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54 **Cradle support with variable opening for rolls of material without a supporting shaft.**

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Description

The present invention relates to means designed for transferring a roll of material onto a tenter during unwinding, and in particular regards a cradle support for rolls without support posts or shafts.

5 A cradle support able to transfer a roll of material and make it rotate on its axis for the unwinding of the material is already available. Such a cradle support has a V-shaped transverse configuration and is formed by ribbons placed side by side which are driven on parallel horizontal rollers positioned at various levels.

A cradle support of this type is known for example from documents WO-A-8904 123 and GB-A-2060 724.

10 The first document describes a cradle support formed of three rollers, one at the bottom and two at the top, spaced like the corners of a triangle, and two sets of endless belts which diverge upwards. In practice, the first set of belts passes over the bottom roller and one of the top rollers, and the second set of belts alternates with the first and passes over the bottom roller and the other top roller.

The second document describes a cradle support which differs from that of the first document only by the fact that there are two rollers at the base of the V and the two sets of belts are driven by the bottom roller and one of the top rollers, respectively.

However, the known cradle supports have at least the following inconveniences:

- They are formed of two sets of belts, each making up one arm of the V configuration, which complicates the structure and operation.

- They do not make it possible to modify the width of the cradle, i.e. the angle between the two arms of the V, as the roll diameter is varied, which prevents even unwinding.

- They do not allow for easy loading and unloading of the rolls.

20 In document US-A-3 501 106 a coreless and centerless coiling system is disclosed which is adapted for coiling continuous flexible material to a coil mass comprising a structure having at least two coextensive spaced members, with at least one of said members being rotatably mounted to swing with respect to the other of said members, an endless belt means encompassing said coextensive members, counterweight means for biasing said one rotatably mounted member upward toward the other of said members to form a downward tending pocket in said endless belt means between said spaced members when said structure is in an unextended position.

30 But this system is for winding flexible material and the position varies as the coiled material increases. Winding takes place in a pocket or cradle which is defined by the top slack branch of the endless belt means and which varies in depth by stretching the top branch of the belt means. This system cannot be applied for winding rolls of cloth, which require a positive stable support.

The present invention aims to eliminate the above mentioned problems and provide a cradle support with variable position for a more advantageous, practical and easy use. The here proposed cradle support is substantially in accordance with the characterising part of claim 1. It has a V-shaped transverse configuration made up of a series of continuous single ribbons placed side by side, forming the two arms of the V-shape, that is to say a belt conveyor with an ascending and a descending arm due to a particular and specific placement of the driving and transmission rollers. Also, one of the arms of the cradle has a variable inclination so as to be able to correspondingly modify the opening angle of the cradle in accordance with the roll fitted.

40 The arm can also be brought to a horizontal position, thus making the loading and unloading of the rolls much easier through an appropriate advancement of the belt conveyor made up of ribbons.

Further details of the invention will appear clearer following the description with references being made to the attached drawing in which:

fig. 1 is a cradle support with an arm in a horizontal position for the loading and unloading of a roll; and

45 fig. 2 is a cradle support in the roll holding position during unwinding.

The mentioned cradle support (10) is designed to hold a roll of material (11) ready to unwind in the direction of the arrow (F). Said cradle support (10) comprises a structure with two shoulders (12) between which a belt conveyor (13) is placed. Said belt conveyor having a V-shaped transverse configuration and made up of a number of ribbons (14) positioned side by side and driven on parallel rollers fitted between the shoulders (12) at various heights.

50 More precisely, starting from the centre of the cradle where the roll of material (11) rests, said ribbons (14) are driven on a set of three central rollers (15, 15a, 15b) which are in a fixed position and form a V-shape. They then go up and pass over an upper fixed roller (16) then descend and pass over a lower fixed roller (17) where they turn back, beneath the set of three rollers (15, 15a, 15b) to the opposite side, passing over a movable roller (18) with variable positions, then returning towards the set of three central rollers. At least one of the fixed rollers (16) or (17) is driven in rotation by a motor (not shown) for the controlling of the advancement of the belt conveyor (13), the direction of which is shown by the arrow (S) for the unwinding of the material. The direction can be changed.

An idler (19) is coordinated on the lower arm of the belt conveyor which extends from the lower fixed roller (17) on the side towards which the material unwinds, to the movable roller (18) on the opposite side. The movable roller (18) is carried by oscillating arms (20) which, for example, move on the axis of the roller (15a) of the centre three rollers and is engaged by a movement actuator (21) (Fig. 2). The idler (19) is fitted on said oscillating arms (20) so that it is correspondingly positioned and always keeps the correct tension of the ribbons even, when changing the position of the movable roller (18).

This movable roller can in fact be positioned above due to an angular movement of its oscillating arms (20) by the use of the actuator (21). In this way, the general position of the cradle can be varied by changing the opening angle between the ascending and descending arms of the belt conveyor from time to time, this belt conveyor being between the movable roller (18) and the upper fixed roller (16) and is defined at the top by the set of three rollers (15, 15a, 15b).

The position of the cradle support can in this way be adjusted to every need and in accordance with the rolls of material fitted.

What is more, the movable roller can be moved below until one of the arms of the V-shaped belt conveyor reaches a horizontal position, (Fig. 1), so as to help the loading and unloading of the rolls through the movement of the belt conveyor, even in the opposite direction of the arrow (S) during the unloading of the rolls.

Claims

1. A cradle support, in particular for rolls of material without a supporting shaft, having a V-shaped configuration, comprising ribbon means (13) placed side by side and horizontal rollers (15-18) placed at different levels between two shoulders of a structure, the ribbon means (13) passing over said rollers to form the two arms of the V-shaped configuration with ascending and descending arms between which the roll of material is placed, at least of one of said rollers being driven by a motor, characterized in that the ribbon means (13) include a series of continuous single ribbons (14) placed side by side, in that said continuous single ribbons (14) are driven on a central set of three rollers (15, 15a, 15b) which are in a fixed V-shaped position and pass over a first upper fixed roller (16), then descending and passing over a lower fixed roller (17) returning underneath towards a second upper movable roller (18) of variable height to then return towards the set of three central rollers placed between the lower fixed roller (17) and the second upper roller (18) and it that at least one idler (19) is provided for the tightening of said ribbons.
2. A cradle support according to claim 1 characterized in that the second upper movable roller (18) is driven by a motor and is carried by movable supports (20) which are positionable by at least one actuator to alter the angle of one arm of the V-shaped configuration with respect to the other arm, up to a horizontal position.

Patentansprüche

1. Wiegeförmige Stütze, insbesondere für Stoffrollen ohne Stützwelle mit einer V-förmigen Gestalt, die nebeneinander liegende Bandmittel (13) und horizontale Rollen (15-18) enthält, die in verschiedener Höhe zwischen zwei Schultern eines Aufbaues liegen, wobei die Bandmittel (13) über besagte Rollen hinweggeführt sind, so daß sie die zwei Arme der V-förmigen Gestalt bilden mit auf- und absteigenden Armen, zwischen denen die Stoffrolle liegt, und wobei zumindest eine der besagten Rollen von einem Motor angetrieben wird, dadurch gekennzeichnet, daß die Bandmittel (13) eine Reihe von ununterbrochenen nebeneinanderliegenden Einzelbändern (14) enthalten, daß die besagten ununterbrochenen Einzelbänder (14) über einen zentralen Satz aus drei Rollen (15, 15a, 15b) angetrieben werden, die in einer feststehenden V-förmigen Stellung sind und über eine erste obere feststehende Rolle (16) laufen, dann nach unten über eine untere feststehende Rolle (17) laufen, dann nach unten in Richtung auf eine zweite obere bewegliche Rolle (18) veränderlicher Höhe zurücklaufen, um danach nach dem Satz von zentralen drei Rollen zurückgeführt zu werden, der zwischen der unteren feststehenden Rolle (17) und der zweiten oberen Rolle (18) liegt, und daß zumindest eine Spannrolle (19) zum Spannen besagter Bänder vorgesehen ist.
2. Eine wiegeförmige Stütze nach Anspruch 1, dadurch gekennzeichnet, daß die zweite obere bewegliche Rolle (18) von einem Motor angetrieben und beweglichen Stützen (20) getragen wird, die von zumindest einer Betätigungsvorrichtung positioniert werden können, um den Winkel eines Armes des V-förmigen

Aufbaus in Bezug auf den anderen Arm bis in eine horizontale Stellung zu ändern.

Revendications

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1. Berceau de soutien, en particulier pour des rouleaux de materiel sans arbre de soutien, ayant une configuration en forme de V, comprenant des moyens en forme de ruban (13) placés côté à côté et des rouleaux horizontals (15-18) placés à divers niveaux entre deux épaules d'une structure, les moyens en forme de ruban (13) passant au dessus desdits rouleaux à former les deux bras de la configuration en forme de V avec des bras montants et descendants entre lesquels est placé le rouleau de materiel, pendant que au moins un desdits rouleaux est mis en action par un moteur, caractérisé en ce que le moyen en forme de ruban (13) comprend une série de rubans individuels et continus (14) placés côté à côté, et que lesdits rubans individuels et continus (14) sont conduits sur un jeu de trois rouleaux (15, 15a, 15b), qui sont en une position fixée en forme de V, et passent au dessus d'un premier rouleau supérieur fixé (16), puis ils descendent et passent au dessus d'un rouleau inférieur fixé (17), retournent au dessus en direction d'un second rouleau supérieur mobile (18) dont la position est variable en hauteur et retournent en fin en direction du jeu de trois rouleaux placé entre le rouleau inférieur fixé (17) et le second rouleau supérieur (18) et en ce que au moins un tendeur (19) est présent pour serrer lesdits rubans.

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2. Berceau de soutien selon la revendication 1, caractérisé en ce que le second rouleau supérieur mobile (18) est mis en action par un moteur et soutenu par des soutiens mobiles (20) qui peuvent être mis en position par au moins un actionnateur pour varier l'angle de l'un des bras de la configuration en forme de V par rapport à l'autre bras, jusqu' à la position horizontale.

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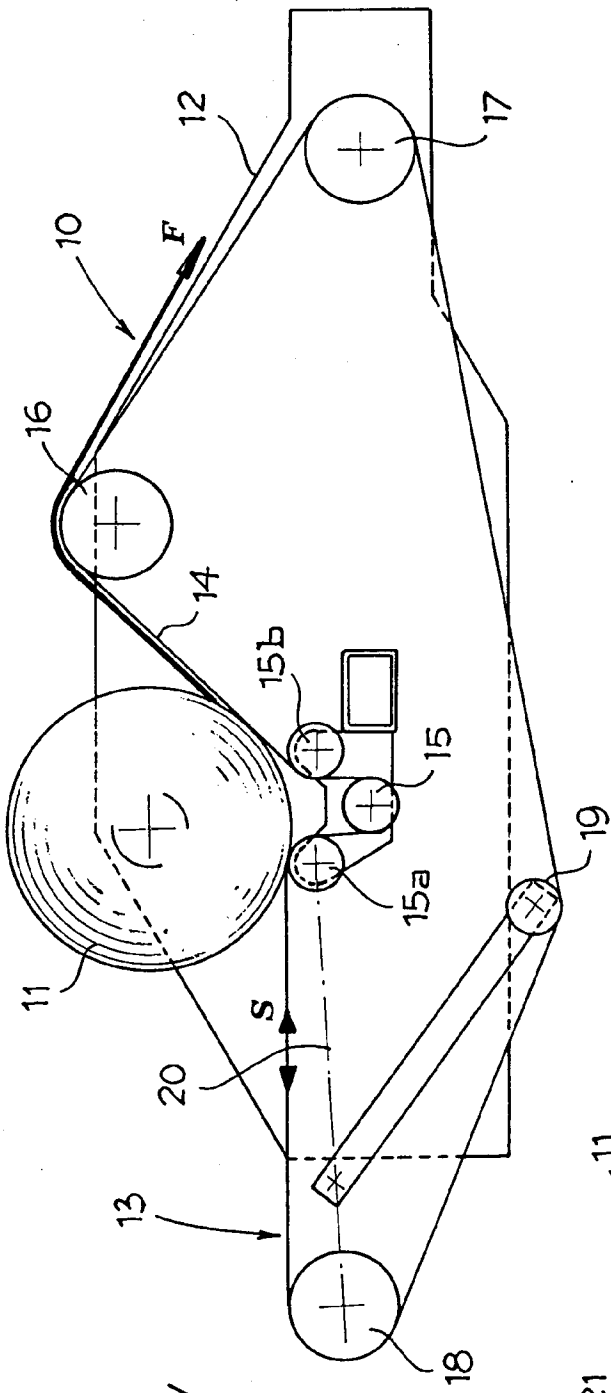


Fig. 1

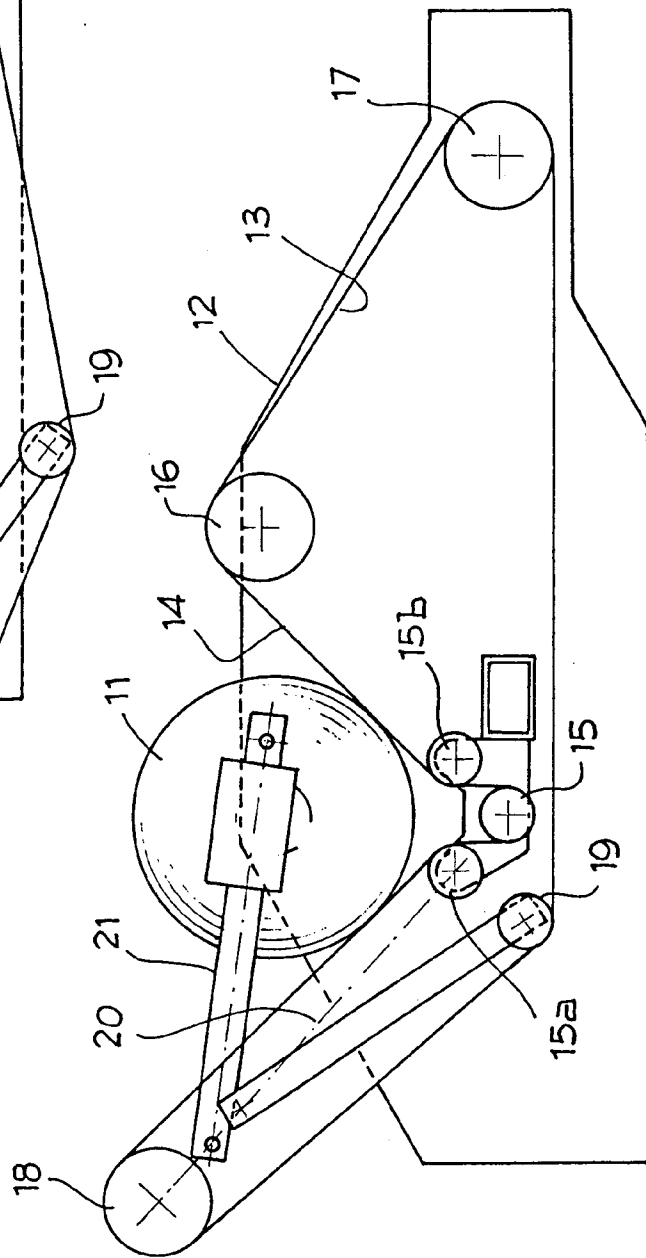


Fig. 2