

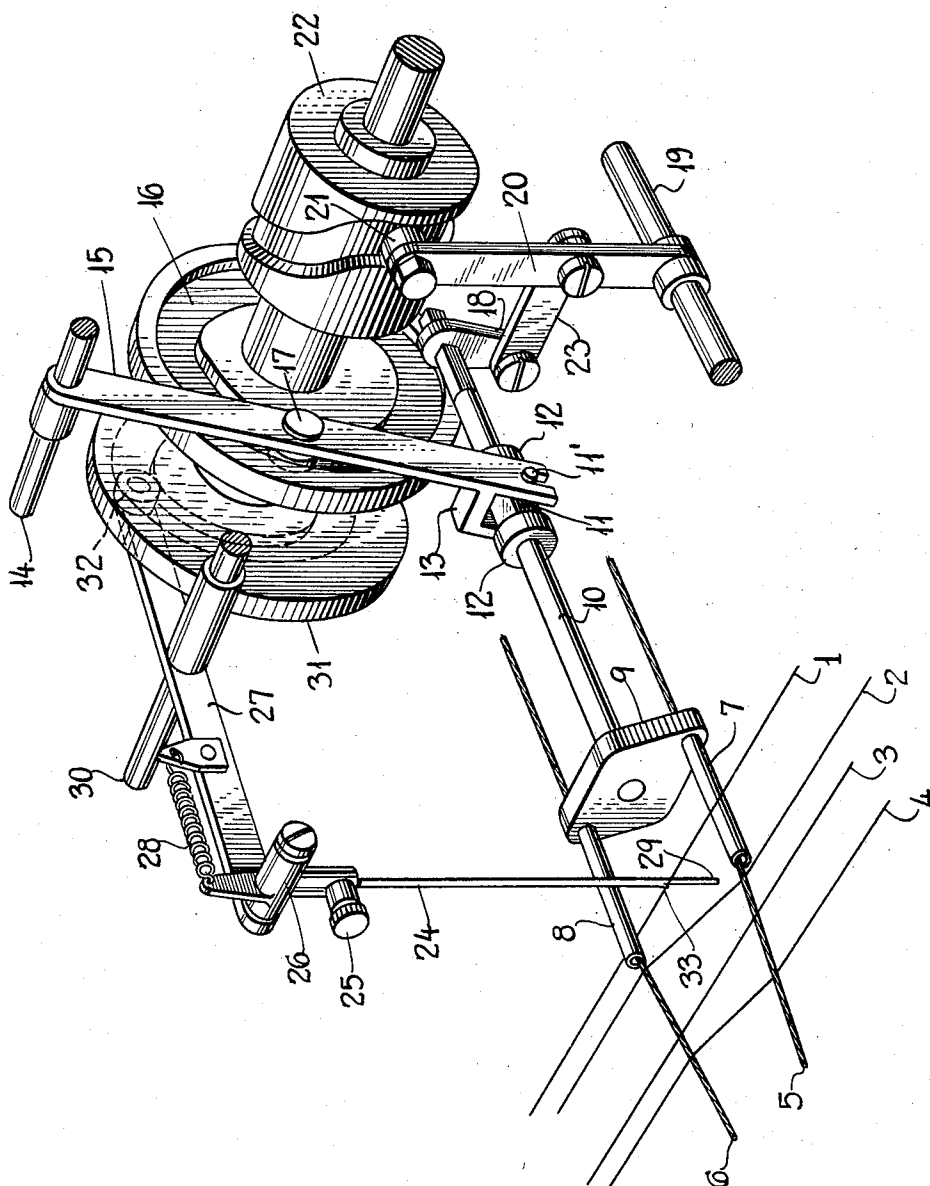
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DEVICE FOR SEPARATING LEASED WARP THREADS

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DEVICE FOR SEPARATING LEASED WARP THREADS

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2 Claims. (Cl. 28—43)

The present invention relates to a device for separating leased warp threads, more particularly to a device for separating a single selvage thread from a warp which is being leased.

In warp tying machines, looming frames and the like, the warp threads are mounted between two clamps. For determining the sequence of the individual threads within the warp the threads are leased by means of two lease bands. Several devices are known for separating the selvage thread from the other warp threads. For guiding the lease bands tubes are used through which the bands are drawn and which are oscillatingly and reciprocatingly moved for pushing away the second warp thread and thereby the following warp threads, separating the selvage thread.

It is also known to seize, by means of a separating needle, the selvage thread which has been separated by the leasing device and to push the selvage thread out of the plane of the warp. Such a needle includes an oblong element which is resiliently pressed against the selvage thread and which is provided with a lateral notch which is just large enough to suit the counts of the thread. The needle is moved along the selvage thread so that the latter is caught by the notch and pushed out of the plane of the warp.

Faulty operation of the leasing device causes simultaneous separation of two or more threads. When using a separating needle as described above, a single thread is separated from the separated group of threads.

The separating needle may have a notch at this point, if it is held in a suitable position relative to the selvage thread by other means. Separating needles may be used which are composed of several parts so that the size of the notch may be adjusted according to the counts of the thread. Correct sequence of the warp threads is assured only in the immediate neighborhood of the lease. Due to the bends the threads may already be in a wrong position on the elements forming the lease, for example, on the lease bands.

In the conventional devices which include a separating needle as well as means for utilizing the lease, the former always engages a thread portion which is outside of the thread portion which is affected by the leasing and separating device. This has the disadvantage that a wrong thread is separated by the separating needle, if the order of the warp threads is disturbed.

It is an object of the present invention to provide a thread separating device which eliminates mixing up of warp threads because it uses a separating needle which engages the selvage thread between the elements guiding the lease bands and not outside of these elements.

The novel features which are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, and additional objects and advantages thereof will best be understood from the following description of an embodiment thereof when read in connection with the accom-

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panying drawing, the single figure of which is a perspective diagrammatic illustration of a device according to the invention.

Referring more particularly to the drawing, numerals 1, 2, 3, 4 designate warp threads, not shown, which are mounted between clamps, not shown. The proper sequence of the threads is assured by a lease which is effected by lease bands 5 and 6. The latter are individually pulled through tubes 7 and 8 which are connected with a shaft 10 by means of a flange 9. A sleeve 11 is rotatable on the shaft 10 and secured against axial movement by two collars 12. The sleeve 11 is provided with radial pins 11' which are engaged by the prongs of a fork 13 forming the end of a lever 15 swinging on a shaft 14. A cam 16 engaging a follower roller 17 mounted on the lever 15 oscillates the latter, axially reciprocating the shaft 10 and the tubes 7 and 8. The rear end of the shaft 10 has a square cross section and extends through a like hole in an arm 18, permitting axial movement of the shaft 10 in the hole. A lever 20 swingable on a shaft 19 is oscillated by a cam 22 which engages a follower roller 21 mounted on the lever 20. The oscillating movement of the lever 20 is transmitted by a link 23 to the arm 18 which is pivoted to the link 23. The arm 18 can oscillate the shaft 10 independently of the axial movement of the shaft. The cams 16 and 22 are so shaped that the tubes 7 and 8 in cooperation with the lease bands 5 and 6 separate the warp threads in the conventional manner. In the illustrated position the tubes 7 and 8 push the warp thread 2 and the rest of the warp away from the selvage thread 1 which remains stretched because it is tensioned by means not shown. A separating needle 24 is clamped to a support 26 by a screw 25. The support 26 is rotatably supported by a lever 27 and so urged by a spring 28 that the end 29 of the needle 24 rests against the selvage thread 1. The lever 27 is swingably supported by a shaft 30 and is provided with a follower roller 32 engaged by a cam 31 for oscillating the lever whereby the needle 24 resting against the thread 1 is moved up and down. When the needle moves down a lateral notch 33 seizes the selvage thread 1 and moves it out of the plane of the warp in the conventional manner. If the cams 16, 22 and 31 are all on the same shaft, the needle 24 is actuated in timed relation with the movement of the tubes 7 and 8.

If, because of faulty leasing, two selvage threads are present instead of one, the needle 24 will separate only one thread, if the size of the notch 33 corresponds to the diameter of the thread.

What is claimed is:

1. A device for separating the selvage thread from a leased warp comprising, in combination, means for guiding lease bands, said means including two spaced members individually guiding a lease band, and means including a vertically reciprocating needle provided with a lateral notch corresponding to the count of said warp thread spaced from the end thereof and adapted during said reciprocating motion to engage said warp and to seize but a single warp thread, said last mentioned notched needle means being placed between said lease guide members.

2. A device in accordance with claim 1 wherein said notched needle reciprocates substantially perpendicularly to the plane of said warp and is spring pressed in a direction normal to said plane.

References Cited in the file of this patent

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