

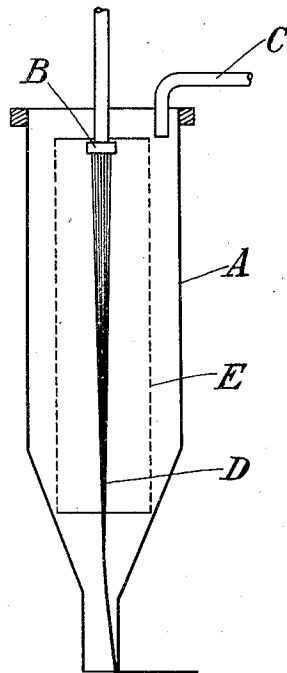
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APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL THREADS

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UNITED STATES PATENT OFFICE

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APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL THREADS

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This invention relates to the manufacture and production of artificial threads by the stretch spinning process, such as is employed for the production of artificial threads from solutions of cellulose in copper oxide ammonia. It is well known that difficulties are experienced in the production of uniform threads by this method, and that at least some of these difficulties are caused by eddies or currents in the precipitating liquid contained in the spinning funnel. These eddies or currents arise by reason of the fact that the thread, when descending inside the spinning funnel, carries down with it a considerable quantity of the precipitating liquid, the quantity of liquid thus carried downwards being greater than the quantity of replenishing liquid which is ordinarily introduced into the funnel. A part of the precipitating liquid which is carried down by the thread will consequently return in an upward direction to the middle or upper regions of the spinning funnel, and it is the eddies and currents produced by this upward movement of the precipitating liquid which cause irregularities in the thread which is being spun. In order to overcome the effect of these eddies or currents, various devices have been proposed for insertion into the spinning funnel, as for example, subsidiary funnels of various shapes, such as conical, long, short, narrow or wide funnels with restricted outlets; it has also been proposed to insert into the spinning funnel a volute taper funnel, with a continuous spiral space throughout the whole length of the said volute taper funnel.

We have now found that improvements in the stretch spinning process are obtained by inserting material provided with numerous small holes between the wall of the spinning funnel and the thread which is being spun. The said material may for example be conical or cylindrical in form and may consist of a glass funnel perforated with a comparatively large number of holes. A conical or cylindrical sheet of metal perforated with a large number of small holes, or a cone of cylinder of woven wire gauze may also be employed. When using such perforated sheet metal or metallic gauze, we prefer to employ the metal which is known under the registered trade mark "Monel".

The said material may be arranged to extend from the lower end of the spinning funnel to above the jet, or it may be made shorter, provided it surrounds those parts of the thread which are susceptible to eddies or currents in the precipitating liquid.

When spinning is carried out according to the present invention, the filaments descend more regularly than hitherto through the precipitating liquid and have little or no tendency to sway from side to side.

We will further describe our invention with reference to the accompanying drawing which represents diagrammatically one form of apparatus for use according to this invention, but the invention is not restricted thereto.

A is the spinning funnel, B the nozzle through which the cellulosic solution is projected into the precipitating bath, C is the pipe through which fresh precipitating liquid is conveyed to the funnel, D represents the thread which passes downwards and is drawn away from the lower end of the funnel A. E indicates the material having numerous small holes and situated between the funnel A and the thread D. The said material E may consist of wire gauze, the mesh of which may vary within wide limits, or it may consist of a perforated sheet of metal, glass or other suitable material.

In the drawing the perforated material E is shown cylindrical in form; it may, however, if desired, be conical or of any other suitable shape.

What we claim is:—

1. Apparatus for the production of artificial threads by the stretch spinning process comprising a spinning funnel and foraminous

material situated inside the said spinning funnel and surrounding those parts of the thread which are susceptible to eddies or currents in the precipitating liquid.

- 5 2. Apparatus for the production of artificial threads by the stretch spinning process comprising a spinning funnel and wire gauze situated inside the said spinning funnel and
10 surrounding those parts of the thread which are susceptible to eddies or currents in the precipitating liquid.

In testimony whereof we have signed our names to this specification.

15 WALTER HAMIS GLOVER.
GEORGE DOUGLAS BOND.

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