

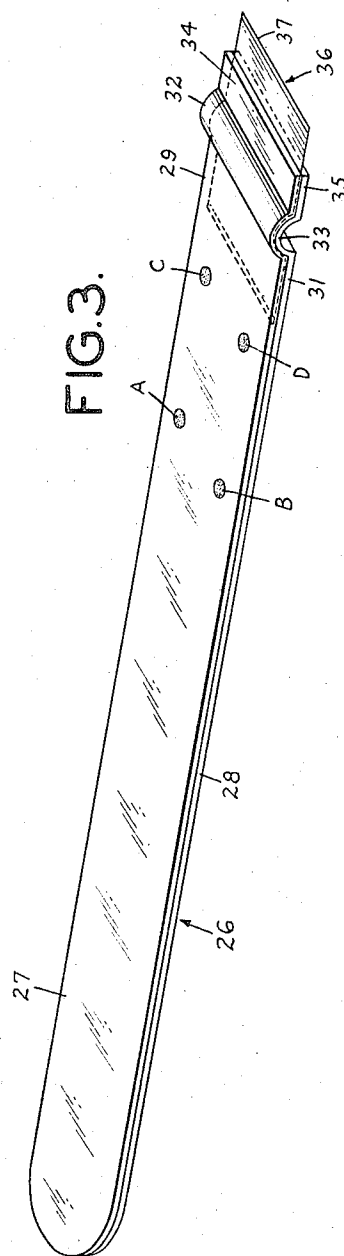
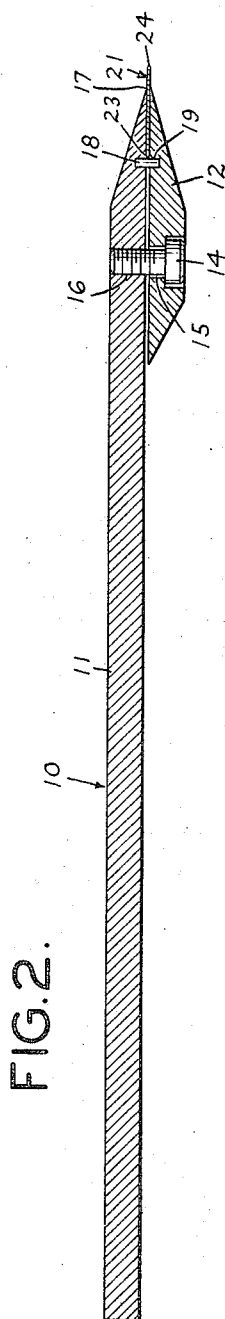
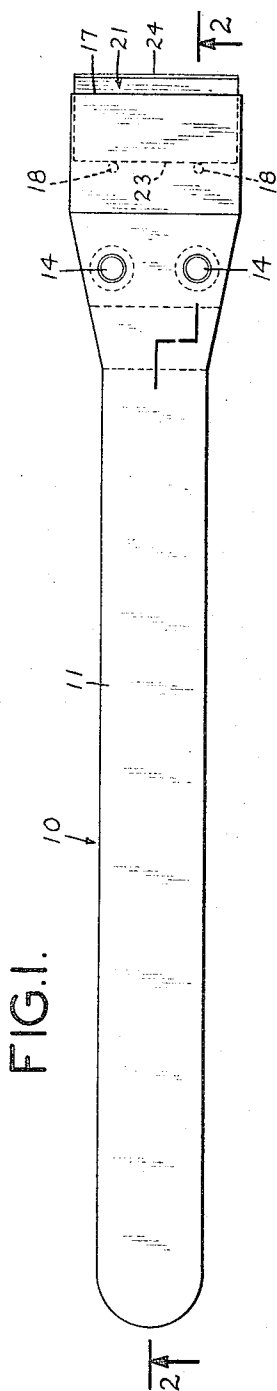
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SPINNERETTE CLEANING DEVICE

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SPINNERETTE CLEANING DEVICE

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ABSTRACT OF THE DISCLOSURE

An apparatus for removing accumulations of polymer from the face of a spinnerette having a blade adapted to be secured between two plates, one or both of which may form the handle of the apparatus. The blade is made of a material whose hardness is less than that of the face of the spinnerette to be cleaned and may be quickly replaced when dulled.

This invention relates to a spinnerette cleaning device and more particularly to a device for cleaning the face of a spinnerette to remove accumulations of molten polymer.

Conventional procedures for the production of synthetic yarns involve melt spinning wherein a solid polymer usually in pellet form is melted and pumped through a spinnerette to form fine fibers which are varied in size and number according to the denier of the yarn being manufactured. Periodically, there forms on the face of the spinnerette accumulations of molten polymer which require removal in order to efficiently conduct the procedure and to maintain uniformity of the product.

Prior art devices which are used to effect this cleaning include, for example, solid brass bars having a sharpened edge on one end, whereby the sharpened edge is utilized to scrape, wipe, or otherwise clean the face of the spinnerette. Unfortunately, however, after a short period of time of use, for example, after approximately eight hours use, it is required that the brass bar be re-sharpened in order to maintain its effectiveness. In most mills this represents an annoying and time consuming problem particularly where the machinery required to sharpen the brass bar is located remote from the melt spinning apparatus. Moreover, the continued grinding of the brass bar to effect sharpening gradually reduces the length of the bar until finally it has to be discarded.

An object of the present invention is to provide a device for cleaning the face of a spinnerette. Another objective is to provide a spinnerette cleaning device having a detachable cleaning or cutting member which is quickly and easily replaced at the site of the melt spinning apparatus. Other objectives and advantages will be apparent from the following detailed description:

In accordance with the present invention there is provided a spinnerette cleaning device which comprises a handle, holding means disposed on one end of said handle adapted to detachably secure a cleaning member, said holding means including an upper plate and a lower plate, a cleaning member disposed in said holding means, and restricting means associated with said upper plate and lower plate to restrict the movement of said cleaning member when said cleaning member is in position in said holding means.

The present invention may be more readily understood by reference to the drawings which illustrate various embodiments of the present invention.

FIGURE 1 is a plan view of the cleaning device showing the cleaning member in position.

FIGURE 2 is a side view in section taken along the lines 2—2 of FIGURE 1.

FIGURE 3, illustrating a second embodiment of the in-

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vention, is a view taken in perspective of the cleaning device.

Referring particularly to FIGURE 1, 10 represents a handle which may be fabricated from a light weight material which is rigid, inexpensive and easily fabricated. Examples of suitable materials include aluminum and plastic. Disposed at one end of the handle 10, is an upper plate 11, which is shown in the drawing as being an extension of the handle 10 although it will be understood that the upper plate may be separately fabricated and joined to the handle at the point where the plate outwardly flares away from the handle in the drawing. The joining may be effected in any convenient manner such as by welding the plate member to the handle, care being taken however, to align the plane of the handle with the plane of the upper plate. As shown in FIGURE 2, the lower plate 12 of substantially the same configuration as the upper plate 11 may be detachably secured to the upper plate member by means of securing members, such as threaded screws 14 which pass through the openings 15 in the lower plate and which threadably engage threaded holes 16 disposed in the upper plate.

Located intermediate the holes 16 and the forward edge 17 of the upper plate 11 are a pair of pins 18 which are rigidly secured to the upper plate 11 and which project a short distance from the plane of the upper plate as shown in FIG. 2. These pins register in recesses 19 disposed in the lower plate 12 when the upper and lower plates are brought together in compressing manner. A cleaning or cutting member such as a cleaning blade 21 which is preferably constructed of a material having a hardness index less than that of the spinnerette metal to be cleaned is shown in FIGURE 2 positioned between the upper and lower plates so that the back edge 23 of the cleaning member 21 rests against the pins 18. For purposes of economy and convenience, both the forward edge 24 and back edge 23 of the cleaning member are sharpened so that when one edge becomes dull after use, the blade may be reversed in the cleaning device so that the dull edge rests against the pins 18.

Assuming the device requires the insertion of a blade for use in cleaning a spinnerette, the operator separates the upper plate from the lower plate by releasing the securing member from the upper plate. In the case where the securing members are threaded screws, the operator merely rotates the screws so that they are threadably released from the upper plate. Complete separation of the upper and lower plates for inserting a blade is desirable when in addition to inserting a cleaning member, it is also desired to clean the device. However, complete separation of the upper and lower plates is not requirely merely for inserting a new blade since all that is necessary is that upper and lower plates be brought in an out-of-contact relation sufficient to insert a cleaning blade in the space provided. This can be effected by merely loosening the screws without disengaging the screws from the threaded openings 15 and 16.

Referring particularly to FIGURE 3, which illustrates another embodiment of the invention, it will be seen that handle 26 comprises upper and lower elements 27 and 28 joined together by spot welding the upper element to the lower element. Upper and lower plates 29 and 31 respectively, which are shown as being extensions of the handle 26 each has a curved portion 32, 33 respectively, immediately prior to the upper and lower plate edges 34 and 35 respectively. The spot welding of the upper and lower elements 27, 28 are at locations such as points A, B, C, and D which permit the upper and lower plates to be compressed toward each other while housing a cleaning member, such as cleaning blade 36 having the same configuration as the upper and lower plates. The distance from the forward edges 34, 35 of the upper and lower

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plates to the point where the curving of the plate members begin is slightly less than the corresponding sharpened edge 37 of the blade 36 to the curved portion of the blade so that when the blade is inserted between the upper and lower plates, the blade extends a short distance beyond the edges of the upper and lower plates. The curved portions of the plates in contact with the curved portion of the blade restricts the forward and backward movement of the blade when it is in position between the plates 29 and 31.

Insertion of the blade 36 into the space provided by separating the upper and lower plates may be effected by use of a tool, not shown, and the new blade to be inserted is advantageously used to remove the old blade by inserting the new blade adjacent the old blade, utilizing the longitudinal edge of the blade to push out the old blade. Both transverse edges of the blade may be sharpened thereby providing two cleaning edges for each blade so that when one cleaning edge is dull the blade may be reversed and the sharpened edge utilized for the cleaning operation.

Since many different embodiments of the invention may be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited by the specific illustrations except to the extent defined in the claims.

I claim:

1. A device for removing polymeric residue from a spinnerette face comprising in combination:

a blade having a forward edge and a back edge and a curved portion extending parallel to and equidistant

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from the forward edge and back edge, said blade consisting of a material having a hardness index less than the hardness index of the spinnerette; and

a handle comprising two complementary-shaped planar plates in laminar configuration, said plates having a curved portion extending transverse to the axis of said handle and adapted to receive the curved portion of said blade therebetween, said plates extending beyond the axis of the curved portion of said plates to a distance which is less than half the distance between the forward edge and back edge of said blade and being separated thereat a distance sufficient to compressively engage said blade.

2. A device according to claim 1 wherein the complementary-shaped planar plates comprising the handle are maintained in laminar configuration by means of a plurality of spot welds between the plates, said spot welds being located in the handle of said device.

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