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(54) **Apparatus and method for embossing a sheet material**

Verfahren und Vorrichtung zum Prägen von Folienmaterial

Procédé et dispositif pour l'emboutissage de feuilles

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Description

[0001] The present invention refers to an apparatus and a method for transferring decorative embossments to a sheet material, such as paper, toilet paper, kitchen paper, tissue paper and the like. The invention further refers to an engraved cylinder for transferring decorative embossments to a sheet material.

[0002] As is known, in the production of rolls of sheet material, the sheet material is generally wound on cores to obtain logs of great length which are subsequently cut transversally into rollers of shorter length ready to be packaged and placed on the market.

[0003] During the process of formation of the log, the sheet material is often subjected to processes of decoration and/or coupling or bonding so as to obtain a multiply sheet material with decorations, destined to be put on sale.

[0004] For this process a special cylinder or roll is used, generally made of steel and commonly called an engraved cylinder, since it has engravings which form parts in relief on the outer side surface thereof. The engraved cylinder may be solid or may have a jacket or sleeve with engravings suitable to be mounted on a sleeve carrying mandrel.

[0005] The sheet material is made to pass between the engraved cylinder and a plate cylinder of a gluing unit which carries coloured glue. In this manner the coloured glue is deposited only on the projections of the sheet material in contact with the parts in relief of the engraved cylinder. As a result, the sheet material leaving the gluing plate cylinder presents coloured decorative embossments impregnated with glue.

[0006] Subsequently, said decorated sheet material is coupled with another sheet material which adheres to the embossments impregnated with glue, so as to obtain a decorated multiply material.

[0007] The engraved cylinders according to the prior art have a single decorative design, that is to say, they have a plurality of parts in relief representing a single design. Consequently the gluing unit is designed to carry glue, possibly coloured, in a single colour.

[0008] As a result, with the machines according to the prior art, a log is obtained wherein sheet material having a decorative embossment with a single design of a single colour is wound. Consequently, it is not possible to obtain packages of rollers of sheet material with different decorative designs and of different colours, unless the production cycle is changed, that is to say the engraved cylinder is replaced and the gluing unit is modified, or unless a plurality of units for transferring the decorations are used. This clearly leads to a considerable waste of time and a greater complexity and therefore proves to be inconvenient and anti-economical.

[0009] GB 2 380 447 discloses an engraved cylinder which has a lateral surface divided into a plurality of sectors having parts in relief with different decorative designs.

[0010] The object of the present invention is to overcome the drawbacks of the prior art by providing an apparatus and a method for transferring decorative embossments onto a sheet material and a relative engraved cylinder which allow rollers of sheet material to be manufactured with different decorative designs, and different colours.

[0011] Another object of the present invention is to provide such an apparatus for transferring decorative embossments onto a sheet material that is versatile, cheap and simple to make.

[0012] These objects are achieved in accordance with the invention with the characteristics listed in appended independent claims.

[0013] Advantageous embodiments of the invention are apparent from the dependent claims.

[0014] The apparatus for transferring decorative embossments onto a sheet material, according to the invention, comprises an engraved cylinder which has a plurality of parts in relief on one outer side surface thereof and an embossing pressure cylinder having an outer side surface juxtaposed to that of the engraved cylinder so that the projecting parts of the engraved cylinder transfer the relative decorative embossments onto the sheet material which is fed between the engraved cylinder and the pressure cylinder.

[0015] The main characteristic of the invention is represented by the fact that the outer side surface of the engraved cylinder is divided into at least two sectors having parts in relief with different decorative designs. In this manner a web of sheet material that has a plurality of longitudinal bands or strips with different decorative designs is obtained. Said decorated web is wound on a core to form a log, which is cut transversally so as to obtain rollers with different respective bands of decorative designs. Said rollers with different decorative designs are packaged in one package without the need to interrupt the production cycle of the machine.

[0016] Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplary and therefore non limiting embodiment thereof, illustrated in the appended drawings, in which:

Figure 1 is a diagrammatic side elevation, broken off, illustrating the apparatus, according to the invention, for transferring decorative embossments onto sheet material;

Figure 2 is a plan view of an engraved cylinder of the apparatus of Figure 1 according to the invention;

Figure 3 is a plan view of a plate cylinder of the gluing unit of the apparatus of Figure 1 according to the invention;

Figure 4 is a plan view of an anilox cylinder of the gluing unit of the apparatus of Figure 1 according to

the invention; and

Figure 5 is a partially sectional view illustrating a doctor blade unit applied to an anilox cylinder of the apparatus of Figure 1 according to the invention.

[0017] The apparatus according to the invention for transferring decorative embossments onto sheet material, denoted as a whole by reference numeral 100, is described with the aid of the figures.

[0018] The apparatus 100 comprises a fixed frame 10. In the sides of the fixed frame 10 there is rotatably mounted a mandrel 20 which supports an engraved cylinder 2 preferably made of steel. The engraved cylinder 2 can be integral with the mandrel 20 or can have a sleeve that can be fitted on the mandrel 20.

[0019] As shown in Figure 2, a plurality of parts in relief are made on the outer side surface of the engraved cylinder 2. According to the invention, the engraved cylinder is divided into three sectors 21, 22, 23, each distinguished by engravings with different designs. By way of example, the three sectors 21, 22, 23 of the engraved cylinder 2 have engravings with different floral designs.

[0020] The three sectors of engravings 21, 22, 23 are of the same length. However, sectors of different lengths may be provided. Furthermore, only two sectors or a number of sectors greater than three may be provided, according to the different designs of engravings that it is desired to depict.

[0021] A gluing unit 11 is mounted in the fixed frame 10 of the apparatus 100. The gluing unit 11 comprises a doctor blade unit 1, a screened or anilox cylinder 3 and a plate cylinder 4. The anilox cylinder 3 and plate cylinder 4 rolls are supported by respective mandrels 30, 40 rotatably mounted in the sides of the machine.

[0022] The anilox cylinder 3 is in close contact with the doctor blade unit 1 to pick up the glue contained in the doctor blade unit. The plate cylinder 4 is interposed between the anilox cylinder 3 and the engraved cylinder 2. The axes of the anilox cylinder 3, plate cylinder 4 and engraved cylinder 2 are parallel to each other and disposed on the same plane. The outer side surface of the plate cylinder 4 is tangent to the outer side surface of the anilox cylinder 3 and the protruding parts of the engraved cylinder 2.

[0023] As shown in Figure 3, the plate cylinder 4 has three sectors, generally rubber coated, 41, 42, 43, separated from each other by two annular spaces 44, 45. The three sectors 41, 42, 43 of the plate cylinder 4 are in register with the three sectors 21, 22, 23 of the engraved cylinder 2.

[0024] As shown in Figure 4, the anilox cylinder 3 also has three screened sectors, 31, 32, 33, separated from each other by annular spaces 34, 35. The three sectors 31, 32, 33 of the anilox cylinder 3 are in register with the three sectors 41, 42, 43 of the plate cylinder 4.

[0025] The doctor blade unit 1 has a reservoir for containing glue. Said glue, by means of a diaphragm pump,

is transferred from the reservoir into the doctor blade body which distributes it on the anilox cylinder 3. The excess glue present in the doctor blade body is discharged by overflow in the top part of the doctor blade body and thence is channelled by means of an overflow pipe which returns it by free fall into the reservoir alongside the machine. In the event of use of a single type of neutral glue said doctor blade unit 1 is not modified.

[0026] In the event of use of coloured glues with different colours, the doctor blade unit 1 is suitably modified, as shown in Figure 5. In this case three reservoirs 101, 102 and 103 are formed in the glue containing reservoir of the doctor blade unit 1, separated from each other by two removable partitions 104 and 105. Three glues of different colours can be placed in the three reservoirs 101, 102, 103.

[0027] A respective doctor blade 111, 112, 113 is connected to each reservoir 101, 102, 103. Therefore, three diaphragm pumps will be provided to convey the glues from the reservoirs to the respective doctor blades and three overflow pipes for overflow of the glues from the doctor blades to the respective reservoirs.

[0028] The three doctor blades 111, 112, 113 are separated from each other by two spacers 114 and 115. In this manner the three sectors 31, 32, 33 of the anilox cylinder 3 pick up the glue from the three reservoirs 101, 102, 103, respectively, and the doctor blades 111, 112, 113 act on the surfaces of the three sectors 31, 32, 33, respectively, of the anilox cylinder 3 to remove the excess glue. It should be noted that the two spacers 114 and 115 of the doctor blade unit 1 act on the dividing spaces 34 and 35 of the anilox cylinder, preventing the glue spread on one sector from mixing with the glue spread on another sector of the anilox cylinder 3.

[0029] Returning to Figure 1, above and below the engraved cylinder 2 there are provided respectively an embossing pressure cylinder 5 and a pressure cylinder 6. The pressure cylinder 5 has an outer surface of smooth rubber and the pressure cylinder 6 has an outer surface of hard smooth rubber.

[0030] The axes of the engraved cylinder 2, of the pressure cylinder 5 and of the pressure cylinder 6 are parallel to each other. The parts of the engraved cylinder 2 in relief are substantially interfering with the side surface of the pressure cylinder 5 and substantially tangent to the side surface of the pressure cylinder 6.

[0031] Operation of the apparatus 100 is described hereunder.

[0032] An upper web A and a lower web B are fed towards the engraved cylinder 2. The webs A and B can be single ply or multiply, smooth or embossed. In any case, the operations of coupling between layers and embossing are performed upstream of the engraved cylinder 2.

[0033] Then, the upper web A passes between the upper pressure cylinder 5 and the engraved cylinder 2. As a result, the engravings in relief of the three sectors 21, 22, 23 of the engraved cylinder 2 transfer the relative

embossments onto the web A through the action of the pressure of the pressure cylinder 5. Thus the web A leaving the pressure cylinder 5 will have decorative embossments in relief, divided into three different designs on three longitudinal bands or strips thereof.

[0034] Subsequently the web A, following the perimeter of the engraved cylinder 2, passes between the engraved cylinder 2 and the plate cylinder 4. As a result the plate cylinder 4 transfers the glue onto the protruding embossments of the web A.

[0035] If three glues of different colours are used in the three reservoirs 101, 102, 103 of the doctor blade unit 1, the three sectors 31, 32, 33 of the anilox cylinder will pick up the three respective glues of different colours and will transfer them to the three sectors 41, 42, 43, respectively, of the plate cylinder. Thus the plate cylinder 4 will transfer three glues of different colours onto the protruding embossments of the three respective bands of different designs of the web A.

[0036] The glue is absorbed by the embossments of the web, so that the colour of the glue is also visible on the outer surface of the web A, that is to say on the surface opposite that in which the glue has been deposited. The glue on the inner surface of the web A, on the other hand, continues to be moist and ready to stick.

[0037] Subsequently the web A continues to follow the periphery of the engraved cylinder 2, and passes between the engraved cylinder 2 and the lower pressure cylinder 6. The lower web B also is fed between the engraved cylinder 2 and the lower pressure cylinder 6 beneath the upper web A. As a result the upper web A is coupled with the lower web B and the glue present on the projecting embossments of the upper web A sticks to the lower web B.

[0038] Subsequently the coupled web, denoted by C, is fed towards a winding unit, per se known and therefore not illustrated in the figures, which is responsible for winding the web C on a core so as to form a log.

[0039] Clearly the coupling stage can be omitted. In this case the lower web B, the lower pressure cylinder 6 and the gluing unit 11 will not be provided. Optionally, the gluing unit 11 can be replaced with a colouring unit. Thus three different colours will be placed in the three reservoirs 101, 102, 103 of the colouring unit. In any case, in the end a log formed only by the web A which has three longitudinal bands with raised embossments of different formats and possibly of different colours will be obtained.

[0040] Finally the formed log is fed towards a saw or cutting machine, per se known, which is responsible for transverse cutting of the log, so as to obtain a plurality of rolls of shorter length, wherein the various rolls present webs with decorative embossments of the three different designs and colours. The rolls are then packaged randomly, so that a package contains rolls of the three different types. In this manner packages are obtained with rolls with decorative embossments of different designs and in different colours, working continuously without the

need to interrupt the production cycle of the machine and with a single transfer unit for the decorations.

[0041] Although specific reference has been made in the present detailed description to packages with rolls having three decorative embossments of different designs and of different colours, it is evident that in a single work cycle two rolls or more than three rolls with decorative embossments of different designs can be obtained. In fact it is sufficient to modify the number of sectors of the engraved cylinder 2, the plate cylinder 4 and the anilox cylinder 3 and consequently the number of reservoirs and doctor blades of the doctor blade unit 1.

[0042] Numerous variations and modifications of detail within the reach of a person skilled in the art can be made to the present embodiment of the invention without departing from the scope of the invention as set forth in the appended claims.

Claims

1. An apparatus (100) for transferring decorative embossments onto a sheet material (A), comprising:

- an engraved cylinder (2) which has a lateral outer surface divided into a plurality of sectors (21, 22, 23) having parts in relief with different decorative designs,
- a pressure cylinder (5) having an outer side surface juxtaposed to that of said engraved cylinder (2), and
- means for feeding the sheet material (A) between the engraved cylinder (2) and the pressure cylinder (5), so as to form on said sheet material a plurality of longitudinal bands with different decorative embossments corresponding to said different decorative designs of said sectors (21, 22, 23) of the engraved cylinder,

characterised in that

it comprises a colouring unit (11) having a colour application cylinder (3) with a plurality of sectors (41, 42, 43) in register with the sectors (21, 22, 23) of the engraved cylinder (2), so as to deposit different colours on said protruding decorative embossments of the longitudinal bands of different designs of said web (A).

2. An apparatus according to claim 1, **characterised in that** said colouring unit (11) comprises a doctor blade unit (1) able to contain the different colours, an anilox cylinder (3) to pick up the colours from said doctor blade unit (1) and a colour application cylinder (4) able to take the colours from said anilox cylinder (3) to transfer them onto the protruding decorative embossments of said web (A).
3. An apparatus according to claim 2, **characterised**

- in that said colour application cylinder (4) has on its outer side surface a plurality of sectors (41, 42, 43) separated from each other by spaces (44, 45) and in register with the sectors (21, 22, 23) of the engraved cylinder (2) and said anilox cylinder (3) has on its outer side surface a plurality of sectors (31, 32, 33) separated from each other by spaces (34, 35) and in register with the sectors (41, 42, 43) of the colour application cylinder (4).
4. An apparatus according to claim 3, **characterised in that** said doctor blade unit (1) comprises a plurality of reservoirs (101, 102, 103) to contain different colours, connected respectively to a plurality of doctor blades (111, 112, 113) disposed in register with a plurality of sectors (31, 32, 33) of the anilox cylinder (3).
 5. An apparatus according to claim 4, **characterised in that** said plurality of doctor blades (111, 112, 113) are separated from each other by spacers (114, 115) which act in the respective annular spaces (34, 35) of the anilox cylinder (3) to prevent one colour deposited on the surface of a sector of the anilox cylinder from mixing with another colour deposited on the surface of another sector of the anilox cylinder.
 6. An apparatus according to claim 5, **characterised in that** said doctor blade unit (1) comprises a plurality of diaphragm pumps for transfer of the colour respectively from said plurality of reservoirs (101, 102, 103) to said plurality of doctor blades (111, 112, 113) and a plurality of overflow pipes for overflow of the excess colour from said plurality of doctor blades (111, 112, 113) to said plurality of reservoirs (101, 102, 103).
 7. An apparatus (100) according to claim 1, **characterised in that** said colouring unit (11) is a gluing unit for depositing different colour glues on the protruding decorative embossments of the longitudinal bands of different designs of said web (A) to allow said web (A) to be coupled with a second web (B).
 8. An apparatus according to claim 7, comprising a second pressure cylinder (6) having an outer side surface juxtaposed to that of said engraved cylinder (2) so that said web (A) with decorative embossments moistened with glue and said second web (B) are fed between said engraved cylinder (2) and said pressure cylinder (6) for coupling together.
 9. An apparatus according to claim 7 or 8, **characterised in that** said gluing assembly (11) comprises a doctor blade unit (1) able to contain the glue, an anilox cylinder (3) to pick up the glue from said doctor blade unit (1) and a glue application cylinder (4) able to take the glue from said anilox cylinder (3) to transfer it to the protruding decorative embossments of said web (A).
 10. An apparatus according to claim 9, **characterised in that** said plate cylinder (4) has on its outer side surface a plurality of sectors (41, 42, 43) separated from each other by spaces (44, 45) and in register with the sectors (21, 22, 23) of the engraved cylinder (2) and said anilox cylinder (3) has on its outer side surface a plurality of sectors (31, 32, 33) separated from each other by spaces (34, 35) and in register with the sectors (41, 42, 43) of the glue application cylinder (4).
 11. An apparatus according to claim 10, **characterised in that** said doctor blade unit (1) comprises a plurality of reservoirs (101, 102, 103) to contain glue of different colours, connected respectively to a plurality of doctor blades (111, 112, 113) disposed in register with the sectors (31, 32, 33) of the anilox cylinder (3).
 12. An apparatus according to claim 11, **characterised in that** said plurality of doctor blades (111, 112, 113) are separated from each other by spacers (114, 115) which act in the respective annular spaces (35, 35) of the anilox cylinder (3) to prevent the glue of one colour deposited on the surface of one sector of the anilox cylinder (3) from mixing with the glue of another colour deposited on the surface of another sector of the anilox cylinder.
 13. An apparatus according to claim 11 or 12, **characterised in that** said doctor blade unit (1) comprises a plurality of diaphragm pumps for transfer of the glue respectively from said plurality of reservoirs (101, 102, 103) to said plurality of doctor blades (111, 112, 113) and a plurality of overflow pipes for overflow of the excess glue from said plurality of doctor blades (111, 112, 113) to said plurality of reservoirs (101, 102, 103).
 14. A method for transfer of decorative embossments onto a sheet material (A) comprising the step of feeding the sheet material (A) between an engraved cylinder (2) and a pressure cylinder (5) so that the protruding parts of the engraved cylinder (2) transfer the relative decorative embossments onto the sheet material (A), wherein the outer side surface of said engraved cylinder (2) is divided into a plurality of sectors (21, 22, 23) having projecting parts with different decorative designs, so as to obtain a web (A) with longitudinal bands of different protruding decorative embossments with different designs, **characterised in that** it comprise the further step of depositing different colours on the protruding decorative embossments of the longitudinal bands of different designs of said web (A), by means of a col-

our application cylinder (3) with a plurality of sectors (41, 42, 43) in register with the sectors (21, 22, 23) of the engraved cylinder.

15. A method according to claim 14, wherein said different colours are different colour glues, **characterised in that** it comprises the further steps of coupling said decorated web (A) with another web (B).

Patentansprüche

1. Vorrichtung (100) zum Übertragen schmückender Prägungen auf ein Bogenmaterial (A), umfassend

- einen gravierten Zylinder (2), der eine seitliche Außenfläche aufweist, die in mehrere Abschnitte (21, 22, 23) geteilt ist, welche Teile in Relief mit unterschiedlichen schmückenden Gestaltungen aufweisen,
- einen Druckzylinder (5), der eine äußere Seitenfläche aufweist, die neben jener des gravierten Zylinders (2) liegt, und
- Mittel zum Führen des Bogenmaterials (A) zwischen den gravierten Zylinder (2) und den Druckzylinder (5), um auf dem Bogenmaterial mehrere längsgerichtete Bänder mit unterschiedlichen schmückenden Gestaltungen zu bilden, die den unterschiedlichen schmückenden Gestaltungen der Abschnitte (21, 22, 23) des gravierten Zylinders entsprechen,

dadurch gekennzeichnet,

dass die Vorrichtung eine Färbereinheit (11) umfaßt, die einen Farbaufbringungszyylinder (3) mit mehreren Abschnitten (41, 42, 43) in Positionierung mit den Abschnitten (21, 22, 23) des gravierten Zylinders (2) aufweist, um unterschiedliche Farben auf den vorspringenden schmückenden Prägungen der längsgerichteten Bänder mit unterschiedlichen Gestaltungen der Bahn (A) abzulagern.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, daß** die Färbereinheit (11) Folgendes umfaßt: eine Rakelmessereinheit (1), die fähig ist, die unterschiedlichen Farben zu enthalten, einen Aniloxzylinder (3) zum Aufnehmen der Farben von der Rakelmessereinheit (1), und einen Aufbringungszyylinder (4), der fähig ist, die Farben vom Aniloxzylinder (3) zu nehmen, um sie auf die vorspringenden schmückenden Prägungen der Bahn (A) zu übertragen.
3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, daß** der Farbaufbringungszyylinder (4) an seiner äußeren Seitenfläche mehrere Abschnitte (41, 42, 43) aufweist, die durch Abstände (44, 45) voneinander getrennt sind und sich in Positionierung

mit den Abschnitten (21, 22, 23) des gravierten Zylinders (2) befinden, und der Aniloxzylinder (3) an seiner äußeren Seitenfläche mehrere Abschnitte (31, 32, 33) aufweist, die durch Abstände (34, 35) voneinander getrennt sind und sich in Positionierung mit den Abschnitten (41, 42, 43) des Farbaufbringungszyinders (4) befinden.

4. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, daß** die Rakelmessereinheit (1) mehrere Speicher (101, 102, 103) umfaßt, um unterschiedliche Farben zu enthalten, die jeweils an mehrere Rakelmesser (111, 112, 113) angeschlossen sind, welche sich in Positionierung mit mehreren Abschnitten (31, 32, 33) des Aniloxzylinders (3) befinden.

5. Vorrichtung nach Anspruch 4, **dadurch gekennzeichnet, daß** die mehreren Rakelmesser (111, 112, 113) durch Distanzstücke (114, 115) voneinander getrennt sind, die in den jeweiligen ringförmigen Abständen (34, 35) des Aniloxzylinders (3) wirken, um zu verhindern, daß sich eine Farbe, die an der Oberfläche eines Abschnitts des Aniloxzylinders abgelagert ist, mit einer anderen Farbe, die an der Oberfläche eines anderen Abschnitts des Aniloxzylinders abgelagert ist, vermischt.

6. Vorrichtung nach Anspruch 5, **dadurch gekennzeichnet, daß** die Rakelmessereinheit (1) mehrere Membranpumpen zur jeweiligen Übertragung der Farbe von den mehreren Speichern (101, 102, 103) zu den mehreren Rakelmessern (111, 112, 113) und mehrere Überlaufrohre für den Überlauf der Überschußfarbe von den mehreren Rakelmessern (111, 112, 113) zu den mehreren Speichern (101, 102, 103) umfaßt.

7. Vorrichtung (100) nach Anspruch 1, **dadurch gekennzeichnet, daß** die Färbereinheit (11) eine Klebeeinheit zum Ablagern von Klebstoffen mit unterschiedlicher Farbe auf den vorspringenden schmückenden Prägungen der längsgerichteten Bänder mit unterschiedlichen Gestaltungen der Bahn (A) ist, um zu gestatten, daß die Bahn (A) mit einer zweiten Bahn (B) gekoppelt wird.

8. Vorrichtung nach Anspruch 7, umfassend einen zweiten Druckzylinder (6), der eine äußere Seitenfläche aufweist, die neben jener des gravierten Zylinders (2) liegt, damit die Bahn (A) mit schmückenden Prägungen, die mit Klebstoff befeuchtet sind, und die zweite Bahn (B) zwischen den gravierten Zylinder (2) und den Druckzylinder (6) geführt werden, um miteinander gekoppelt zu werden.

9. Vorrichtung nach Anspruch 7 oder 8, **dadurch gekennzeichnet, daß** der Klebeaufbau (11) Folgendes umfaßt: eine Rakelmessereinheit (1), die fähig

ist, den Klebstoff zu enthalten, einen Aniloxzylinder (3) zum Aufnehmen des Klebstoffs von der Rakelmessereinheit (1), und einen Klebstoffaufbringungs-
zylinder (4), der fähig ist, den Klebstoff vom Anilox-
zylinder (3) aufzunehmen, um ihn zu den vorsprin-
genden schmückenden Prägungen der Bahn (A) zu
übertragen.

10. Vorrichtung nach Anspruch 9, **dadurch gekenn-
zeichnet, daß** der Plattenzylinder (4) an seiner äu-
ßeren Seitenfläche mehrere Abschnitte (41, 42, 43)
aufweist, die durch Abstände (44, 45) voneinander
getrennt sind und sich in Positionierung mit den Ab-
schnitten (21, 22, 23) des gravierten Zylinders (2)
befinden, und der Aniloxzylinder (3) an seiner äu-
ßeren Seitenfläche mehrere Abschnitte (31, 32, 33)
aufweist, die durch Abstände (34, 35) voneinander
getrennt sind und sich in Positionierung mit den Ab-
schnitten (41, 42, 43) des Klebstoffaufbringungszy-
linders (4) befinden.

11. Vorrichtung nach Anspruch 10, **dadurch gekenn-
zeichnet, daß** die Rakelmessereinheit (1) mehrere
Speicher (101, 102, 103) umfaßt, um Klebstoff mit
unterschiedlichen Farben zu enthalten, die jeweils
an mehrere Rakelmesser (111, 112, 113) ange-
schlossen sind, welche sich in Positionierung mit den
Abschnitten (31, 32, 33) des Aniloxzylinders (3) be-
finden.

12. Vorrichtung nach Anspruch 11, **dadurch gekenn-
zeichnet, daß** die mehren Rakelmesser (111, 112,
113) durch Distanzstücke (114, 115) voneinander
getrennt sind, die in den jeweiligen ringförmigen Ab-
ständen (34, 35) des Aniloxzylinders (3) wirken, um
zu verhindern, daß sich der Klebstoff mit einer Farbe,
der an der Oberfläche eines Abschnitts des Anilox-
zylinders abgelagert ist, mit dem Klebstoff mit einer
anderen Farbe, der an der Oberfläche eines anderen
Abschnitts des Aniloxzylinders abgelagert ist, ver-
mischt.

13. Vorrichtung nach Anspruch 11 oder 12, **dadurch ge-
kennzeichnet, daß** die Rakelmessereinheit (1)
mehrere Membranpumpen zur jeweiligen Übertra-
gung des Klebstoffs von den mehreren Speichern
(101, 102, 103) zu den mehreren Rakelmessern
(111, 112, 113) und mehrere Überlaufrohre für den
Überlauf des Überschußklebstoffs von den mehre-
ren Rakelmessern (111, 112, 113) zu den mehreren
Speichern (101, 102, 103) umfaßt.

14. Verfahren zur Übertragung von schmückenden Prä-
gungen auf ein Bogenmaterial (A), umfassend den
Schritt des Führens des Bogenmaterials (A) zwi-
schen einen gravierten Zylinder (2) und einen Druck-
zylinder (5), damit die vorspringenden Teile des gra-
vierten Zylinders (2) die relativen schmückenden

Prägungen auf das Bogenmaterial (A) übertragen,
wobei die äußere Seitenfläche des gravierten Zylin-
ders (2) in mehrere Abschnitte (21, 22, 23) geteilt
ist, die vorspringende Teile mit unterschiedlichen
schmückenden Gestaltungen aufweisen, um eine
Bahn (A) mit längsgerichteten Bändern von unter-
schiedlichen vorspringenden schmückenden Prä-
gungen mit unterschiedlichen Gestaltungen zu er-
halten,

dadurch gekennzeichnet, daß das Verfahren den
weiteren Schritt des Ablagerns unterschiedlicher
Farben an den vorspringenden schmückenden Prä-
gungen der längsgerichteten Bänder mit unter-
schiedlichen Gestaltungen der Bahn (A) durch einen
Farbaufbringungszyylinder (3) mit mehreren Ab-
schnitten (41, 42, 43) in Positionierung mit den Ab-
schnitten (21, 22, 23) des gravierten Zylinders um-
faßt.

15. Verfahren nach Anspruch 14, wobei die unterschied-
lichen Farben Klebstoffe mit unterschiedlicher Farbe
sind, **dadurch gekennzeichnet, daß** das Verfahren
die weiteren Schritte des Koppeln der schmücken-
den Bahn (A) mit einer anderen Bahn (B) umfaßt.

Revendications

1. Appareil (100) pour le transfert de bossages déco-
ratifs sur un matériau en feuille (A), comprenant :

- un cylindre gravé (2) dont la surface latérale
extérieure est divisée en une pluralité de sec-
teurs (21, 22, 23) présentant des parties en relief
à dessins décoratifs différents,
- un cylindre de pression (5) dont la surface la-
térale extérieure se juxtapose à celle dudit cy-
lindre gravé (2) et
- un moyen d'insertion du matériau en feuille (A)
entre le cylindre gravé (2) et le cylindre de pres-
sion (5) de manière à former sur ledit matériau
en feuille une pluralité de bandes longitudinales
à bossages décoratifs différents correspondant
auxdits bossages décoratifs différents desdits
secteurs (21, 22, 23) du cylindre gravé,

caractérisé en ce que

il comprend une unité de coloration (11) équipée d'un
cylindre d'application de couleur (3) ayant une plu-
ralité de secteurs (41, 42, 43) en registre avec les
secteurs (21, 22, 23) du cylindre gravé (2), de ma-
nière à déposer différentes couleurs sur lesdits bos-
sages décoratifs protubérants des bandes longitu-
dinales de différents dessins sur ladite toile (A).

2. Appareil selon la revendication 1, **caractérisé en ce
que** ladite unité de coloration (11) comprend une
unité à lame docteur (2) pouvant contenir les diffé-

rentes couleurs, un cylindre distributeur (3) pour prélever les couleurs sur ladite unité à lame docteur (1) et un cylindre d'application (4) pouvant prendre les couleurs sur ledit cylindre distributeur (3) afin de les transférer sur les bossages décoratifs protubérants de ladite toile (A).

3. Appareil selon la revendication 2, **caractérisé en ce que** ledit cylindre d'application de couleur (4) comporte sur sa surface latérale extérieure une pluralité de secteurs (41, 42, 43) séparés les uns des autres par des espaces (44, 45) et en registre avec les secteurs (21, 22, 23) du cylindre gravé (2) et que ledit cylindre distributeur (3) comporte sur sa face latérale extérieure une pluralité de secteurs (31, 32, 33) séparés les uns des autres par des espaces (34, 35) et en registre avec les secteurs (41, 42, 43) du cylindre d'application de couleur (4).
4. Appareil selon la revendication 3, **caractérisé en ce que** ladite unité à lame docteur (1) comprend une pluralité de réservoirs (101, 102, 103) destinés à contenir différentes couleurs et connectés respectivement à une pluralité de lames docteurs (111, 112, 113) disposées en registre avec une pluralité de secteurs (31, 32, 33) du cylindre distributeur (3).
5. Appareil selon la revendication 4, **caractérisé en ce que** ladite pluralité de lames docteur (111, 112, 113) sont séparées les unes des autres par des écarteurs (114, 115) qui agissent dans les espaces annulaires respectifs (34, 35) du cylindre distributeur (3) dans le but d'empêcher une couleur déposée sur la surface d'un secteur du cylindre distributeur de se mélanger à une autre couleur déposée sur la surface d'un autre secteur du cylindre distributeur.
6. Appareil selon la revendication 5, **caractérisé en ce que** ladite unité à lame docteur (1) comprend une pluralité de pompes à diaphragme pour le transfert de la couleur respectivement de ladite pluralité de réservoirs (101, 102, 103) à ladite pluralité de lames docteur (111, 112, 113) et une pluralité de conduites de trop-plein pour évacuer la couleur excédentaire de ladite pluralité de lames docteur (111, 112, 113) vers ladite pluralité de réservoirs (101, 102, 103).
7. Appareil (100) selon la revendication 1, **caractérisé en ce que** ladite unité de coloration (11) est une unité d'encollage servant à déposer différentes colles colorées sur les bossages décoratifs protubérants des bandes longitudinales de différents dessins de ladite toile (A) afin de permettre à la dite toile (A) de s'assembler avec une seconde toile (B).
8. Appareil selon la revendication 7, comprenant un second cylindre de pression (6) comportant une surface latérale extérieure juxtaposée à celle dudit cylin-

dre gravé (2) de manière à ce que ladite toile (A) à bossages décoratifs humidifiée à la colle et ladite seconde toile (B) soient insérées entre ledit cylindre gravé (2) et ledit cylindre de pression (6) pour être assemblées l'une à l'autre.

9. Appareil selon la revendication 7 ou 8, **caractérisé en ce que** ledit ensemble de collage (11) comprend une unité à lame docteur (1) pouvant contenir la colle, un cylindre distributeur (3) pour prélever la colle sur ladite unité à lame docteur (1) et un cylindre d'application de colle (4) pouvant prendre la colle sur ledit cylindre distributeur (3) pour la transférer sur les bossages décoratifs protubérants de ladite toile (A).
10. Appareil selon la revendication 9, **caractérisé en ce que** ledit cylindre applicateur (4) comporte sur sa surface latérale extérieure une pluralité de secteurs (41, 42, 43) séparés les uns des autres par des espaces (44, 45) et en registre avec les secteurs (21, 22, 23) du cylindre gravé (2) et que ledit cylindre distributeur (3) comporte sur sa surface latérale extérieure une pluralité de secteurs (31, 32, 33) séparés les uns des autres par des espaces (34, 35) et en registre avec les secteurs (41, 42, 43) du cylindre d'application de colle (4).
11. Appareil selon la revendication 10, **caractérisé en ce que** ladite unité à lame docteur (1) comprend une pluralité de réservoirs (101, 102, 103) destinés à contenir de la colle de différentes couleurs et connectés respectivement à une pluralité de lames docteurs (111, 112, 113) disposées en registre avec les secteurs (31, 32, 33) du cylindre distributeur (3).
12. Appareil selon la revendication 11, **caractérisé en ce que** ladite pluralité de lames docteur (111, 112, 113) sont séparées les unes des autres par des écarteurs (114, 115) qui agissent dans les espaces annulaires respectifs (34, 35) du cylindre distributeur (3) afin d'empêcher la colle d'une couleur déposée sur la surface d'un secteur du cylindre distributeur (3) de se mélanger à la colle d'une autre couleur déposée sur la surface d'un autre secteur du cylindre distributeur.
13. Appareil selon la revendication 11 ou 12, **caractérisé en ce que** ladite unité à lame docteur (1) comprend une pluralité de pompes à diaphragme pour transférer la colle respectivement de ladite pluralité de réservoirs (101, 102, 103) à ladite pluralité de lames docteur (111, 112, 113) et une pluralité de conduites de trop-plein pour évacuer la colle excédentaire de ladite pluralité de lames docteur (111, 112, 113) vers ladite pluralité de réservoirs (101, 102, 103).

14. Procédé de transfert de bossages décoratifs sur un matériau en feuille (A), comprenant l'étape d'insertion du matériau en feuille (A) entre un cylindre gravé (2) et un cylindre de pression (5) de manière à ce que les parties protubérantes du cylindre gravé (2) transfèrent les bossages décoratifs relatifs sur le matériau en feuille (A),
 dans lequel la surface latérale extérieure dudit cylindre gravé (2) est divisée en une pluralité de secteurs (21, 22, 23) comportant des parties en saillie à dessins décoratifs différents, de manière à obtenir une toile (A) présentant des bandes longitudinales de différents bossages décoratifs protubérants à dessins différents,
caractérisé en ce qu'il comprend l'étape suivante de dépôt de différentes couleurs sur les bossages décoratifs protubérants des bandes longitudinales de dessins différents de ladite toile (A) au moyen d'un cylindre d'application de couleur (3) présentant une pluralité de secteurs (41, 42, 43) en registre avec les secteurs (21, 22, 23) du cylindre gravé.
15. Procédé selon la revendication 14, dans lequel lesdites différentes couleurs sont différentes colles colorées, **caractérisé en ce qu'il** comprend les étapes suivantes d'assemblage de ladite toile décorée (A) à une autre toile (B).

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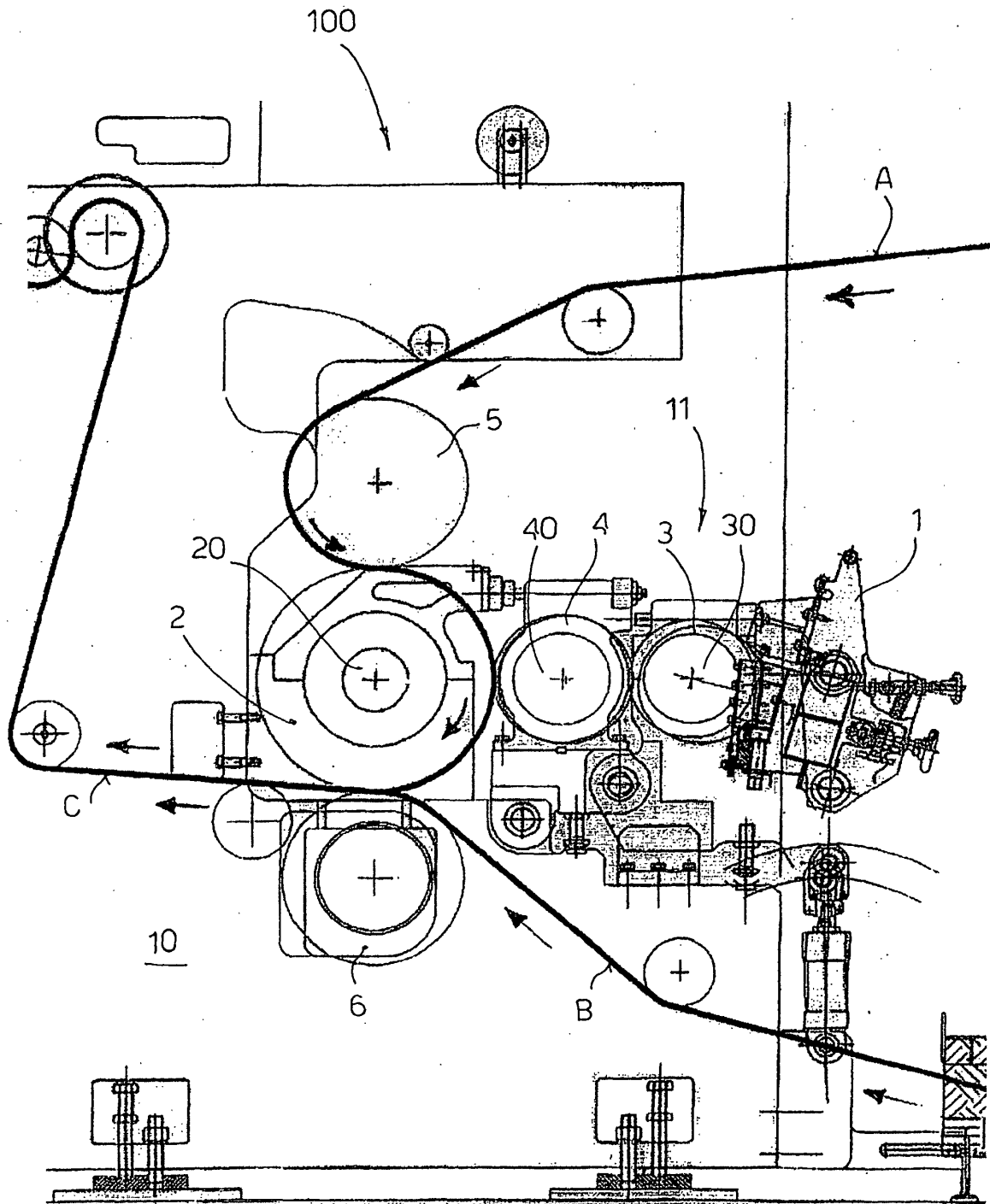


FIG. 1

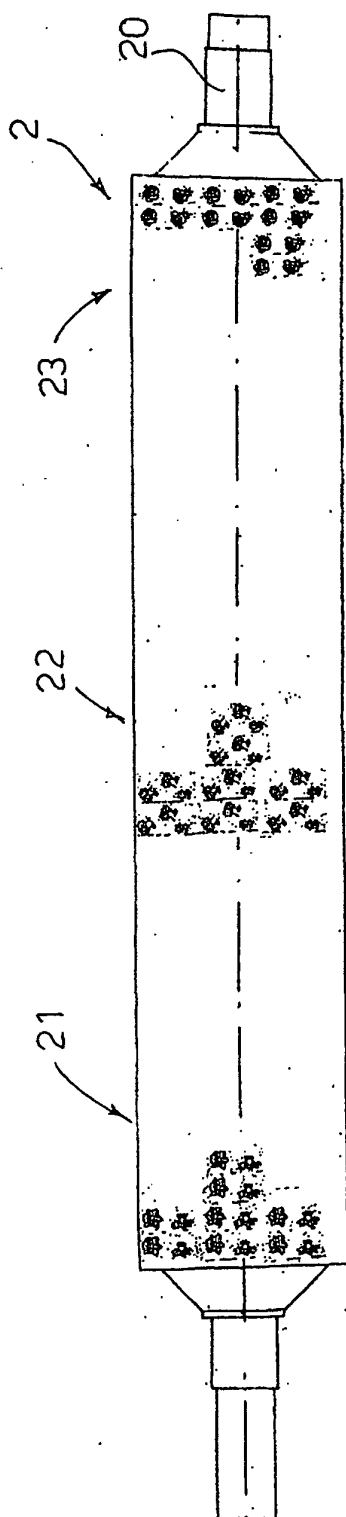


FIG. 2

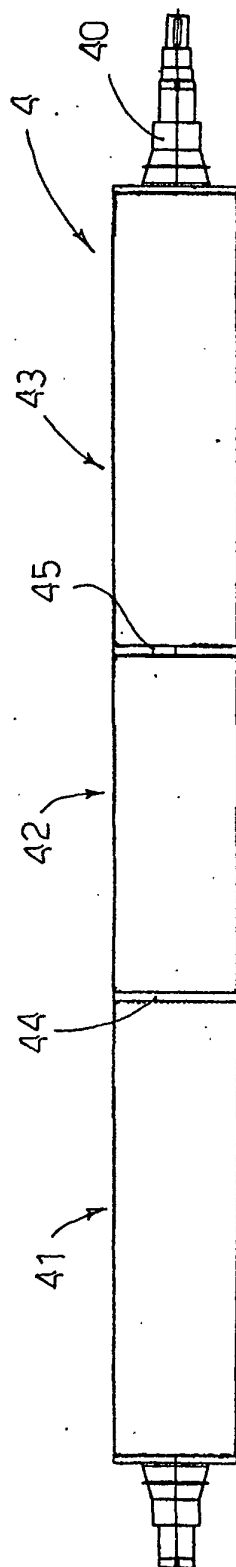


FIG. 3

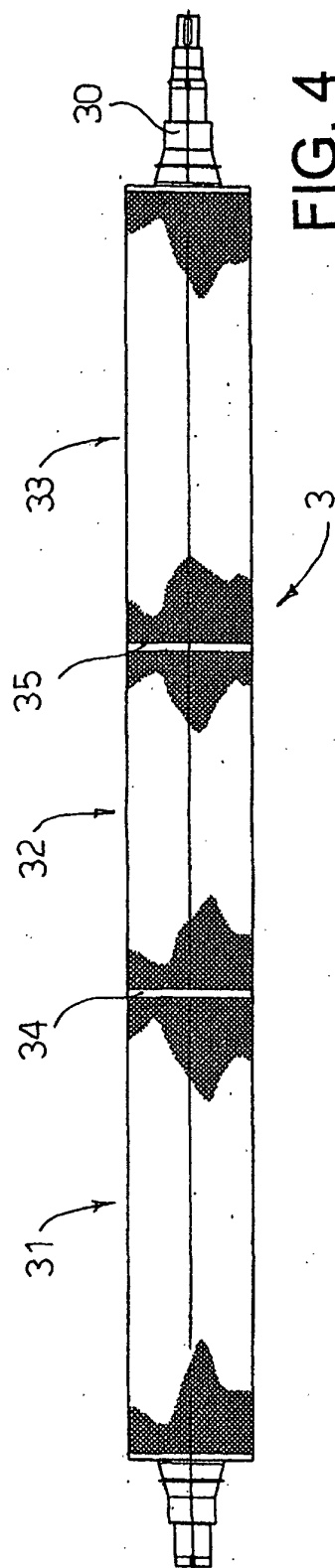


FIG. 4

FIG. 5

