Aug. 25, 1953 W. MARTIN ET AL 2,649,670

METHOD FOR RECONDITIONING THE EXTRUDING FACE OF SPINNERETTES

Filed July 28, 1951

FIG. 1.

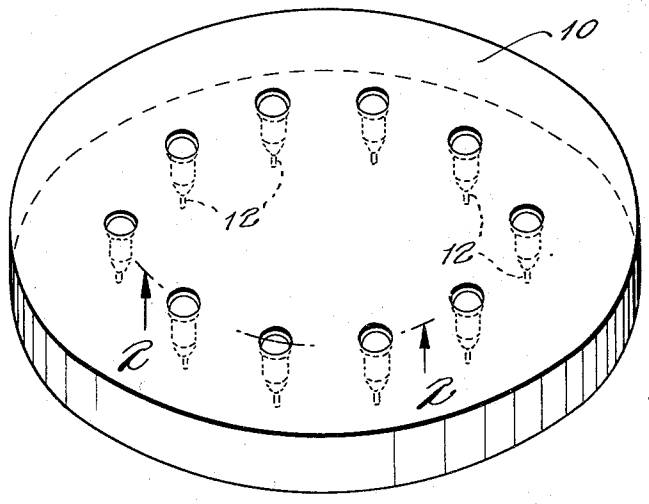
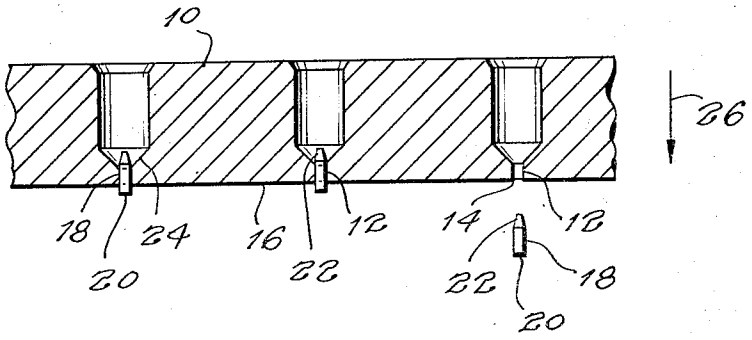


FIG. 2.



INVENTOR.
Wilhelm Martin and
Wilhelm Heynen
BY

Patented Aug. 25, 1953 2,649,670

UNITED STATES PATENT OFFICE

2,649,670

METHOD FOR RECONDITIONING THE EXTRUDING FACE OF SPINNERETTES

Wilhelm Martin and Wilhelm Heynen, Grebben, Kreis Heinsberg, Germany, assignors to Firma Vereinigte Glanzstoff-Fabriken A. G., Wuppertal (Elberfeld), Germany

Application July 28, 1951, Serial No. 239,078
In Germany July 28, 1950

7 Claims. (Cl. 51—281)

1

The present invention relates to a method for reconditioning the extruding face of a spinnerette which allows the exit openings of the nozzles of the spinnerette to be protected against damage during the reconditioning. More particularly, the present invention relates to a method for polishing the extruding face of the spinnerette.

The polishing of the extruding face of a spinnerette has always met with difficulties because the extremely fine exit openings of the nozzles thereof which have a diameter amounting at times only to 50 micron, lost the sharp and smooth edges thereof during the grinding or polishing operations. This phenomenon is to be explained by the fact that during the grinding or polishing operations parts of the extruding face of the spinnerette are removed so that the metal particles situated at the edges of the nozzles are torn from the structure of the edge so that the exit opening loses the sharp and smooth edge thereof. On the other hand, a sharp and smooth edge is indispensable for extruding a filament through the spinnerette.

In order to overcome this drawback, a method was applied hitherto in which the exit openings of the nozzles were provided with a filling material which was chemically removed after the polishing operation. This filling material had to have certain properties in order to secure the desired effect. During bringing in the filler, the same had to be in condition of a liquid having a low viscosity so that it could penetrate into each nozzle. However, the melting points of the filling material were often too high so that the alloy structure of the spinnerette was impaired. In consequence thereof, it has been suggested to fill the openings of the nozzle by a low-melting synthetic resin, so that the material of the spinnerette can withstand the temperature of the molten resin.

Experience, however, has shown that this method is not applicable to the grinding and polishing of the extruding face of spinnerettes consisting of hard metal because the filling materials hitherto used are too soft.

It is an object of the present invention to overcome this drawback.

It is another object of the present invention to provide a filling material which conserves the natural hardness thereof.

A method according to the invention for reconditioning, such as grinding or polishing the extruding face of a spinnerette comprises the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle, reconditioning the extruding face of the spinnerette while the exit opening of the nozzle is closed by the pin, and removing the pin from the nozzle of the spinnerette after the extruding face thereof has been reconditioned, whereby the exit opening of the nozzle is protected against

2

damage during the reconditioning of the extruding face of the spinnerette.

Preferably, the spinnerette consists of hard metal and the pin consists of the same metal as a spinnerette.

Preferably, the pin is pushed after the reconditioning of the extruding face of the spinnerette toward the extruding face through the exit opening of the nozzle.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a spinnerette provided with nozzles thereof before reconditioning, the nozzles of the spinnerette being shown at an enlarged scale; and

Fig. 2 is a cross-section of part of the spinnerette showing two nozzles obstructed by pins and one nozzle free with the pin taken out of the same.

Referring now to the drawings, the spinnerette 10 consisting of hard metal is provided with a plurality of nozzles 12 having exit openings 14 through which the spinning solution escapes. The exit openings 14 are arranged flush with the extruding face 16 of the spinnerette 10 which has to be reconditioned, by mechanically treating for instance, grinding and polishing the extruding surface 16 from time to time so as to smoothen the same. In order to protect the exit openings 14 of the nozzles 12, pins 18 consisting of the same material as the spinnerette are placed in the nozzles 12 so that the front ends 20 of the same at first protrude somewhat beyond the exit opening 14 and the extruding face 16 as shown in slightly exaggerated manner in Fig. 1, whereas the rear ends 22 of the pins preferably project by a distance beyond the rear face 24 of the nozzle 12.

After the extruding face 16 of the spinnerette has been ground and polished, the front ends of the pins 18 are flush with the extruding face 16 so that the edges of the exit openings 14 are not damaged by the grinding and polishing operation. After the grinding and polishing operation has been performed, the pins 18 are pushed out of the nozzles 12 in the direction of the arrow 26 shown in Fig. 2 toward the extruding face 16. The pushing of the pins 18 is preferably performed mechanically from the rear ends 22 thereof.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of methods for reconditioning the extruding face of a spinnerette, differing from the types described above.

While the invention has been illustrated and described as embodied in a method for reconditioning the extruding face of a spinnerette allowing the exit openings of the nozzles thereof to be protected against damage, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A method for reconditioning a spinnerette having a nozzle provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle; mechanically treating the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin toward the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been mechanically treated, whereby the exit opening of the nozzle is protected against damage during the mechanically treating of the extruding face of the spinnerette.

2. A method for reconditioning a spinnerette consisting of metal and having a nozzle provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle, said pin consisting of the same metal as the spinnerette; mechanically treating the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin toward the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been mechanically treated, whereby the exit opening of the nozzle is protected against damage during the mechanical treatment of the extruding face of the spinnerette.

3. A method for reconditioning a spinnerette consisting of metal and having a nozzle provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle, said pin consisting of the same metal as the spinnerette; grinding the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin toward the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been ground, whereby the exit opening of the nozzle is protected against damage during the grinding of the extruding face of the spinnerette.

4. A method for reconditioning a spinnerette having a nozzle provided with an exit opening

arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle; polishing the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin toward the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been polished, whereby the exit opening of the nozzle is protected against damage during the polishing of the extruding face of the spinnerette.

5. A method for reconditioning a spinnerette consisting of metal and having a nozzle provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle, said pin consisting of the same metal as the spinnerette; polishing the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin toward the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been polished, whereby the exit opening of the nozzle is protected against damage during the polishing of the extruding face of the spinnerette.

6. A method for reconditioning a spinnerette consisting of metal and having a plurality of nozzles each provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a plurality of pins into the nozzles of the spinnerette, respectively, so as to close the exit openings of the nozzles, said pins consisting of the same metal as the spinnerette; mechanically treating the extruding face of the spinnerette so as to smoothen the same while the exit openings of the nozzles are closed by said pins; and pushing said pins toward the extruding face of the spinnerette through the exit openings of the nozzle after the extruding face of the spinnerette has been mechanically treated, whereby the exit openings of the nozzles are protected against damage during the mechanical treatment of the extruding face of the spinnerette.

7. A method for reconditioning a spinnerette having a nozzle provided with an exit opening arranged flush with the extruding face of the spinnerette, comprising the steps of placing a pin into the nozzle of the spinnerette so as to close the exit opening of the nozzle; grinding the extruding face of the spinnerette so as to smoothen the same while the exit opening of the nozzle is closed by said pin; and pushing said pin towards the extruding face of the spinnerette through the exit opening of the nozzle after the extruding face of the spinnerette has been ground, whereby the exit opening of the nozzle is protected against damage during the grinding of the extruding face of the spinnerette.

WILHELM MARTIN.
WILHELM HEYNEN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,654,936	Jones	Jan. 3, 1928
2,115,402	Spaanbroek	Apr. 26, 1938
2,159,391	Martin	May 23, 1939
2,570,765	Cerf	Oct. 9, 1951
2,618,989	Cupler, II	Nov. 25, 1952