

United States Patent

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- [54] **ROLL ARRANGEMENT FOR A TEXTILE MACHINE**
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[58] Field of Search ..139/307, 308, 304, 296; 26/65; 139/339

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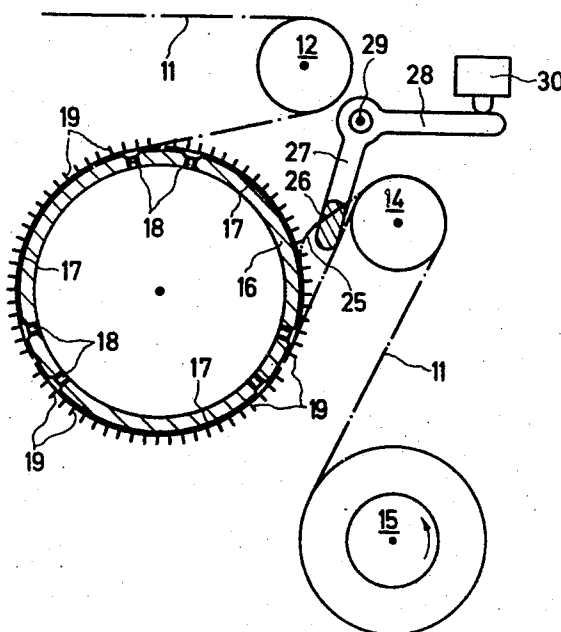
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[57] ABSTRACT

A roll arrangement for a textile machine comprising a rotatable roll, a plurality of curved segments mounted on said roll, the curvature of each of said segments matching the curved form of the roll and outwardly projecting pins carried on the segments. The segments are in the form of plates which are made of metal or plastic material and contain orifices. Each of the pins have a point at one end and a head at the other, and are secured to the plates, the head of each pin being held in one of the orifices.

7 Claims, 3 Drawing Figures



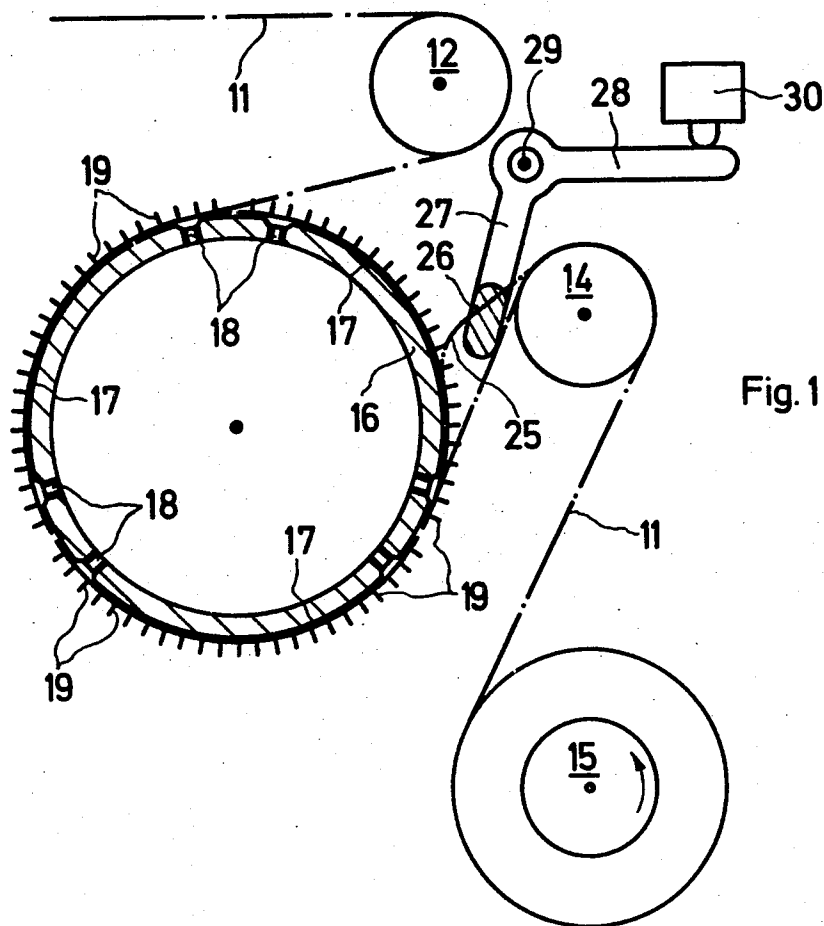


Fig. 1

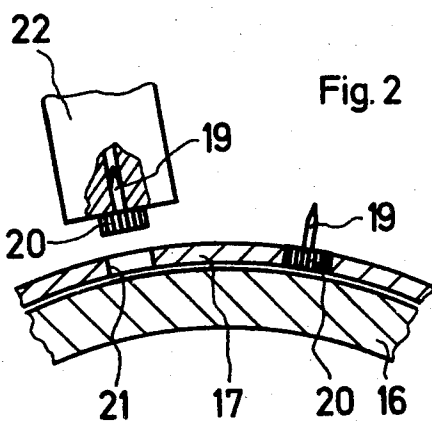


Fig. 2

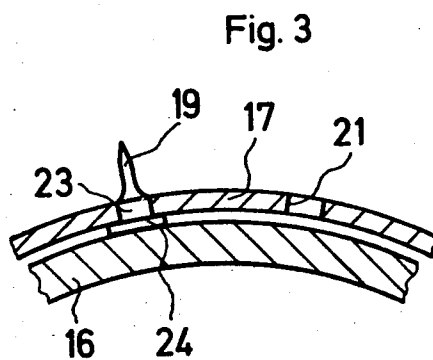


Fig. 3

ROLL ARRANGEMENT FOR A TEXTILE MACHINE

This invention relates to a roll arrangement or construction for a textile machine and more particularly to a roll construction having a rotatable roll on which are mounted a plurality of curved segments, the curvature of which matches the curved shape of the roll and which carry outwardly projecting pins. Also this invention relates to an arrangement for indicating when textile material remains attached to the pins of this roll construction for too long a period in a textile machine.

It is known to employ rolls on textile machines for guiding textile material in web form. Such rolls have outwardly projecting spikes or needles. The textile material is held by these spikes. Rolls having such spikes are used, for example, for temples on looms.

Feed or delivery rolls have been used on looms which comprise wooden portions or segments into which needles are inserted. The insertion of these needles into the wood is not a simple matter, since the needles cannot be hammered in from the outside without damaging their points. The replacement of lost or broken needles, in particular, causes difficulties. In order to secure the needles firmly it is also necessary for the wood to be of adequate thickness. For a given outside diameter of the needle arrangement on such rolls, the thickness of the supporting roll must be reduced by an amount equal to the thickness of the wooden segments. The relatively thick wooden segments thus necessitate the use of a relatively thin or small roll. This has an adverse effect upon the stability of the roll.

It is also known to cast needles into plastic material or metal. However, needle assemblies made in this way, in addition to involving a complicated method of manufacture, also have the disadvantage that it is difficult and troublesome to replace a broken needle.

Advantageously, the present invention overcomes the above-noted disadvantages of the prior art. Thus the roll arrangement of this invention is further characterized in that the segments take the form of plates which are made of metal or plastic material and which contain orifices. Pins are provided, each of which have a point at one end and a head at the other, and the pins are secured to the plates, the head of each pin being retained in one of the orifices.

Also this invention contemplates an arrangement for indicating when textile material remains attached to the pins on the roll for longer than desired during the guiding operation in the textile machine.

The invention will now be described in more detail by reference to its preferred embodiments and to the accompanying drawing, in which:

FIG. 1 is a side view, partly in section, of a roll arrangement in accordance with the invention on a loom; and

FIGS. 2 and 3 are fragmentary views illustrating different embodiments for securing pins to the segments mounted on the roll in greater detail and in cross-section.

Referring to FIG. 1, a fabric 11, woven on a loom, is passed over a reversing roller 12 and around a delivery roll 16. The delivery roll 16 is powered by the loom drive and controls the advance of the fabric 11. Upon leaving the delivery roll 16, the fabric 11 passes over another reversing roller 14 to a cloth beam 15 on which it is rolled up.

The delivery roll 16 consists substantially of a hollow cylinder 16 made of metal or other suitable material. Mounted on this cylinder 16 are curved plates 17, the curvature of which precisely matches the curved shape of the cylinder or roll 16. As seen in FIG. 1, three plates 17 cover the circumference of the cylinder 16. The plates 17 are secured to the cylinder 16 by means of screws 18. Each of the plates 17 carries a plurality of pins 19, which extend outwardly from the cylinder 16 and are distributed over the entire plate.

FIGS. 2 and 3 illustrate two embodiments for securing pins 19 to the plates 17. As seen in FIG. 2, each of the pins 19 has a shank portion and an enlarged head 20 at that end remote from the point. The head contains grooves which run parallel with the axis of pin 19 or, in another sense, in the radial direction in which the thickness of each plate 17 extends. The plate 17 contains a plurality of orifices 21 extending therethrough, which serve to accommodate the heads 20. The outermost circumference of the head 20, being secured in an orifice 21 in the plate 17, is somewhat greater than the inner circumference or periphery of the orifice 21. To secure the head 20 in its orifice 21, it is pressed into the orifice by means of a plunger 22 (a portion of which is shown). Despite the difference in the circumferences, this operation can be carried out because of the presence of the grooves, and the head can be very solidly retained in the orifice in this manner. The plates 17, provided with pins 19, are, as heretofore described, secured to the exterior of the cylinder 16 by the screws 18.

As shown in FIG. 3, each of the pins 19 has a shank portion and an enlarged head 23 which has a widened portion 24. These pins are inserted into the orifices 21 from that side of the plate 17 presented or adjacent to the outer circumference of the cylinder 16. Each plate 17 is then screwed on to the cylinder 16.

The cylinder 16 is divided over its length into a plurality of such plates. It is advantageous to divide up the circumference into two to four plates. It is, however, also possible to employ a row of plates each of which extends more or less over the entire circumference of the cylinder 16. In this case each plate takes the form of a single cylinder. These cylinders can be pushed over the cylinder 16 from the end and then screwed down.

A considerable advantage in the arrangement of this invention is that the spikes or pins 19 can be replaced individually e.g. when they break. The plates 17 can also be individually replaced by plates of the same size.

It will be appreciated that it often happens that fabric 11 of different widths has to be handled. The different widths occurring in practice are standardized in such a way that they vary by the same amount from one width to the next. If the dimension of the plates 17 in the longitudinal direction of the roll 16 is equal to this amount, there results the advantage that the zone covered by the pins 19 in the longitudinal direction of the roll 16 can be matched to each particular width of fabric.

The pins 19 are preferably made of metal, e.g. stainless steel. The plates 17 can likewise be made of metal or of plastic material, e.g. ABS polymers, polycarbonates, nylon and the like.

When the described delivery roll 16, including the plates 17 and the pins 19, is used, it is possible, despite the continuous pull from the cloth beam 15, that the fabric 11 may remain attached to the pins 19. This

causes the fabric 11 to follow a line as indicated by the reference numeral 25.

Advantageously, this invention also comprises an arrangement which solves this problem. To prevent the fabric, carried along in this manner, from becoming involved with the fabric running from the roller 12, there is provided a bar 26. The bar 26 extends over the entire length of the roll 16 and is disposed parallel therewith. It is carried by two-armed levers 27, 28, which can be swung about the shaft 29. One of the levers is biased to contact switch 30. When the textile material or fabric 11 is carried round in the manner indicated by the numeral 25, the fabric comes to bear against the bar 26 and strikes or pulls on this bar. This causes the levers 27, 28 to swing in the clockwise direction. When this swinging movement occurs, the electric switch 30 is thereby actuated, i.e. the contact between arm 28 of the lever illustrated is removed. A signal can thus be produced which causes the textile machine, in this case a loom, to be stopped and/or a warning to be given. It will be appreciated that the warning may be a sound produced by a horn, whistle or the like, or a visual indication provided by lights or other similar indicia.

What is claimed is:

1. A roll arrangement for a textile machine comprising: a rotatable roll; a plurality of curved segments mounted on said roll, the curvature of each of said segments matching the curved form of the roll; and outwardly projecting pins carried on said segments; said

segments being in the form of plates containing orifices therethrough; and each of said pins having a point at its outwardly extending end, a shank portion and an enlarged head at the other end thereof; said enlarged head being secured to the plates, with the enlarged head of each pin being securely held in one of said orifices.

2. The roll arrangement of claim 1 in which several plates are provided over the length of the roll.

3. The roll arrangement of claim 2 in which the roll is used for guiding sheet-like textile material of different widths, the widths varying by the same amount from one width to the next and the dimension of the plates in the longitudinal direction of the roll being equal to this amount.

4. The roll arrangement of claim 1 in which a plurality of, preferably between two and four, plates are provided over the circumference of the roll.

5. The roll arrangement of claim 1 in which the plates are replaceably secured to the roll.

6. The roll arrangement of claim 1 in which the head of each pin contains grooves, which extend parallel with the longitudinal direction of the pin and the head is pressed into one of said orifices.

7. The roll arrangement of claim 1 in which the head of each pin has, at the end directed towards the roll, a widened portion which is larger than the orifices in the plates.

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