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H. HOFMANN

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EFFECT YARN AND PROCESS OF MAKING SAME

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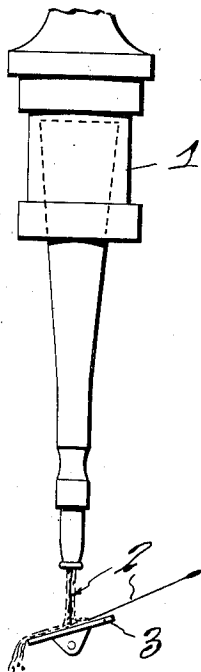
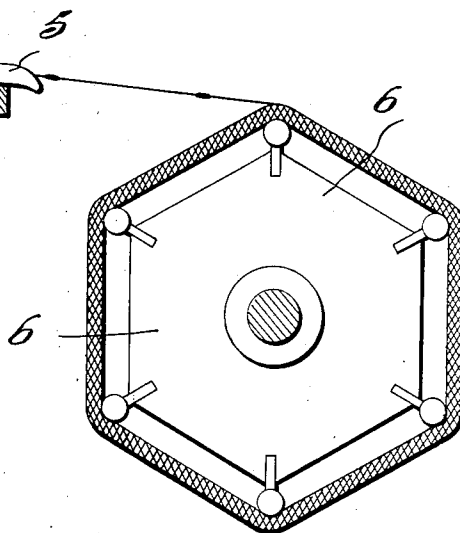
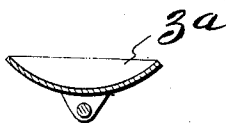


Fig. 1.

Fig. 3.



Fig. 2.



Inventor
Hugo Hofmann.

By *Thomas H. Byron*
Attorney

UNITED STATES PATENT OFFICE

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EFFECT YARN AND PROCESS OF MAKING
SAMEHugo Hofmann, Elizabethton, Tenn., assignor to
American Bemberg Corporation, New York,
N. Y., a corporation of Delaware

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10 Claims. (Cl. 18—54)

This invention relates to the manufacture of filaments of artificial origin but primarily has for its object the creation of a slubby yarn, that is to say, yarn in which slubs are deliberately formed during the spinning operation.

Another object of the present invention is to manufacture a yarn which when made into a fabric will impart a novel effect thereto.

These and other objects will in part be pointed out and will in part become obvious from a study of the following description and appended claims when taken in conjunction with the attached drawing, in which,

Fig. 1 is a side elevation of a form of the apparatus used in manufacturing my novel yarn,

Fig. 2 is a modified form of tilting table which may be used in place of the one shown in Fig. 1.

Fig. 3 is greatly enlarged view of a portion of my novel thread as made by my new process.

In the drawing in which like numerals of reference indicate like parts, 1 indicates the spinning funnel as used in the cuprammonium process. The yarn, which is indicated at 2, is spun in the usual manner that is by extruding the yarn through the funnel with the precipitating liquid. The yarn 2 and precipitating liquid pass downwardly and out the bottom of the funnel 1 but instead of passing around a guide, as is usually the case, the precipitating liquid and the yarn together impinge upon a spinning table 3 which may be, and in this invention usually is tilted.

As the filaments 1 drop on the spinning table 3 they are only partially coagulated due to the reduced temperature of the precipitating liquid which is below the normal range ordinarily used. Further, the greater quantity and velocity of the precipitating liquid seems to draw the filaments therethrough at a considerably faster rate thereby aiding in keeping the coagulation of the said filaments at a minimum. For example, when 200 denier yarn is ordinarily spun, the take-up speed of the reel is 50 R. P. M., and the precipitating liquid has a flow of 700 cc. per minute with a temperature of 120° F., whereas the manufacture of my novel yarn the temperature is reduced to approximately 85° F. and the quantity thereof increased to a minimum of 1000 cc. per minute.

When the filaments 1 drop to the spinning table in their partially coagulated state, a loop is formed which causes tangles or snarles to occur in the yarn, and which further results in a thickening of the said filaments. It may be said that the yarn momentarily piles up at this

point until it is coagulated or strengthened sufficiently to be pulled up over a guide 4. The piling up of the yarn is primarily due to the greater quantity of rate of flow of the precipitating liquid which draws the filaments down to the spinning table 3 at a faster rate than the rate at which the said filaments are drawn off by the collecting reel.

The position and size of the guide rod 4 over which the thread 1 passes is one of the controlling factors of the process. If the guide rod 4 is increased in diameter it is readily seen that more friction is applied as the 1 passes thereover due to the increased surface contact, or if the position of the guide rod is changed the angle of contact becomes either greater or less thereby either increasing the friction or diminishing the same.

The angle at which the spinning table 3 is tilted is another factor controlling the size and type of slubs created. If the angle of tilt is greater, the yarn will loop more because of its weight and then form larger slubs. It is then to be seen that at least two factors are to be considered for controlling the type and size of the slubs.

In Fig. 2 is illustrated a modified form of spinning table 3* which may be used to obtain slubs of somewhat different shape.

After leaving the guide rod 4 the yarn passes through the acid guide 5 and is fully coagulated after passing therethrough. A rotating reel 6 collects the yarn as it comes from the acid guide.

From the above it is to be noted that the gist of the invention resides in the partial coagulation of the threads when they impinge on the spinning table the continuation of the coagulation and the drawing of the threads from the table.

In view of the foregoing description taken in connection with the accompanying drawing it is thought the process, apparatus and product disclosed therein will be clear to those skilled in the art to which it relates.

What I claim is:

1. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium, which only partially coagulates them, dropping the partially coagulated filaments together with the precipitating medium on a surface to cause a piling up and tangling of the filaments to take place, drawing the filaments from said precipitating medium and surface, passing

them through a coagulating medium, and then collecting them.

2. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium which only partially coagulates them, dropping the partially coagulated filaments together with the precipitating medium on a tiltable surface to cause a piling up and tangling of the filaments to take place, varying the degree of tilt to control the amount of piling up and tangling of the said filaments, drawing the filaments from said precipitating liquid and surface, passing them through a coagulating medium, and then collecting them.

3. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium which only partially coagulates them, dropping the partially coagulated filaments together with the precipitating medium on a curved surface to cause a piling up and tangling of the filaments to take place, drawing the filaments from said precipitating medium and surface, passing them through a coagulating medium, and then collecting them.

4. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium flowing at a rate of at least 1000 cc. per minute whereby the filaments are only partially coagulated dropping the partially coagulated filaments together with the precipitating medium on a surface to cause a piling up and tangling of the filaments to take place, drawing the filaments from said precipitating medium and surface, passing them through a coagulating medium, and then collecting them.

5. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium flowing at a rate of at least 1000 cc. per minute and having a temperature of approximately 85° F. whereby the filaments are only partially coagulated, dropping the partially coagulated filaments together with the precipitat-

ing medium on a surface to cause a piling up and tangling of the filaments to take place, drawing the filaments from said precipitating medium and surface, passing them through a coagulating medium, and then collecting them.

6. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments in a downwardly flowing precipitating medium flowing at a rate of at least 1000 cc. per minute and at a temperature of approximately 85° F. whereby the filaments are only partially coagulated, dropping the filaments together with the precipitating medium on a surface to cause a piling up and tangling of the filaments to take place, drawing the filaments from said medium and surface and passing them to a friction surface, passing them through a coagulating medium, and then collecting them.

7. In a process for spinning filaments of artificial origin the steps comprising extruding the filaments, partially coagulating them, thereafter causing the filaments to pile and adhere, drawing the filaments from the piling and through a medium which further coagulates them, and thereafter collecting them.

8. A filament of artificial origin having slubs spun therein at recurring intervals, said slubs consisting of portions of the filament piled upon itself and adhering, one portion with the other.

9. A thread of artificial origin composed of a plurality of filaments having slubs spun therein at recurring intervals, said slubs consisting of portions of the individual filaments piled upon and adhering to each other.

10. In a process for spinning a thread of artificial origin, the steps comprising extruding the filaments in a precipitating medium which only partially coagulates them, dropping the partially coagulated filaments on a surface to cause a piling and adhering of the filaments to take place, drawing the filaments from said surface passing them through a coagulating medium, and then collecting them at a lesser speed than the speed of extrusion.

HUGO HOFMANN. 45