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(54) **System for applying varnishes with relief**

(57) The invention relates to a system for applying varnishes with relief, of the type forming a decorative application formed by a bottom layer (5) and a structured layer (6) with relief forms, performing the supply of said layers (5 and 6) at the same time with one and the same application roller (1) provided with recesses (2), combin-

ing said application roller (1) with a supply of the product to be applied which fills the recesses (2) and incorporates a layer (4) of product on the surface of the application roller (1), such that with the product of the layer (4) the bottom layer (5) is formed and with the product of the recesses (2) the structured layer (6) is formed in the decorative application.

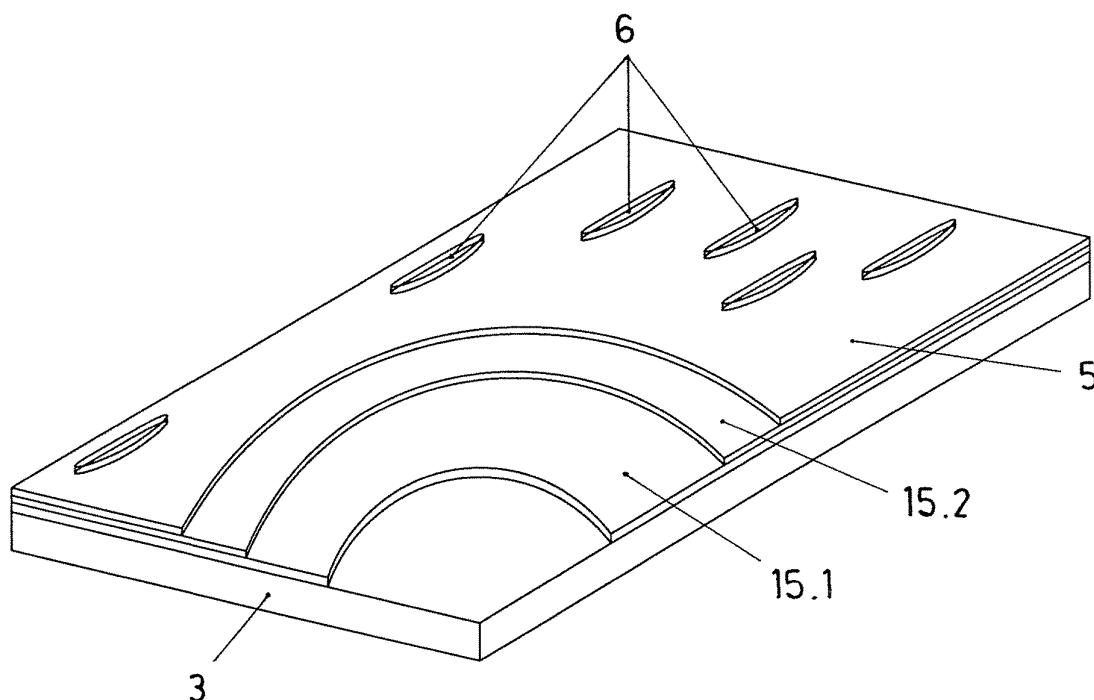


Fig. 8

Description

Field of the Invention

[0001] The present invention relates to the surface decoration of panels or similar parts by means of the application of covering layers with varnish, paint or similar products, with which a structured surface with reliefs is formed, proposing a system which allows performing said type of decoration in an advantageous manner as regards time and means for carrying out the process.

State of the Art

[0002] The decoration of parts of the type of panels, boards, etc., with layers of varnish or paint, by means of which structured surfaces with decorative configurations are determined, such as the imitation of streaks or any other type of forms, is known.

[0003] In this sense, patent US 5 178 928, for example, discloses the surface decoration of a board by means of coating layers which determine a structured surface with relief forms.

[0004] In addition, patent EP 1 645 339 discloses a system for the application of coating layers to form, by means of successive operations, a surface with positive or negative reliefs.

[0005] And, in turn, patent EP 2 050 514 discloses a process for forming a decorated surface with relief forms, by means of a smooth bottom layer and a structured layer determining the relief forms thereon, the bottom layer first being applied by means of a smooth application roller, said layer being dried to a gelled state, and the structured layer with relief forms then being applied on this gelled bottom layer by means of an application roller provided with recesses.

Object of the Invention

[0006] According to the present invention a system is proposed which allows forming decorated surfaces with structural relief forms in a more advantageous manner than with the known methods, since it reduces the means and the time for carrying out the process of this application.

[0007] This system object of the invention consists of the application, with paint or varnish, of a smooth bottom layer and a layer determining structured relief forms, both layers being applied with the same means in a single operation.

[0008] To that end an application roller provided with recesses corresponding with the forms of the structural configurations of the reliefs to be defined is used, a supply of the product to be applied being arranged in connection with said roller, with which product the recesses of the roller are filled and a uniform layer of the product is furthermore incorporated on the surface thereof.

[0009] Thus, when the application roller passes over

the application surface, the layer of material on the surface of the roller and the material in the recesses thereof are deposited at the same time, simultaneously determining a bottom layer and a structured layer with relief forms, on the application surface.

[0010] Therefore, with this system the decorative application is performed in a single phase of application and by means of a single application roller, the process being faster and more cost-effective than with the methods, such as that of patent EP 2 050 514, which perform the application of the bottom layer and the application of the layer determining the structural relief forms in successive phases of application and with different means, while with the system of the invention only one application roller is used and a drying of the bottom layer is not necessary for applying the layer determining the structural relief forms.

[0011] In the practical embodiment of the system of the invention, for the bottom layer and for the layer with structural relief forms one and the same application product can be used, which can be provided by means of a single metering device to fill the recesses and form the surface layer on the application roller, or two metering devices on the application roller can be used, one to fill the recesses and the other to form the surface layer.

[0012] For the bottom layer and for the layer with structural relief forms different application products can also be used, metering one of them directly on the application roller, to fill the recesses thereof, whereas the metering of the other product is performed on an independent roller, such as an "anilox" type roller, to provide, directly with said roller, or by means of a transfer roller, the surface layer on the application roller.

[0013] Therefore, the system allows, without altering the concept, the adaptation to form the bottom layer and the structured layer with relief forms, with the desired type of application materials, varnishes and/or paints of different types being able to be used.

[0014] Therefore, the system of the invention has truly advantageous features, acquiring its own identity and a preferred character for the decorative function of surfaces for which it is intended.

Description of the Drawings

[0015]

Figure 1 shows a schematic side elevational view of an installation for carrying out the system of the invention.

Figure 2 is a block diagram of the process for decorating a panel with the system of the invention.

Figure 3 schematically shows an embodiment of the system of the invention using a single application product and a single supply metering device on the application roller.

Figure 4 schematically shows an embodiment of the system of the invention using a single application

product and two supply metering devices on the application roller.

Figure 5 schematically shows an embodiment of the system of the invention using one or two application products, with the metering of one of them on the application roller and of the other product by means of a scraper metering device on a supply roller.

Figure 6 schematically shows an embodiment of the system of the invention using one or two application products, with the metering of one of them on the application roller and of the other product by means of a closed chamber metering device on a supply roller.

Figure 7 schematically shows an embodiment of the system of the invention using one or two application products, with the metering of one of them on the application roller and of the other product on an independent roller which is connected with the application roller by means of a transfer roller.

Figure 8 is a partially cut perspective view of a decorated panel according to the system of the invention.

Figure 9 is a section of a decorative application according to the invention, with a bottom layer and a structured layer of the same material applied directly on the body to be decorated.

Figure 10 is a section of a decorative application according to the invention, with a bottom layer and a structured layer of the same material, including a prior impression layer on the body to be decorated.

Figure 11 is a section of a decorative application according to the invention, with a bottom layer and a structured layer of a different material, applied directly on the body to be decorated.

Figure 12 is a section of a decorative application according to the invention, with a bottom layer and a structured layer of a different material, including a prior impression layer on the body to be decorated.

Detailed Description of the Invention

[0016] The object of the invention relates to a system for applying a decorative covering with structural relief forms, by means of varnish and/or paint, on the surface of parts such as panels or the like, using means which make the process of said application particularly advantageous.

[0017] The system of the invention is carried out by means of an application roller (1) provided with structural recesses (2), by means of which the decorative application on the surface of the part (3) to be decorated is performed.

[0018] A supply of the material to be applied is provided in connection with said application roller (1), with which material the recesses (2) are filled and a layer (4) of the product is furthermore incorporated on the surface of this application roller (1).

[0019] Thus, when the application roller (1) passes

over the surface of the part (3) to be decorated, the layer (4) of material is deposited on said surface of the part (3), forming a bottom layer (5) of the decorative application, and at the same time the material in the recesses (2) is deposited forming a structured layer (6) with relief forms corresponding with the configurations of the recesses (2).

[0020] Therefore, by means of the same application roller (1) the application of the bottom layer (5) and the application of the structured layer (6) which form the decorative application are carried out in a single process phase.

[0021] One and the same product can be used to form the bottom layer (5) and the structured layer (6) of the decorative application, which product can be supplied on the application roller (1) by means of a single metering device (7), with which the recesses (2) are filled and the layer (4) is determined on the surface of the application roller (1), as is observed in Figure 3.

[0022] The material for filling the recesses (2) and the material for forming the layer (4) on the surface of the application roller (1) can also be supplied by means of two different metering devices (8 and 9) arranged in connection with the application roller (1), as is observed in Figure 4, such that while one of the metering devices, for example the metering device (8), fills the recesses (2), the other metering device (9) supplies the layer (4) on the surface of the application roller (1).

[0023] Likewise, without this altering the concept of the system for application according to the invention, to fill the recesses (2) of the application roller (1) and to form the layer (4) on the surface of said application roller (1), two different application products can be used, one of them being directly supplied on the application roller (1), by means of a metering device (10), to fill the recesses (2), whereas the other product is metered on an independent roller (11), such as an "anilox" type roller, for example, this second applied material being supplied, to form the layer (4) on the application roller (1), either directly with the roller (11) itself on which the metering is performed, as in the examples of Figures 5 and 6, or by means of a transfer roller (12), as in the example of Figure 7.

[0024] The metering of the application material on the independent roller (11) can be carried out in any case by means of any type of metering device, such as a scraper metering device (13), as in the examples of Figures 5 and 7, or by means of a closed chamber metering device (14), as in the example of Figure 6.

[0025] Depending on the part (3) to be decorated and on the decoration which is to be obtained, transparent varnishes, pigmented varnishes and/or paints can be used for the decorative application, such that if the bottom layer (5) and the structured layer (6) are formed with pigmented varnish or opaque paint, the same or different in the two layers, the application can be carried out directly on the application part (3), as is observed in Figures 9 and 11; whereas if the bottom layer (5) and the structured

layer (6) are formed with transparent varnish, the same or different in the two layers, before the application an impression (15) must be performed on the application part (3) to provide the surface with the desired tone, as is observed in Figures 10 and 12.

[0026] The impression layer (15) can comprise multiple layers (15.1, 15.2, etc.) of different colors to determine the desired tone, as is observed in Figure 8.

[0027] A layer (not depicted) of high-resistance glue/varnish, for example based on heat-fusible polyurethane varnish, can be incorporated on the surface to be decorated before the decorative application, on which layer the decorative application formed by the bottom layer (5) and the structured layer (6) is then performed, thus achieving a great hardness of said decorative application.

[0028] According to the process diagram depicted in Figure 2, if the bottom layer (5) and the structured layer (6) are formed with pigmented varnish or with opaque paint, the process is carried out according to the sequence of the left of the diagram, i.e., the decorative application consisting of these two layers is performed directly on the part (3) to be decorated by means of a single phase (16) of application, the application then being provided with a gloss, semi-gloss, satin, semi-matte or matte finish (17).

[0029] However, if the bottom layer (5) and the structured layer (6) are formed with transparent varnish, the process is carried out according to the sequence of the right of said diagram of Figure 2, i.e., an impression (15) is previously applied on the part (3) to be decorated and the decorative application consisting of the mentioned layers (5 and 6) is performed on such impression by means of a single phase (16), the application then being provided with the finish (17).

[0030] The installation for carrying out the system of the invention therefore comprises, as shown in Figure 1, phases (18) of impression for adapting the color of the application part (3) when necessary, a phase (16) of simultaneous application of the bottom layer (5) and the structured layer (6) making up the decorative application to be formed on the part (3), and a phase (17) for providing a hardening finish or the like on the decorative application.

[0031] Optionally the installation can also comprise a phase (19) for forming negative reliefs on the decorative application by means of an engraving calender.

[0032] By means of the use of an engraved metering roller, in connection with the application roller (1) with which the application of the bottom layer (5) and the application of the structured layer (6) forming the decorative application are carried out, an application can also be carried out in areas synchronized with the decorative application by means of a glossy, semi-glossy, satin, matte or semi-matte varnish, for example.

[0033] With the embodiment of Figures 4 and 5, the metering can also be adjusted with respect to the application roller (1), to fill the recesses (2) without the layer

(4) on the surface of the application roller (1) being formed, thus allowing directly depositing a structured layer (6) with relief forms, without a bottom layer (5), on the application part (3).

5 [0034] In order for the application of the layers (5 and 6), which is carried out simultaneously according to the invention, to be suitable, the application roller (1) with which said application is performed is established syn-
10 chronized by electronic means with the phases (18) of prior impression on the application part (3).

[0035] And, in addition, in order for the decorative ap-
15 plication by means of the application roller (1) to be precisely performed, the application part (3) is moved through the area of the application by a transport means (20) provided with a securing of the part (3) by vacuum; there being furthermore a counterpressure roller (21),
20 through between which and the application roller (1) the part (3) passes when the application is performed thereon.

Claims

1. A system for applying varnishes with relief, of the type forming a decorative application formed by a bottom layer (5) and a structured layer (6) with relief forms, **characterized in that** the supply of the bot-
25 tom layer (5) and the structured layer (6) with relief forms is performed with one and the same applica-
30 tion roller, by means of which the two layers (5 and 6) are supplied at the same time in a single phase of application.
2. A system for applying varnishes with relief, of the type forming a decorative application formed by a
35 bottom layer (5) and a structured layer (6) with relief forms, **characterized in that** the supply of the bot-
40 tom layer (5) and the structured layer (6) with relief forms is performed with one and the same applica-
45 tion roller (1) provided with recesses (2) correspond-
50 ing with the relief forms to be determined, combining said application roller (1) with a supply of the product to be applied which fills the recesses (2) and incor-
55 porates a layer (4) of product on the surface of the application roller (1), to form with the product of the layer (4) the bottom layer (5) and with the product of the recesses (2) the structured layer (6) in the decorative application.
3. The system for applying varnishes with relief accord-
ing to claim 2, **characterized in that** the product to be applied is supplied on the application roller (1) by means of a metering device (7) with which the re-
cesses (2) are filled and the layer (4) is formed on the surface of the application roller (1).
4. The system for applying varnishes with relief accord-
ing to claim 2, **characterized in that** the product to

be applied is supplied on the application roller (1) by means of two metering devices (8 and 9), one of which (8) fills the recesses (2), whereas the other metering device (9) forms, with the same product or another different one, the layer (4) on the surface of the metering roller (1). 5

5. The system for applying varnishes with relief according to claim 2, **characterized in that** the product to be applied is supplied on the application roller (1) by means of two metering devices (10 and 13-14), one of which (10) fills the recesses (2) directly on the application roller (1), whereas the other one (13-14) meters an identical or different product on an independent roller (11), from which the metered product is transferred to the application roller (1) to form the layer (4) on the surface thereof. 10 15

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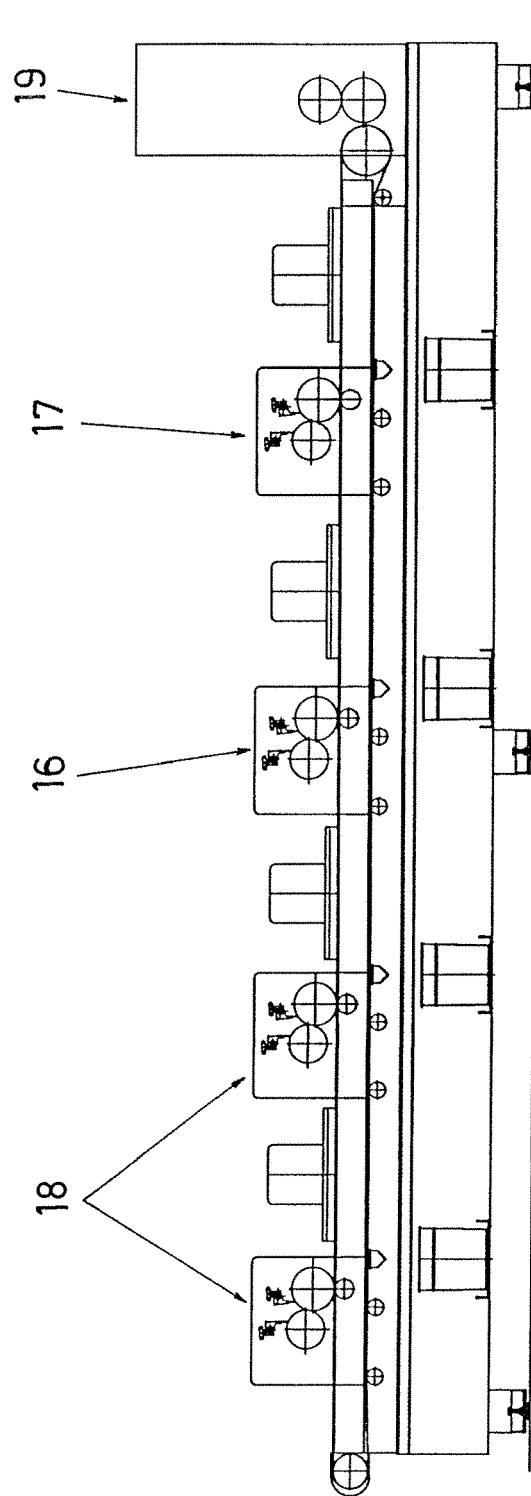


Fig.1

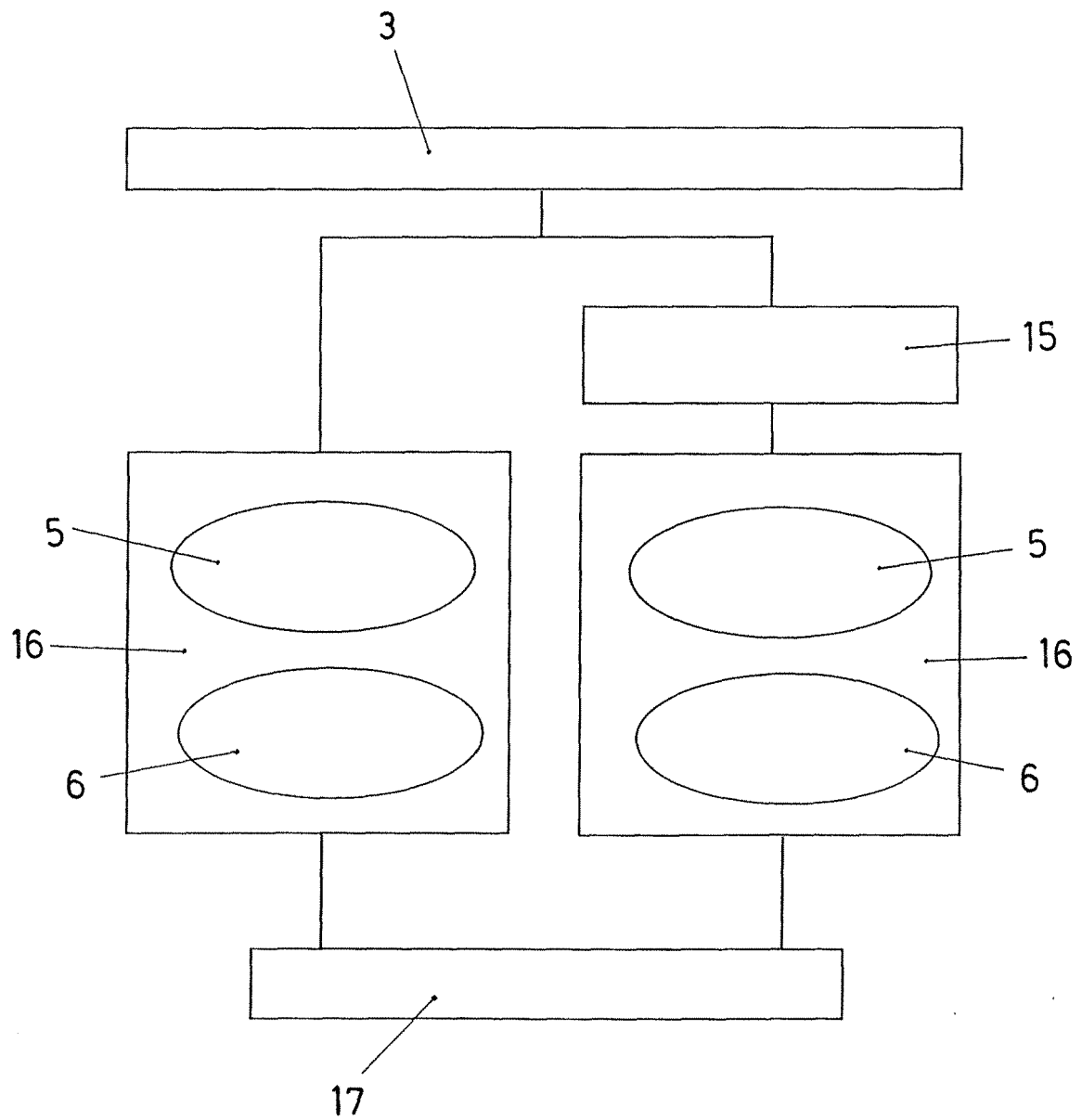


Fig. 2

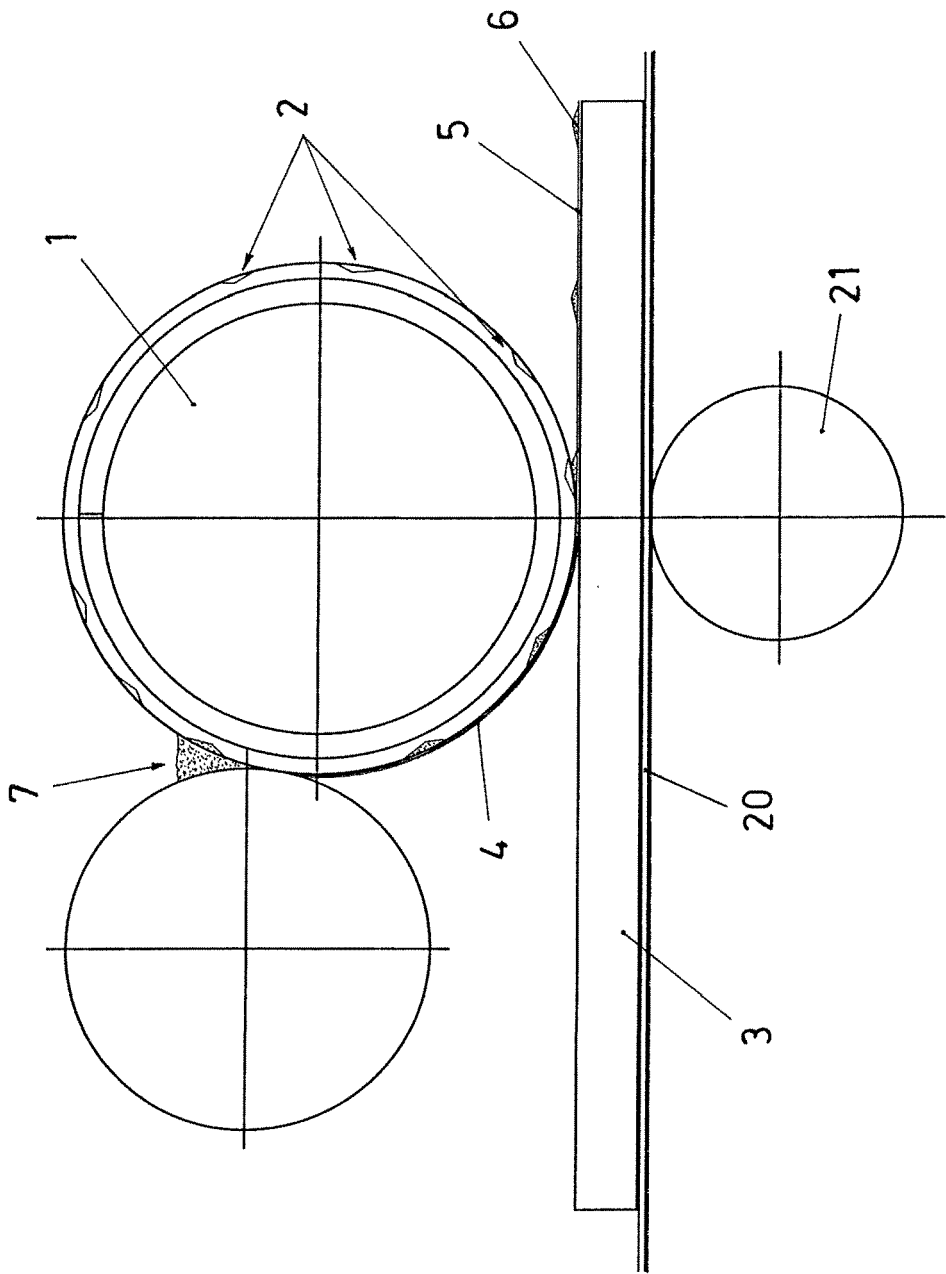


Fig.3

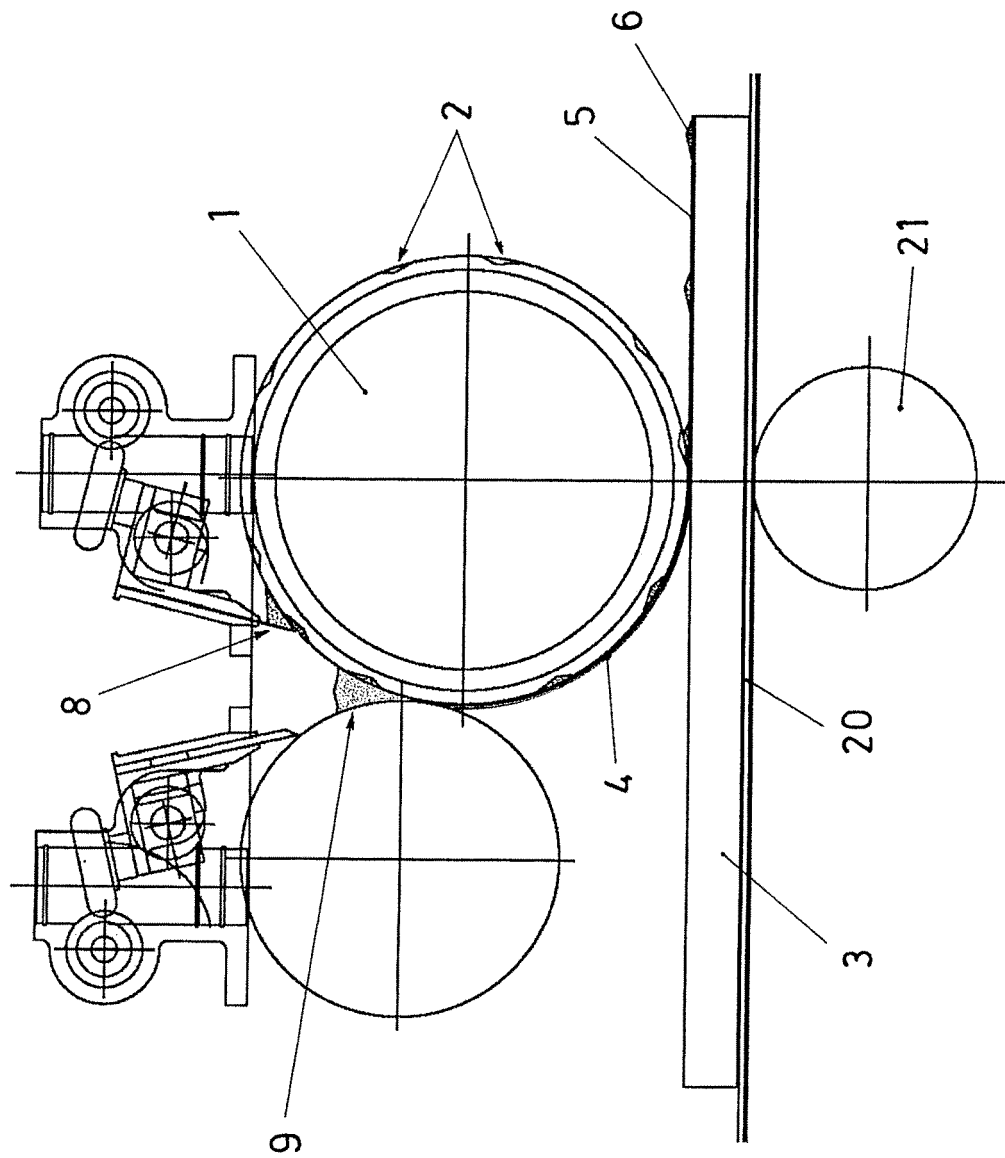


Fig. 4

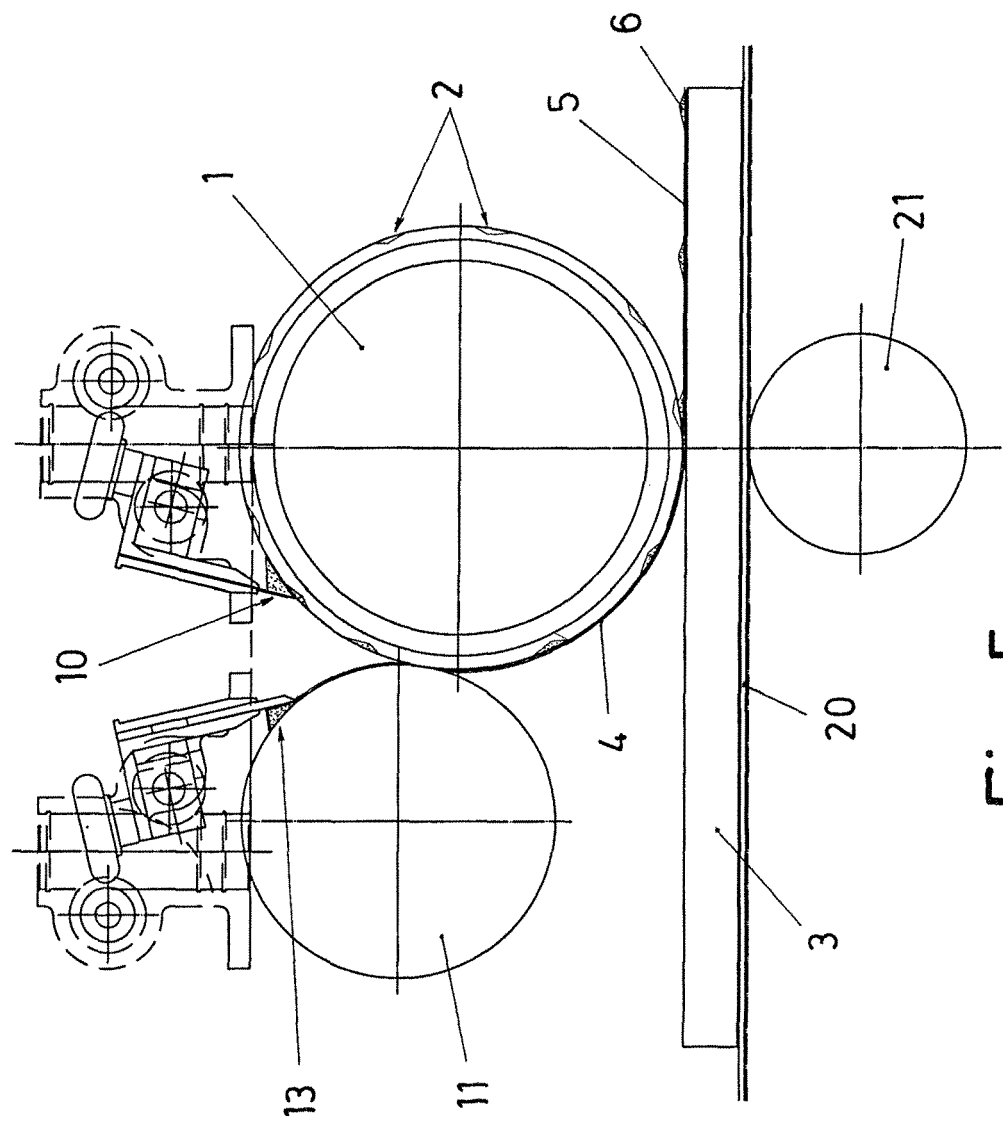


Fig.5

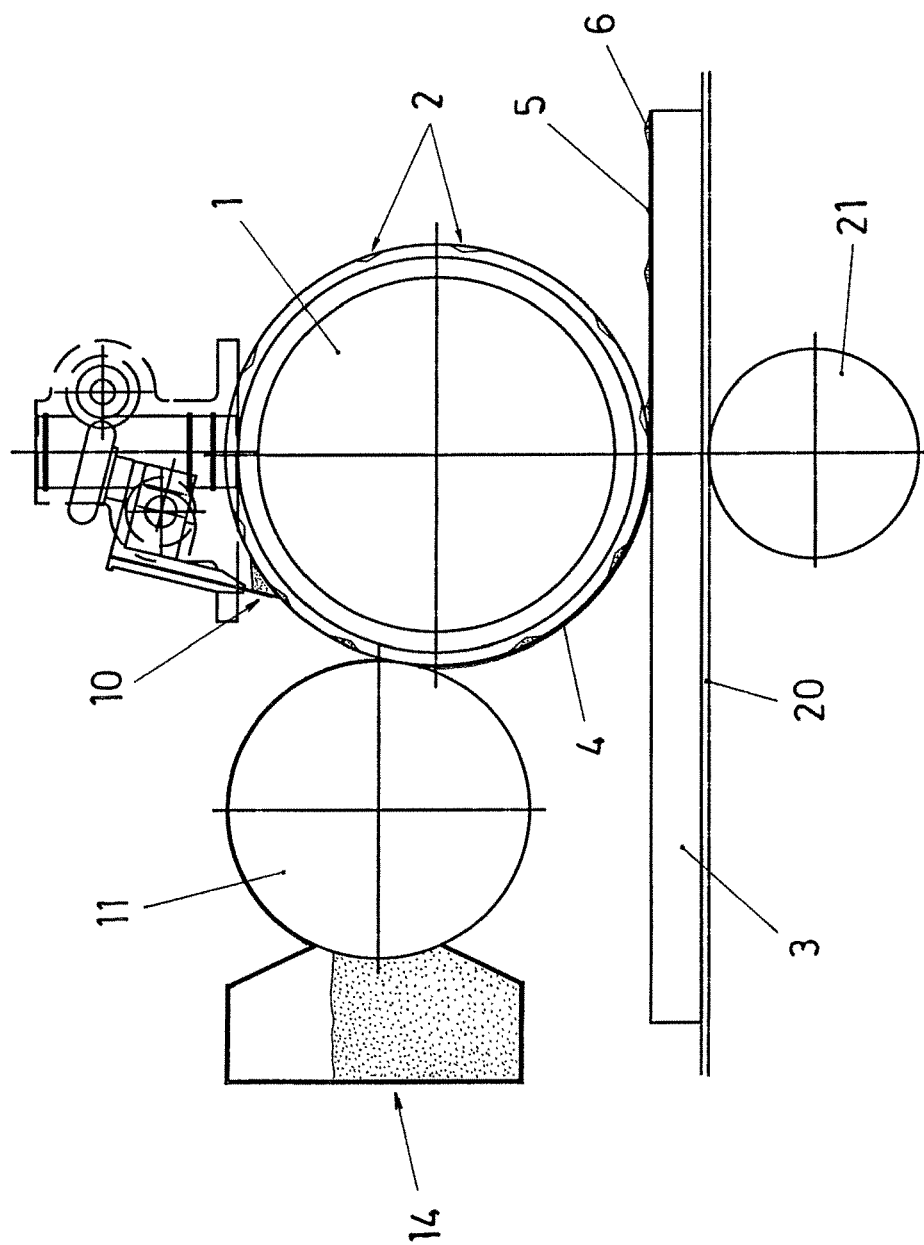


Fig. 6

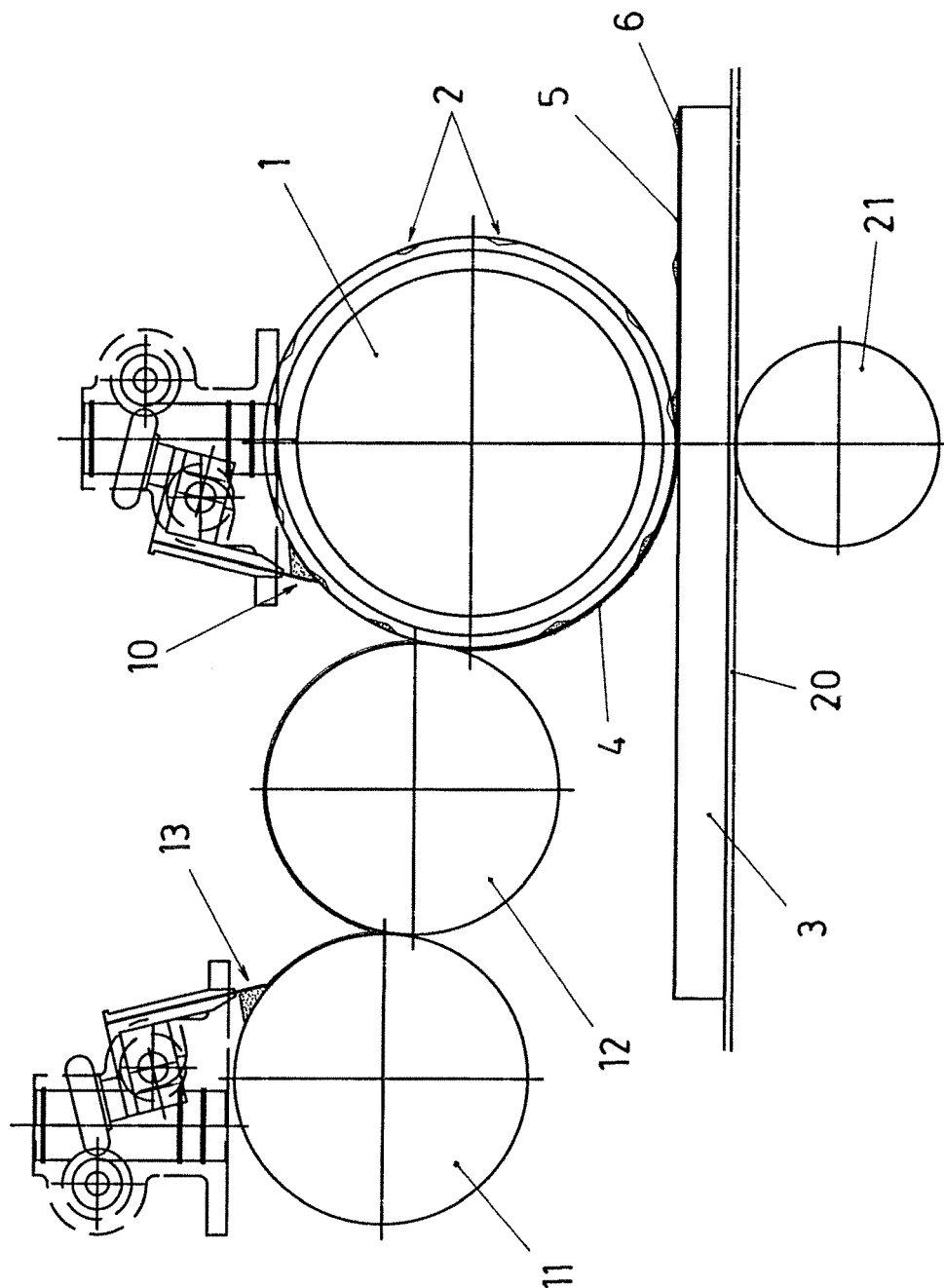


Fig. 7

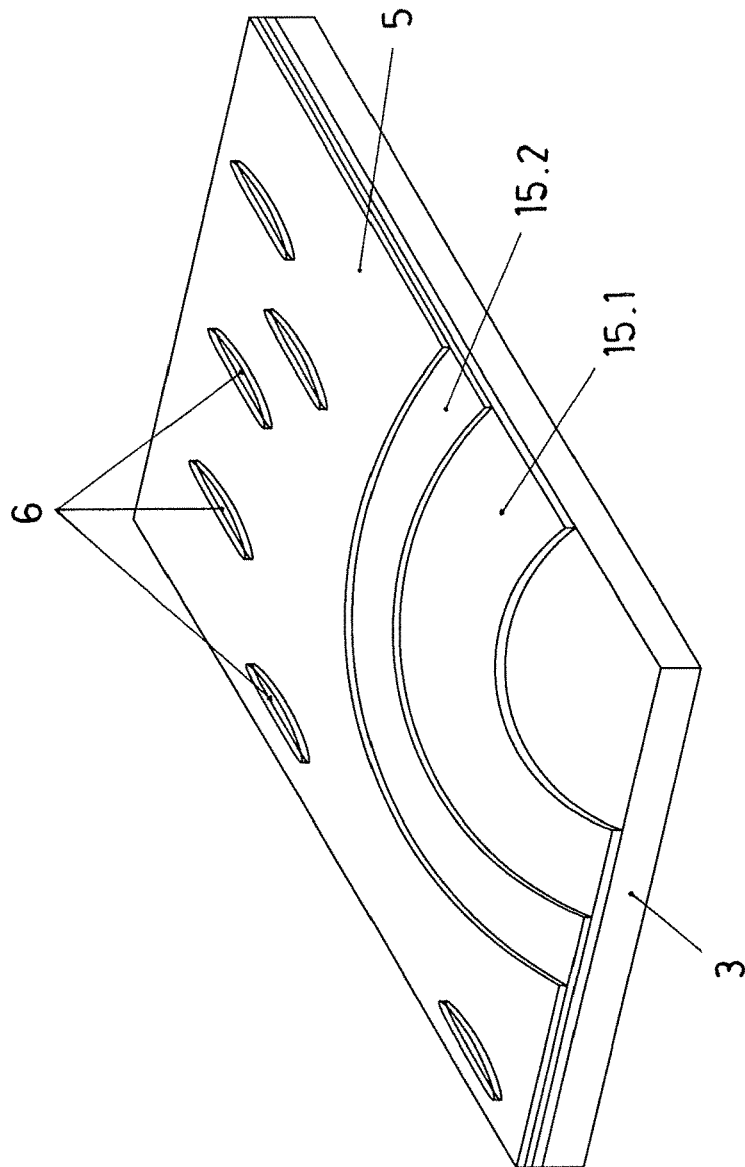


Fig. 8

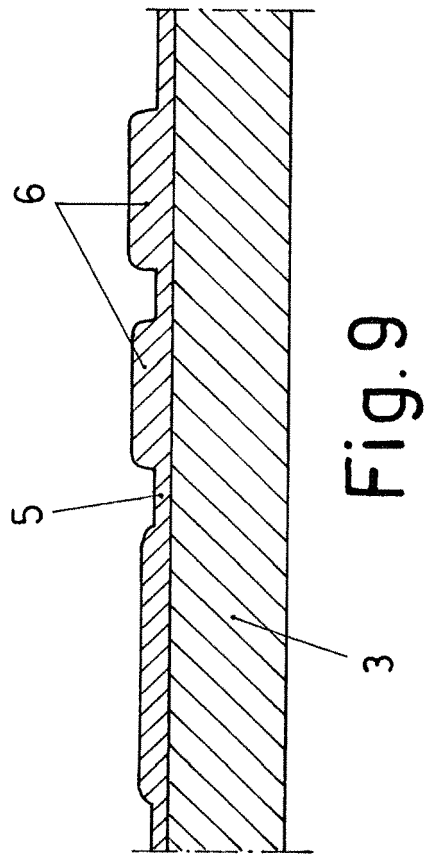


Fig.9

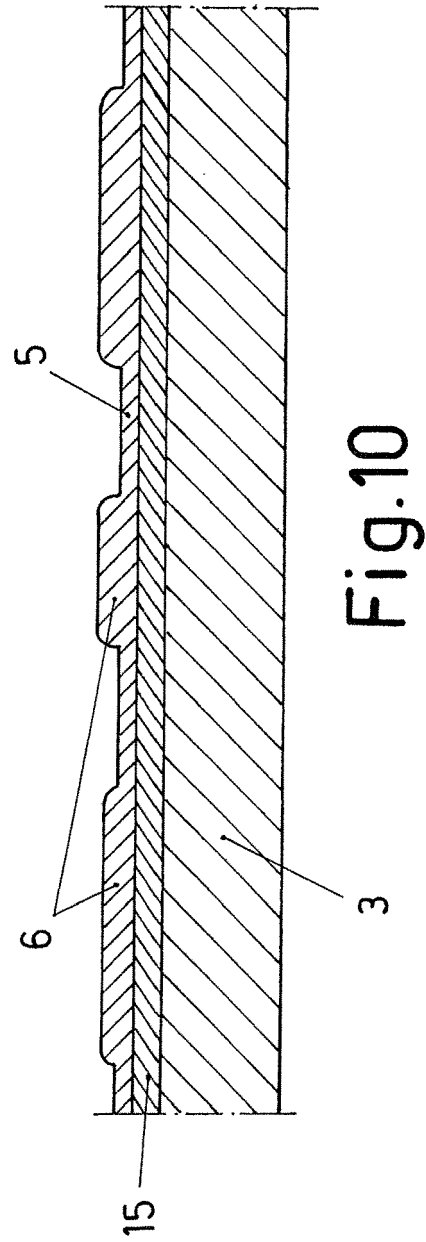
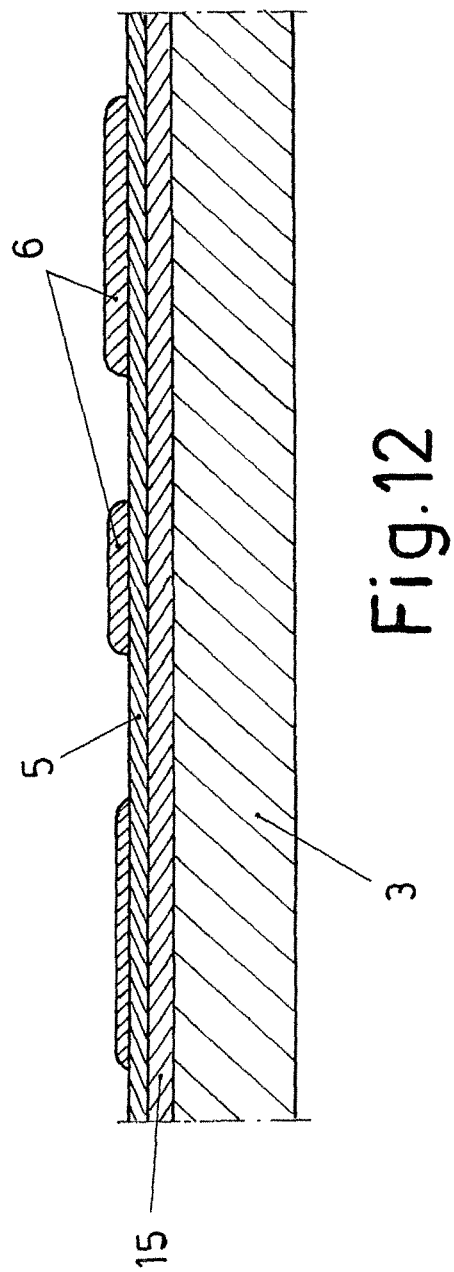
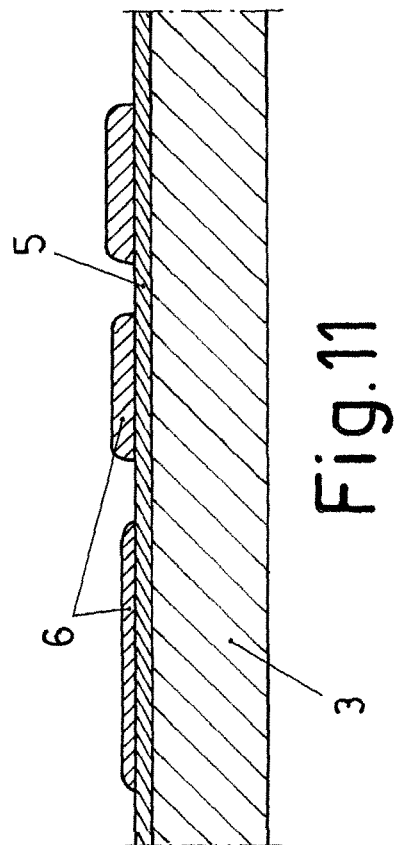


Fig.10



REFERENCES CITED IN THE DESCRIPTION

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