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(54) SPLITTING MACHINE FOR SPLITTING THE THICKNESS OF HIDES IN TWO PARTS IN THE TRANSVERSE DIRECTION, IN ORDER TO SEPARATE THE UPPER PART FROM THE LOWER PART THEREOF, PROVIDED WITH AN AUTOMATIC FEEDER FOR TRANSPORTING, STRETCHING AND INSERTING THE HIDE BETWEEN THE CONVEYOR ROLLERS

(57) The finding concerns a splitting machine for splitting the thickness of hides in two parts in the transverse direction, in order to separate the upper part from the lower part thereof, provided with an automatic feeder for transporting, stretching and inserting the hide between the conveyor rollers, of the type composed by two belts (11, 12) wrapped in a loop, mutually superimposed so as to determine an intermediate zone where the hide (P) slides and where the front ends (1, 2) of said belts (11, 12) are positioned in the hide introduction zone (13) as close as possible to the conveyor rollers (101, 102) of the splitting machine (100). Said feeder (10) is characterized in that it is provided with means that operate so that, when the edge (P2) of the hide (P) is inserted between the conveyor rollers (101, 102), simultaneously to the separation of the hide by the cutting blade (103), determine the retraction of the upper belt (11) only from the hide (P) introduction zone between the conveyor rollers (101, 102).

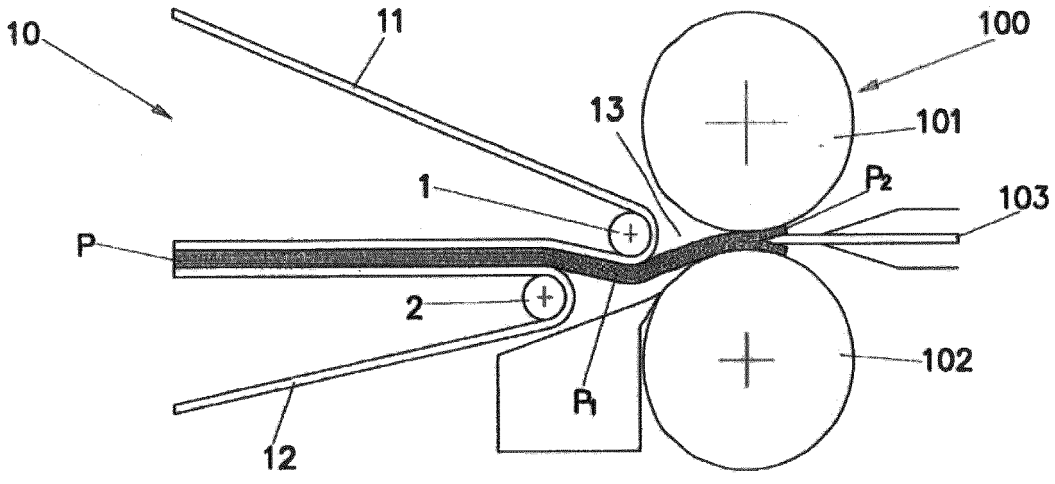

FIG.1

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Description

[0001] DESCRIPTION of the invention ENTITLED "Splitting machine for splitting the thickness of hides in two parts in the transverse direction, in order to separate the upper part from the lower part thereof, provided with an automatic feeder for transporting, stretching and inserting the hide between the conveyor rollers" on behalf of Ge.Ma.Ta. Spa.

[0002] The present finding relates to a splitting machine for splitting the thickness of hides in two parts in the transverse direction, in order to separate the upper part from the lower part thereof, provided with an automatic feeder for transporting, stretching and inserting the hide between the conveyor rollers, according to the general part of claim 1.

[0003] As known, the hide processing cycle in the tanning industry involves the use of "splitting" machines used for splitting hides in the transverse direction, so as to obtain a high-quality leather, the "grain", and a less valuable part, the "split".

[0004] A splitting machine substantially consists of a frame which supports two parallel and opposite rollers, an upper one called "calibrator" and a lower one called "compensator", between which the hide is inserted against a cutting blade, which provides to the separation of said two parts.

[0005] The introduction of the hide between the two rollers is usually done manually, by depositing it above a fixed introduction table and approaching a hide edge to the conveyor rollers, so that the insertion and the advance against the cutting blade, positioned on the opposite side of said rollers, take place.

[0006] In the prior art, the manual introduction, which involves a considerable danger for the operators who, in order to favor the insertion of well stretched hides between the conveyor rollers, must approach as close as possible the work area with their hands, has been replaced by an automatic introduction, with the use of mechanisms known by the generic term of "feeders".

[0007] Among the various types of hide feeders, the most widespread one consists of a pair of belts wrapped in a loop, mutually overlapped, so as to determine an intermediate zone where the hide, during the engagement, also undergoes a flattening and stretching effect before contacting the feeding rollers.

[0008] Operationally, the end of the two belts must be placed as close as possible to the entry zone in the conveyor rollers, not to have the problem of rejection of the hide by the same; moreover, the height of the intermediate zone must be adjusted according to the type of hide being processed.

[0009] Documents US 3631693 A, WO 2011/148077 A1 and EP 2511384 A1 describe splitting machines equipped with these types of feeders.

[0010] In practice, the hides conveyed usually have a thickness, even within every single hide, which can vary considerably (by way of example we may mention, in particular, the "pelts"), whereby it is impossible to define an optimal adjustment of the mutual distance between the two belts, with the consequence of a wrong entry of the hide between the two feeding rollers.

[0011] In fact, document GB 1010797 A describes a device in which it is contemplated to change the distance of the introduction zone before the cutting blade according to the different thickness of the hides. However, this device is complex from the constructive point of view and not very effective in the course of its use, so that actually it has not had a significant commercial diffusion.

[0012] The aim of the present finding is to provide a hide feeder for a splitting machine which is free from the drawbacks of similar products of known type.

[0013] Specifically, the aim of the finding is to provide an automatic hide feeder for a splitting machine which allows carrying out its task with any type of hide, from the "pelt" to the "wet blue" or "dry" type, without the necessity of having to adjust the distance between the two belts at each process change or, in the worst condition, even during the process itself.

[0014] This aim is achieved with the implementation of an automatic feeder of the type consisting of a pair of belts wrapped in a loop, which is characterized in that, after the hide edge is inserted between the two conveyor rollers and only after the separation of the hide by the cutting blade has started, the retraction of only the upper belt from the introduction zone starts, so as to allow a compensation due to the difference in the hide thickness, without having to touch the conveyor rollers, this preventing a mutual friction and the consequent wear of the same belts.

[0015] This improvement effect is further strengthened by providing said upper belt, in addition to a retraction movement, also with an angular rotation movement, which slightly lifts the end of said belt and thereby frees the hide more in the introduction zone in the rollers.

[0016] In practice the retraction, possibly associated with the angular rotation of the belt, in the introduction zone, allows the hide, in the portions where the thickness is considerable, to slide freely between the two belts and to stretch more easily, to allow an optimal introduction and feeding without any external adjustment operation.

[0017] The invention will be better defined by the description of a possible embodiment thereof, given only by way of non-limiting example, with the aid of the accompanying drawings, in which:

- figs. 1, 2, 3 (dwg. I) show the working steps of a splitting machine provided with the feeder of the invention;
- figs. 4, 5 (dwg. II) show a first mechanism for moving the belt;
- figs. 6, 7 (dwg. III) show a second mechanism for moving the belt.

[0018] As shown in fig. 1, the splitting machine, designated by reference numeral 100 and represented by the

conveyor rollers 101 and 102 and by the cutting blade 103, is provided with a feeder, generally designated by reference numeral 10, consisting of two belts 11 and 12 wrapped in a loop, mutually superimposed so as to determine an intermediate zone where hide "P" slides and where the front ends 1 and 2 of said belts 11 and 12 are positioned in the hide introduction zone 13 and as close as possible to said conveyor rollers.

[0019] In particular, the front end 1 of the upper belt 11 is advanced with respect to the front end 2 of the lower belt 12 and arranged so as to also create a convexity, which tensions the portion of hide "P1" entering the conveyor rollers 101 and 102.

[0020] The novelty feature of the invention consists by the fact that the arrangement of the two belts 11 and 12 described above, which in common feeders remains fixed for the entire "splitting" step, in the invention is such only in the initial step, that is, as long as the front edge "P2" of hide "P" is inserted between the conveyor rollers 101 and 102 and the separation of the hide by the cutting blade 103 starts (see fig. 1).

[0021] Immediately thereafter, the retraction of only the upper belt and the lifting of the front end 1 of belt 11, with respect to end 2 of the underlying belt 12, are brought about. This releases the above-mentioned hide portion "P1" which, in addition being tensioned, also has the possibility to widen, so as to allow a compensation due to the thickness differences of the same hide and a free movement between the two belts (see fig. 2).

[0022] Moreover, for hides with zones having significant differences in thickness, such as "pelt" hides coming from liming, unhairing and fleshing, the aforesaid mode of operating is further improved, imparting to the front end 1 of belt 11, in addition to the retraction, also a lifting which moves it away from the hide, so as to have a larger portion of hide "P1" for compensation (see fig. 3).

[0023] Constructively, a preferred embodiment of the movement mechanism of the upper belt 11 comprises a motor member 20 which acts on the rear belt 11 and which operates in association with a lever 21, applied in proximity to end 2 of said belt 11 and fitted so that, from the starting position of the two belts (fig. 4), following a stroke "S" of the motor member 20, said lever 21 is constrained to rotate angularly, which causes the retraction/lifting of end 1 of the aforesaid upper belt 11 (fig. 5).

[0024] Still constructively, a further embodiment of the movement mechanism of the upper belt 11 provides for the use of two levers 30 and 31, where a first lever 30, retained with an elastic contrast member 32, is connected to the rear belt 11 return cylinder, while the second lever 31 is applied in proximity to the front end 1 of said belt 11, said two levers 30 and 31 being of different length, so that, from the starting position of the two belts, when said levers 30 and 31 are parallel to one another (fig. 6), as a consequence of a rotation of the longer lever 30, brought about by the variation of the thickness of the hide being processed, also the shorter lever 31 is made to rotate, which causes the retraction/lifting of end 1 of the aforesaid upper belt 11 (fig. 7). The invention thus conceived is susceptible of modifications and variations, and its constructive details may be replaced by technically equivalent elements, provided that all falls within the inventive concept defined by the following claims.

Claims

1. SPLITTING MACHINE FOR SPLITTING THE THICKNESS OF HIDES IN TWO PARTS IN THE TRANSVERSE DIRECTION, IN ORDER TO SEPARATE THE UPPER PART FROM THE LOWER PART THEREOF, PROVIDED WITH AN AUTOMATIC FEEDER FOR TRANSPORTING, STRETCHING AND INSERTING THE HIDE BETWEEN THE CONVEYOR ROLLERS, of the type composed by two belts (11, 12) wrapped in a loop, mutually superimposed so as to determine an intermediate zone where the hide (P) slides and where the front ends (1, 2) of said belts (11, 12) are positioned in the hide introduction zone (13) as close as possible to the conveyor rollers (101, 102) of the splitting machine (100) and where the front end (1) of the upper belt (11) is advanced with respect to the front end (2) of the lower belt (12), being provided means adapted to determine a convexity on the hide, said convexity maintaining tensions on the portion of hide (P1) entering the conveyor rollers (101, 102) to be separated by the cutting blade (103), said feeder (10) being **characterized in that** it is provided with means that operate in a way that, when the edge (P2) of the hide (P) is inserted between the conveyor rollers (101, 102), simultaneously to the separation of the hide by the cutting blade (103), determine the retraction of the upper belt (11) only from the hide (P) introduction zone between the conveyor rollers (101, 102).

2. MACHINE, according to claim 1, **characterized in that**, in addition to the retraction of the upper belt (11), the lifting of the front end (1) of the belt itself also takes place.

3. MACHINE, according to claim 2, **characterized in that** the retraction and lifting movements of the front end (1) of the belt (11) take place simultaneously.

4. MACHINE, according to claim 3, **characterized in that** the movement mechanism of the upper belt (11) comprises a motor member (20), that acts on the rear belt (11) return cylinder and that operates in association with a lever (21), applied in proximity to the end (2) of said belt (11) and fitted so that, from the starting position of the two belts, where the end (1) of the upper belt (11) is more advanced with respect to the end (2) of the lower belt (12), following a stroke (S) of the motor member (20), said lever

(21) is constrained to rotate angularly, which causes the retraction/lifting of the end (1) of the aforesaid upper belt (11).

5. MACHINE, according to claim 3, **characterized in that** the movement mechanism of the upper belt (11) provides for the use of two levers (30, 31), where a first lever (30), equipped with an elastic contrast member (32), is connected to the rear belt return cylinder (11), while the second lever (31) is applied in proximity to the front end (1) of said belt (11), said two levers (30, 31) being of different length, so that, from the starting position of the two belts, where the end (1) of the upper belt (11) is more advanced with respect to the end (2) of the lower belt (12), the two aforesaid levers (30, 31) being arranged parallel to one another, it is provided that, as a consequence of a rotation of the longer lever (30), brought about by the variation of the thickness of the hide being processed, also the shorter lever (31) is made to rotate, which causes the retraction/lifting of the end (1) of the aforesaid upper belt (11).

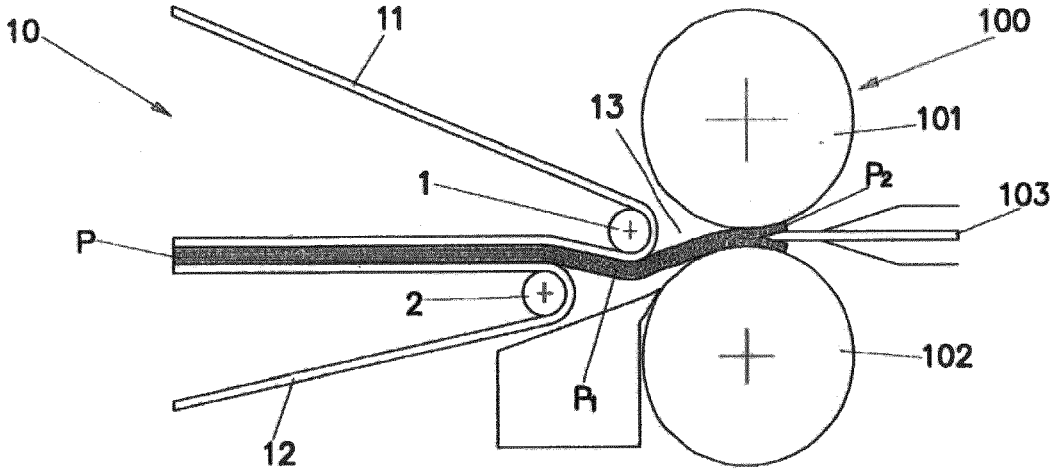

FIG.1

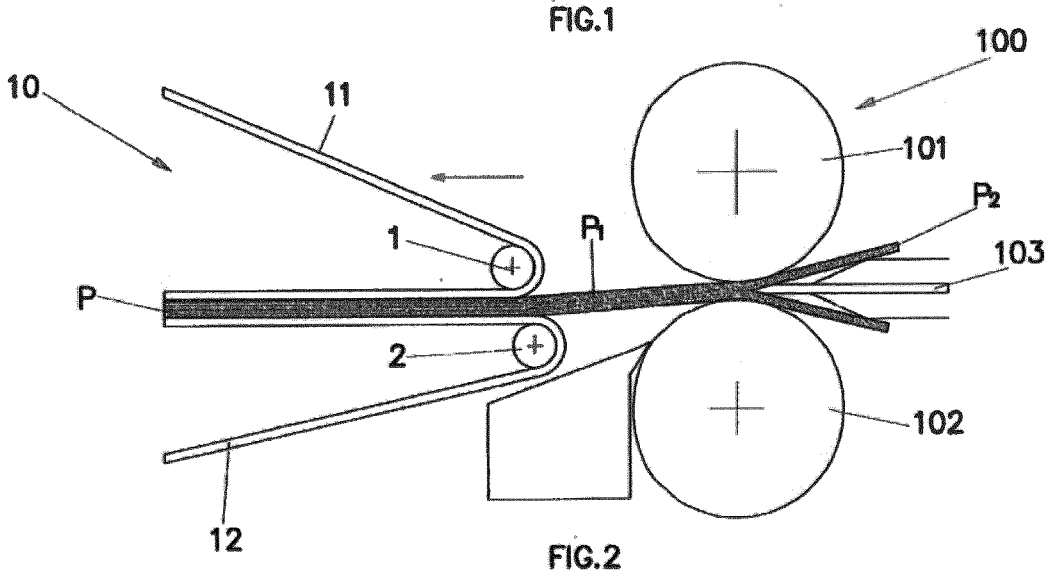

FIG.2

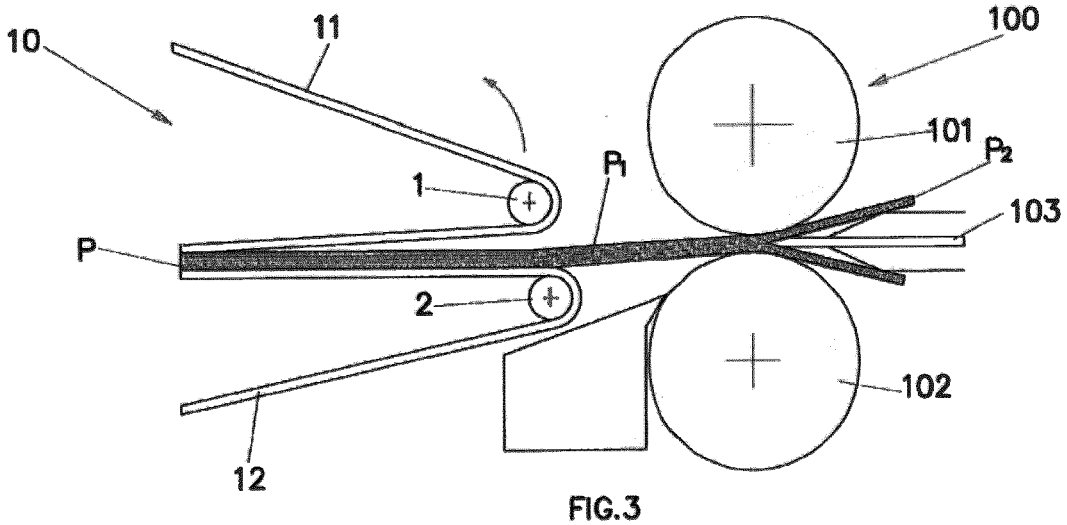

FIG.3

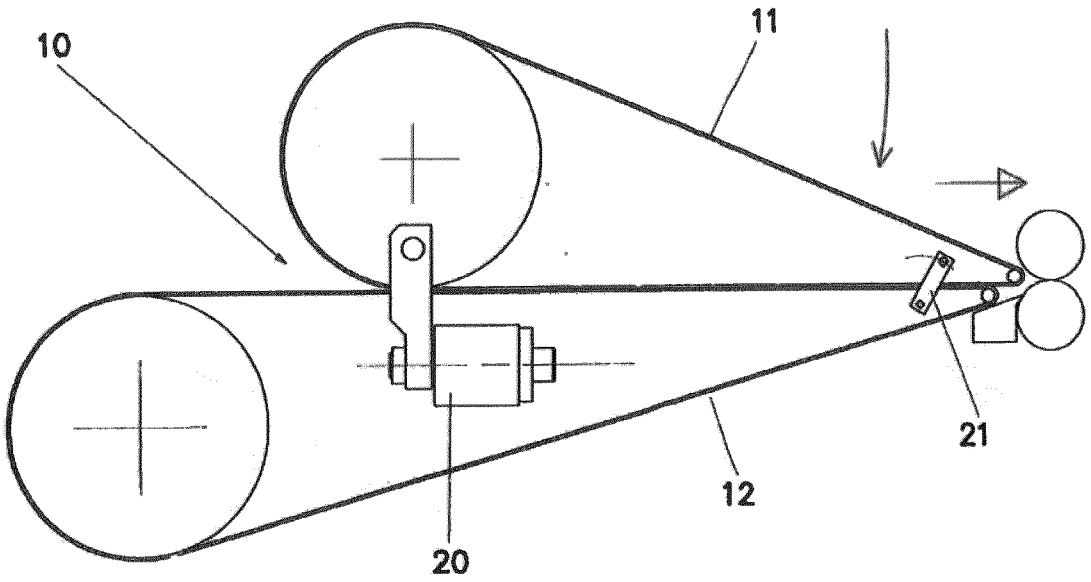

FIG.4

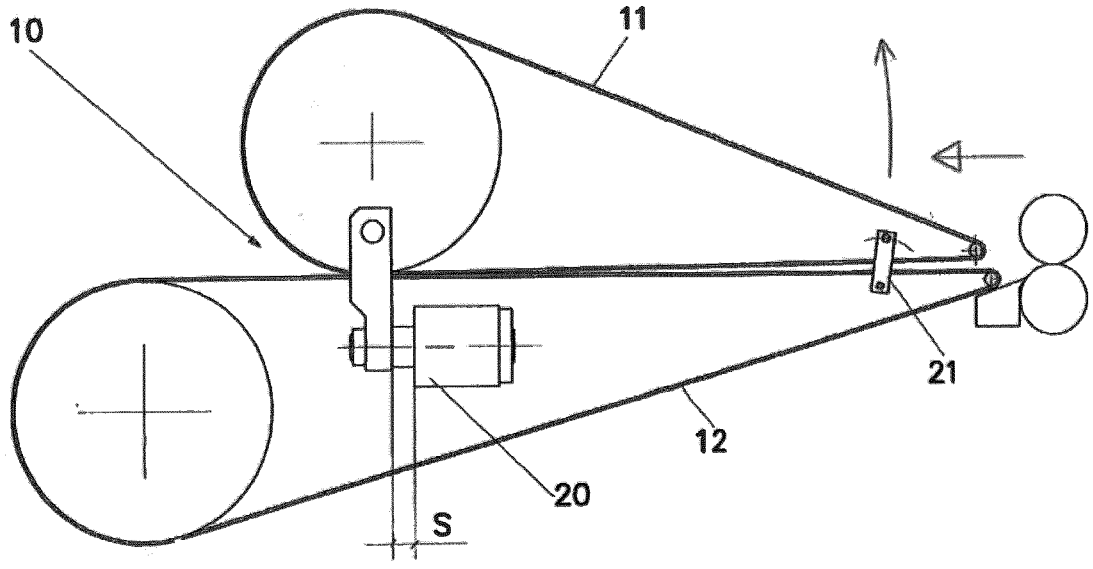

FIG.5

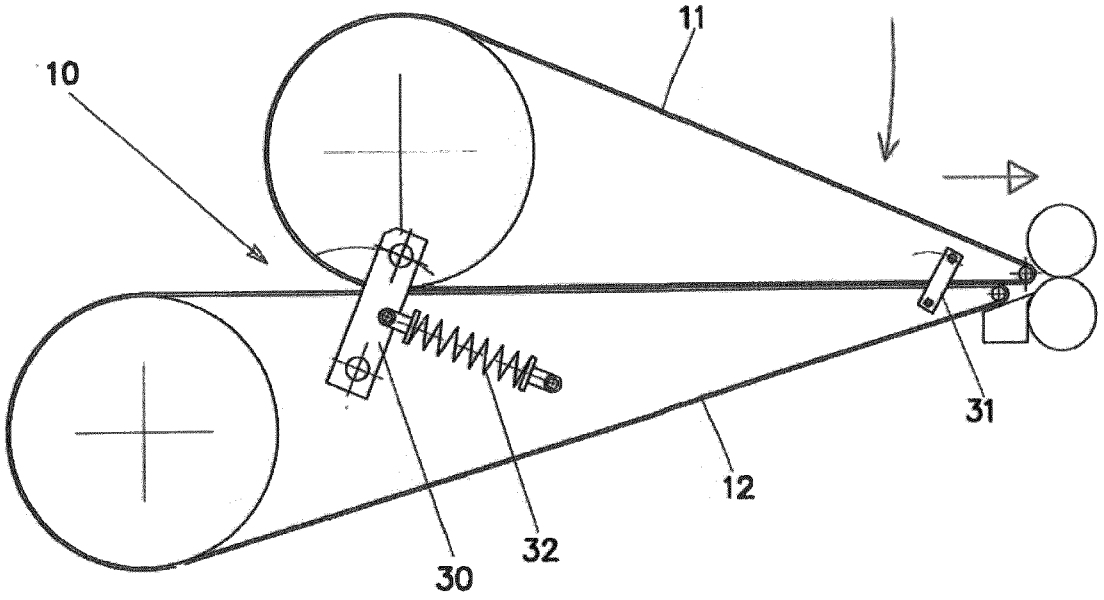

FIG.6

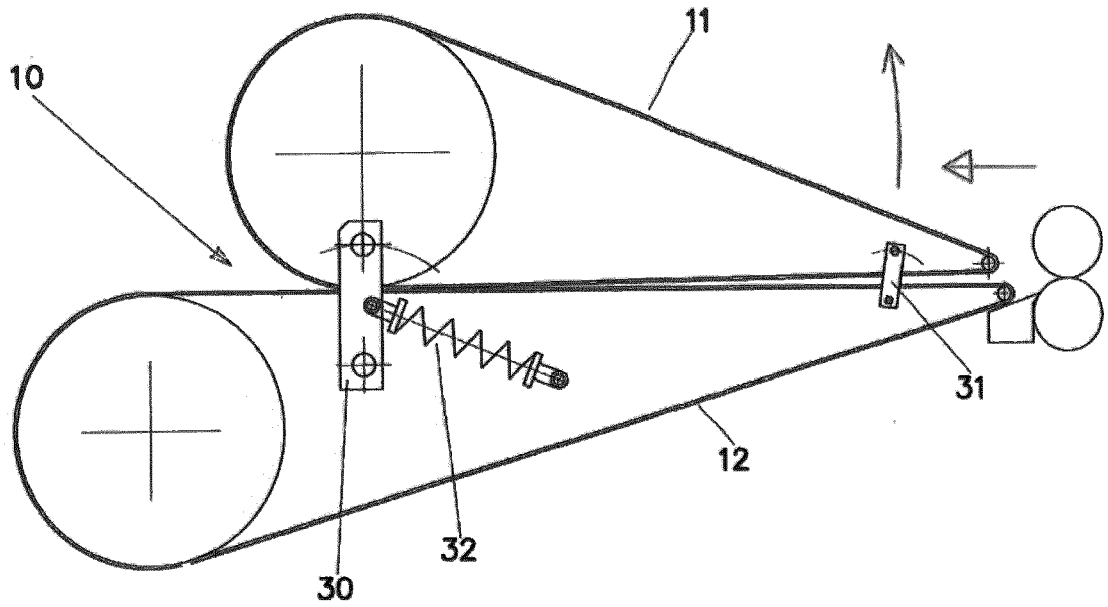

FIG.7

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EUROPEAN SEARCH REPORT

Application Number
EP 16 17 3804

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A	WO 2011/148077 A1 (CTC [FR]; TURNER SAS [FR]; DARRAGON JEROME [FR]; CHAMBON DIDIER [FR]) 1 December 2011 (2011-12-01) * the whole document *	1-5	
A	EP 2 511 384 A1 (GE MA TA SPA [IT]) 17 October 2012 (2012-10-17) * the whole document *	1-5	
A	US 6 698 255 B1 (DORSTEWITZ RAINER [DE]) 2 March 2004 (2004-03-02) * column 3, lines 4-23 *	1-5	

TECHNICAL FIELDS SEARCHED (IPC)
C14B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	6 December 2016	Bichi, Marco

CATEGORY OF CITED DOCUMENTS

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06-12-2016

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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