double jacket 3 in which circulates a heating liquid, or by any other heating means. Outside the cell 2 is a condenser tube 4, placed in a vertical position, which is cooled externally and connected to the upper and lower parts of the spinning cell 2, preferably in such a manner as to promote a symmetrical distribution of the gaseous stream. The condenser tube 4 is connected by its lower portion to a glass receiver 5, where the condensed liquid is collected, and from which the liquid is allowed to pass through the tap 6 into the collector 7, and thence towards the installations for the preparation of the solution.

The filaments leave the cell by the very small orifice 8, and there is no appreciable loss of solvent vapors by this orifice. However, in order to have an arrangement which is perfectly satisfactory from this point of view, it is possible to use the method described in Patent No. 1,553,475, consisting in creating a slight depression by a weak aspiration at one point of the circuit.

If, for example, a solution of a cellulose ester in acetone is being spun, and if the quantity of acetone to be evaporated per hour is 280 grammes, vapor at 100° C. will be made to circulate in the double jacket 3, and water at 15° C. to circulate in the condenser 4. A gaseous current will then be established as shown by the arrows on the figure, the current ascending in 2 and descending in 4, and about 95% of the acetone contained in the spun solution will be collected in the receiver 5.

Only one single element has been referred to in the above description, but it is evident that an industrial installation would comprise any number of similar elements, each of these elements being self-contained, as far as the circulation of the evaporating gaseous medium and the condensation of the evaporated solvents are concerned.

What I claim and desire to secure by Letters Patent is:—

Apparatus for the spinning of cellulose derivatives, comprising a spinning cell provided with heating means, and a condensation apparatus for the solvents, comprising a tube placed in a vertical position connected to the upper and to the lower part of the spinning cell, and, at its lower end, connected to a receiver for the condensed liquid.

In testimony whereof I have signed my name to this specification.

JOSEPH EDOUARD GUSTAVE LAHOUSE.