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(54) **SYSTEM AND METHOD FOR AN EXTERNAL TREATMENT OF TANNERY LEATHERS**

SYSTEM UND VERFAHREN ZUR ÄUSSEREN BEHANDLUNG VON GEGERBTEM LEDER

SYSTÈME ET PROCÉDÉ DE TRAITEMENT EXTERNE DE CUIRS DE TANNERIE

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(72) Inventor: **GALIOTTO, Antonio**

IT-36071 Arzignano (VI) (IT)

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(74) Representative: **Burchielli, Riccardo et al
Barzano & Zanardo Roma S.p.A.**

Via Piemonte 26

00187 Roma (IT)

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(73) Proprietor: **Erretre S.p.A.**

36071 Arzignano (Vicenza) (IT)

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Description

[0001] The present invention generally relates to a system for an external treatment of flexible laminar elements, such as tannery leathers and to a processing method thereof.

[0002] More particularly, the invention relates to a method for spray-painting tannery leathers, which is performed inside known painting booths and which allows to obtain, at the end of the treatment, a painting film which is completely uniform over the whole surface of the leather.

[0003] Spray-painting plants for painting leather tanneries are currently known; they are able to spray on leathers a great variety of covering products or mixtures, such as paints, pigments, resins, oils, paraffins, glues, etc.

[0004] Said plants generally comprise a conveyor belt for conveying leathers, a closed booth, inside which, by means of spray-painting guns, a laying of the covering products occurs, and a smokes suction and removal system for sucking and filtering the fumes of the covering products that are layed on the leathers.

[0005] In particular, the leathers painting plants have a smokes suction system for sucking the fumes deriving from the air-suspension paint and a booth, which can be a rotary, reciprocating or elliptic booth.

[0006] The rotary booths have a central shaft, which is placed inside the spraying chamber and which is constructed for delivering the spray painting to all the automatic spraying guns of the plant and to which the compressed air tubes for operating the guns are connected, a plurality of arms (usually 8 or 12), which are radially arranged and which are connected to the driven central shaft, from which they take the rotating motion, and a plurality of fixed guns, which are installed at the ends of the arms and which atomize and spray the colored painting on the leather's surface to be painted; the leather is also arranged on a conveyor belt which is generally made with nylon threads and which moves, by means of an inverter, at a preset speed (usually between 4 and 22 meters/min.).

[0007] At the end of each arm one, two or sometimes three spraying guns are installed and each of said guns is connected to a respective colored paint supply circuit; the colored paint is sucked by a pump at the side of the machine, while a compressed air circuit provides for a suitable paint atomization.

[0008] Moreover, a reading bar installed upstream the spray booth defines the leather's position, the leather's surface and the leather's geometric edge, so that an electronic control system, which stores the leather's size and shape, is able to drive the opening and closing of the spray-painting guns. Reciprocating booths have, on the other hand, one or two guides, which are placed along a direction which is orthogonal to the direction of the leathers' movement and a trolley for carrying the painting guns is provided on each of said guides; inverter-driven motors and related drive belts or chains causes the reciprocating

movement of the trolleys, as well as suitable tubes are provided for conveying the compressed air and the colored painting which are required for operating the spraying guns. Finally, the parallel or elliptical booths, which are based on the same operating principle of the reciprocating booths, have a rectangular structure and use two toothed wheels, which are coupled through a transmission belt or chain; one of said wheels is driven by a motor, while a plurality of spraying guns, which are connected to respective compressed air tubes and colored painting tubes, are fixed on said chain and a distributing shaft drives both the compressed air circuits and the colored painting circuits of all the spraying guns.

[0009] The leathers' painting is obtained by covering a leather's surface with one or more layers of a covering or colored material, such as a thin elastic film, which is sprayed on the leather in a prefixed amount, depending on the covering portion which must be performed.

[0010] In the reciprocating painting booths, each time the trolley moves in a transverse direction said trolley causes strips on the leather and said strips overlap in a different manner; the width of the strips is a function of the technical features of each spraying gun and/or of other prefixed parameters, but, in any case, the fact that wide and sloping stripes of painting are sprayed on the leather affect the final quality of the same leather and for this reason said reciprocating booths are rarely used and only for certain painting phases.

[0011] Even when parallel or elliptical booths are used, the transverse movement of the guns, which is matched with the movement of the belt, causes a plurality of crossed strips that, similarly to the reciprocating booths, do not provide good results on the final product; in fact, said booths are typically used only for spraying the so-called background color, on which the final layers of color are superimposed at a later time by means of other booths. On the basis of the operating features of the spray-painting booths that are currently on the market, it is possible to state that rotary booths offer the best performance regarding the surface finishing of a leather during a spray-painting process.

[0012] According to the known standards, the diameter of the booth and the diameter of the rotating carousel on which the spraying guns of said rotary booths are mounted are defined on the basis of the dimensions of the conveyor belt; in particular, the diameter around which the spraying guns rotate is usually greater than the width of the conveyor belt by a factor equal to 1.41.

[0013] Furthermore, each arm of the rotating carousel normally has two spraying guns, which operate by means of two independent and opposed plants (that is to say, either the plant which is connected with the first spraying gun of the arm is on or the plant which is connected with the second spraying gun of the arm is on), since, in a given time instant, only guns that are located above the leather laying on the conveyor belt are on (i.e. said guns are activated to spray), while the other guns are off because they are placed neither above the conveyor belt

nor above the leather to be painted.

[0014] It is thus clear that for a proper operation of the spray-painting booth, at any time instant, it is necessary to take into account two opposing arcs of circumference at which the spraying guns are on, whereas at the portions of circumference which do not correspond to said arcs of circumference the spraying guns are off.

[0015] The angles corresponding to the guns' working areas are equal to about 90°, as well as the angles corresponding to the guns' resting areas are equal to about 90°.

[0016] Therefore, by matching the rotating motion of the spraying guns around the central shaft and the forward motion of the belt which conveys the leathers and which slides downward the spraying guns, the arcs of circumference covered by the spray-painting cone exiting from the spraying guns are generated; in practice, for each time instant, the first portion or arc of circumference covered by a first set of spraying guns corresponds to the opposite portion or arc of circumference which is covered by a second set of spraying guns and, therefore, in a given time interval, the overlap of the two series of said arcs of circumference causes the final result of the spray-painting process on the leathers.

[0017] Moreover, by matching the traveling speed of the conveyor belt on which the leathers are placed with the rotating speed of the spraying guns and their operating parameters, as well as with the opening and closing time instants of the spraying systems (including their advances and delays), it is possible to obtain special surface finishing effects on the leather.

[0018] The above leathers' spray-painting methodology currently provides the best results as regards the surface appearance of the leathers.

[0019] Said leathers' spray-painting methodology and systems are still known for example from EP2189544A1 and GB954946A.

[0020] However, there are further drawbacks which affect the finished leather, such as non-uniformity of the color; in particular, the colored painting is sprayed in smaller quantities at a central area of the leather, while the lateral areas of the leather have larger quantities of said colored painting.

[0021] It is thus necessary, for some types of leathers, to place several times the leather on the conveyor belt so that the leather slides several times inside the booth and below the rotary spraying guns (even up to eight consecutive times), with obvious drawbacks relating to processing times and costs.

[0022] Furthermore, said additional treatments do not always perform the whole painting uniformity that is required on the leathers' surface.

[0023] Therefore, the present invention aims to overcome the above mentioned drawbacks of the prior art.

[0024] In particular, a first object of the present invention is to provide a system for an external treatment of flexible laminar elements, such as tannery leathers, and a method thereof, that allow to obtain a complete painting

or coating uniformity on the whole surface of a leather.

[0025] Another object of the present invention is to provide a system for an external treatment of flexible laminar elements, such as tannery leathers, and in particular a system for painting tannery leathers inside rotary spray-painting booths, which employ rotating arms, each of them having automatic spraying guns.

[0026] A further object of the invention is to provide a system for an external treatment of flexible laminar elements, such as tannery leathers, which guarantees a high reliability and environmental safety, with respect to the known spray-painting systems.

[0027] These and other objects are achieved by a system for an external treatment of flexible laminar elements, such as tannery leathers, according to the attached claim 1, and by a method thereof, according to the attached claim 5.

[0028] Other technical features of the system and method for painting flexible laminar elements, such as tannery leathers, are shown in the other dependent claims.

[0029] Advantageously, according to the present invention, a system and method for treating the surface of tannery leathers are provided; in particular, according to the invention, the colored painting which is sprayed on the leather is extremely uniform along the whole surface of the leather, i.e. from the side edges to the center of the leather.

[0030] The system and method of the invention are employed on rotary or elliptical spray booths, in which a plurality of spraying guns are installed at the ends of respective arms of a rotating carousel.

[0031] Further objects and advantages of the invention will become more clear from the following description relating to a preferred embodiment of the system for an external treatment of flexible laminar elements, such as tannery leathers, and with reference to the attached drawings in which:

- figure 1 is a first schematic view showing a typical spray-painting mode performed by automatic spraying guns installed in a rotary spray-painting booth of tannery leathers, according to the prior art;
- figure 2 is a second schematic view showing the spray-painting mode performed by spraying guns installed in a known rotary spray-painting booth of tannery leathers.

[0032] Firstly, it should be emphasized that, although the following description and the attached drawings refer to a specific booth for spraying coverage mixtures for tannery leathers, and particularly to a spray-painting booth which is suitable to employ rotating bodies with arms for spraying the color or the paint which are radially disposed, the innovative idea of the invention can be easily extended to any other type of equipment for spraying coverage mixtures on flexible laminar surfaces, such as tannery leathers, which includes a booth cabin where

spray deposition of products or coverage mixtures is carried out; said process is carried out so far by systems whose operation causes a non-uniform coverage of the whole leather's surface.

[0033] The attached figures 1 and 2 show, by way of example, the typical drawback that occurs in known spray booths, due to the apparent change in the amount of color between the lateral zones and the substantially central area of the leather which is to be sprayed.

[0034] In particular, a leather 10 is dragged by means of the surface 11 of the conveyor belt 12 along the direction and versus identified by the arrow F, while the spraying guns for spraying the product mixture (paint or color) on the leather's surface, rotate along the circumference C and in the direction identified by arrows D.

[0035] The arcs of circumference C within which the spray-painting guns are on (i.e. they spray the paint or the color) are those indicated with 13 in the attached figure 1, namely those comprised between the ends of the conveyor belt 12 and able to subtend a centre angle α of about 90° (while the spray-painting guns are off (i.e. they do not spray the paint or the color) in correspondence of portions of the circumference C that are external to the conveyor belt 12, i.e. in correspondence of the sides of the spray booth below of which the conveyor belt 12 does not slide). However, due to the matching between the rotary motion of the spraying guns and the forward motion of the conveyor belt 12, the arcs of circumference C which are hit by the jet of mixture sprayed from the guns, for each rotation of said guns, are those indicated with 14 in the attached figure 1.

[0036] Therefore, a paint covering of the leathers when the process is carried out is schematically sketched in the attached diagram of figure 2, which clearly shows that, during the passage of the leather 10 below the spray-painting guns, the overlap of the jets containing the sprayed mixture (paint or color), which are made according to the arcs of circumference 14, does not cause a uniform distribution of the mixture along the whole surface of the leather, but a different distribution between the side edges of the leather 10 (and the side edges of the conveyor belt 12) and the almost central area of said leather 10 (where there is a lesser amount of the mixture with respect to the side areas of the leather 10).

[0037] Non-uniformity of the sprayed mixture results in an appearance of the leather 10 which is not satisfactory for most frequent uses; to overcome the above drawback, the leathers producers are compelled to enter the leather 10 inside the spray-painting booth more times (although sometimes with unsatisfactory results).

[0038] According to the present invention, this problem is solved by changing and in particular by increasing the flow rate of the mixture sprayed in correspondence of a portion of each arc of circumference 14; it should be noted that said portion is almost in the middle of the arc 14, while the spraying guns are on in correspondence of at least two arcs of said circumference (arcs indicated with 13 and 14 in the attached figures). Said portion of the arc

of circumference 14 corresponds to the almost central portion of the leather 10, once the leather 10 lays on the conveyor belt 12, where the difference in coverage of the sprayed mixture is clearly shown.

[0039] This portion of the arc of circumference 14 subtends a centre angle having a measure of degree that varies depending on the leather's type, on the rotating speed of the spraying guns and on the translating speed of the conveyor belt 12, as well as depending on the diameter of the circumference C which is traveled by the spraying guns.

[0040] Therefore, according to the invention, the flow of the mixture (such as paint or color) which is sprayed on the leather 10 by each gun is increased when the spraying gun travels the prefixed portion of the arc of circumference 14, by simply increasing the pressure and thus the flow of said gun.

[0041] The pressure control of each spraying gun (which is performed in order to make uniform the flow along a complete rotation of each gun) is practically carried out by using two circuits (and therefore two ducts) for each gun inside of which the sprayed mixture flows; a first circuit is at low pressure and a second circuit is at high pressure circuit and each circuit can selectively be activated by means of a valve.

[0042] Various kinds of spraying guns may be used, such as standard or conventional spraying guns, high pressure spraying guns, HVLP spraying guns, "Airless" spraying guns and "Airmix" or "Air-combi" spraying guns. Said types of spraying guns differ in the passage sections, in the finishing level and in other aspects relating to the working quality; however, each spray-painting gun has a support rod, an input for passing the color which has to be added to the sprayed mixture, an air inlet which constitutes the pneumatic control able to open and close the nozzle through which the color is sprayed, and an atomizing air inlet, through which the air suitable for dragging and atomizing the color, by means of the Venturi effect, is injected (said atomizing air inlet is provided for all spraying guns except for "Airless" spraying guns).

[0043] Unlike the prior art, according to the invention, a second duct is used inside of which the mixture to be sprayed, such as paint or color, flows; said second duct is driven in parallel with respect to a first duct, so that, at prefixed time instants and according to prefixed commands, said second duct also works, together with the first duct; the first and second ducts work together, in particular, when the spraying guns travel within the arcs of circumference 13, 14 and, specifically, when the spraying guns travel in correspondence of an almost central area of said arcs and of the conveyor belt 12 and of the leather 10.

[0044] From the above description the technical features of the system and method for an external treatment of tannery leathers, which is the object of the invention, are clear as well as the related advantages.

[0045] It is finally clear that many variations may be made to the system and the method of the invention,

without departing from the principles of novelty inherent in the inventive idea, as it is clear that in the practical implementation of the invention, materials, shapes and dimensions of the technical details can be replaced with other technically equivalent.

Claims

1. System for a surface treating of and in particular for painting tannery leathers (10), comprising a spray booth for spraying at least one mixture, such as paint or color, which is deposited on the leather (10), in said booth being dragged a portion of leather (10) lying above a surface (11) of a conveyor belt (12), which moves in a given direction (F), said conveyor belt (12) being positioned below a series of spraying guns, which are able to spray said mixture and which rotate (D) along a circular path or circumference (C), so that each of said guns operates in correspondence of at least two arcs (13, 14) of said circumference (C) during a complete rotation (D) of said gun along said circumference (C), **characterized in that** each spraying gun is connected to at least two circuits or ducts or pipes of said sprayed mixture, said circuits being arranged in parallel with each other and being selectively activated, one of said circuits also being adapted to operate at low pressure and another circuit being adapted to operate at high pressure, so that the flow rate of the mixture sprayed from each gun is increased in correspondence of at least one portion of at least one of said arcs (13, 14) of said circumference (C).
2. System according to claim 1, **characterized in that** said circuits or ducts or pipes of the sprayed mixture are selectively activated by means of at least one valve.
3. System according to claim 1, **characterized in that** each of said spraying guns have a support rod, an input for entering the mixture to be sprayed, an air inlet that opens and closes a nozzle through which the mixture is sprayed and an input of atomizing air, which, by means of a Venturi effect, drags and atomizes the mixture, such as paint or color.
4. System according to claim 1, **characterized in that** said arcs (13, 14) of circumference (C), in correspondence of which the spraying guns operate, are placed between two ends corresponding to the ends of the conveyor belt (12).
5. A method for a surface treatment of tannery leathers (10) comprising at least the following steps:
 - positioning at least one portion of leather (10) on a conveyor belt (12), which is able to translate

in a given direction (F), in order to drag said portion of leather (10) inside a spraying booth for spraying a mixture, such as paint or color,
 - placing said sprayed mixture onto said portion of leather (10) within said spraying booth, by means of a plurality of spraying guns mounted on a plurality of arms of a rotating carousel (D), said guns being then able to rotate (D) along a determined circumference (C) during the advancement of said portion of leather (10) and each of said guns thus operating in correspondence of at least two arcs (13, 14) of said circumference (C) during a complete rotation (D) of said gun along said circumference (C), wherein each spraying gun is also connected to at least two circuits or ducts or pipes of said sprayed mixture and said circuits are arranged in parallel with each other and are selectively activated and one of said circuits is also adapted to operate at low pressure and another circuit is adapted to operate at high pressure,

characterized in that, in correspondence of at least one portion of at least one of said arcs (13, 14) of circumference (C), the flow rate of the mixture sprayed from each gun is increased.

6. Method as claimed in claim 5, **characterized in that** said at least one portion of at least one arc (13, 14) of circumference (C) is substantially in the middle of said arc (13, 14) and subtends a centre angle which varies depending on the type of the leather (10), on the speed of rotation (D) of the spraying guns, on the traveling speed (F) of the conveyor belt (12) and on the diameter of said circumference (C) traversed by said guns.
7. Method as claimed in claim 5, **characterized in that** said flow rate of the sprayed mixture is adjusted by means of a pressure increase, thus causing an increase in the flow of said mixture.

Patentansprüche

1. System zur Oberflächenbehandlung und insbesondere zum Lackieren von Gerbereiledern (10), umfassend eine Spritzkabine zum Versprühen mindestens eines Gemisches, wie Anstrichstoff oder Farbe, die auf das Leder (10) aufgebracht ist, wobei in dieser Kabine ein Lederabschnitt (10), der oberhalb einer Oberfläche (11) liegt, von einem Förderband (12) gezogen wird, das sich in einer gegebenen Richtung (F) bewegt, wobei das Förderband (12) unter einer Reihe von Sprühpistolen angeordnet ist, die in der Lage sind, das Gemisch zu versprühen, und die sich entlang einer Kreisbahn oder eines Umfangs (C) drehen (D), so dass jede der Pistolen in Übereinstim-

mung von mindestens zwei Bögen (13, 14) des Umfangs (C) während einer vollständigen Drehung (D) der Pistole entlang des Umfangs (C) arbeitet, **dadurch gekennzeichnet, dass** jede Sprühpistole mit mindestens zwei Kreisläufen oder Kanälen oder Rohren des gesprühten Gemisches verbunden ist, wobei die Kreisläufe parallel zueinander angeordnet und selektiv aktiviert sind, wobei einer der Kreisläufe auch für den Betrieb bei niedrigem Druck ausgelegt ist und ein anderer Kreislauf für den Betrieb bei hohem Druck ausgelegt ist, so dass die Fließgeschwindigkeit des von jeder Pistole gesprühten Gemisches entsprechend mindestens einem Abschnitt von mindestens einem der Bögen (13, 14) des Umfangs (C) erhöht wird.

2. System nach Anspruch 1, **dadurch gekennzeichnet, dass** die Kreisläufe oder Kanäle oder Rohre des versprühten Gemisches mittels mindestens eines Ventils selektiv aktiviert werden.

3. System nach Anspruch 1, **dadurch gekennzeichnet, dass** jede der Sprühpistolen einen Stützstab, einen Eingang zum Eintritt des zu sprühenden Gemisches, einen Lufteinlass, der eine Düse öffnet und schließt, durch die das Gemisch versprüht wird, und einen Eingang von Zerstäubungsluft aufweist, die mittels eines Venturieffektes das Gemisch, wie Anstrichstoff oder Farbe, heranzieht und zerstäubt.

4. System nach Anspruch 1, **dadurch gekennzeichnet, dass** die Bögen (13, 14) des Umfangs (C), in deren Übereinstimmung die Sprühpistolen arbeiten, zwischen zwei Enden angeordnet sind, die den Enden des Förderbandes (12) entsprechen.

5. Verfahren zur Oberflächenbehandlung von Gerbereieledern (10), umfassend mindestens die nachstehenden Schritte:

- Positionieren mindestens eines Lederabschnitts (10) auf einem Förderband (12), das befähigt ist, sich in eine gegebene Richtung (F) zu bewegen, um diesen Lederabschnitt (10) innerhalb einer Spritzkabine zum Sprühen eines Gemisches, wie Anstrichstoff oder Farbe, zu ziehen,
- Aufbringen des versprühten Gemisches auf den Lederabschnitt (10) innerhalb der Spritzkabine mittels einer Vielzahl von Sprühpistolen, die an einer Vielzahl von Armen eines rotierenden Karussells (D) angebracht sind, wobei die Pistolen befähigt sind, dann während des Vorschubs des Lederabschnitts (10) entlang eines bestimmten Umfangs (C) zu rotieren (D) und jede der Pistolen so in Übereinstimmung mit mindestens zwei Bögen (13, 14) des Umfangs (C) während einer vollständigen Drehung (D) der

Pistole entlang des Umfangs (C) arbeitet, wobei jede Sprühpistole auch mit mindestens zwei Kreisläufen oder Kanälen oder Rohren des versprühten Gemisches verbunden ist und die Kreisläufe parallel zueinander angeordnet und selektiv aktiviert sind und einer der Kreisläufe auch für den Betrieb bei niedrigem Druck ausgelegt ist und ein anderer Kreislauf für den Betrieb bei hohem Druck ausgelegt ist,

dadurch gekennzeichnet, dass in Übereinstimmung mit mindestens einem Abschnitt von mindestens einem der Bögen (13, 14) des Umfangs (C) die Fließgeschwindigkeit des aus jeder Pistole gesprühten Gemisches erhöht wird.

6. Verfahren nach Anspruch 5, **dadurch gekennzeichnet, dass** sich der mindestens eine Abschnitt von mindestens einem Bogen (13, 14) des Umfangs (C) im Wesentlichen in der Mitte des Bogens (13, 14) befindet und einen Mittelwinkel schneidet, der in Abhängigkeit von der Art des Leders (10), der Drehgeschwindigkeit (D) der Sprühpistolen, der Fahrgeschwindigkeit (F) des Förderbandes (12) und dem Durchmesser des Umfangs (C), den die Pistolen durchlaufen, variiert.

7. Verfahren nach Anspruch 5, **dadurch gekennzeichnet, dass** die Fließgeschwindigkeit des versprühten Gemisches durch eine Druckerhöhung eingestellt wird, wodurch eine Erhöhung des Durchflusses des Gemisches bewirkt wird.

Revendications

1. Système pour un traitement de surface de et en particulier pour une peinture de cuirs de tannerie (10), comprenant une cabine de pulvérisation pour pulvériser au moins un mélange, par exemple de peinture ou de colorant, qui est déposé sur le cuir (10), dans ladite cabine étant entraînée une partie de cuir (10) reposant au-dessus d'une surface (11) d'une courroie de transport (12), qui se déplace dans une direction donnée (F), ladite courroie de transport (12) étant positionnée au-dessous d'une série de pistolets de pulvérisation, qui sont capables de pulvériser ledit mélange et qui tournent (D) le long d'un trajet circulaire ou circonférence (C), de sorte que chacun desdits pistolets fonctionne en correspondance avec au moins deux arcs (13, 14) de ladite circonférence (C) durant une rotation complète (D) dudit pistolet le long de ladite circonférence (C), **caractérisé en ce que** chaque pistolet de pulvérisation est raccordé à au moins deux circuits ou conduits ou tuyaux dudit mélange pulvérisé, lesdits circuits étant agencés en parallèle les uns par rapport aux autres et étant activés sélectivement, l'un desdits circuits étant éga-

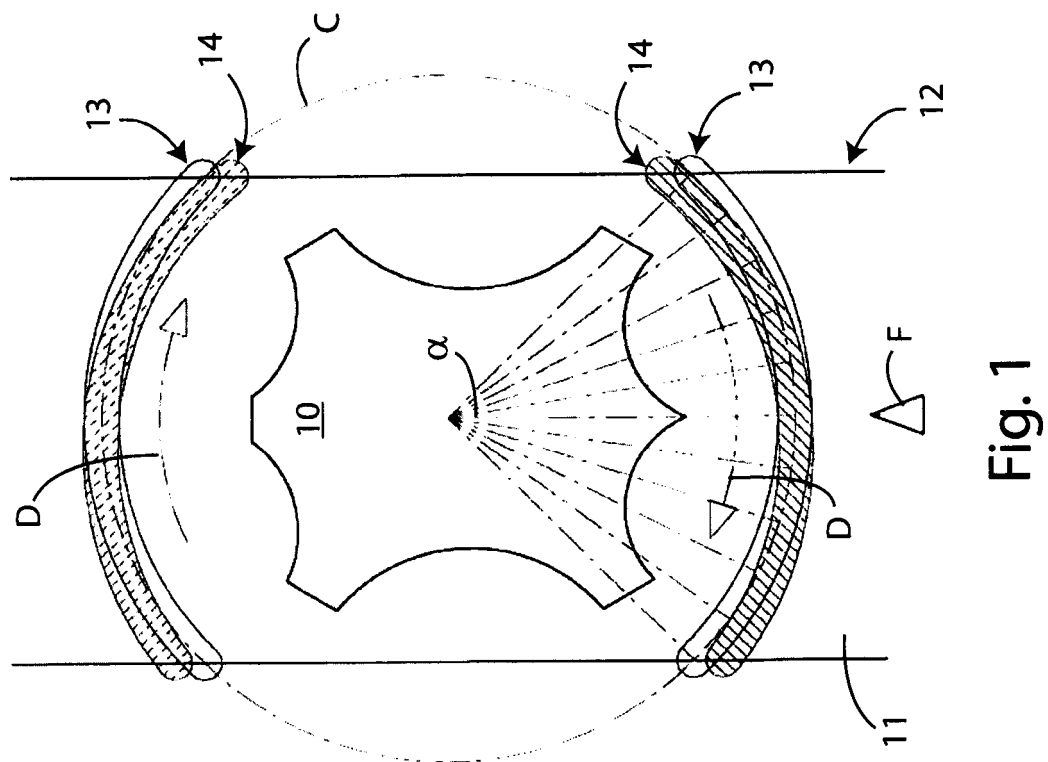
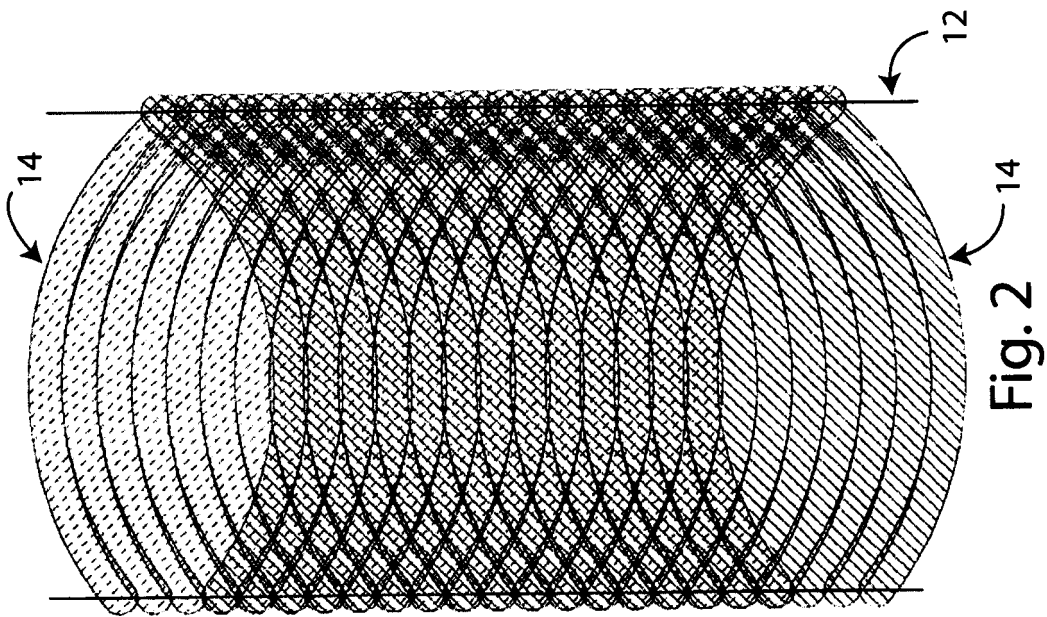
lement adapté pour fonctionner à faible pression et un autre circuit étant adapté pour fonctionner à haute pression, de sorte que le débit du mélange pulvérisé par chaque pistolet est augmenté en correspondance avec au moins une partie d'au moins l'un desdits arcs (13, 14) de ladite circonférence (C).

2. Système selon la revendication 1, **caractérisé en ce que** lesdits circuits ou conduits ou tuyaux du mélange pulvérisé sont activés sélectivement au moyen d'au moins une vanne. 5
3. Système selon la revendication 1, **caractérisé en ce que** chacun desdits pistolets de pulvérisation a une tige de support, une admission pour faire pénétrer le mélange à pulvériser, une entrée d'air qui ouvre et ferme une buse à travers laquelle le mélange est pulvérisé et une admission d'air d'atomisation, qui, par un effet Venturi, entraîne et atomise le mélange, par exemple de peinture ou de colorant. 10 15 20
4. Système selon la revendication 1, **caractérisé en ce que** lesdits arcs (13, 14) de la circonférence (C), en correspondance desquels les pistolets de pulvérisation fonctionnent, sont placés entre deux extrémités correspondant aux extrémités de la courroie de transport (12). 25
5. Procédé pour un traitement de surface de cuirs de tannerie (10) comprenant au moins les étapes suivantes : 30
 - positionnement d'au moins une partie de cuir (10) sur une courroie de transport (12), qui est capable de se translater dans une direction donnée (F), afin d'entraîner ladite partie de cuir (10) à l'intérieur d'une cabine de pulvérisation pour pulvériser un mélange, par exemple de peinture ou de couleur, 35
 - placement dudit mélange pulvérisé sur ladite partie de cuir (10) dans ladite cabine de pulvérisation, au moyen d'une pluralité de pistolets de pulvérisation montés sur une pluralité de bras d'un carrousel tournant (D), lesdits pistolets étant alors capables de tourner (D) le long d'une circonférence déterminée (C) durant la progression de ladite partie de cuir (10) et chacun desdits pistolets fonctionnant ainsi en correspondance avec au moins deux arcs (13, 14) de ladite circonférence (C) durant une rotation complète (D) dudit pistolet le long de ladite circonférence (C), dans lequel chaque pistolet de pulvérisation est également raccordé à au moins deux circuits ou conduits ou tuyaux dudit mélange pulvérisé et lesdits circuits sont agencés en parallèle les uns par rapport aux autres et sont activés sélectivement et l'un desdits circuits est également adapté pour fonctionner à faible pression et un 40 45 50 55

autre circuit est adapté pour fonctionner à haute pression,

caractérisé en ce que, en correspondance avec au moins une partie d'au moins l'un desdits arcs (13, 14) de la circonférence (C), le débit du mélange pulvérisé par chaque pistolet est augmenté.

6. Procédé selon la revendication 5, **caractérisé en ce que** ladite au moins une partie d'au moins un arc (13, 14) de la circonférence (C) est sensiblement au milieu dudit arc (13, 14) et forme un angle central qui varie en fonction du type du cuir (10), de la vitesse de rotation (D) des pistolets de pulvérisation, de la vitesse de déplacement (F) de la courroie de transport (12) et du diamètre de ladite circonférence (C) traversée par lesdits pistolets.
7. Procédé selon la revendication 5, **caractérisé en ce que** ledit débit du mélange pulvérisé est ajusté au moyen d'une augmentation de pression, provoquant ainsi une augmentation de l'écoulement dudit mélange.



REFERENCES CITED IN THE DESCRIPTION

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