

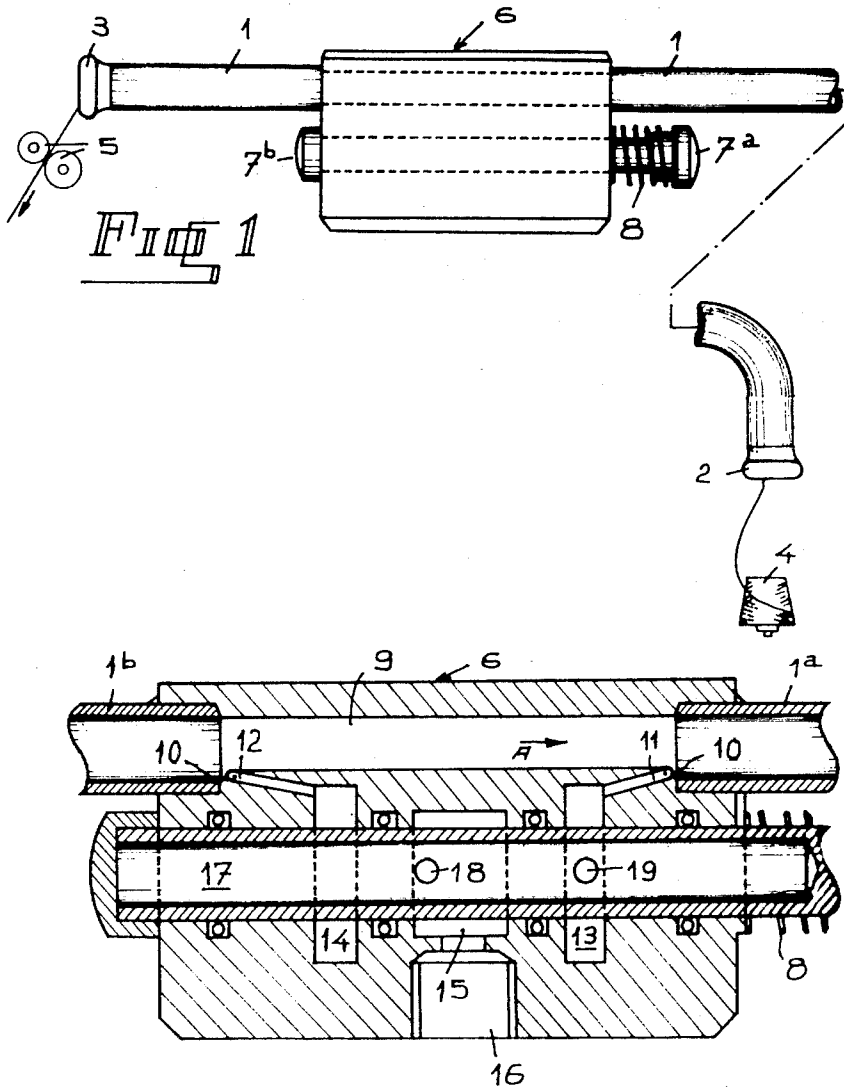
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DEVICE FOR GUIDING A THREAD

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1

2

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DEVICE FOR GUIDING A THREAD

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4 Claims

ABSTRACT OF THE DISCLOSURE

This device for guiding a thread includes a guiding channel for the thread which is provided with at least two orifices for discharging a fluid between the ends of the channel. Two of the orifices are so arranged relative to the channel as to discharge fluid in opposite directions such that the fluid discharged from one orifice leaves the channel at one end and the fluid streaming out of the other orifice leaves the channel at its other end.

Background of the invention

The invention relates to a device for guiding a thread, which device can be used in textile machinery when a thread, which e.g. is drawn from a thread package, is to be guided into a certain part of a machine. It is often necessary in textile machinery that a thread be guided from one point to another whereas the paths of the thread is difficult to reach when the thread is to be arranged by hand, because the space for the thread is too narrow e.g. by the presence of some parts of the textile machinery.

In such a case it is desired to bring the thread at a certain place by hand whereas the thread must be taken up at another place where the thread can be guided by hand again, e.g. under the circumstances that a new thread is to be inserted in a textile machine.

In another case it is desirable that a thread which is drawn from a thread package e.g. by means of two rollers may not slack on its way to the part of the machine in which the thread is to be handled and in order to prevent slackening of the thread by a brake action is to be exerted on the thread.

Summary of the invention

The object of the invention is to provide a device for guiding a thread which is suitable to be applied at those places where the problems mentioned above occur in order to facilitate the handling of the thread.

According to the invention a device for guiding a thread is characterized by a guiding channel for the thread, provided with at least one orifice for injecting a fluid between the ends of the channel.

This orifice is positioned in such a manner with regard to the direction of the guiding channel, that the fluid leaving the orifice flows only toward one end of the guide channel.

When the guide channel has the shape of a tube, such a tube can be situated along and around several parts of a textile machine and the thread can run through this tube.

When now a thread is presented by hand at the entrance opening of the guide channel and a fluid e.g. air under pressure is emitted from the orifice, a stream of air will be created within the guide channel owing to which the thread will be conveyed through the channel to its outlet end where the thread can be handled by hand again.

Preferably the device according to the invention is made in such a manner, that the direction of the channel

and the position of the orifice for the fluid are such that when the fluid streams to one end of the channel a suction action at the other end of the channel is created.

According to the invention it is also possible that a thread, running through the guide channel, is somewhat tensioned owing to which the thread under tension can be led through the textile machinery without the possibility of forming loops in the thread, by which loops the thread can become entangled.

According to the invention this is attained in that the guide channel is provided with at least two orifices having an opposite direction of flow for the fluid and the arrangement is such, that the fluid from one orifice can leave the channel at one end and the fluid streaming out of the other orifice can leave the channel at its other end, whereas both orifices can become alternatively operative.

In this arrangement it is possible that when one orifice is brought in operation, the thread can be inserted into the guide channel, e.g. when a new thread is to be inserted, after which, when the other orifice for the fluid is switched on, a small brake action is exerted onto the thread when this thread is drawn from a thread package by the textile machinery through the guide channel. A good operation of the device according to the invention is attained in that each orifice debouches into a step in the inner wall of the guide channel.

A practical embodiment according to the invention is attained in that the orifices are connected to a housing provided with a control valve, which is forced by spring action into such a position, that normally one orifice is operative whereas the other orifice can become operative by displacement of the control valve against the action of the spring.

The device according to the invention can be arranged in textile machinery in such a manner, that the one orifice which is switched on by the spring action of the control valve causes always a brake action on the thread, which is drawn through the guide channel, whereas the other orifice can be switched on by hand when a new thread is to be inserted into the guide channel.

Brief description of the drawings

FIG. 1 is a side view showing a device for guiding a thread according to the invention, together with a diagrammatic view of parts of textile machinery and

FIG. 2 is a longitudinal section, showing a part of the device for guiding a thread according to the invention.

A device for guiding a thread according to the invention consists in a tube-shaped channel 1 provided with an inlet end 2 and an outlet end 3 for the thread. The tube-shaped channel can have a straight or a curved shaped, depending on the path along which the thread is to be guided. The thread enters the entrance end 2 of the tube-shaped channel and this entrance can be situated e.g., near a thread package 4 from which the thread is drawn by means of e.g., rollers 5 situated near the outlet end 3 of the tube-shaped channel. A device for supplying a fluid into the interior of the channel 1 is situated between the entrance end 2 and the outlet end 3 of the channel. Preferably air under pressure issued as a fluid. This device is generally indicated by the reference numeral 6 in FIG. 1 and this device consists in a control valve from which the actuating knobs 7a and 7b are visible. A spring 8 is situated under the knob 7a, and by the action of the spring the control valve is maintained in an end position as indicated in the drawing. By pushing on the actuating knob 7a the control valve can be moved against the action of the spring 8 for the purpose which will be described later. A longitudinal section of the device 6 is shown in FIG. 2. The device 6 consists in a housing having a channel 9, which forms a connection between the sections 1a and 1b of the tube-shape guide

3

channel. The cross-sectional area of the channel 9 is less than the cross-sectional area of the sections 1a and 1b of the channel, owing to which steps 10 can be obtained at the inner wall of the guide channel. Orifices 11 and 12 debouch into these steps, which orifices are adapted to inject a fluid into the guide channel. When air under pressure streams out of the orifice 11 into the section 1a, a stream of air in the direction of the arrow A is created within the channel 9 and the sections 1a and 1b. When air under pressure streams out of the orifice 12, an air stream is created in opposite direction in the guide channel, comprising the sections 1a, 1b and the channel 9.

The orifices 11 and 12 are connected to chambers 13 and 14 respectively. A chamber 15 is situated between the chambers 13 and 14, which chamber 15 can be connected to a supply 16 for air under pressure. A hollow slide valve 17 runs through the housing and the chambers 13, 14 and 15. Two openings 18 and 19 are provided in the wall of the slide valve 17. The slide valve 17 normally remains in one end position by the action of the spring 8 as mentioned above with reference to FIG. 1. In this end position, which is also indicated in FIG. 2; the hole 18 connects the internal space of the slide valve to the chamber 15. The hole 19 then connects the internal space of the slide valve to the chamber 13. In the indicated position of the slide valve a fluid e.g., air under pressure can stream from the chamber 15 through the hole 18 and the internal space of the slide valve and through the hole 19 and the chamber 13 into the orifice 11 and further into the guide orifice 1. By the air jet leaving the channel 11 a stream of air in the direction of the arrow A is created in the guide channel 1a, 1b and 9. When a thread, which runs through the guide channel is drawn from the thread package by means of the rollers 5, a brake action is exerted onto the thread. However, if here is no thread in the guide channel, the leading end of a thread, drawn from the thread package 4, is presented by hand to the entrance 2 of the guide channel and when the actuating knob 7a is pressed down by hand the control valve 17 is moved against the action of the spring 8.

The hole 19 then coincides with the chamber 15 and the hole 18 coincides with the chamber 14 and air under pressure will stream out of the orifice 12. The orifice 11 is closed and off an air stream within the guide channel is created in a direction opposite to the direction which is indicated by the arrow A. The thread will be sucked into the entrance 2 of the guide channel and will be conveyed further through this channel. When the thread comes out of the guide channel at the outlet end 3 and the thread is then held by hand again, the thread will be

4

tensioned by the air stream within the channel as soon as the actuating knob 7a is released. The thread then can be positioned between the rollers 5 for further handling of the thread. As soon as the actuating knob 7a is released the control valve will move by the action of the spring 8 into the position indicated in the drawing.

If no brake action on the thread is desired the supply of air through the supply opening 16 can be interrupted, e.g., by means of an additional valve, which is not indicated in the drawing. Such a valve can also be situated in the orifice 11. In such a case the device according to the invention will be operative only when a thread is to be inserted into the guide channel 1.

In the above described manner it is possible to insert a thread in any guide channel, and besides it is possible to obtain a brake action onto the thread by means of such a device.

I claim:

1. A device for guiding a thread, characterized by a guiding channel for the thread provided with at least two orifices for injecting a fluid into the channel between the ends of the channel, two of the orifices being so arranged relative to the channel as to discharge fluid in opposite directions such that the fluid discharged from one orifice leaves the channel at one end and the fluid streaming out of the other orifice leaves the channel at its other end.

2. A device according to claim 1, characterized in that the two oppositely directed orifices can become alternately operative.

3. A device according to claim 1, characterized in that each orifice debouches into a step in the inner wall of the guide channel.

4. A device according to claim 2, characterized in that the orifices are connected to a housing provided with a control valve, which is forced by spring action into such a position that normally one exhaust is operative whereas the other orifice can become operative by displacement of the control valve against the action of the spring.

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