A method of drawing moving threads or yarns, preferably carpet yarns, into narrow channels and particularly threading channels of texturizing apparatus, in which method the yarn is drawn into said channel at a velocity of from 200 to 3,500 m/min by means of a wire loop passing through said channel, and at the same time or shortly thereafter the said yarn is severed at a point between said wire loop and a suction pistol adapted to take up the moving thread before it is drawn into said channel. The invention also relates to apparatus for carrying out said method.
METHOD OF DRAWING MOVING THREADS OR YARNS INTO NARROW CHANNELS AND APPARATUS THEREFOR

The present invention relates to a method of drawing moving threads or yarns into narrow channels, particularly threading channels of yarn-texturizing apparatus involving hot flowing media, preferably in stretch/texturizing processes, i.e., texturizing processes immediately following the stretching operation. The invention also relates to apparatus for carrying out said method.

In so-called jet texturizing processes using flowing media, it has only been possible, hitherto, to thread the yarn into the texturizing apparatus by stopping the latter or by using an expensive type of texturizing apparatus capable of being opened on hinges. Texturizing apparatus of the latter kind has the additional drawback that the texturizing effect is impaired due, for example, to the fact that the geometry of the treatment chamber is such that any point located between the two halves and by the fact that the seal between said two halves cannot absolutely prevent leakage of the flowing medium. Thus it has been hitherto necessary, when placing a new yarn on the godets of the stretching apparatus, to unmount the texturizing apparatus and place it on a suction pistol. Thus at each change of bobbin, it has hitherto been necessary to unmount the texturizing apparatus and then reheat it to the operating temperature of about 300°C.

It is an object of the invention to provide a method of drawing a moving thread into the threading channel of a permanently mounted texturizing apparatus maintained at the operating temperature, and also to provide apparatus for carrying out said method. The solution of this problem is a prerequisite for combining the spinning process with said stretch/texturizing process.

In accordance with the invention, the above object is achieved by drawing the yarn into said threading channel at a velocity of from 200 to 3,500 m/min and preferably from 800 to 2,400 m/min by means of a wire loop passing through said threading channel and by severing the yarn, at the same time or shortly thereafter—e.g., between one hundredth and one tenth of a second thereafter—by a point between said wire loop and a suction pistol which had taken up the moving yarn before it was drawn into said threading channel. Such channels generally have diameters of from 0.5 to 3 mm and in particular from 1 to 2 mm. Thus suitable wire diameters in said wire loop used in carrying out the method of the invention are from 0.2 to 0.5 mm depending on the diameter of the said threading channel.

Preferably, the yarn is drawn into said channel with the aid of mechanical means for accelerating the wire loop, for example a compressed spring or a pneumatic piston.

A magnetic thread cutter is particularly suitable for severing the yarn.

The invention also relates to apparatus for carrying out said method, this being characterized by a wire loop fixed in a pin, a quick-grip chuck for accommodating said wire loop, a compression spring located in a barrel, and bolt carrying said chuck, a cocking lever for compressing said compression spring and an electromagnetic trigger for releasing the compressed spring.

An advantageous embodiment of the apparatus of the invention is described below with reference to FIGS. 1 and 2 of the accompanying drawings, in which

FIG. 1 is a diagrammatic longitudinal section of the spring gun showing its essential parts, and
FIG. 2 is a diagram of the entire installation.

Referring to FIG. 1, the spring gun consists of a guide barrel 11, a compression spring 12, a bolt 13, a quick-grip chuck 14 which is screwed to said bolt 13 and which is adapted to accommodate the wire loop 15 attached to the pin 16, a cocking lever 17 for compressing the compression spring 12 and an electromagnetic trigger 18 for releasing the compressed spring 12.

The end of the barrel 11 remote from the chuck 14 is closed by means of a threaded cap 19. A rubber ring 20 cushions the impact of the bolt 13.

Referring to FIG. 2, the spring gun 10 is illustrated as being mounted on a trolley 21 together with a magnetic thread cutter 21, a thread guide 22 and a clamp 23 for the suction pistol 24. The said trolley enables the apparatus of the invention to be readily moved to any texturizing station.

EXAMPLE

Unfinished nylon 6 yarn having a total denier of 4,000 f 67 dtx is drawn from a bobbin 26 and passed through a stretching apparatus 27. The wire loop 15 with its pin 16 is placed over suction tube 24 of suction pistol 24 before the yarn is placed round godets 27 and 27'.

The velocity of the stretched yarn 28 (1,220 f 67 dtx) is 800 m/min.

The yarn 28, after passing round godet 27', passes over a guide roll 29 and through a magnetic thread cutter 21 and a thread guide 22 to be initially taken up by suction pistol 24.

When the system has been thus set up, wire loop 15 and pin 16 are passed through texturizing unit 30 and placed in chuck 14 of spring gun 10.

The diameter of the threading channel is 1.2 mm and loop 15 consists of wire having a diameter of 0.3 mm.

On release of the compressed spring 12 and actuation of the magnetic thread cutter 21, the yarn is drawn through texturizing unit 30 by means of wire loop 15. Further transport of the yarn is effected by the medium flowing through the texturizing unit.

We claim:

1. A method of drawing a moving yarn into a narrow channel, said method comprising: drawing the yarn into said channel, while said yarn travels at a velocity of from 200 to 3,500 m/min, by means of a wire loop passing through said channel; and

at the same time or shortly thereafter, severing the yarn at a point between the wire loop and a suction pistol into which the moving yarn had been taken up before it was drawn into said channel.

2. A method as claimed in claim 1, wherein the yarn is drawn into said channel with the aid of means for accelerating the withdrawal movement of the wire loop through said channel.

3. A method as claimed in claim 1 wherein the yarn is severed at a point between the wire loop and the suc-
3. A method of drawing moving yarn into a narrow channel as claimed in claim 1 in which the channel is the threading channel of a yarn texturizing apparatus.

4. An apparatus for drawing a moving yarn into a narrow channel, said apparatus comprising a wire loop attached to a pin as a yarn engaging assembly for insertion in said narrow channel, a quick-grip chuck for accommodating and holding said wire loop and pin, a bolt carrying said chuck within a guide barrel having compression spring means for accelerating the movement of said bolt together with the chuck and yarn engaging assembly in relationship to said barrel, a cocking lever for compressing the compression spring and an electromagnetically actuated trigger for releasing said compressed spring.

5. An apparatus as claimed in claim 5, which is mounted on a trolley together with a magnetically actuated thread cutter, a thread guide and a clamp adapted to receive a suction pistol.