

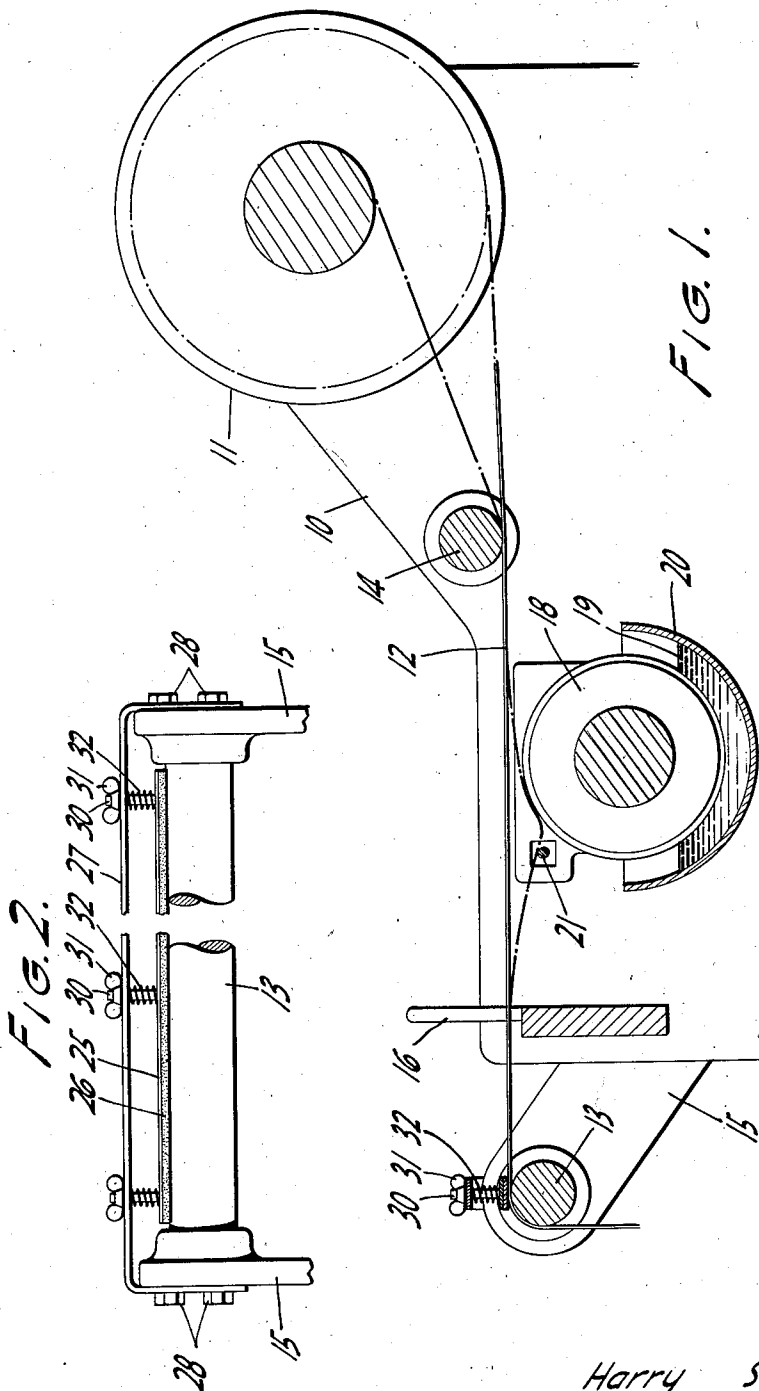
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TEXTILE MACHINE

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TEXTILE MACHINE

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5 Claims. (Cl. 66—163)

This invention relates to textile machines and particularly to improvements in the feeding of thread or yarn therein or thereto.

In a co-pending application of Clyde B. Hayes and Henry J. Czech, Serial No. 433,302, filed March 4, 1942, now Patent No. 2,330,302, there is basically disclosed a stop means utilizing the electrical conductivity of a broken or otherwise abnormally positioned thread or strand to effect machine stoppage. Among other things, the present invention aims to improve the operation of stop means of this general type, particularly when thread or yarn of certain kinds is being worked.

A further object of the invention, which is also of particular importance in dealing with certain kinds of yarn or thread, is to improve the manner in which the yarn or thread is presented to certain instrumentalities for instance, knitting needles. By way of example, cotton thread or yarn may be characterized by the presence of minute cotton fibres which project laterally from the main body of the thread. In certain textile machines, tricot knitting machines for instance, a number of threads or strands may extend in relatively close adjacency. In the stop means referred to above successful operation requires that a broken thread or strand, or one whose normal feeding movement is interfered with by failure of the knitting mechanism or otherwise, fall or otherwise move from its normal path of movement. In the case of thread or yarn having the fuzzy characteristics referred to above, a thread which is not under tension, by reason of breakage or otherwise, may continue to be supported in its normal path and fed therealong by adjacent threads or strands by reason of contact between the projecting tentacles or processes of adjacent threads or strands.

The present invention provides what is in effect a thread brake and a thread brushing means. The braking action causes threads or strands which are merely being supported or drawn along by contact with adjacent threads to cease to be so supported or drawn along. As a consequence the abnormal thread sags or otherwise moves to abnormal position and permits operation of the machine stopping means which is sensitive to such abnormality. It is further found that the brushing action which the brake means applies to the thread or strand materially improves its proper reception by needles or like textile fabricating devices.

By way of example the invention is shown, in the present instance, as applied to a tricot knit-

ting machine, and again by way of example, it will be assumed that cotton thread or yarn is being knitted. It is to be understood, however, that the principles of the invention are not limited in spirit or scope to the example set forth, nor otherwise than as defined in the appended claims.

In the drawing:

Fig. 1 is a fragmentary side elevational view showing portions of a tricot knitting machine in cross section; and,

Fig. 2 is a fragmentary front elevational view of the novel thread or yarn braking means.

In the drawing like characters of reference denote like parts and the numeral 10 designates a side frame element of a tricot knitting machine having a warp beam 11. Warp thread or yarn 12 extends from the warp beam 11 to a tension bar 13, being guided in its passage thereto by a whip roll 14. The tension bar may be supported by a pair of arms 15 pivoted to the side frame and resiliently urged to impart predetermined tension to the warp. This much of the construction is conventional and the showing is accordingly more or less diagrammatic. A sley bar is shown at 16.

A modified form of the stop means of the aforementioned co-pending application referred to above is shown in Fig. 1. As there shown, a roll 18 is disposed beneath the warp 12 and means (not shown) are provided for continuously rotating the roll 18 in a clockwise direction as viewed in Fig. 1. It will be noted that the lower portion of the roll 18 is immersed in liquid 19 in a container 20. The assembly comprising the roll 18, the liquid 19 and the container 20 extends across the machine and beneath all of the parallel warp threads 12 and comprises one electrode of a normally open electrical machine-stopping circuit. The other electrode of the machine-stopping circuit is in the form of a wire or rod 21 which likewise extends across the machine beneath the warp, preferably parallel to the roll 18. The dot and dash line shows a thread or strand which has developed slack, by reason of breakage or otherwise, and the thread is coated with liquid by the surface of the roll 18. The liquid 19 is a conductor of electricity and the slack thread becomes coated with this liquid and closes the machine-stopping circuit between the rod 21 and the roll 18.

The yarn or thread braking means illustrated in Figs. 1 and 2 comprises an elongate bar 25 having a soft facing 26 which may be of the nature of felt or similar material. The bar 25 extends along the upper surface of the tension

bar 13 with the facing 26 normally pressed resiliently against the tension bar. A supporting bar is designated 27 and may be removably secured to the opposite arms 15 as at 28.

A number of threaded studs 30 are fixed at their lower ends to the bar 25, either by merely being screwed thereinto or by riveting or the like, and the studs 30 pass through clearance holes in the supporting bar 27 and are provided with wing nuts 31. Coil springs 32 surround each of the studs 30 between the bars 25 and 27 and the tension of the springs may obviously be varied by adjustment of the wing nuts 31.

The drag which the facing 26 exerts on the warp passing over the tension bar 13 is such that if, for instance, a particular needle should fail to knit warp coming to it, for any reason whatever, that particular thread or strand will not be carried over the tension bar by engagement with adjacent threads, as pointed out above. Accordingly, slack will develop at the stop means and stoppage of the machine will be effected.

The brushing action of the facing 26 on the several threads or strands is such that fuzzy lateral projections on the threads are brushed back and the thread is found to be received by the knitting needles in a much improved manner.

What is claimed is:

1. In a textile machine, knitting mechanism and a warp beam for supplying yarn thereto, stop means between said warp beam and said knitting mechanism and actuable by movement of warp out of the normal path of movement, a thread guiding element between said stop means and said knitting mechanism against which a thread normally passes in surface contact on its way to the knitting mechanism, a relatively soft pad directed against said surface to embrace a thread between the surface and the pad, said pad being resiliently urged against said surface to stop feeding movement of warp not consumed by said knitting mechanism.

2. In a textile machine, fabricating mechanism and yarn supply therefor, stop means between said yarn supply and said fabricating mechanism and actuable by movement of yarn out of the nor-

mal path of movement between said supply and said mechanism, a yarn contacting element between said supply and said mechanism across which yarn normally passes in surface contact on its way to the fabricating mechanism, a relatively soft pad directed against said surface to embrace a thread between the surface and the pad, said pad being resiliently urged against said surface.

3. In a textile machine, fabricating mechanism and yarn supply therefor, stop means between said yarn supply and said fabricating mechanism and actuable by movement of yarn out of the normal path of movement between said supply and said mechanism, a yarn contacting element between said supply and said mechanism across which yarn normally passes in surface contact on its way to the fabricating mechanism, and a relatively soft pad directed against said surface to embrace a thread between the surface and the pad.

4. In a textile machine, fabricating mechanism and yarn supply therefor, stop means between said yarn supply and said fabricating mechanism and actuable by movement of yarn out of the normal path of movement between said supply and said mechanism, a yarn contacting element between said supply and said mechanism across which yarn normally passes in surface contact on its way to the fabricating mechanism, a pad directed against said surface to embrace a thread between the surface and the pad, said pad being resiliently urged against said surface.

5. In a textile machine, knitting mechanism and a warp beam for supplying yarn thereto, stop means between said warp beam and said knitting mechanism and actuable by movement of warp out of the normal path of movement, a thread guiding element between said stop means and said knitting mechanism against which a thread normally passes in surface contact on its way to the knitting mechanism, a pad directed against said surface to embrace a thread between the surface and the pad, said pad being resiliently urged against said surface to stop feeding movement of warp not consumed by said knitting mechanism.

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