Nov. 18, 1924. 1,516,194

L. A. LEVY

PRODUCTION OF ARTIFICIAL FILAMENTS

Filed April 10, 1924

Fig. 1.

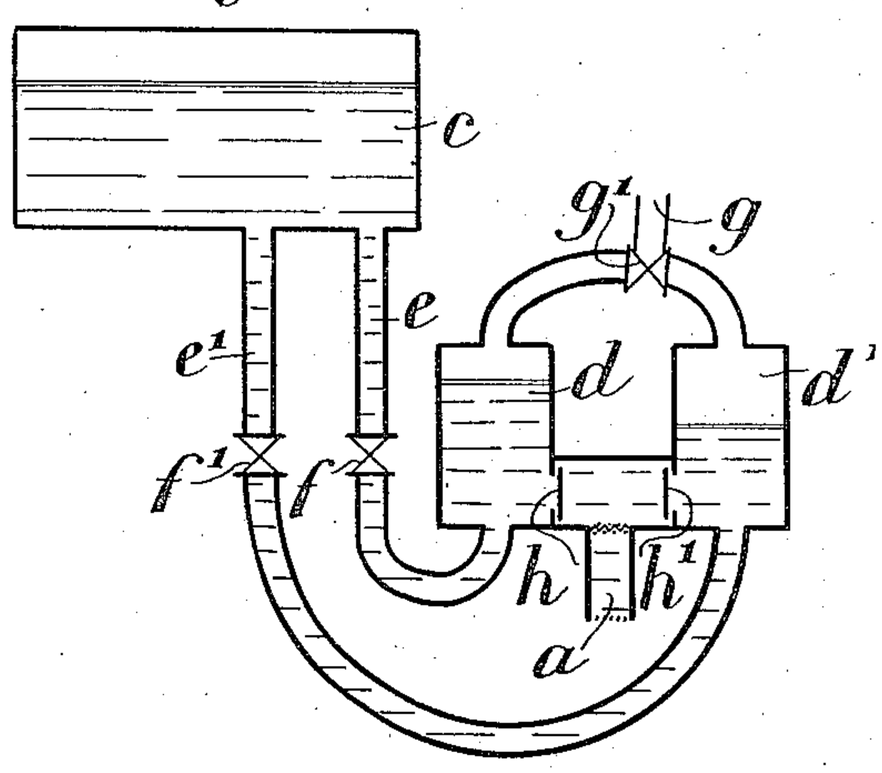
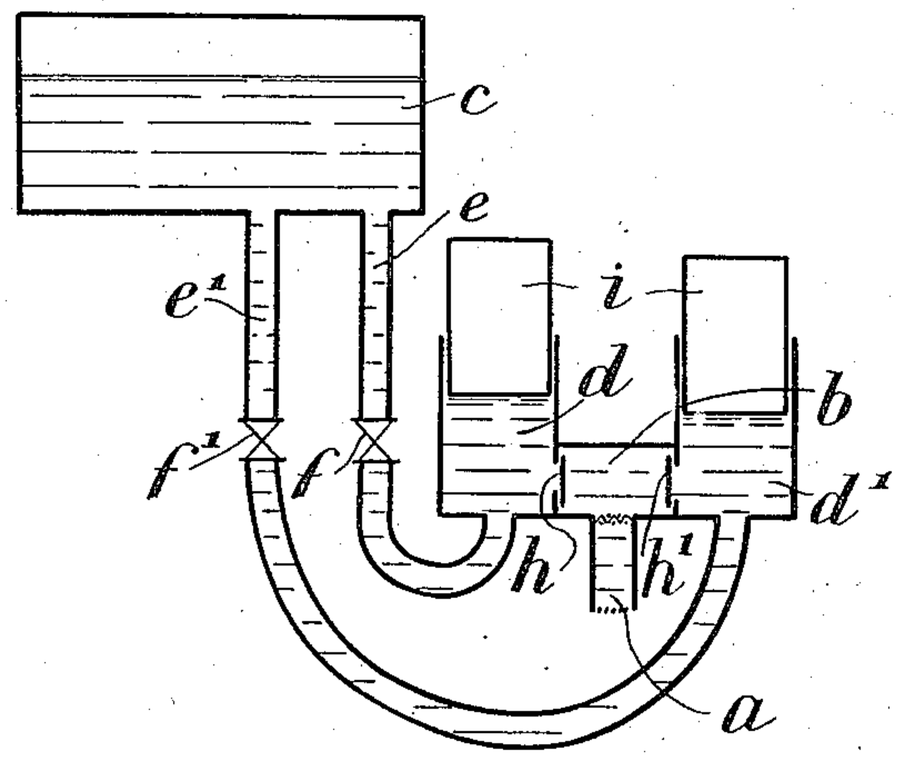


Fig. 2.



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UNITED STATES PATENT OFFICE.

LEONARD ANGELO LEVY, OF CRICKLEWOOD, ENGLAND.

PRODUCTION OF ARTIFICIAL FILAMENTS.

Application filed April 10, 1924. Serial No. 705,618.

To all whom it may concern:

Be it known that I, LEONARD ANGELO LEVY, a subject of the King of Great Britain, residing at 31 Shoot-up-Hill, Cricklewood, Middlesex, England, have invented new and useful Improvements in the Production of Artificial Filaments (for which I filed an application in Great Britain on Oct. 26, 1922), of which the following is a specification.

This invention relates to the production of artificial filament such as are used in the manufacture of artificial silks in which the filaments are formed by forcing the solution therefor from a source of supply by pumps or the equivalent through the extrusion jets or nozzles of the spinning heads in a continuous manner.

Heretofore, it has been usual to form the spinning heads and the pressure and controlling pumps as separate units connected together by piping of a length, varying, according to the design of plant, from about a minimum of two feet and upwards.

Now, the object of the invention is to dispense with piping entirely and to this end I apply the spinning head directly to the discharge passage of the pump whereby the requisite pressure is applied to the solution at a point immediately adjacent to the extrusion jets or nozzles.

In a suitable arrangement for carrying out the invention, the requisite pressure is applied to the solution by means of a gas under pressure or by the direct action of a ram and I may employ two or three cylinders in which the solution is subjected to the pressure of the gas or of the rams.

After the filaments have been extruded in the manner indicated, they can be set by hot or cold air, and the solvent evaporated can be recovered as described in the specifications of my former British Patent No. 168,986.

To enable the invention to be fully understood I will describe it by reference to the accompanying drawing, in which:—

Figure 1 is a diagrammatic view of one form of apparatus for carrying out the process and

Figure 2 is a similar view illustrating a modified form of apparatus.

Referring first to the construction of apparatus shown in Figure 1, which illustrates the method of applying the local pressure to the solution by means of compressed gas, *a* illustrates a spinning nozzle fitting which opens directly into a chamber *b* and into communication with a drying chamber not shown in the drawing. *c* is a reservoir for the solution and *d*, *d*¹ show two vessels into which the solution from the reservoir *c* is introduced through the pipes *e*, *e*¹ and in which the said solution is subjected to the pressure of gas. The pipes *e*, *e*¹ are provided with stop-cocks *f*, *f*¹ for controlling the flow of the solution. *g* is a pipe controlled by the cock *g*¹ for the supply of pressure gas to the vessels *d*, *d*¹. The vessels *d*, *d*¹ are arranged as close together as possible with the common discharge passage *b* between them.

The function of the apparatus is as follows:—

Before the spinning operation is commenced, the pressure vessels *d*, *d*¹ are filled with the liquid from the reservoir *c*, a small pressure being applied to cause the liquid to flow through the apparatus. When the vessels *d*, *d*¹ are both full, the cocks *f*, *f*¹ are closed and the cock *g*¹ is opened in order that a high pressure may be applied to the vessel *d*. This operation opens the valve *h* and closes the valve *h*¹. When a certain period has elapsed, the cock *g*¹ is turned so that the high pressure is applied to the vessel *d*¹ and shut off from the vessel *d*. This operation opens the valve *h*¹ and closes the valve *h*. This cycle of operations is then repeated by closing the cock *g*¹ when the vessel *d* is again refilled from the reservoir *c*.

In the construction illustrated in Figure 2 pressure is applied to the solution directly by means of rams *i* which may have pressure applied to them in any convenient way, say, by mechanical means.

Claims:

1. Apparatus for dry spinning artificial filaments comprising a reservoir for the solution, a pressure pump consisting of a plurality of vessels, valves between said vessels opening into a discharge passage, means for alternating the pressure from one of said vessels to the other and for alternately opening and closing said valves, means connecting said reservoir with said pump and means for cutting off the flow from said reservoir to said pump before pressure is applied to said pump, and a spinning head directly connected with said discharge passage whereby the requisite pressure is applied to

the solution at a point immediately adjacent to the spinning head.

2. Apparatus for dry spinning artificial filaments comprising a reservoir for the solution, a pair of cylinders fitted with sliding rams and each connected at one end by a pipe to the reservoir, means for applying pressure to the rams, valves for cutting off the supply of the solution from the reservoir to the cylinders before pressure is applied to said pump, non-return discharge valves between the cylinders, a common discharge passage for the said valves and one or more spinning heads directly applied to the said discharge passage.

LEONARD ANGELO LEVY.