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DESCRIPTION

[0001] The invention relates to a processing and/or inspection line for poultry, comprising a first conveyor line with shackles for suspending the poultry by the legs, wherein said conveyor line is arranged to move the poultry in a conveying direction past a processing and/or inspection station for the poultry.

[0002] Such a processing and/or inspection line provided with an inspection station is for instance known from the European patent EP 0 530 868 in the name of the applicant. In this patent an apparatus for processing poultry is proposed, comprising a suspension conveyor for conveying the birds with the legs suspended therefrom. A processing station is disposed along a portion of the suspension conveyor, having processing means for removing the entrails from the abdominal cavity as the birds are conveyed by the suspension conveyor. A further conveyor synchronously driven with the suspension conveyor is disposed substantially parallel to and at a predetermined distance from a portion of the suspension conveyor. The further conveyor is disposed after the processing apparatus for receiving the separated entrails and conveying the entrails along the inspection station at the same time as the corresponding birds are carried by the suspension conveyor along the inspection station. With the currently applied high speeds of the conveyor line for the poultry, conveying approximately 6000 birds or more per hour, the problem may occur that the poultry starts swinging in the conveyor line, and this is not because they are enjoying themselves.

[0003] US2012/0205220 discloses a processing and/or inspection line for poultry comprising a first conveyor line with shackles for suspending the poultry by the legs, wherein said conveyor line is arranged to move the poultry in a conveying direction past a processing and/or inspection station for the poultry, and wherein at least along a part of said conveyor line a support is provided that supports the shackles and maintains the shackles sideways deflected in a second position away from a first neutral vertical suspension position, in which second position the shackles are suspended obliquely in the conveyor line whilst being supported and resting against the endless belt. According to this document this provides a solution for the problems of swinging, turning and revolving of the conveyed poultry. The publication however only refers to swinging in a plane that is transverse to the direction of motion of the poultry.

[0004] US2012/0205220 does in particular not address the problem that the birds start swinging back-and-forth in the conveying direction of the conveyor line, which may result in inadequate processing of the poultry by a processing station adjacent the line, or unreliable inspection of the poultry and the entrails by a veterinary inspector standing next to the line, since due to the swinging the one-on-one correspondence between the poultry and the entrails is lost. Another problem in the latter situation is that moisture and/or body fluids like blood may drip from a bird to entrails that belong to another bird resulting in contamination which should be avoided.

[0005] The invention aims at providing a solution to these problems, and in connection

therewith proposes to provide a processing and/or inspection line having the features of one or more of the appended claims.

[0006] According to the invention the support is an endless belt which is driven synchronously with the conveyor line so as to arrange that any back-and-forth movement of said shackles in their conveying direction is prevented or counteracted.

[0007] The objects of the invention are particularly promoted by arranging that the endless belt has a superficial roughening and/or tothing, preferably equipped to receive a framework of the shackles, in particular the arms of the shackles.

[0008] Although the invention is applicable in any situation in which the back-and-forth movement of the shackles in the movement direction of the conveyor line is to be avoided, the advantages and benefits of the invention particularly come to their fullest potential in a processing and/or inspection line wherein at least at the inspection station a second conveyor line is provided with receptacles for receiving intestines therein that are taken from the poultry suspended by the legs in the shackles of the first conveyor line, and wherein the second conveyor line is arranged to move synchronously with the first conveyor line for maintaining a one-to-one correspondence between the poultry in a shackle of the first conveyor line, and the intestines received in the receptacle in the second conveyor line immediately below said poultry in the first conveyor line.

[0009] Beneficially further at an entrance of the inspection station guiding means, preferably guide bars, are provided to guide the shackles from the first neutral vertical suspension position to a second position in which the shackles are suspended obliquely in the conveyor line.

[0010] The invention will hereinafter be further elucidated with reference to the drawing of an exemplary embodiment of an apparatus according to the invention that is not limiting as to the appended claims.

[0011] In the drawing:

- figure 1 shows a part of a processing and/or inspection line according to the invention.

[0012] The skilled person knows that a processing line for poultry may extend over a considerable length and be closed in itself in an endless loop. It is not practical and unnecessary to show such a complete processing line. Instead, and sufficient for elucidation of the invention, figure 1 shows only a part of the processing and/or inspection line 1 of the invention.

[0013] The part of the processing and/or inspection line 1 of the invention shown in figure 1, comprises a first conveyor line 2 with shackles 3 for suspending the poultry 4 by the legs 5.

The conveyor line 2 can be a chain conveyor or any other suitable type of conveyor and is arranged to move the poultry 4 in a conveying direction A past a processing station and/or inspection station for the poultry 4. In the embodiment shown in figure 1 an inspection station is shown.

[0014] At an inspection station a veterinary inspector (not shown and not part of the inspection station) makes a visual check on the poultry 4 and the intestines 6 that are taken out from the poultry to establish whether except from being dead, the poultry and their intestines 6 are sound and healthy. To make a reliable inspection possible, the inspection station as shown in figure 1 is embodied with a second conveyor line 7 that is provided with receptacles 8 for receiving therein said intestines 6 that are taken from the poultry 4 that is suspended by the legs 5 in the shackles 3 of the first conveyor line 2. The said second conveyor line 7 is arranged to move synchronously with the first conveyor line 2 for maintaining a one-to-one correspondence between a particular poultry 4 in a shackle 3 of the first conveyor line 2, and the intestines 6 received in the receptacle 8 in the second conveyor line 7, which receptacle 8 is immediately below said poultry 4 in the first conveyor line 2. In this way establishing whether the poultry should be considered sound and healthy or not can be reliably made on the face value of either the poultry itself or its intestines 6 that are taken out from it.

[0015] According to the invention at least along a part of said conveyor line 2 an endless belt 9 is provided that supports the shackles 3 and maintains the shackles 3 in a second position (in the figure at the right-hand part of point C) sideways deflected away from a first neutral vertical suspension position (shown in region B), in which second position the shackles 3 are suspended obliquely in the conveyor line 2 whilst being supported and resting against the endless belt 9. The arrangement of the shackles 3 being supported and resting against the endless belt 9 causes that any back-and-forth movement of said shackles 3 in their conveying direction A is prevented or counteracted. To promote this purpose the endless belt 9 preferably has a superficial roughening and/or tothing. Desirably the tothing in the endless belt 9 is equipped to receive the framework of the shackles 3, in particular its arms.

[0016] It is further remarked that the endless belt 9 is driven synchronously with the conveyor line 2 and that at an entrance C of the inspection station guiding means 10, preferably guide bars, are provided to guide the shackles 3 from the first neutral vertical suspension position to a second position in which the shackles 3 are suspended obliquely in the conveyor line 2.

[0017] Although the invention has been discussed in the foregoing with reference to an exemplary embodiment of the processing and/or inspection line of the invention, the invention is not restricted to this particular embodiment which can be varied in many ways without departing from the subject-matter of the appended claims. The discussed exemplary embodiment shall therefore not be used to construe the appended claims strictly in accordance therewith. On the contrary the embodiment is merely intended to explain the wording of the appended claims without intent to limit the claims to this exemplary embodiment. The scope of protection of the invention shall therefore be construed in accordance with the appended claims only, wherein a possible ambiguity in the wording of the claims shall be resolved using

this exemplary embodiment.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP0530868A [0002]

PATENTKRAV

1. Bearbejdnings- og/eller inspektionslinie (1) for fjerkræ, omfattende en første transportørlinie (2) med sjækler (3) til ophængning af fjerkræ (4) i benene (5), hvor transportørlinien (2) er indrettet til at bevæge fjerkræet (4) i en transportretning (A) forbi en bearbejdnings- og/eller inspektionsstation for fjerkræet (4), hvor, i det mindste langs en del af transportlinien (2), en bæring (9) er tilvejebragt, som bærer sjæklerne (3) og fastholder sjæklerne (3) sideværts udbøjet i en anden position bort fra en første neutral vertikal ophængningsposition (område B), i hvilken anden position sjæklerne (3) er ophængt skråt i transportørlinien (2) medens de understøttes og hviler imod bæringen (9), **kendetegnet ved**, at bæringen er et endeløst bånd (9), som drives synkront med transportørlinien (2) for at tilsikre at enhver bagud- og fremadrettet bevægelse af sjæklerne (3) i deres transportretning forhindres eller modvirkes.
2. Bearbejdnings- og/eller inspektionslinie (1) ifølge krav 1, **kendetegnet ved**, at det endeløse bånd (9) har en overfladeoprunding og/eller fortanding, fortrinsvis udstyret til at modtage en rammestruktur af sjæklerne (3) især disses arme.
3. Bearbejdnings- og/eller inspektionslinie (1) ifølge krav 1 eller 2, **kendetegnet ved**, at i det mindste ved inspektionsstationen er en anden transportørlinie (7) tilvejebragt med holdere (8) til modtagelse af indvolde (6) deri, som er udtaget af fjerkræet (4) ophængt i benene (5) i sjæklerne (3) i den første transportørlinie (2), hvor den anden transportørlinie (7) er indrettet til at bevæge sig synkront med den første transportørlinie (2) for opretholdelse en en-til-en overensstemmelse imellem fjerkræet (4) i en sjækel (3) i den første transportørlinie (2) og indvoldene (6) modtaget i holderen (8) i den anden transportørlinie (7), hvilken holder (8) er placeret umiddelbart under fjerkræet (4) i den første transportørlinie (2).
4. Bearbejdnings- og/eller inspektionslinie ifølge krav 3, **kendetegnet ved**, at ved en indgang (C) til inspektionsstationen er føringsorganer (10), fortrinsvis føringsstænger, tilvejebragt til at føre sjæklerne (3) fra den første neutrale vertikale ophængningsposition til en anden position, i hvilken sjæklerne (3) er ophængt skråtstillet i transportørlinien (2).

DRAWINGS

