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STOP MOTION

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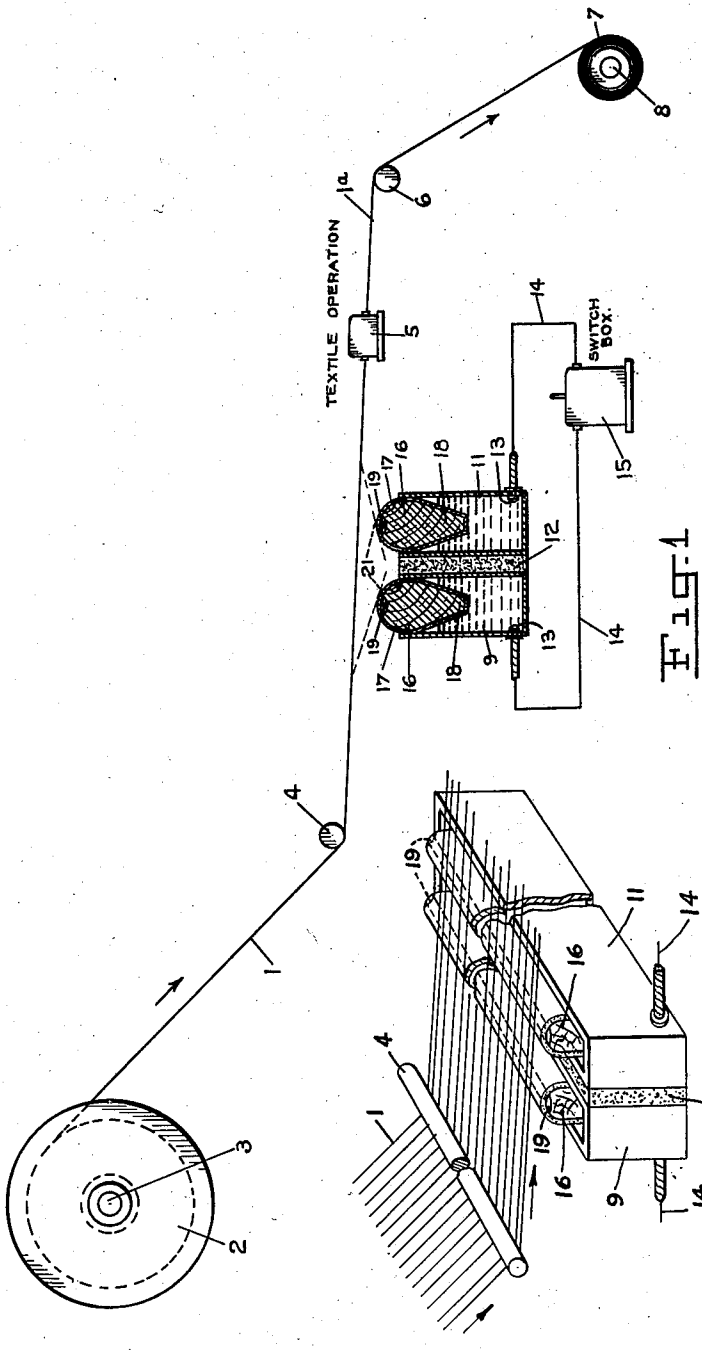


Fig. 1

Fig. 2

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STOP MOTION

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10 Claims. (Cl. 66—163)

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This invention relates to textile machines wherein yarn is fed thereto in the form of a warp and wherein there is employed an electrically operated warp stop motion, and relates more particularly to an attachment for use with such machines for closing the circuit of the warp stop motion, upon breakage of a warp yarn, to halt the operation of the machine.

It is an important object of this invention to provide a simple and efficient device which may be readily applied to a machine wherein yarn is fed in the form of a warp, which will activate the stop motion of the machine to halt the operation of the same upon breakage of a warp yarn.

Other objects of this invention, together with certain details of construction and combinations of parts, will appear from the following detailed description.

While this invention may be employed with textile devices where the warp is knitted into a fabric, is sized, printed, dyed, or has any other textile operation performed thereon, the invention will be described in connection with its use with a warp knitting machine since it is particularly effective therewith.

Figure 1 of the drawing is a diagrammatic view showing the attachment of the present invention, particularly with relation to the warp of yarns being operated upon, and

Figure 2 is a perspective view showing the warp of yarns passing over the device of the instant invention.

Referring now to the drawing, reference numeral 1 indicates a warp of yarns which is fed from the warp beam 2 of a warp knitting machine, which warp beam is supported on a shaft 3 suitably journaled in the warp knitting machine. The shaft 3 is driven by any suitable means (not shown). The warp of yarns is passed under an idler guide roll 4, is processed (in the present case warp knitted) at 5, and the fabric web or treated web of yarns 1a is then passed over an idler roller 6 and taken up at 7 on a take-up roller or shaft 8 driven in any suitable manner (not shown). Placed underneath the warp 1 and extending across the full width of the warp knitting machine are pans 9 and 11 which are electrically insulated from each other by suitable insulation 12 placed between adjacent sides of said pans. These pans are relatively small being about ½" by 1" in cross-section. Pans 9 and 11 are each provided with a copper wire 13 running the full length thereof, which wires are connected by suitable leads 14 to a switch box, generally indicated by reference numeral 15, which

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is included in a suitable stop motion circuit (not shown).

The pans 9 and 11 are filled with a salt solution or any other suitabl electrolyte. Placed in the top of the pans and extending the full width thereof are plugs 16 made of wood or any other suitable material and covered with a wick 17. The wood plugs 16 are of such a size that when pushed into the top of the pans they seal the same sufficiently to prevent splashing. The lower portion of the plugs, indicated by reference numeral 18, are sharply tapered and dipped for substantial portion thereof into the solution of electrolyte. The tops of plugs 16 are provided with longitudinal grooves 19 which are adapted to be filled with solution drawn up by the wicks for a purpose hereinafter set forth.

When a warp yarn breaks (the broken end being indicated by dotted line 21) and the warp continues to unroll, the broken yarn drops on to the plugs 16 in the pans 9 and 11, soaking up the electrolyte and completing a circuit. The solution in groove 19 maintains the top of the wick 17 extremely moist so that the broken yarn quickly takes up the solution so that the circuit closes very rapidly. The closing of the circuit operates a switch in switch box 15 effecting contact in a relay of the stop motion circuit to shut-off the warp knitting machine. It has been found that the present device effects a stoppage of the warp knitting machine in from 3 to 5 seconds from the time of the yarn break.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, relatively stationary means in each of said vessels adapted to be in contact with said electrolyte and to be wetted thereby, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted means is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operaion of the textile device.

2. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, plugs in each of said vessels adapted to be in contact with said electrolyte and to be wetted thereby, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted plugs is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

3. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, plugs in each of said vessels, wicks covering said plugs, said wicks being adapted to be in contact with said electrolyte and being wetted thereby, whereby the electrolyte is caused to wet the top of the plug, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted wick is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

4. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, plugs in each of said vessels, wicks covering said plugs, said wicks being adapted to be in contact with said electrolyte and being wetted thereby, whereby the electrolyte is caused to wet the top of the plug, means in said plug adapted to receive and retain a supply of electrolyte, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted wick is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

5. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, plugs in each of said vessels, wicks covering said plugs, said wicks being adapted to be in contact with said electrolyte and being wetted thereby, whereby the electrolyte is caused to wet the top of the plug, a groove in said plug adapted to receive and retain a supply of electrolyte, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted wick is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

6. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels extending the full width of said warp and adapted to hold

electrolyte, relatively stationary means in each of said vessels adapted to be in contact with said electrolyte and to be wetted thereby, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted means is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

7. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels extending the full width of said warp and adapted to hold electrolyte, longitudinal plugs having tapered portions adapted to dip into said electrolyte and to be wetted by said electrolyte, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted longitudinal plugs is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

8. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels extending the full width of said warp and adapted to hold electrolyte, longitudinal plugs in each of said vessels, wicks covering said plugs, said plugs having tapered portions having a length sufficient to dip into said electrolyte whereby said wicks are wetted by said electrolyte and cause the top of the plug to be wetted by capillarity, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted wick on said longitudinal plugs is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

9. In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels extending the full width of said warp and adapted to hold electrolyte, longitudinal plugs in each of said vessels, wicks covering said plugs, said plugs having tapered portions having a length sufficient to dip into said electrolyte whereby said wicks are wetted by said electrolyte and cause the top of the plug to be wetted by capillarity, means in said plug adapted to receive and retain a supply of electrolyte, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that a broken yarn upon coming into contact with said electrolyte-wetted wick on said longitudinal plugs is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

10. In a textile device for operation on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels extending the full width of said warp and

adapted to hold electrolyte, longitudinal plugs in each of said vessels, wicks covering said plugs, said plugs having tapered portions having a length sufficient to dip into said electrolyte whereby said wicks are wetted by said electrolyte and cause the top of the plug to be wetted by capillarity, a groove in said plug adapted to receive and retain a supply of electrolyte, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being that a broken yarn upon coming into contact with said electrolyte-wetted wick on said longitudinal plugs is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

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