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(54) **AID FOR STARTING TO WIND A BELT ON A REEL**

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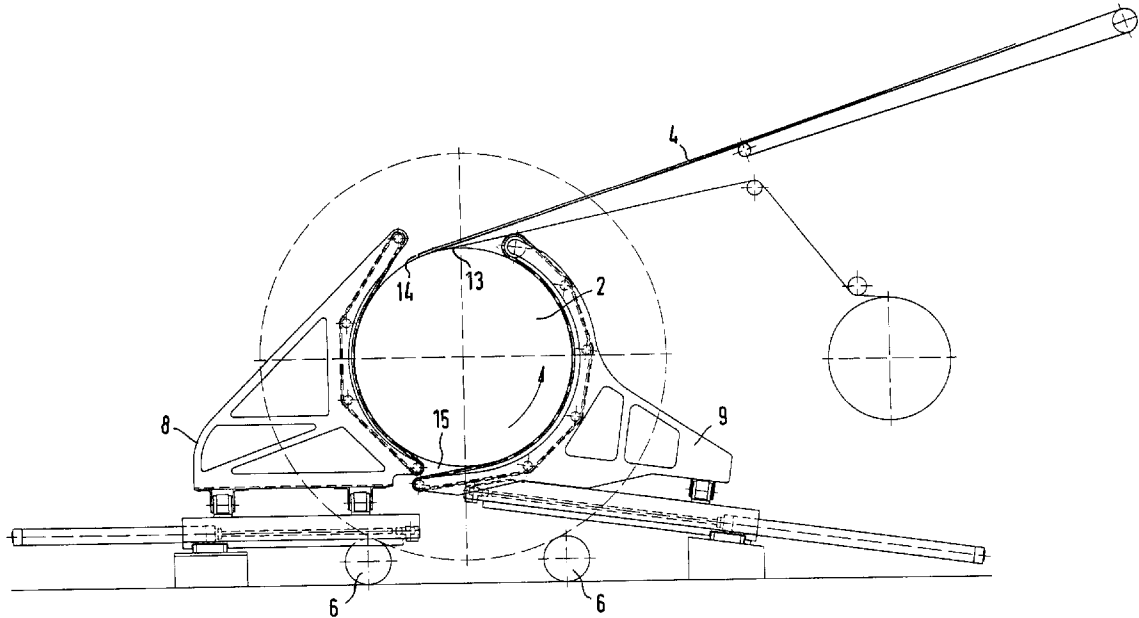
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(57) **ABSTRACT**

An aid for starting to wind a belt, especially a corded belt, on a reel, which is provided with a driving device, with a forked supporting body, which preferably is in two parts and can be moved perpendicularly to the reel axis against the reel core with closed guiding belts which are wrapped partially around the reel core from below and, with clamping of the belt that is to be wound up, are carried along by the driving device.

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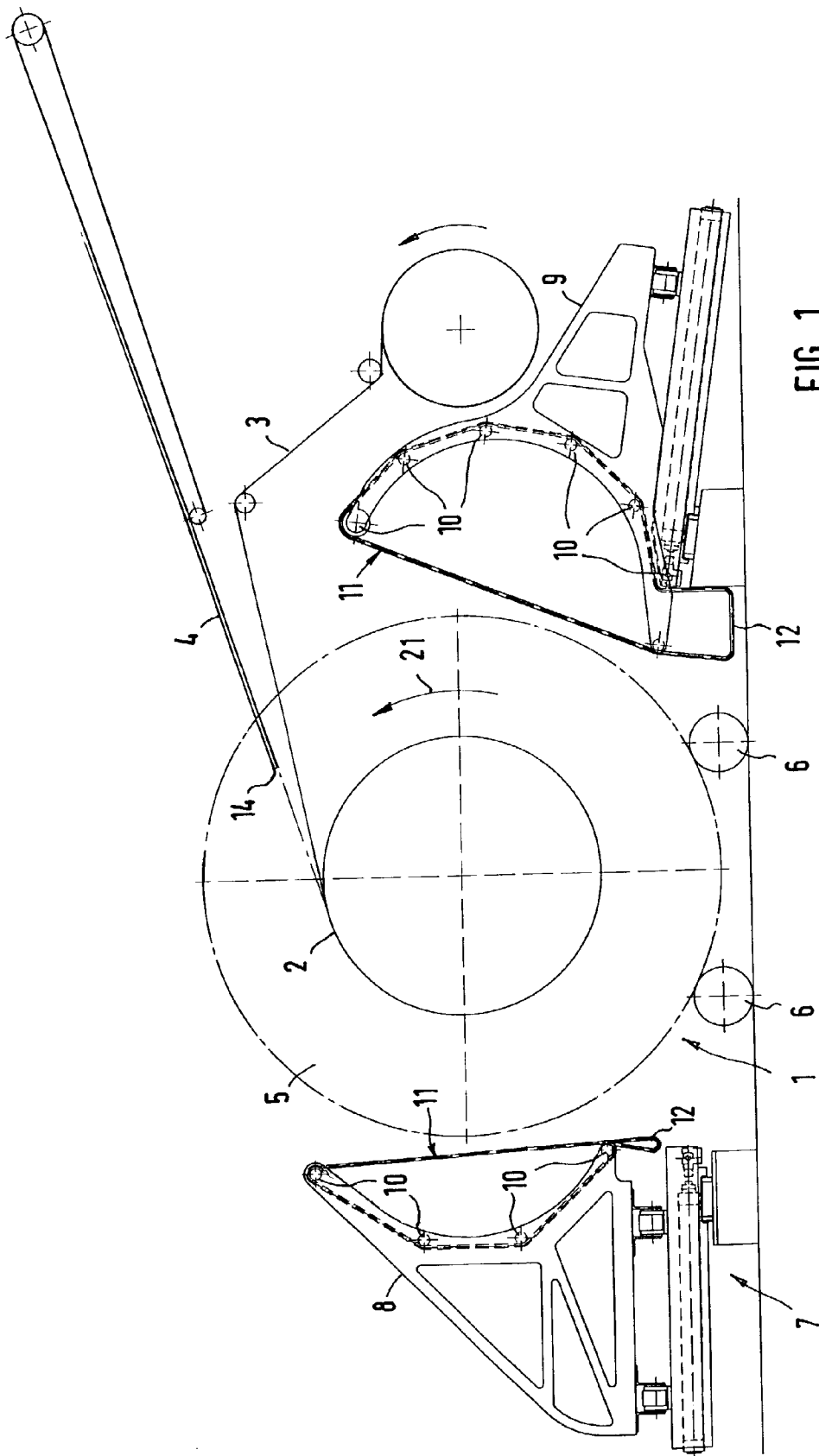


FIG. 1

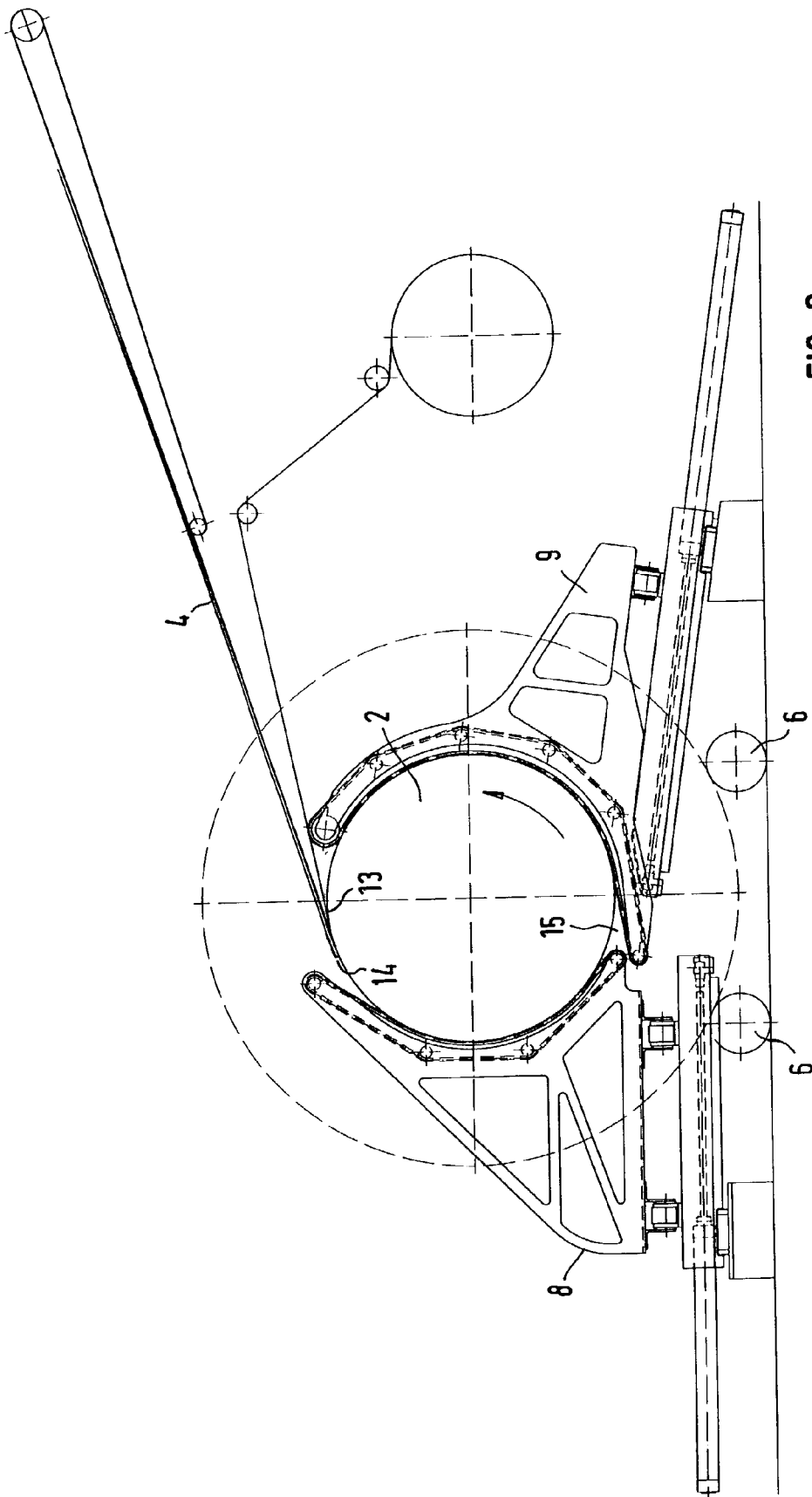


FIG. 2

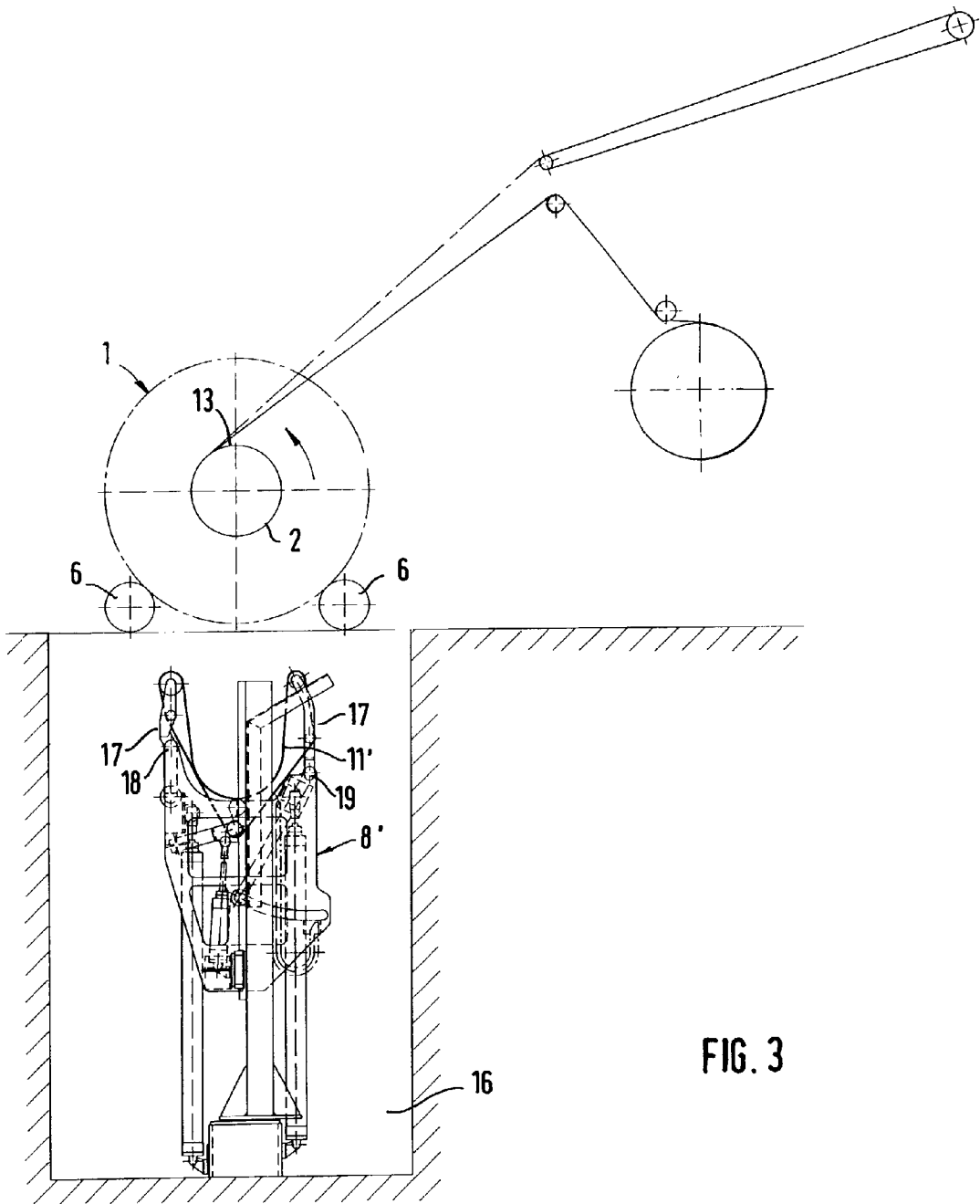


FIG. 3

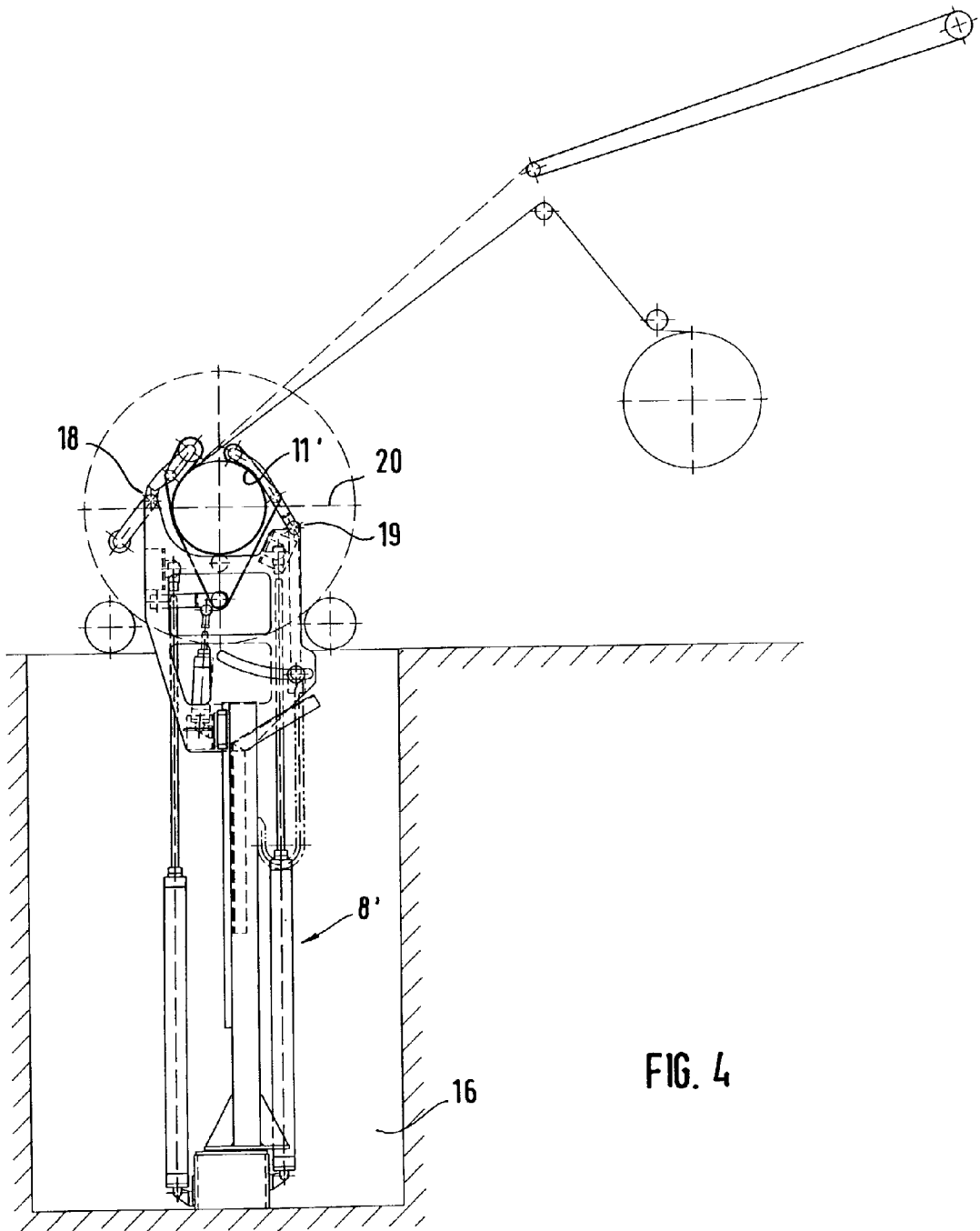


FIG. 4

### AID FOR STARTING TO WIND A BELT ON A REEL

[0001] The invention relates to an aid for starting to wind a belt, especially a corded belt, onto a reel, which is provided with a driving device.

[0002] When winding belts on reels, the problem arises that initially, the beginning of the belt must be wrapped around the core of the reel in such a way that the belt does not back up, warp, etc., as the leading edge runs in under the belt. This smooth winding up of the first layer or first layers create special difficulties with unvulcanized corded belts, which are relatively heavy and tacky and, moreover, easily tend to distort. Even if several workers wrap the start of the corded belt around the core of the reel and attempt to bring it smoothly and cleanly under the belt for forming the first layer, there still frequently is in practice a misalignment or distortion. In the worst case, a fold will be visible through many layers because of the softness of these corded belts, so that appreciable amounts of rejects are obtained.

[0003] The invention is therefore based on the objective not only of providing an aid to starting the winding up of a belt on a reel, but also, at the same time, to ensure that there is no need to fear distortion and warping especially in the case of unvulcanized corded belts.

[0004] Pursuant to the invention, this objective is accomplished by an aid for starting the winding up, wherein a forked supporting body, which preferably is in two parts and can be moved perpendicularly to the reel axis against the reel core with closed guiding belts, which are partly wrapped around the reel core from below and, with clamping of the belt that is to be wound up, are carried along by the driving belt.

[0005] The inventive aid for starting the winding up is suitable for cylindrical reels as well as for H-reels with flanges disposed at both ends. In the final analysis, the essential differences between the driving devices for the two types of reels—H reels are rotated while seated on drive rollers, which are spaced apart, while cylindrical reels are slipped onto a rotating mandrel engaging their inner bore-hole—playing no role whatsoever. The winding-up part, which has been addressed as reel core and onto which the belt is wound, is the whole reel itself in the case of a cylindrical reel and the region between the flanges in the case of an H reel. In the following, an H reel is addressed specifically in many cases. However, the comments, relating to the actual winding up and the configuration of the aid for starting the winding up to apply equally well also to cylindrical reels.

[0006] Due to the inventive configuration, the belt, which is to be wound up, need only be brought along by means of its transporting equipment until it rests on the core of the reel for the winding up to be started. Subsequently, it is moved along with the core of the reel and runs under the guiding belts, which hold it in the feed position during the further revolution, so that, after a revolution of about 360°, the leading edge of the belt runs in smoothly under the belt, so that, after two or three further revolutions at most, the winding up of the belt is started neatly, so that the subsequent winding up is not obstructed and can proceed without folds or the like showing through.

[0007] In order to prevent that a somewhat stiffer belt, which is to be wound up, is squashed into the gap between

the core of the reel and the guiding belts and, at the same time, throws folds, the guiding belts, in a development of the invention, are to be wrapped around the core of the reel in C-shaped fashion as far as into the vicinity of the upper longitudinal edge of the reel core.

[0008] In the case of a first embodiment of the inventive aid for starting the winding up, two supporting bodies are provided, which can be moved laterally against the reel core, the guiding belts of the supporting body, which is the leading supporting body in the direction of rotation of the reel, overlapping those of the trailing supporting body, so that, in spite of the interruption of the supporting belts into two systems, a smooth transfer of the starting edge of the belt from the guiding belts of the leading supporting body to the guiding belts of the trailing supporting body takes place.

[0009] The configuration of these supporting bodies preferably is such that, distributed on a circular arc corresponding to the diameter of the reel core, they have deflection pulleys for the guiding belts. In the operating position, the strand of the guiding belts, which is in front of the guide rollers and pressed against the reel core, is at a distance from the deflection pulleys.

[0010] The above-described embodiment, with two separate supporting bodies, which can be moved laterally against the reel, for which purpose appropriate guide rails may be disposed on the floor on either side of the driving device for the reels, is particularly suitable for starting to wind up a belt on reels with a core, which is large in the absolute sense, especially in relation to the flange diameter.

[0011] For reel cores of a smaller diameter, especially those where the core diameter is clearly smaller than the distance between the drive rolls, a simpler embodiment of an inventive aid for starting the winding up may also be provided in a development of the invention, wherein a supporting body, which can be inserted from below or, in the case of H reels, between the drive rolls of the H reel, and the forked arms of which preferably are provided with a hinged joint, which, in the position in which it is in contact with the reel core, preferably lies above the median plane of the reel, is provided.

[0012] For relatively soft belts or for those, which adhere somewhat to the reel core, the hinged joints addressed are not necessarily required. It would be sufficient here if the guiding belts would run perpendicularly from the free ends of the forks to the lower wrapping section, since squashing or folding of the belt need to longer be feared as the front edge of the belt approaches the guiding belt. For all other belts—and, to be on the safe side, this will also be regarded generally as preferred—the fork arms should have the articulated joint, which has already been addressed. This is responsible for the fact that the guiding belts are wrapped around the reel core in C-shaped fashion as far as into the vicinity of the upper longitudinal edge of the reel core, as was already described above, in order to avoid faulty threading.

[0013] For this embodiment, the supporting body can be disposed in a floor shaft below the winding-up station, so that it can be extended preferably hydraulically. In the following, “hydraulically” is always understood to imply that liquid, as well as gaseous media can be used.

[0014] Further advantages, distinguishing features and details of the invention arise out of the following description of an example as well as from the drawing, in which

[0015] FIG. 1 shows a side view of a first example of an inventive aid for starting the winding up in the inoperative position of the latter with feeder belt already wound on the reel core,

[0016] FIG. 2 shows a side view, corresponding to FIG. 1, after the aid, for starting the winding up, and the belt, which is to be wound up, have moved together,

[0017] FIG. 3 shows a side view, corresponding to that of FIG. 1, of a second embodiment of an inventive aid for starting the winding up, with a supporting body, which is lowered into a floor shaft or a floor channel and can be moved from below against the reel core, in the unoperative position and

[0018] FIG. 4 shows a view, corresponding to FIG. 3, in the upwardly moveable operating position of the supporting body of the aid for starting the winding up.

[0019] FIGS. 1 and 2 show an H reel 1 with a reel core 2, on which a feeder belt 3, which is to separate the layers of the belt 4, which is actually to be wound up, especially a corded belt, is already wound. The flange 5 of the H reel is seated on the drive rollers 6, which can rotate the H reel in the direction of the arrow 21. For winding up the belt 4, after the feeder sheet 3 has already previously been wound up manually, an aid 7 is used to start the winding up. The aid 7 consists of two supporting bodies 8 and 9 with deflection pulleys 10 for closed guiding belts 11, the deflection pulleys 10 being disposed on a circular arc, corresponding to the diameter of the reel core. FIG. 1 shows the supply loops 12 of the guiding belts 11 in the inoperative position. These supply loops are required so that the guiding belts 11, as shown in FIG. 2, can lie concavely at the reel core 2, when the support bodies 8 and 9 are approached. The corded belt 4, which need only be placed on the reel core 2 in the region of the upper longitudinal edge 14 for starting the winding up, is pressed by the guiding belts 11, which are carried along jointly with the belt by the rotating H reel, against the reel core. The guiding belts 11 of the supporting body 8, which is the leading supporting body in the direction of rotation of the reel 1, overlap the guiding belts 11 of the trailing supporting body 9, as can be seen in FIG. 2, so that, upon reaching this transition site, the starting edge 14 of the corded belt 4, which is to be wound up, is passed underneath the reel core 2 in every case and once again into the inlet gap 15 of the guiding belts 111 of the trailing supporting body.

[0020] In the case of the example of FIGS. 3 and 4, a supporting body 8' is provided, which is disposed recessed in a floor shaft 16 or in a floor channel and can be extended

upward hydraulically so that it can be moved from below between the two drive rollers 6 for the H reel 1 and placed with its guiding belt 11' against the reel core 2.

[0021] For a simple embodiment for belts, which are not very stiff and do not tend to become squashed, the fork arms 17 can be constructed in one part. On the other hand, in the example shown, the fork arms 17 in each case have a hinged joint 18, 19, which is disposed so that the belt 11' is wrapped in C-shaped fashion as far as the vicinity of the upper longitudinal edge 13 of the reel core 2. This can be achieved owing to the fact that the hinged joint is above the horizontal median plane 20 of the H reel, as it is in the case of hinged joint 18 or owing to the fact that the hinged joint 19 is offset far enough to the outside, in order to enable the upper arm section of the fork to fold inward. The guide belts 11, 11' can be either appropriately wide belts, corresponding at least to the width of the belt 4, which is to be wound up, or also a plurality of parallel individual belts.

1. An aid for starting to wind a belt, especially a corded belt, on a reel, which is provided with a driving device, wherein a forked supporting body (8, 9; 8'), which preferably is in two parts and can be moved perpendicularly to the reel axis against the reel core (2) with closed guiding belts (11; 11'), which are wrapped partially around the reel core (2) from below and, with clamping of the belt (4) that is to be wound up, are carried along by the driving device (6).

2. The aid for winding of claim 1, wherein the guiding belts (11; 11') are wrapped around the reel core (2) in C-shaped fashion as far as the vicinity of the upper longitudinal edge (13) of the reel core (2).

3. The aid for winding of claims 1 or 2, wherein two supporting bodies (8, 9) are provided, which can be moved laterally against the reel core (2), the guiding belts (11) of the supporting body (8), which is the leading supporting body in the direction of rotation of the reel (2), overlapping those of the trailing supporting body (9).

4. The aid for winding of claim 3, wherein the supporting bodies (8, 9) have deflection pulleys (10) for the guiding belts (11), the deflection pulleys (10) being distributed on an arc of a circle corresponding to the reel core diameter.

5. The aid for winding of claims 1 or 2, wherein a supporting body (8'), which can be inserted from below or, in the case of H reels, between the drive rolls (6), about the reel (1), is provided, the forked arms (17) of which preferably are provided with a hinged joint (18, 19), which, in the position in which it is in contact with the reel core (2), lies above the median plane (20) of the reel.

6. The winding of claim 5, wherein the supporting body (8') can be extended upward hydraulically and is disposed in a floor shaft (16) below the winding-up station.

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