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

(57) A cradle support, having a number of ribbons (14) placed side by side and which form the two arms of the V-shaped configuration with an ascending and descending arm between which the roll of material is fitted, and in which one of said arms has a variable angle so as to be able to alter the position and the opening of the cradle support.

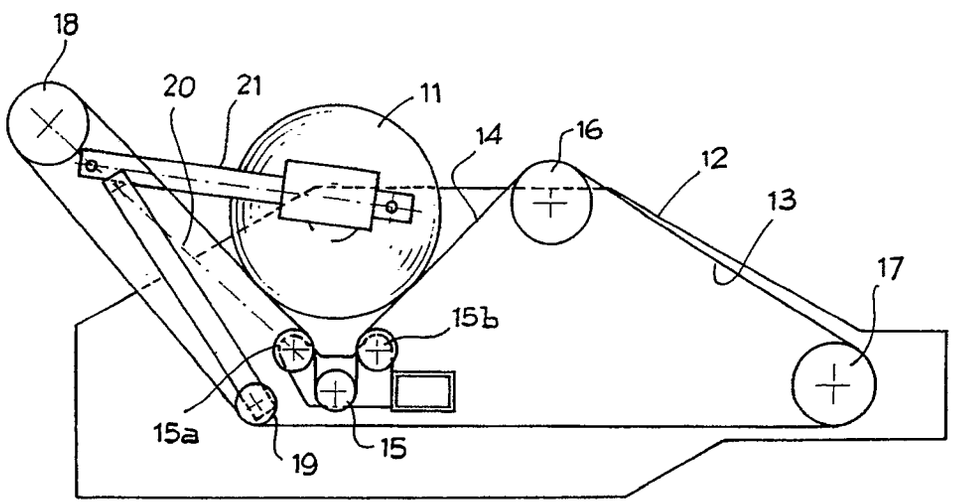


Fig.2

EP 0 441 107 A1

CRADLE SUPPORT WITH VARIABLE OPENING FOR ROLLS OF MATERIAL WITHOUT A SUPPORTING SHAFT

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

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. The known cradle supports have the following disadvantages:

- they are made up of two series of ribbons, each of which includes a V-shaped arm configuration that renders the structure and operation complicated;
- they do not allow for variations in the size of the cradle, that is to say the angle of the two V-shaped arms when varying the diameters of the rolls, therefore not permitting constant unwinding;
- they do not allow for a comfortable and easy loading and unloading of the rolls.

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 claim 1. It has a V-shaped transverse configuration made up of a single series of continuous 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.

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

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.

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 infact 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 and made up of continuous ribbons placed side by side which are driven on horizontal rollers placed in different positions between two shoulders of a structure, where at least one roller is operated by a motor and the others are driven, characterized in that it is made up of a number of ribbons (14) placed side by side and which form the two arms of the V-shaped configuration with an ascending and a descending arm between which the roll of material is fitted, and in that one of said arms has a variable angle so as to be able to alter the position and the opening of the cradle support.

2. A cradle support in accordance with claim 1, characterized in that said continuous ribbons (14) placed side by side, are driven on a central set of three rollers (15, 15a, 15b) which are in a fixed V-shaped position and pass over an upper fixed roller (16), then descending and passing over a lower fixed roller (17) returning beneath towards a drive roller (18) of variable height to then return towards the set of three central rollers placed between the lower fixed roller (17) and the movable roller (18), where at least one idler (19) is forseen for the tightening of said ribbons.

3. A cradle support in accordance with claims 1 and 2, characterized in that the movable roller (18) is carried by movable supports (20) which are positionable through the use of at least one actuator to alter the configuration in respect to the other, where said movable roller can be carried to a position to which the location of said arm of variable angles corresponds.

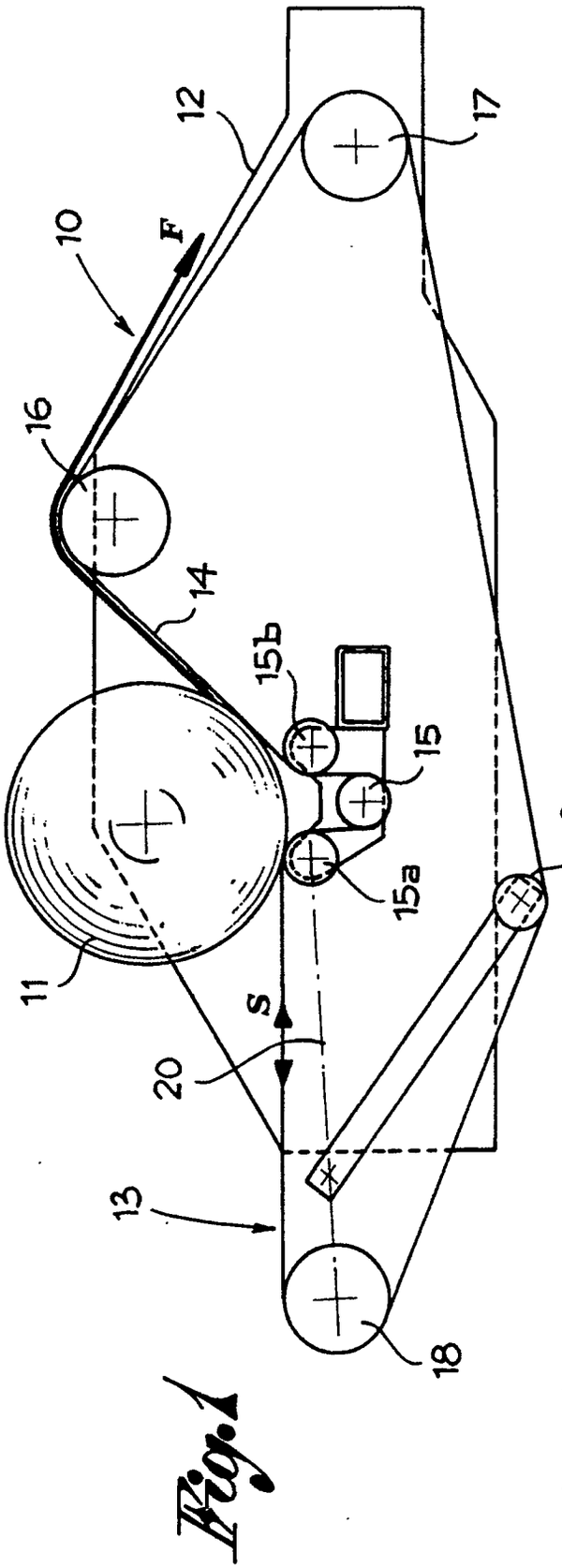
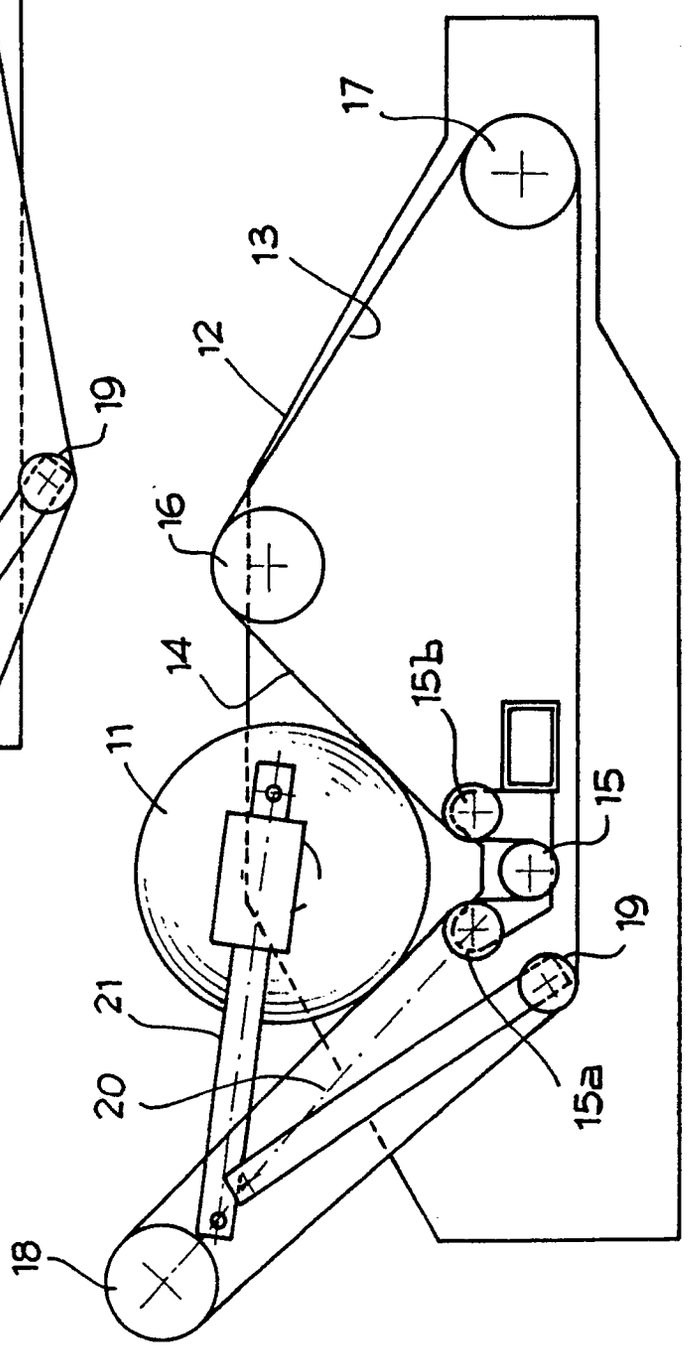

10
F
12
17
16
14
15b
15
15a
19
11
S
20
13
18

Fig.1


17
13
12
16
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15b
11
15
19
21
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15a
18

Fig.2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 83 0581

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-4 676 494 (H.L. SMITH et al.) * figures 1,2; column 2, line 51 - column 3, line 40; column 4, lines 32-47 *	1	B 65 H 16/10
A	GB-A-2 060 724 (ROCKWELL-RIMOLDI) * figure 2; page 1, line 112 - page 2, line 3 *	1	
A	WO-A-8 904 123 (NIEBUHR MASKINFABRIK) * figure 1; page 5, line 36 - page 6, line 5 *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A 41 H
B 65 H

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
Berlin	28 February 91	FUCHS H.X.J.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same catagory
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention

E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document