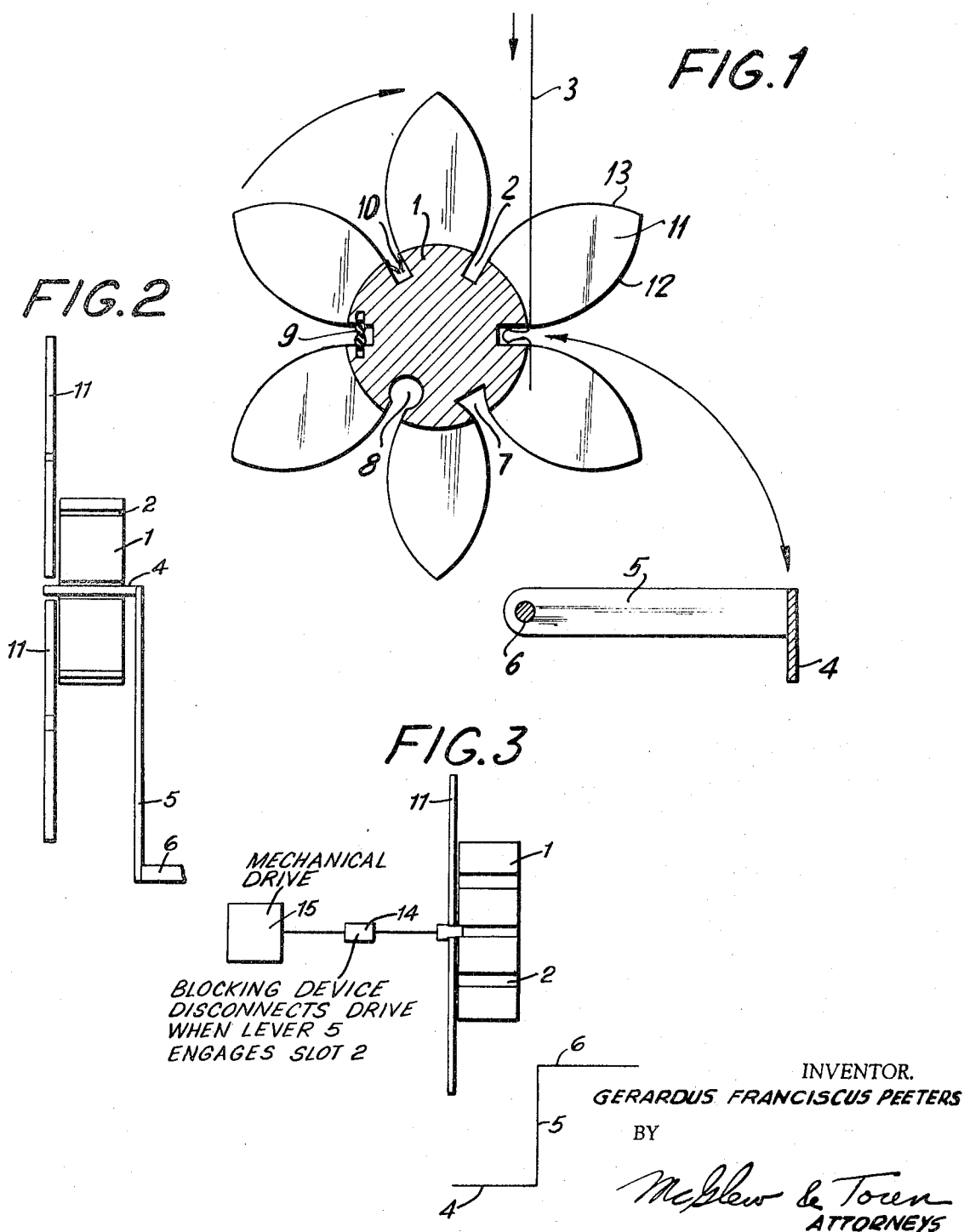


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DEVICE FOR ATTACHING THE END OF A STRIP OF FLEXIBLE MATERIAL
TO BE COILED TO A TAKE-UP ROLL
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DEVICE FOR ATTACHING THE END OF A STRIP OF FLEXIBLE MATERIAL TO BE COILED TO A TAKE-UP ROLL

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11 Claims

ABSTRACT OF THE DISCLOSURE

A strip of flexible material is secured to a take-up roll by a pivotally mounted lever with a ruler at its end which inserts the material into a slot in the roll. After inserting the material the ruler is removed from the slot and the shape of the slot and the characteristic form of the material, as inserted, secures the material to the hub for subsequent winding.

Device for attaching the end of a strip of flexible material to be coiled to a take-up roll.

The invention relates to a device for attaching the end of a strip of flexible material to be coiled to a take-up roll.

Such devices are used e.g. in recorders, in which the start of the paper tape is sometimes to be attached to a take-up roll. The known constructions in general have the disadvantage of being complicated and of necessitating an accurate operation, while even then it is not always ensured that the start of the material to be coiled is attached reliably and in the correct position. If the material is attached to the take-up roll in an incorrect position, the material will get stuck in a later stage.

The invention aims at providing a device of the kind described hereinabove, which is of very simple construction, which can be operated conveniently and which reliably attaches the material to be coiled to the take-up roll.

For that purpose, a device according to the invention is characterized in that the take-up roll is provided with at least one longitudinal slot and cooperates with a pivotable ruler which can be pivoted into the slot and thereby presses a wave of the material to be coiled into the slot, so that upon the ruler reverting to its initial position, the material remains in the slot and is attached in the take-up roll with its wave.

This design requires a minimum of component parts and the material to be wound need only be drawn past the take-up roll, after which the ruler is pivoted towards the roll and the material is pressed into the slot. The roll can be provided with any number of mutually equivalent slots, for enabling attachment of the material in many different positions of the roll.

Although the application to a recorder has been mentioned above, the invention is of course suitable for many applications in which a strip of flexible material to be coiled is to be attached to a take-up roll.

For ensuring that the pivotable ruler when being moved towards the roll always finds a slot in the roll in front of it, the roll at one end at least can be provided with a circle of cams with cam surfaces of such shape, that when the ruler is pivoted towards the roll, the ruler or a means coupled with it contacts a cam surface of a cam and thereby brings the roll in a position in which a slot of the roll is exactly in front of the ruler.

In that case, it is quite immaterial, in which position the take-up roll is when the strip of material to be coiled is drawn past it and the pivotable ruler is moved towards the roll.

The invention is further elucidated below with reference to the drawing, which represents a cross-section of an embodiment of a device accordance to the invention.

In the drawing:

FIG. 1 is a view, partly in section, of the device according to the present invention;

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

FIG. 3 is a schematic arrangement of a blocking device for the device shown in FIG. 1.

The take-up roll 1 is provided with six longitudinal slots 2, although any desired number of slots may be used. The strip of material 3 to be coiled is moved by hand in the direction of the arrow, until it passes the take-up roll 1 and there-upon the pivotable ruler 4, which by means of a lever 5 is mounted on the pivot pin 6, is moved towards the roll in the direction of the arrow, during which this ruler enters a slot 2 and forces the material 3 to be coiled in the shape of a wave into the slot. If the ruler 4 is there-upon moved back towards the shown position, the wave of the material 3 to be coiled remains in the way shown in the slot 2 and if the take-up roll drive is switched on, the material 3 to be coiled is attached sufficient firmly to the take-up roll. Since the material 3 to be coiled is fully stretched prior to being attached to the roll, there is no risk of attaching the material 3 in an incorrect position, which could give rise to several difficulties.

In general, a slot with a rectangular profile as indicated at 2, is eminently suitable. For special applications, however, it may be desirable to make use of slots with a special profile, such as the slot 7 with a dove-tail profile or the slot 8 with a rectangular profile near its entrance, which near its bottom becomes a broader slot with a substantially circular profile. In general, clamping devices in the slots for the material to be coiled are entirely superfluous, but in special cases, such as a material to be coiled which is very resilient and/or very smooth, a suitable clamping device can nevertheless be provided in the slots. For that purpose, a resiliently attached clamping strip 9 can be provided in at least one side wall of each slot, or a leaf spring 10 can be attached to at least one side wall of each slot.

For ensuring that the pivotable ruler 4 when meeting the roll 1 always finds a slot in front of it, the take-up roll at one or both ends can be provided with a circle of cams 11 with cam surfaces 12 and 13 which cooperate with the pivotable ruler 4 or a means attached to it. When the ruler 4 approaches the roll, these cam surfaces automatically bring the take-up roll in such a position, that one of its slots is exactly in front of the ruler.

If desired, the device can be provided with a blocking device 14 which disconnects the mechanical drive 15 of the take-up roll 1 when the pivotable ruler 4 is moved from the shown inoperative position. It is thereby prevented that the device gets jammed in that the pivotable ruler 4 is brought into a slot of the rotating take-up roll 1. In that case, the take-up roll 1 starts to move only after the pivotable ruler 4 has been brought back to the inoperative position. Dependent upon the circumstances, this return movement can be effected under influence of gravity or under influence of a spring.

What I claim is:

1. Device for attaching the end of a strip of flexible material onto a take-up member, comprising a take-up roll having its circumferential periphery arranged to support the strip of flexible material, at least one slot formed in the circumferential periphery of the said take-up roll with said slot extending in the direction of the axis of rotation of said take-up roll, a pivot pin spaced from said slot in the circumferential periphery of said take-

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up roll, a lever arm mounted on said pivot pin, a ruler having a thickness less than the width of said slot in said take-up roll and being secured to and extending angularly from said lever at a location spaced from said pivot pin so that said lever and ruler can be pivoted about said pin between an inoperative position with said ruler located outwardly from the circumferential periphery of said take-up roll and an operative position where said ruler is inserted into said slot, whereby a strip of flexible material disposed between said ruler and the circumferential periphery of said take-up roll is coiled into a wave form as said ruler moves into the operative position inserting the wave form portion of the strip into said slot and with said ruler being retracted to the inoperative position for permitting rotation of said take-up roll for winding the strip of flexible material thereon, and the width and depth of said slot being sufficient to hold the end of the strip of flexible material against displacement as the strip is wound on said take-up roll.

2. Device, as set forth in claim 1, and means for positively displacing said ruler from said slot after the insertion of the strip of flexible material therein.

3. Device, as set forth in claim 1, wherein said slot has a rectangular profile throughout its depth and the width of said slot is uniform for its depth.

4. Device, as set forth in claim 1, wherein said slot has a dove-tail profile.

5. Device, as set forth in claim 1, wherein said slot having a substantially rectangular profile at its entrance, and the width of said slot inwardly from its opening being greater than at its opening and the base of said slot having an arcuate configuration.

6. Device, as set forth in claim 1, wherein a spring mounted clamping strip being secured within said slot and extending along at least one side thereof.

7. Device, as set forth in claim 1, wherein a leaf spring being secured along at least one wall of said slot for securing the strip of flexible material therein after its insertion by said ruler.

8. Device, as set forth in claim 1, wherein at least one side wall of said slot being provided with a material hav-

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ing a higher friction coefficient than the remaining walls of said slot.

9. Device for attaching the end of a strip of flexible material to be coiled onto a take-up member, comprising a take-up roll provided with at least one longitudinal slot, a pivotable ruler cooperating with said slot in said take-up roll whereby said ruler can be pivoted into said slot and thereby press a wave form of the flexible material into the slot so that when said ruler is retracted from said slot the material remains therein and becomes attached to said take-up roll with its wave form, a circle of cams secured to and extending outwardly from said take-up roll, said cams having cam surfaces of such a shape that when said ruler is pivoted toward said take-up roll, the ruler contacts a cam surface of one of said cams and thereby brings said roll into a position so that said slot in said roll is positioned in front of said ruler.

10. A device, as set forth in claim 1, wherein the plurality of said slots equi-angularly spaced about the circumferential periphery of said take-up roll, a plurality of cams secured to said take-up roll with each of said cams being disposed between a pair of adjacent said slots, each of said cams having a cam surface arranged to be contacted by said ruler as said lever and ruler are pivoted from the inoperative to the operative position whereby as said ruler contacts the cam surface said take-up roll is positioned for aligning one of said slots in front of said ruler.

11. Device, as set forth in claim 1, wherein a blocking device, operatively connected to said pivotable ruler and lever and to said take-up roll so that said take-up roll cannot rotate when said pivotable ruler is displaced from its inoperative position.

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