May 15, 1934. W. I. TAYLOR 1,958,500

DEVICE FOR FACILITATING THE STARTING UP OF SPINNING JETS

Filed June 27, 1929

FIG. 1.

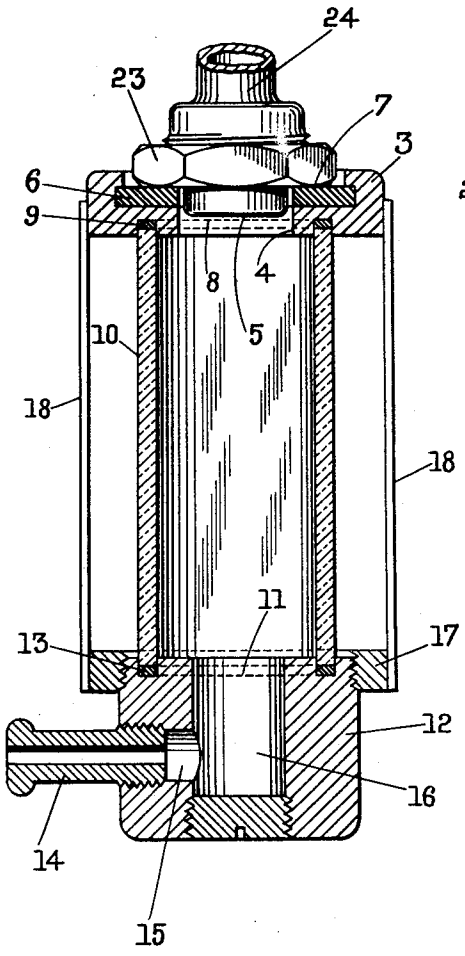
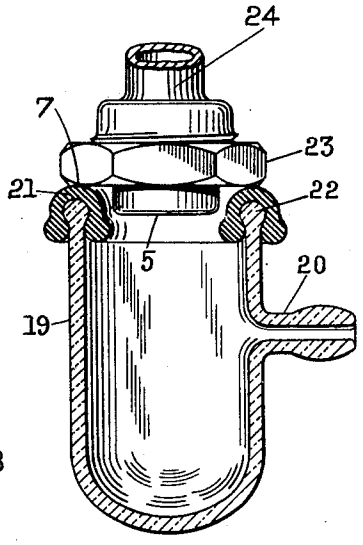


FIG. 2.



WILLIAM I. TAYLOR
INVENTOR

ATTORNEYS.

Patented May 15, 1934 1,958,500

UNITED STATES PATENT OFFICE

1,958,500

DEVICE FOR FACILITATING THE STARTING UP OF SPINNING JETS

William Ivan Taylor, Spondon, near Derby, England, assignor to Celanese Corporation of America, a corporation of Delaware

Application June 27, 1929, Serial No. 374,189
In Great Britain July 5, 1928

3 Claims. (Cl. 18—8)

This invention relates to the manufacture of artificial silk or other artificial threads or filaments, and more particularly to their manufacture by the dry or evaporative method, and has for its object to overcome the difficulties encountered in starting up the jet or nozzle through which the spinning solution is extruded.

When the jet or nozzle, hereinafter referred to as a "jet", is fitted to the pipe or other member to which the spinning solution is supplied under pressure, it is frequently found that because one or more holes are partially or wholly blocked, the jet is not functioning correctly. It is usual in order to overcome this stoppage of the holes, to wipe the face of the jet with fabric soaked in a solvent for the material in solution until all the holes are free, but this is often a somewhat lengthy operation, particularly when some of the holes are completely blocked.

It has now been found that the time spent in getting uninterrupted extrusion through all the holes, and particularly in freeing blocked holes, on starting up a jet can be materially reduced or completely avoided by applying a vacuum to the jet until all the holes are free for extrusion. The starting of the jet is thereby greatly facilitated.

The vacuum may be applied in any suitable way, for example, by means of a vessel to which suction can be applied and the mouth of which is adapted to fit round the jet face and form an air-tight joint therewith. Preferably the body of the cup-like member is transparent to enable the jet face to be observed while the device is in operation.

Two forms of device which may be used according to the invention are illustrated in the accompanying drawing, but it is to be understood that the following description is given by way of example only, and is in no way limitative.

In the drawing:—

Fig. 1 is a sectional view in elevation of one form of device in operative position with respect to a spinning jet, and

Fig. 2 is a similar view of a further form of device.

Referring to Fig. 1, an annular member 3 having a central aperture 4 of a size to accommodate the jet face 5 is provided on one side with a rubber or like ring 6 to fit against the part 7 of the jet surrounding the face 5. On the other side of the annular member 3 is an annular recess 8, fitted with a rubber or like ring 9, into which one end of a glass or other transparent cylinder 10 is fitted. The other end of the cylinder 10 is similarly fitted into an annular recess 11 in a closure member 12, a rubber or like ring 13 being placed in the recess 11. The cylinder 10 forms a transparent body to which suction may be applied through a vacuum connection 14 provided on the member 12 communicating through passages 15, 16 with the interior of the cylinder.

The two members 3, 12 are arranged to be held or drawn against the ends of the cylinder 10 to retain it in position and exclude the atmosphere therefrom. In the device illustrated, this is effected by means of a nut or ring 17 which screws on to the upper end of the member 12 and is connected by means of a suitable number of metal strips 18 with the member 3. The strips 18 may be screwed, sweated, or otherwise secured to the members 3 and 17. On the nut or ring 17 being screwed on to the member 12, the cylinder 10 is pressed firmly into the recesses 8, 11 and forms an air-tight connection with the rings 9, 13.

Fig. 2 shows a device comprising a glass or other transparent vessel 19 provided with a vacuum connection 20 and fitted at its open end with a rubber or like ring 21 adapted to surround the jet face 5. The mouth of the vessel may be formed with a bulged rim 22, over which the ring 21 is sprung and by which the ring is held in position. A rubber or like ring may be otherwise fitted to the mouth of the vessel 19 by providing the open end of the vessel with a cap by which the ring is carried.

Either form of device may be placed into position by the hand, or may be otherwise applied, the ring 6 or 21 forming an air-tight joint round the jets 5, and the suction applied to the device will generally be found sufficient to hold the device in position.

The device is preferably connected to the source of vacuum by a flexible tube so that one device may serve for a number of jets or nozzles within the range of the tube, but, of course, the device or devices may be arranged in any convenient way with respect to the spinning chambers or cells so that they may be readily applied where desired. If desired, a device may be used for each jet, or there may be one device for each pair or other suitable number of jets.

The operation of the devices will now be briefly described.

When a jet is to be started up, it is screwed by means of a nut 23 on to the pipe or other member 24 connected to the supply of spinning solution, and the jet face 5 is wiped with a solvent soaked fabric. When the solution first appears through the holes, the vacuum device is applied to the jet, and is retained in position by the suction.

The vacuum is allowed to act until all the holes are observed through the walls of the transparent cylinder or vessel to be free, when the device is removed to allow the filaments to be extruded into the atmosphere of the spinning chamber or cell. The accumulation of threads or filaments deposited during the application of suction is readily extracted from the device after its removal from the jet.

While the embodiments illustrated have been shown applied to the starting of jets of the perforated disc type, jets of other types, e. g., line-type jets, may be started by means of devices having appropriately shaped orifices 4 and rings 6 or 21.

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

1. Device for facilitating the starting up of spinning jets in the manufacture of artificial threads or filaments by the extrusion of a spinning solution into an evaporative atmosphere, said device comprising a vessel having a transparent body, the mouth of which is provided with means adapted to fit round a spinning jet and form an air-tight connection therewith, and means for connecting the vessel to a source of vacuum.

2. Device for facilitating the starting up of spinning jets in the manufacture of artificial threads or filaments by the extrusion of a spinning solution into an evaporative atmosphere, said device comprising a vessel having a glass body, the mouth of which is provided with means adapted to fit round a spinning jet and form an air-tight connection therewith, and means for connecting the vessel to a source of vacuum.

3. Device for facilitating the starting up of spinning jets in the manufacture of artificial threads or filaments by the extrusion of a spinning solution into an evaporative atmosphere, said device comprising a vessel having a glass body, a ring engaging one end of the glass body and adapted to form an air-tight connection round a spinning jet, a closure member engaging the other end of the glass body, and means associated with the closure member for connecting the vessel to a source of vacuum.

WILLIAM IVAN TAYLOR.