

UNITED STATES PATENT OFFICE.

ADAM MILLAR, OF GLASGOW, SCOTLAND.

INSOLUBLE THREAD OR FILAMENT.

SPECIFICATION forming part of Letters Patent No. 625,345, dated May 23, 1899.

Application filed October 15, 1898. Serial No. 693,660. (No specimens.)

To all whom it may concern:

Be it known that I, ADAM MILLAR, manufacturer, of 45 Montrose street, in the city of Glasgow, Scotland, have invented certain new and useful Improvements in Insoluble Threads or Filaments, (for which application for patent in Great Britain, No. 6,700, dated March 19, 1898, has been made,) of which the following is a specification.

This invention consists in producing threads or filaments suitable for textile purposes from the materials known to chemists as "proteids," and called "egg albumen" when obtained from eggs, "blood albumen" when obtained from blood, "casein" when obtained from milk, and "vegetable albumen" when obtained from vegetable bodies.

In carrying out this invention the albumen or casein is placed while in a liquid or plastic condition into a vessel furnished with nozzles or nipples, through which it exudes in the form of thin thread-like streams. These liquid or plastic threads fall upon an endless traveling band of considerable length, on which they are dried and from which the threads are lifted off from the band and wound onto a revolving bobbin.

To render the threads fit for textile purposes they have to be made insoluble in water.

The desired insolubility may be produced by the action of one or more chemical substances which are known to render albumen and other proteids insoluble, such as chromic acid, tannic acid, picric acid, formic aldehyde, compounds of sulfur, chlorin, carbon, phosphorus, and other chemical substances.

The process and appliances used in carrying out the invention may be the same or similar to those described in the specifications of my United States Patents Nos. 594,888 and 611,814, the liquid or plastic material being placed in a cylindrical vessel furnished with a stop-cock and a series of nipples or nozzles, from which the material exudes in fine thread-like streams which fall upon an endless band which is of a considerable length,

say from fifty to one hundred yards. The endless band is carried by a set of drums which revolve at a considerable speed by means of a belt or other gearing from a steam-engine or other prime mover.

The room in which the process is carried on is maintained at a sufficient temperature to cause the thread to be quite dry during the time required for the endless band to make a complete passage or circuit. The threads are wound off the band onto a revolving bobbin. The threads may be made insoluble in water either by mixing the proper chemical ingredients with the liquid material, so that as soon as the threads are dried they are insoluble, or the insolubility may be produced by a subsequent treatment, such as by unwinding the threads from the bobbin onto an open reel or into the form of a hank and immersing the yarn in a solution of the chemical substances which renders albumen insoluble, or the reels containing the threads may be placed in a chamber and subjected to the action of formic aldehyde in the form of a vapor.

The threads may be twisted together by suitable twisting-machines and wound onto bobbins ready for the textile manufacturers.

The threads may be dyed by the ordinary methods, with such modifications as may be found advantageous, or coloring-matter may be added to the liquid material before it is drawn into threads.

Having now described the invention, what I desire to claim and secure by Letters Patent is—

As a new article of manufacture a thread or filament composed of a proteid strand insoluble in water.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ADAM MILLAR.

Witnesses:

WALLACE FAIRWEATHER,
JNO. ARMSTRONG, Junr.