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(11) **EP 1 441 037 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.07.2004 Bulletin 2004/31

(51) Int Cl.7: **C14C 15/00, C14B 1/56**

(21) Application number: **04100187.6**

(22) Date of filing: **21.01.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**
Designated Extension States:
AL LT LV MK

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(30) Priority: **24.01.2003 IT UD20030014**

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(54) **Spreader machine for tannery hides**

(57) Spreader machine (10) for tannery hides comprising at least a spreader roller (11) which deposits a desired quantity of covering product on the hides, and at least a contrasting member (12) which keeps the hides in contact with the spreader roller (11). The spreader machine (10) also comprises a detachment

device (16) for the hides provided with rotary elements (25) arranged in proximity with, and downstream of, the spreader roller (11), in order to detach the hides from the latter and position them on feed members (13) arranged downstream of, or in association with, the spreader roller (11).

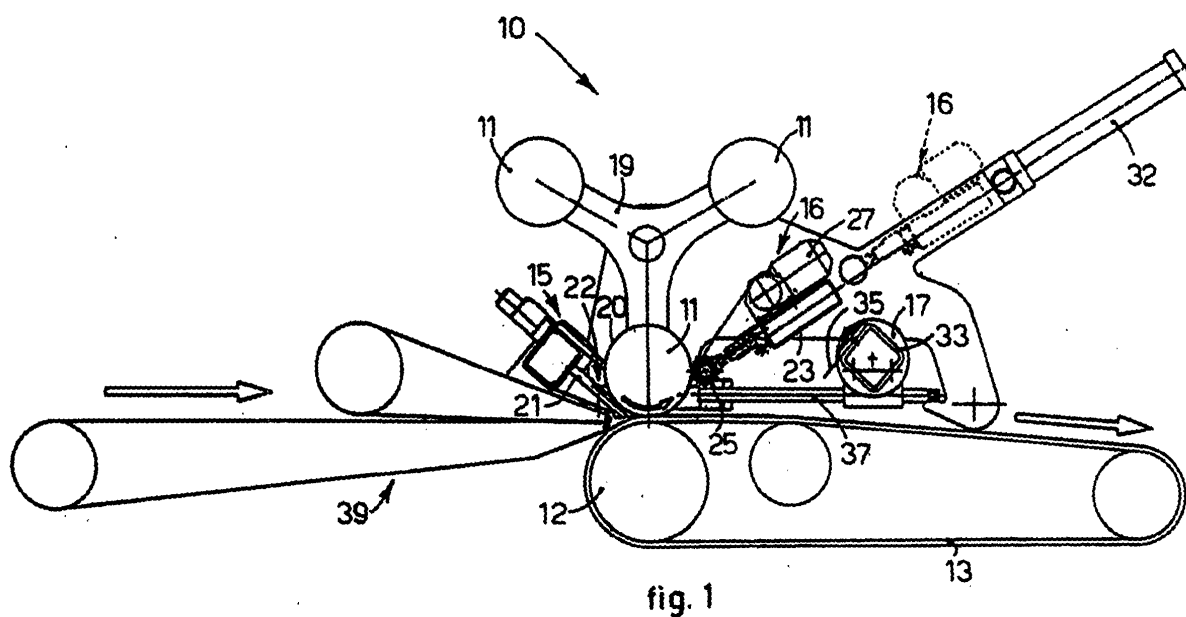


fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention is applied in the field of industrial tanning and concerns a spreader machine with rollers, of the type provided with at least a spreader roller to deposit on the hides products such as pigments, resins, oils, paraffins, glues or other substances, which hereafter shall be referred to in general as covering products; the spreader roller is associated with a contrasting element. The spreader machine is able to work both in "synchro" mode, that is, with the spreader roller rotating in the same direction of feed as the hides, and also in "reverse" mode, that is, with the spreader roller rotating in the opposite direction to the feed of the hides. To be more exact, the present invention concerns a detachment device that allows to detach the hide from the spreader roller both in "synchro" and in "reverse" mode.

BACKGROUND OF THE INVENTION

[0002] It is known that spreader machines with rollers are used in order to deposit a covering product on a suitably treated tannery hide; such machines are provided with a contrasting member which consists mainly of a roller and a belt which has the double function of keeping the hide against the spreader roller and of feeding the hide in a particular direction.

[0003] Such machines can operate both in the so-called "synchro" mode, wherein the rotation of the spreader roller occurs in a way that is coordinated to the direction of feed of the hide, and also in the so-called "reverse" mode, wherein the spreader roller has a direction of rotation that contrasts the direction of feed of the hide.

[0004] One of the main disadvantages of such machines is that the hide, exiting from the spreader roller, tends to remain attached thereto.

[0005] On this type of machine, the aforesaid disadvantage is normally solved by means of detachment devices consisting of a separator element, such as a blade, a hook or suchlike, fixed with respect to the rotation of the spreader roller and resting on the circular surface of the latter in order to guarantee the detachment of the hide.

[0006] One of the main disadvantages of known detachment devices is that they have to be specifically mounted according to whether the spreader machine operates in "synchro" or in "reverse" mode. In fact, if the spreader machine operates in "synchro" mode, the detachment device is mounted downstream of the spreader roller, whereas if the spreader machine operates in "reverse" mode, a longitudinal blade provided to deposit the covering product on the surface of the spreader roller also functions as a detachment device.

[0007] This disadvantage entails long equipping times in order to pass from one operating mode to the

other, since such operations are performed almost exclusively manually, thus entailing a consequent increase in the production costs.

[0008] The aforesaid known detachment devices also have the disadvantage that they cause the spreader roller to become worn, particularly when the machine operates in "synchro" mode, since the reciprocal contact between the separator element and the spreader roller itself leads to a scraping of the first and a streaking of the second. This disadvantage entails an increase in the maintenance costs and a reduction in the quality of the finished product.

[0009] Moreover, the sliding of the separator element and the spreader roller entails an accumulation of the covering product in the contact zone, with a consequently probable dripping of said covering product onto the hide. This causes imperfections on the treated surface of the hide and hence a further lowering of the quality of the final product.

[0010] Another disadvantage of known detachment devices is that, when they detach the hide from the spreader roller of the machine, the treated hide itself tends to slide or curl up along the detachment device, with a consequent damage to the hide.

[0011] The Applicant has devised and embodied the present invention in order to overcome these shortcomings of the state of the art and to obtain further advantages.

SUMMARY OF THE INVENTION

[0012] The present invention is set forth and characterized in the main claim, while the dependent claims describe other innovative characteristics of the present invention.

[0013] One purpose of the present invention is to achieve a spreader machine for tannery hides provided with a detachment device which allows to reduce the equipping times in order to pass from the so-called "synchro" operating mode to the so-called "reverse" operating mode, in order to reduce production costs.

[0014] Another purpose of the present invention is to achieve a spreader machine whose detachment device guarantees a complete detachment of the hide from the mechanical members of the spreader machine and does not directly contact the spreader roller of this machine in order to prevent the formation of accumulations of the covering product and wear on the parts.

[0015] The present invention is applied to a spreader machine for tannery hides of the type comprising at least a spreader roller which deposits a desired quantity of covering product, such as for example pigments, a resin, an oil, a glue or other substance on the hides, and at least a contrasting member, which consists mainly of a roller and a belt which has the double function of keeping the hide against the spreader roller and of making the hide advance in a particular direction. The spreader machine is able to operate in at least a first mode, com-

monly called "synchro" mode, wherein the spreader roller rotates in a way that is coordinated to the direction of feed of the hides, and at least in a second mode, commonly called "reverse" mode, wherein the spreader roller rotates in the opposite direction to the direction of feed of the hides.

[0016] In accordance with the aforesaid purposes, the spreader machine according to the present invention comprises a detachment device for the hides provided with rotary means arranged in proximity with, and downstream of, the spreader roller, and able to detach the hides from the latter in order to position them on feed means also arranged downstream of the spreader roller.

[0017] According to another characteristic feature of the present invention, the detachment device comprises movement means which move the rotary means between a first, detachment position wherein they are in cooperation with the spreader roller, when the machine is operating in the first mode, and a second, inactive position wherein they are distant from the spreader roller, when the machine is operating in the second mode.

[0018] The spreader machine according to the invention is also provided with depositing means for the covering product, commonly called longitudinal blades, which deposit the covering product on the spreader roller before the latter comes into contact with the hide. To be more exact, the machine according to the invention comprises auxiliary depositing means, mobile between a first, inactive position wherein they are distant from the spreader roller, when the machine is operating in the first mode, and a second depositing position wherein they are in cooperation with the spreader roller, when the machine is operating in the second mode.

[0019] A first advantage of the present invention is that the operations of moving between the first mode and the second mode occur in a completely automatic manner, so as to allow to reduce the times needed for equipping the machine from one mode to the other.

[0020] Another advantage of the present invention is that the rotary means of the detachment device are arranged in proximity with the spreader roller, so as not to touch it and hence run the risk of ruining it or accelerating the process of wear of the detachment device itself.

[0021] A further advantage of the present invention is that the detachment device, since it does not touch the spreader roller that spreads the covering product, is not dirtied thereby and therefore the problem of dripping is eliminated.

[0022] Moreover, the rotary means not only perform an action of detaching the hide from the spreader roller but also prevent the hide itself from remaining attached to the detachment device, since their rotational movement tends to displace the hide along its direction of feed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] These and other characteristics of the present

invention will become apparent from the following description of a preferential form of embodiment, given as a non-restrictive example, with reference to the attached drawings wherein:

- fig. 1 is a schematic side view of a spreader machine for tannery hides according to the present invention, in a first operating mode;
- fig. 2 shows the spreader machine in fig. 1 in a second operating mode;
- fig. 3 shows an enlarged detail of fig. 1;
- fig. 4 shows a view from above of a detail in fig. 1.

DETAILED DESCRIPTION OF A PREFERENTIAL FORM OF EMBODIMENT

[0024] With reference to figs. 1 and 2, a spreader machine 10 for a tannery hide according to the present invention comprises three spreader rollers 11, mounted on a turntable element 19, a contrasting roller 12, a conveyor belt 13, a first longitudinal blade 15 and a detachment device 16.

[0025] The machine 10 also comprises a second longitudinal blade 17 selectively usable according to the mode of use of the machine 10.

[0026] The machine 10 according to the present invention is in fact of the type able to operate both in a first mode, commonly called "synchro", wherein the spreader roller 11 has its direction of rotation coordinated with the direction of feed of the hide, shown schematically by an arrow in figs. 1 and 2, and also in a second mode, commonly called "reverse", wherein the spreader roller 11 has a direction of rotation that is opposite to the direction of feed of the hide.

[0027] The spreader rollers 11 are arranged above the hide to be treated and each one of them is selectively positioned, by the turntable element 19, in cooperation with the contrasting roller 12. The turntable element 19 allows to selectively replace the spreader roller 11, according to whether it is desired to change the color or the effect to be imparted to the hide.

[0028] Each spreader roller 11 has a circular surface 20, substantially smooth, whose central part is sprinkled, in this case, with dye by the first longitudinal blade 15 or the second longitudinal blade 17, according to whether the machine 10 is operating in "synchro" or "reverse" mode. On the contrary, the lateral parts of the circular surface 20 of each spreader roller 11 remain without dye.

[0029] The contrasting roller 12, as we said, is positioned below the spreader roller 11 and, in this case, also functions as a drive roller for the conveyor belt 13. Such contrasting roller 12 is able to keep the hide to be dyed in contact with the spreader roller 11, so that the latter prints the desired color on a surface of the hide.

[0030] The conveyor belt 13, as we said, is driven by the contrasting roller 12 and is arranged downstream of the spreader roller 11, so that the hides, once dyed, are

arranged on the conveyor belt 13 in order to be discharged.

[0031] The first longitudinal blade 15 is arranged upstream of the spreader roller 11 and is able to deposit the dye uniformly on the central part of the circular surface 20 of the spreader roller 11.

[0032] The longitudinal blade 15 comprises, in substantially known manner, a blade 21 arranged longitudinally, parallel and close to the spreader roller 11, so that it defines, with the circular surface 20 of the latter, a dye tank 22. In this way the rotation of the spreader roller 11 allows the dye to be gradually drawn, and then, by means of the lower long side of the blade 21, to be uniformly deposited on the circular surface 20.

[0033] The detachment device 16 (fig. 3) comprises a supporting structure 23, a detachment roller 25 and an electric motor 27 to drive the detachment roller 25.

[0034] The detachment roller 25 is arranged facing the central part of the circular surface 20 of the spreader roller 11 and is mounted on the supporting structure by means of a regulation mechanism 29, in this case with a screw, which allows to regulate the distance of such detachment roller 25 from the spreader roller 11. The detachment roller 25 is in fact arranged at a distance in the range of some tenths of a millimeter with respect to the circular surface 20 of the spreader roller 11, so that it does not touch it and hence run the risk of ruining the surface thereof.

[0035] The detachment roller 25 is also provided, on its circular surface, with a plurality of longitudinal teeth 26 which perform a detachment action on the hide.

[0036] At the two ends of the detachment roller 25 two supporting wheels 30 are axially provided, of which only one is visible in fig. 4; they are able to rest against the respective lateral parts of the circular surface 20 of the spreader roller 11, in order to maintain a desired distance between the detachment roller 25 and the spreader roller 11.

[0037] The detachment device 16 is also provided with a transmission element 31, in this case a chain or belt, shown with a line of dashes in fig. 3, which transmits motion from the electric motor 27 to the detachment roller 25.

[0038] The supporting structure 23 of the detachment device 16 is movable linearly (figs. 1 and 2) by means of a linear actuator 32, so that the detachment roller 25 can be selectively positioned between a first position of detachment, wherein it is in cooperation with the spreader roller 11 in order to perform the detachment of the hide when the machine 10 is operating in "synchro" mode, and a second, inactive position wherein the detachment roller 25 is distant from the spreader roller 11 in order to allow the operating positioning of the second longitudinal blade 17, when the machine 10 is operating in "reverse" mode.

[0039] The second longitudinal blade 17 comprises a frame 33 on which a detachment blade 35 is mounted, also having the function of uniformly depositing the dye

on the central part of the circular surface 20 of the spreader roller 11.

[0040] In fact, the detachment blade 35, as we shall see, has at least a depositing and detachment position, wherein it is close to the spreader roller 11 so as to form therewith a tank for the dye, in order to allow the spreader roller 11 to draw the dye. In this position, the lower surface 36 of the detachment blade 35, that is, the one that is not in contact with the dye, advantageously has an inclination tangential to the spreader roller 11 and has the function of detaching the hide from the spreader roller 11 itself.

[0041] The second longitudinal blade 17 is movable linearly along a linear guide 37 between a first, inactive position wherein it is distant from the spreader roller 11, when the machine 10 is operating in "synchro" mode, and a second position of depositing and detachment, when the machine 10 is operating in "reverse" mode.

[0042] The spreader machine 10 also comprises a loading device 39, of a known type and irrelevant to the present invention.

[0043] The spreader machine 10 according to the present invention as described heretofore functions as follows.

[0044] In the "synchro" operating mode (fig. 1), the spreader roller 11 rotates in an anti-clockwise direction, that is, in the direction of feed of the hides, and draws the dye from the first longitudinal blade 15, the detachment roller 25 is in its first, detachment position and the second longitudinal blade 17 is in its first, inactive position.

[0045] In this way, inserting the hides through the loading device 39, they pass between the spreader roller 11 and the contrasting roller 12 and are thus dyed.

[0046] The detachment of the hides from the spreader roller 11 is performed by the detachment roller 25 which, also rotating in an anti-clockwise direction, tends to carry the hides towards the conveyor belt 13, preventing these hides from remaining constrained thereto. Moreover, since the detachment roller 25 is provided with longitudinal teeth 26, the surface of contact between the hides and the detachment roller 25 is reduced to a minimum, so as to reduce the risk of ruining the dyed surface of the hides.

[0047] In the "reverse" operating mode (fig. 2), the spreader roller 11 rotates in a clockwise direction, that is, in the opposite direction with respect to the direction of feed of the hides, and draws the dye from the second longitudinal blade 17 which is in its second position of depositing and detachment, while the detachment roller 25 is in its second, inactive position.

[0048] With the present invention, the passage from one operating mode to the other therefore occurs simply and quickly, without needing to intervene manually for the equipping process.

[0049] Moreover, both in "synchro" and in "reverse" mode, the detachment device 16 and the second longitudinal blade 17, which perform the detachment of the

hides from the spreader roller 11, do not rest on the latter, so that its circular surface 20 is not ruined.

[0050] It is clear, however, that modifications and/or additions of parts may be made to the machine 10 as described heretofore, without departing from the field and scope of the invention.

[0051] For example, according to a variant, the detachment roller 25 could intervene even when the machine 10 is operating in "reverse" mode, so as to replace the second longitudinal blade 17 in its detachment function.

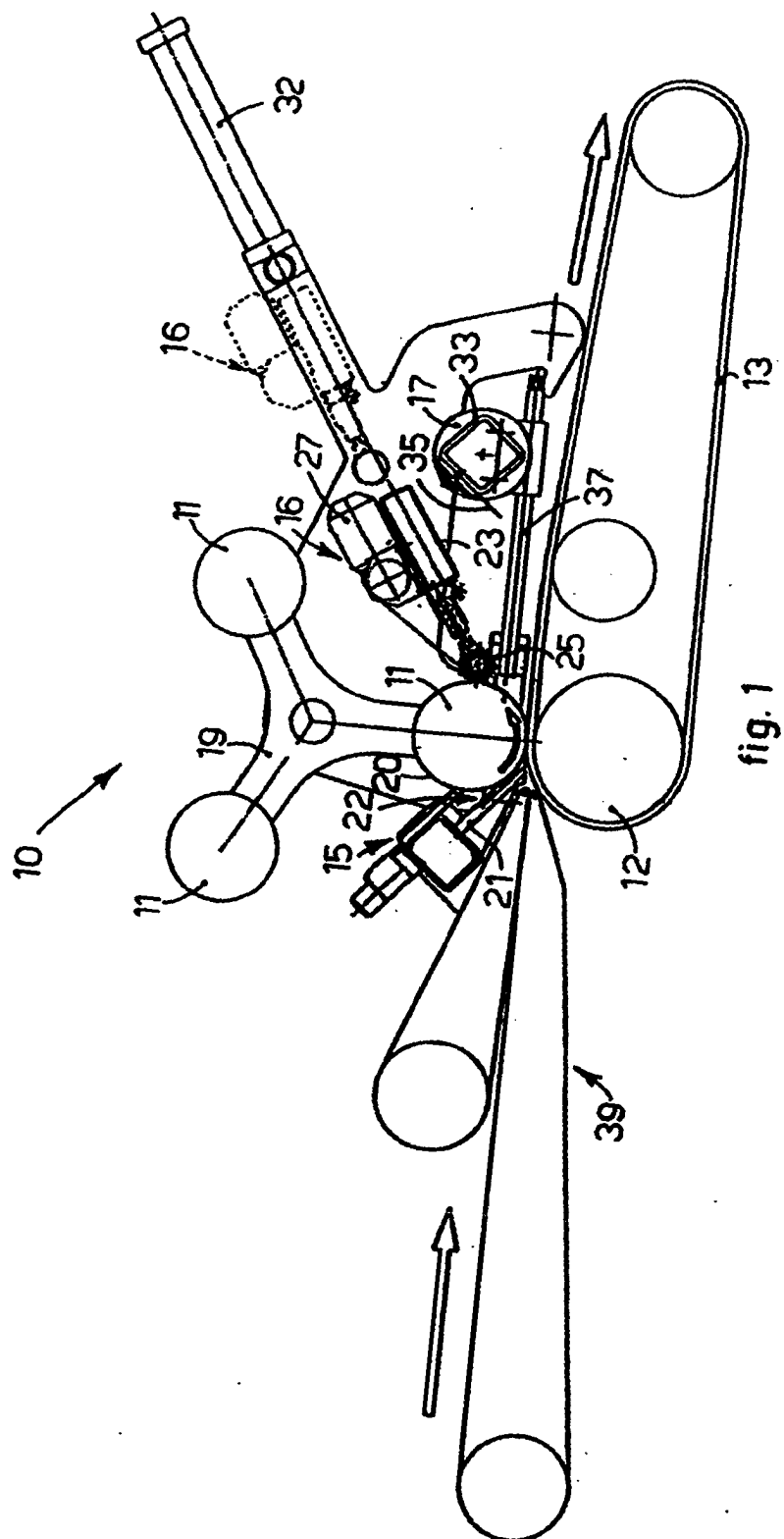
[0052] It is also clear that, although the invention has been described with reference to a specific example, a skilled person in the art shall be able to achieve many other equivalent forms of spreader machine for tannery hides, all of which shall come within the field and scope of the invention.

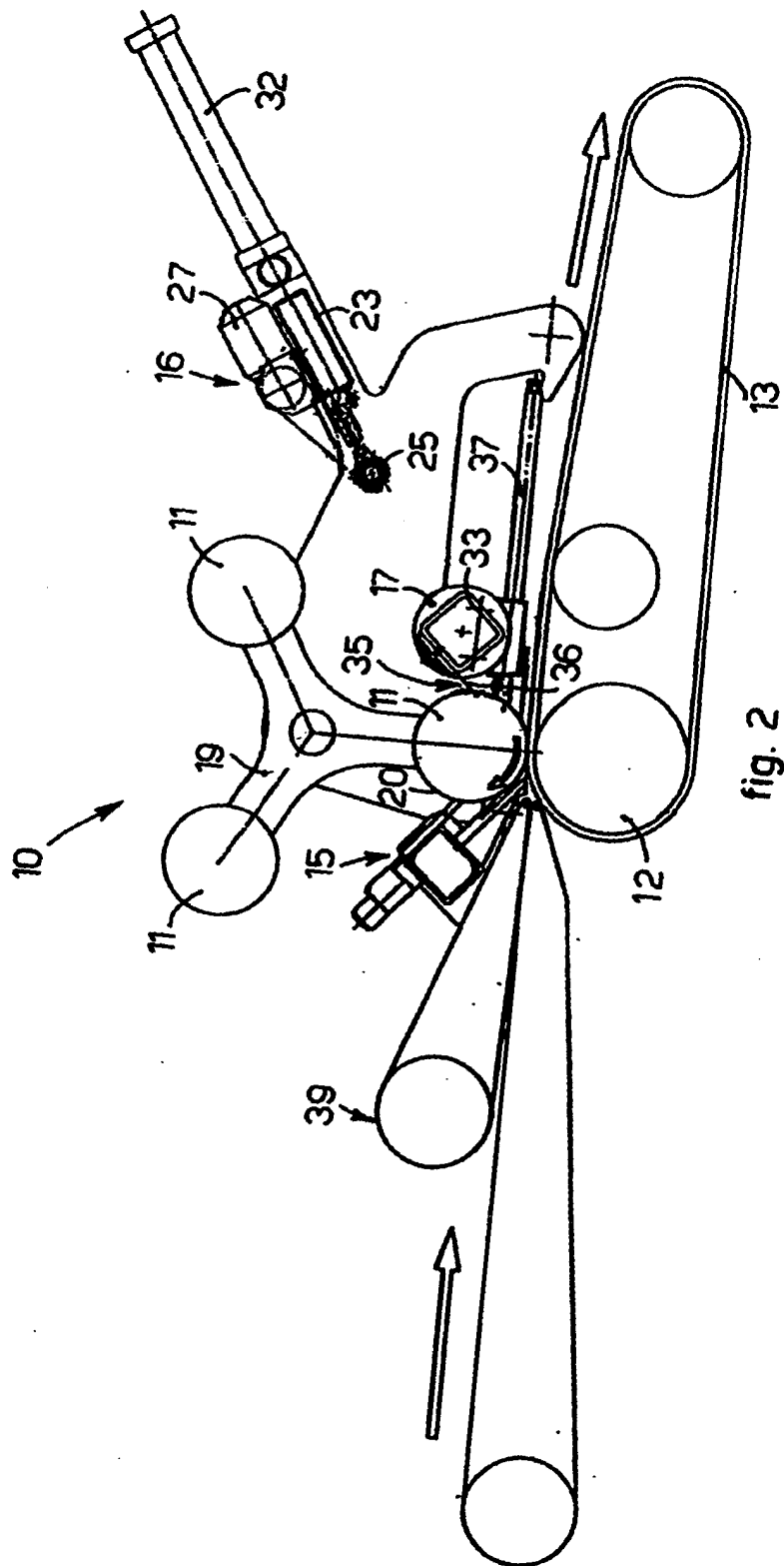
Claims

1. Spreader machine for tannery hides comprising at least a spreader roller (11) able to deposit a desired quantity of covering product on said hides, and at least a contrasting member (12) able to keep said hides in contact with said spreader roller (11), **characterized in that** it also comprises a detachment device (16) for said hides provided with rotary means (25) arranged in proximity with, and downstream of, said spreader roller (11) and able to detach said hides from said spreader roller (11) in order to position them on feed means (13) arranged downstream of, or in association with, said spreader roller (11).
2. Machine as in claim 1, able to operate in at least a first mode wherein said spreader roller (11) rotates in a manner coordinated to the direction of feed of said hides, and at least in a second mode wherein said spreader roller (11) rotates in a direction opposite to the direction of feed of said hides, **characterized in that** said detachment device (16) comprises movement means (32) able to move said rotary means (25) between a first, detachment position wherein they are in cooperation with said spreader roller (11), when said spreader machine (10) is operating in said first mode, and a second, inactive position wherein they are distant from said spreader roller (11), when said spreader machine (10) is operating in said second mode.
3. Machine as in claim 2, wherein depositing means (15) for the covering product are provided to deposit the covering product on said spreader roller (11), **characterized in that** it comprises auxiliary depositing means (17) mobile between a first, inactive position wherein they are distant from said spreader roller (11), when said spreader machine (10) is op-

erating in said first mode, and a depositing position wherein they are in cooperation with said spreader roller (11), when said spreader machine (10) is operating in said second mode.

4. Machine as in claim 3, **characterized in that** said spreader roller (11) comprises a circular surface (20) provided with a central part, able to be sprinkled with said covering product, and with two clean lateral sides.
5. Machine as in claim 4, **characterized in that** said spreader roller (11) is mounted on a turntable element (19) able to allow the selective replacement of said spreader roller (11) according to the type of covering product or the effect to be imparted to said hides.
6. Machine as in claim 1, **characterized in that** said contrasting member (12) is positioned below said spreader roller (11) and also functions as a drive roller for said feed means (13).
7. Machine as in claim 6, **characterized in that** said feed means comprise a conveyor belt (13).
8. Machine as in claims 1 and 2, **characterized in that** said detachment device (16) comprises a supporting structure (23) on which a drive motor (27) is mounted, able to drive a detachment roller (25), and a regulation mechanism (29) able to regulate the distance of said detachment roller (25) from said spreader roller (11).
9. Machine as in claim 8, **characterized in that** said detachment roller (25) is provided, on its circular surface, with a plurality of longitudinal elements (26) able to detach said hide from said spreader roller (11), reducing to a minimum the surface of contact between said hide and said detachment roller (25).
10. Machine as in claims 4 and 9, **characterized in that** at the two ends of said detachment roller (25) two supporting wheels (30) are axially provided, able to rest against the respective lateral parts of said circular surface (20) of said spreader roller (11), in order to keep said detachment roller (25) at a desired distance from said spreader roller (11).
11. Machine as in claim 3, **characterized in that** said auxiliary depositing means (17) comprise a frame (33) on which a detachment blade (35) is mounted, able to uniformly deposit the covering product on said spreader roller (11).





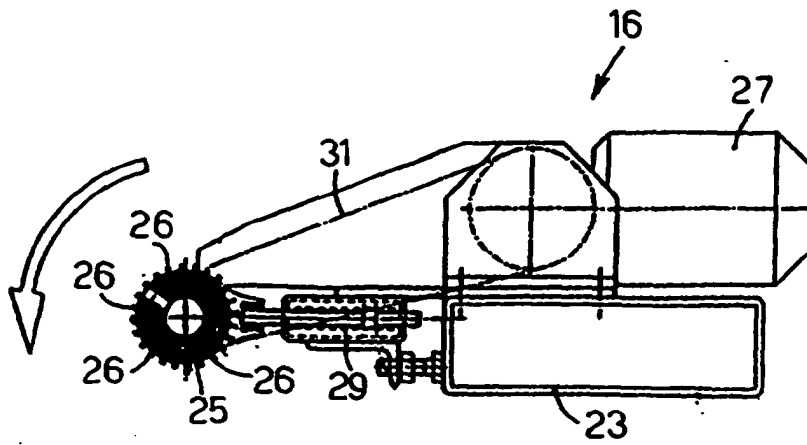


fig. 3

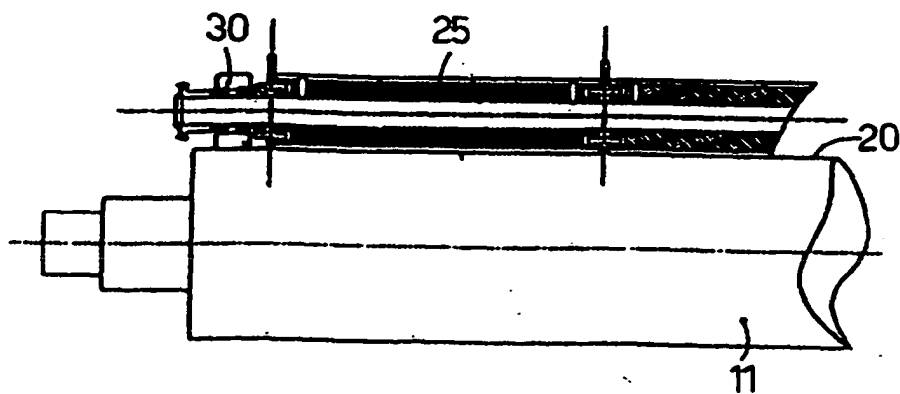


fig. 4



European Patent
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EUROPEAN SEARCH REPORT

Application Number
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EPO FORM 1503 03.92 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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