

**[54] DEVICE FOR READYING THE UNWINDING
PROCESS OF COPS**

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[58] **Field of Search** 242/35.6 E, 35.6 R,
242/35.5 R

[56] **References Cited**

UNITED STATES PATENTS

3,464,640	9/1969	Kupper.....	242/35.6 E
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Attorney—Arthur E. Wilfond et al.

[57] **ABSTRACT**

A pivotally mounted thread gripping device is provided in the guide path of cops at substantially the height of the base of the cops. The device is pivotable in the direction of travel of the cops and is in operative proximity with the cops. The device is actuated by each cop as it passes to pick up the exposed section of thread.

4 Claims, 3 Drawing Figures

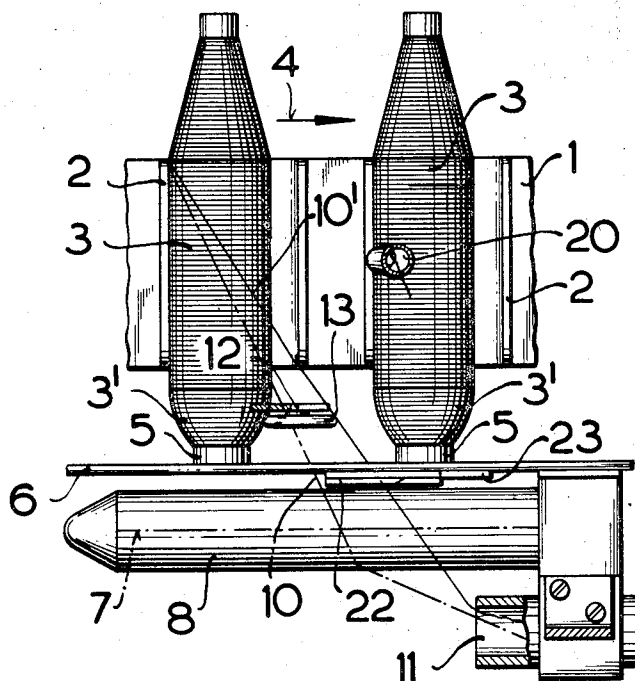


FIG. 1

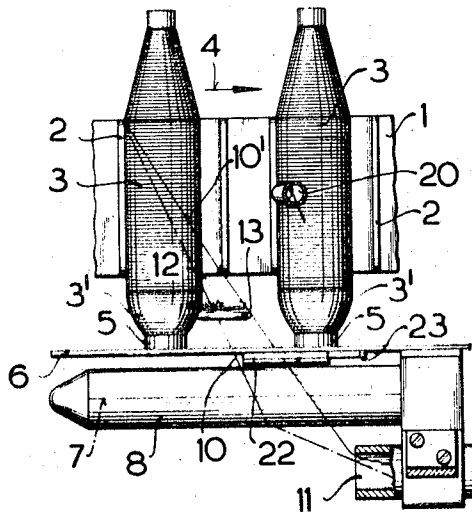


FIG. 2

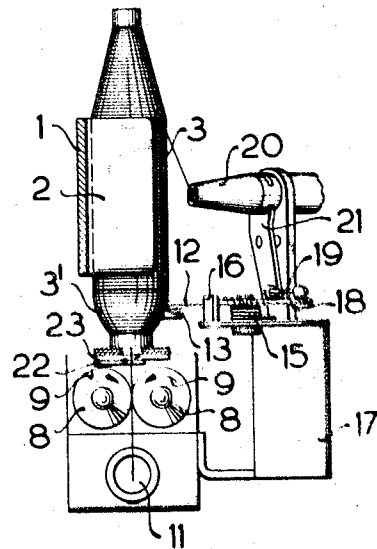
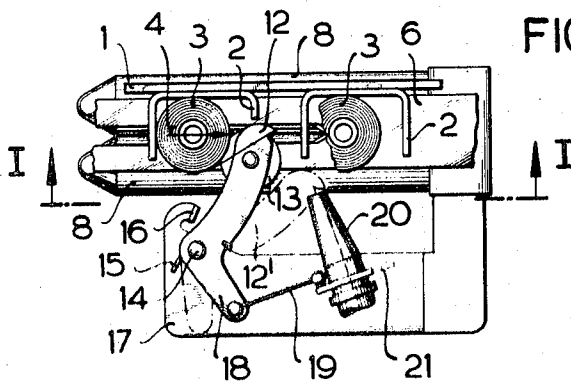


FIG. 3



DEVICE FOR READINGY THE UNWINDING PROCESS OF COPS

The invention relates to a device for readying the unwinding process of cops. More particularly, the invention relates to a device for making ready the unwinding process of cops or supply coils which are led by transport means on a path along the contact line of two cylindrical bodies of rotation, wherein the starting end of the thread of the cops is exposed and pulled off by means of the cylinders.

Devices of the aforescribed type serve to find the starting end of the thread in an upper or lower winding or on the periphery of the cops, to expose it and to keep the free starting end of the thread available for further operation. The thread end can then be picked up by the thread gripping members of the processing machine, for example, a winding machine, and the unwinding process of the cops can be initiated.

It is known to prepare cops in such a manner by means of mechanical strippers or by using suction or blast air streams. Mechanical and pneumatic means can also be used with mutually aiding effect. In one device of this type, the starting end of the thread of a cop which is exposed by means of an air blast is picked up by counter-rotating cylinders and is continuously pulled off during the travel of the cop, which is transported in a cradle along the contact line of the cylinders, with increased pulling force. Since a section of thread, exposed in this manner, is pulled off over the surface of the cops, the pulling forces acting on the thread section and the non-uniformity in the structure of the winding cause snags. The snags prevent a trouble-free picking up and unwinding of the thread section in subsequent operations, or lead to breakage of the thread even during the readying.

An object of the invention is to provide a device for readying the unwinding process of cops which overcomes the disadvantages of known devices.

An object of the invention is to provide a device for readying the unwinding process of cops which prevents breakage of the thread and permits trouble-free pick up and unwinding of the thread section.

Another object of the invention is to provide a device of simple structure for readying the unwinding process of cops which functions with efficiency, effectiveness and reliability.

In accordance with the invention, a thread gripping device is provided within the guide path, at the height of the base of the cops. The thread gripping device can be swung in the direction of transport of the cops and is actuated by the passing cop of its transport means. The thread gripping device picks up the exposed piece of thread.

In a cop guided along the contact line of two cylindrical bodies of rotation, the start of its thread is thus first exposed and pulled off by the bodies of rotation. While the cop is transported on to a work station, it can swing around with its base, that is, in the region of the foot of its tube, a thread gripping device which projects into the free space above the support for the foot of the tube in such a manner that a thread passing through is picked up and is lifted from the surface of the cop in the direction of movement of the cop. The thread gripping device may also be actuated, however, by the transport means which transports the cops such as, for example, the cradles or the conveyor belt. To accomplish this, these parts merely need be provided with

control contours. A thread lifted from the cops in this manner permits the thread section to be pulled off without friction at the layers of yarn of the cop surface.

The device is particularly simple if the actuation of the thread gripping device is released by the passing cop. For this purpose, it is advantageous if the thread gripping device is provided with a roller sensing base of the cop. In order to limit the length of pull off of the exposed thread section lifted by the thread gripping device of the surface of the cops, a separating device acting upon the section of thread may be provided in the guide path of the cops between the thread gripping device and the bodies of rotation. The action of the thread gripping device may be further improved if a suction jet equipped with a thread clamp is associated with the lifted section of thread. The suction jet may be provided at the end of the guide path and may hold the section of thread during the transfer of the cops to another processing machine, so that subsequent snagging at the cop surface is avoided.

The advantage obtained by the device of the invention is particularly that the starting end of the thread of the cop is reliably detached from the surface of the cop during the readying and is kept away from the surface until a perfect transfer of the cops to the subsequent processing device is assured.

In order that the invention may be readily carried into effect, it will now be described with reference to the accompanying drawing, wherein:

FIG. 1 is a front view of an embodiment of the device of the invention for readying the unwinding process of cops with the thread gripping device;

FIG. 2 is a side view of the device of FIG. 1; and

FIG. 3 is a top view of the device of FIG. 1.

In the FIGS., the same components are identified by the same reference numerals.

In FIG. 1, a conveyor belt 1 has cradles 2 affixed thereto. The cradles 2 receive cops 3. The conveyor belt 1 is driven in the direction of an arrow 4 and transports the cops 3 to a subsequent processing station, not shown in the FIGS. The cops 3 slide over the base 6 on the foot of the tube of each. The base 6 extends in the direction of the contact line 7 of a pair of cylinders 8. The two cylinders 8 counter-rotate, as indicated by arrows 9 in FIG. 2.

The broken dash-dotted line in FIG. 1 extending from one of the cops 3 to a suction jet 11 signifies a section of thread 10 which is pulled off vertically downward over the surface of said cop by the cylinders 8. Here, snags of the aforescribed type may occur and make it impossible to properly pick up the thread in one of the subsequent processing devices.

Shown in FIG. 1, at the height of the base 3' of the cops 3, is the portion of a thread gripping device 12, cut along the lines I—I of FIG. 3, and a roller 13 of said device. The position of the thread gripping device 12 shown in FIGS. 1 and 3 clearly shows that said device has picked up the thread section and has lifted it from the surface of the cops 3 to a position 10' (FIG. 1).

Further details of the thread gripping device 12 are shown in FIG. 3. It is shown particularly clearly how the roller 13, connected to the thread gripping device 12, is swung by the travel of a cops 3 in the direction of the arrow 4 against the force of a torsion spring 15 and how said thread gripping device may occupy a position 12', indicated by a broken dash-dotted line in FIG. 3.

The depth of immersion of the thread gripping device 12 into the gap between adjacent cradles 2 is limited by a stop 16 of an arm 17 (FIG. 3). The thread gripping device 12 also has a lever arm 18 which, via a linkage 19, opens and closes a valve 21 of a suction jet 20, and thereby readies said suction jet to receive and retain a lifted section of thread.

Scissors 22 and 23 are provided under the base 6. The scissors 22 and 23 can sever a lifted section of thread through the region between the base 6 and the cylinders 8, to prevent an unnecessarily long section from being pulled off by said cylinders. Parts of the scissors 22 and 23 are shown in FIGS. 1 and 2.

While the invention has been described by means of a specific example and in a specific embodiment, I do not wish to be limited thereto, for obvious modifications will occur to those skilled in the art without departing from the spirit and scope of the invention.

I claim:

1. A device for readying the unwinding process of cops, each having a base, which are guided by transport means on a path along the contact line between two cylindrical rotating bodies, the starting end of the thread

of the cops being exposed and pulled off by the cylindrical rotating bodies, said device comprising a thread gripping device provided in the guide path of the cops at substantially the height of the base of the cops, and means mounting said thread gripping device for pivotable movement in the direction of travel of the cops, said thread gripping device being in operative proximity with the cops and being actuated by each cop as it passes to pick up the exposed section of thread.

2. A device as claimed in claim 1, wherein the thread gripping device has a roller for sensing the base of the cops.

3. A device as claimed in claim 2, further comprising a thread severing device in the path of the cops between the thread gripping device and the rotating bodies.

4. A device as claimed in claim 3, further comprising a suction jet means having an operably mounted apertured member, and means actuated by said thread gripping device to actuate said apertured member whereby said suction jet means is operable thereby to retain a lifted section of thread.

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