



PATENT NETWORK FOR STRATEGIC SECURING OF MARKETS IN INKJET PROCESSES



**EUROPEAN PATENT
EP 2 208 542 B1**

Filing: 12.01.2010

Priority: 16.01.2009

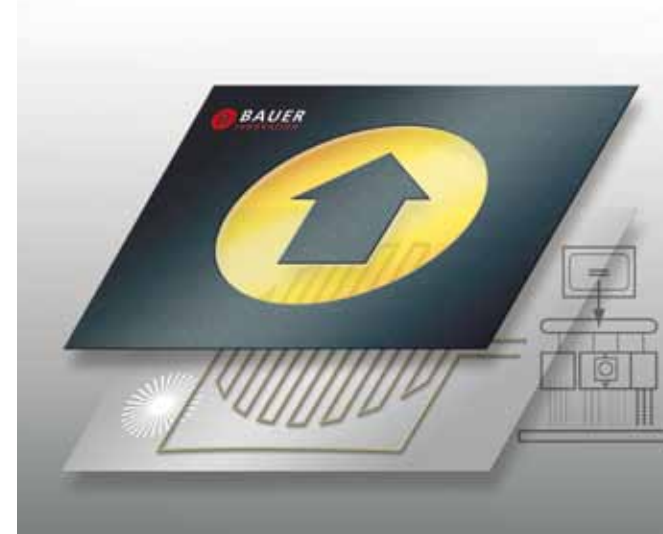
Patent holder: Jörg R. Bauer

Method for coating a surface**Claims**

A method for coating a surface by means of an application member having a plurality of digitally controllable orifices, which eject droplets of a hardenable liquid to generate a layer with a thickness corresponding to the ejected liquid on the surface, the droplets being ejected such that at least two layer areas are formed, which are located side by side and adjacent to each other and consist of different hardenable liquids,

characterized in that

one of the liquids hardens to a layer being impervious to light, another of the liquids hardens to a layer being transmissive to light, and that the liquids are ejected onto the surface such that the layer comprises a layer-area being transmissive to light, which borders on a layer-area being impervious to light.



7. A switch having at least one wall formed by a substrate being transmissive to light, and coated by a method according to any of claims 1 to 6, wherein the layer being transmissive to light forms a functional symbol.

GERMAN PATENT

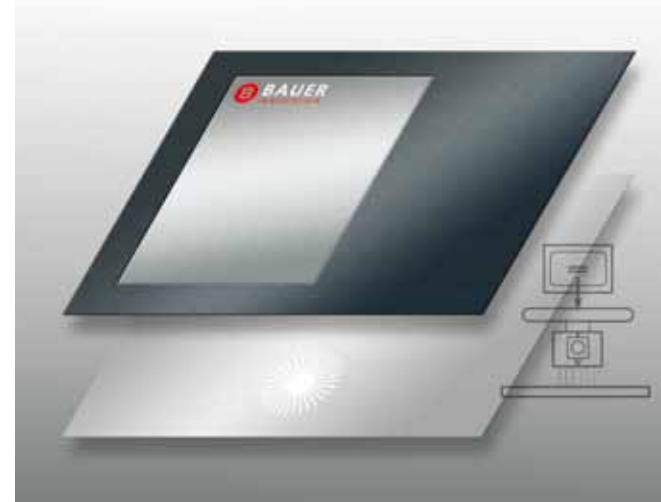
DE 10 2009 004 877 B4

Filing: 16.01.2009

Patent holder: Jörg R. Bauer

Component with a base body and an applied layer by means of a digital coating system**Claims**

1. Component with a body and at least one layer of curable liquids applied to the base body by means of a digital coating system, whereby the layer (34) has a light-permeable area (34.5, 34.12) which is surrounded by an opaque area (34.2, 34.4, 34.11) and which is visible from that side of the component facing away from the base.



2. Component according to claim 1, whereby the component forms a switch which can be illuminated from the inside.

1 2 FEATURES OF THE INVENTION

Substrate with a light-permeable and opaque layer region which is backlit by a lamp (tablet). In the opaque layer area no writing can be seen, in the light-permeable layer area the letters are recognizable.



The backlit surface is produced by the method according to the invention, wherein a surface area to be coated, is repeatedly coated with liquid droplets, until a predetermined layer thickness is applied and when a backlit, a suitable contrast is formed.

EUROPEAN PATENT APPLICATION

EP 16 152 128.1

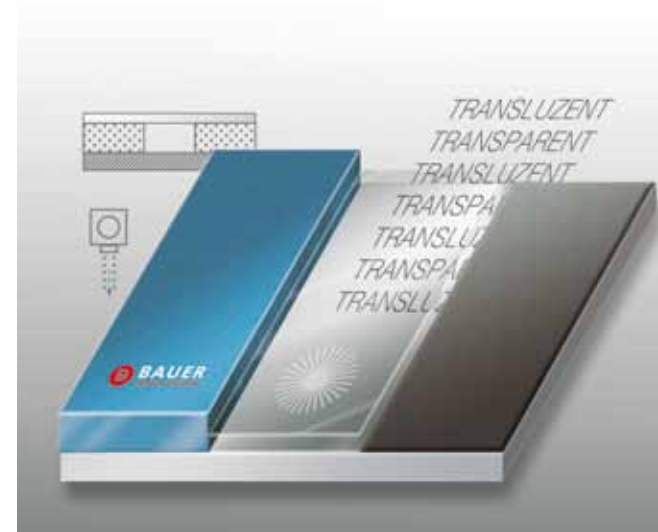
Filing: 12.01.2010

Priority: 16.01.2009

Patent holder: Jörg R. Bauer

Method for coating a surface**Claims**

- 1.** A method for coating a surface by means of an applicator with a plurality of digitally driven nozzles, which spray droplets of a curable liquid for producing a layer (34.2, 34.4, 34.5) of predetermined thickness on the surface, characterized in that
- the droplets are sprayed in such a way, that the layer has at least two color layer areas (34.2, 34.4), between which a transparent or translucent layer area (34.5) is located adjacent to the side and
 - the transparent or translucent layer area (34.5) is formed from a curable liquid which is different from the curable liquids of the colour layer areas.
- 5.** Method according to one of claims 1 to 4, wherein the first and second fluids differ by one or more of the following properties: optical transparency, electrical conductivity, electromagnetic behavior, wear resistance.



- 8.** Component with a substrate (22), on the surface of which a layer (34.2, 34.4, 34.5) of predetermined thickness is produced by means
- of an application component with a plurality of digitally controlled nozzles which spray droplets of a curable liquid onto the surface, the layer containing at least a first layer region of predetermined thickness of a first curable liquid, which adjoins laterally at least partially at least one further layer region of predetermined thickness from a second, different curable liquid from the first, characterized in that
 - the layer has at least two colour layer regions (34.2, 34.4), between which there is a transparent or translucent layer region (34.5).
- 11.** Component according to one of claims 8 to 10, wherein at least two of the layer regions have a different thickness.

GERMAN PATENT

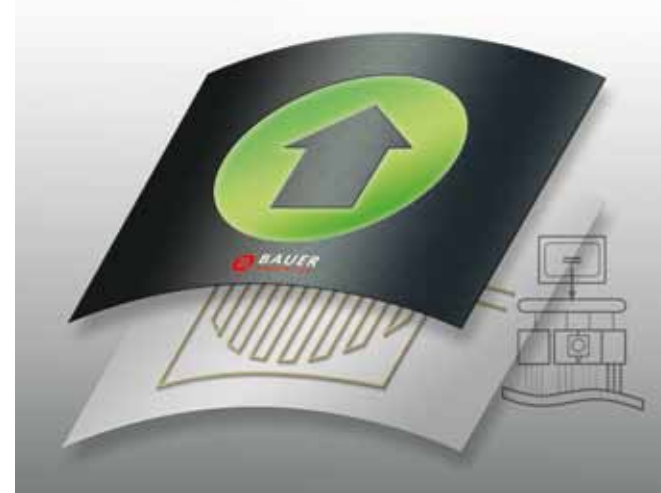
DE 10 2010 032 839 B4

Filing: 30.07.2010

Patent holder: Jörg R. Bauer

Sandwich component with a control layer and a functional layer**Claims**

1. Sandwich component with a substrate, an operating layer and a functional layer, whereby the substrate has a curved surface, the functional layer (12) contains an electrical circuit (18), the operating layer (14) contains at least one control panel which is geometrically predetermined regarding its position on the operating layer (26), which is arranged relative to the functional layer in such a way, that the control panel together with the electrical circuit forms a switch, with which an electrical property of the circuit is variable, and the operating layer (14) contains a graphic pattern, in which the control panel (26) and its function are shown, at least a segment of at least the functional layer (12) and/or the operating layer (14) is produced by programmable, electronically controlled digital printing of the curved surface of the substrate with curable liquids, which are sprayed from nozzles,



and the layers are arranged in the following ways:
functional layer (12) on the same side of the substrate over the operating layer (14) or the operating layer on the same side of the substrate over the functional layer or the operating layer (14) on one side of the substrate and the functional layer on the other side of the substrate.

5. sandwich component according to one of claims 1 to 4, wherein at least one prefabricated electronic component in the functional layer (12) is integrated.

7. sandwich component according to one of claims 1 to 6, wherein at least one of the switching elements comprises a luminous element indicating the switching state of the switching element, and the operating layer is transparent in the region of the luminous element.

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BUSINESS FIELD „FUNCTIONAL 2D / 3D SURFACES, CONTROLS“

Sandwich component with a substrate, an operating layer and a functional layer



GERMAN PATENT
DE 10 2010 047 924 B4

Filing: 08.10.2010

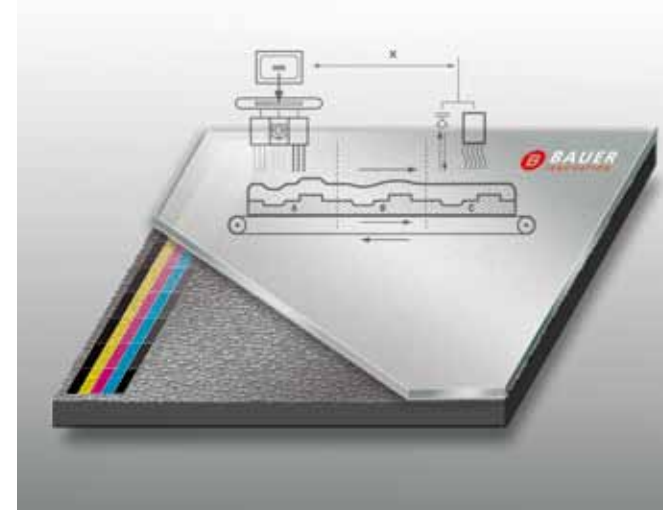
Patent holder: Jörg R. Bauer

Method for producing a surface formed by a curable liquid

Claims

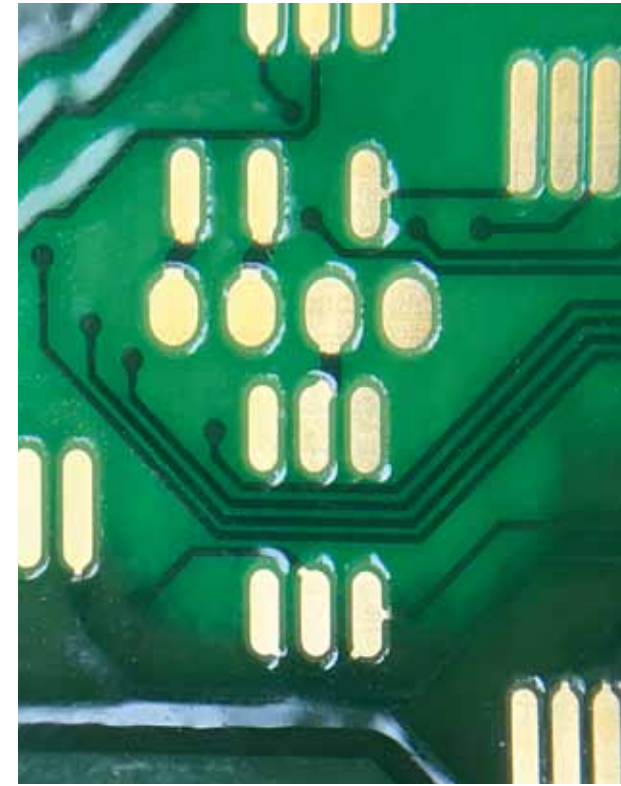
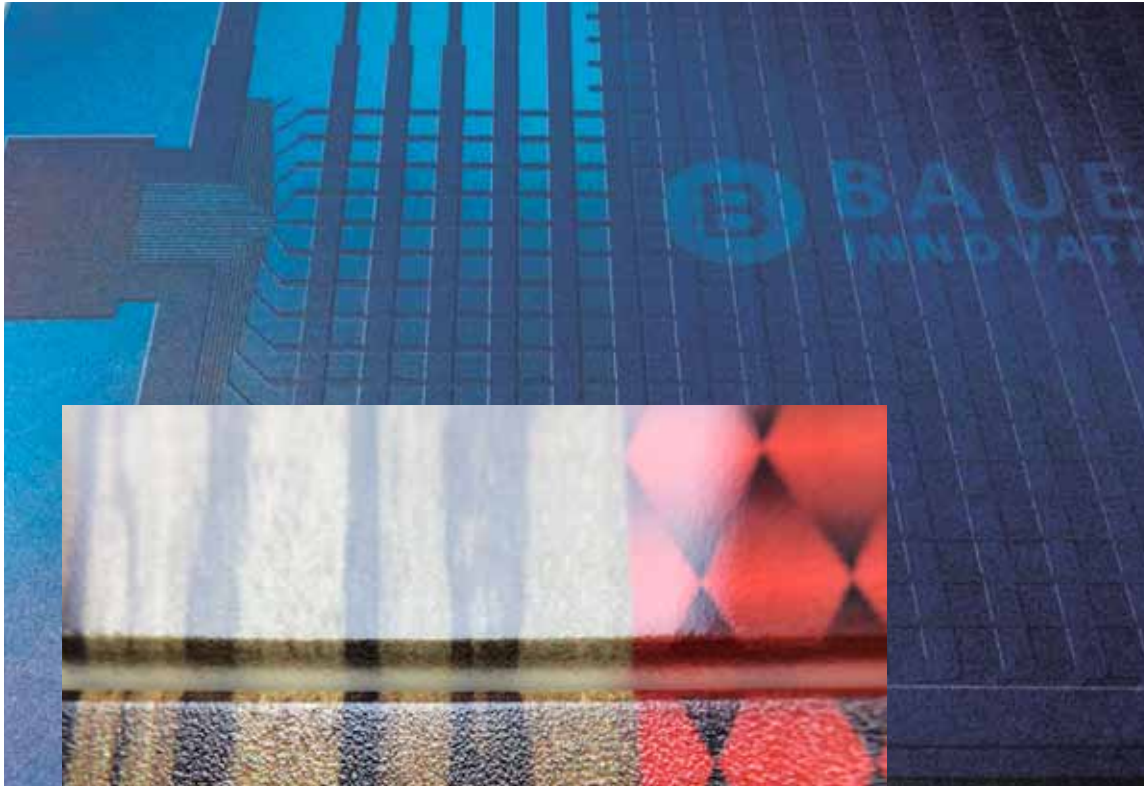
1. A method for producing a surface formed by a curable liquid on an uneven body surface containing the following steps:

- a) providing the uneven body surface (32),
- b) providing a liquid which is applied to the uneven body surface in the form of individual droplets by means of a programmable, digital process,
- c) applying the liquid in small drops on the uneven body surface by means of the programmable digital process, and
- d) curing the applied liquid, in which
 - the applied droplets completely run into each other and become a coherent fluid layer (38) before curing,



- the liquid is applied to the uneven body surface (32) in an amount such that, when cured, it fills a volume (V) which is located between the uneven body surface and the surface which covers the uneven body surface and spaced from the uneven body surface
 - the application in small drops of the liquid to the uneven body surface takes place with a constant thickness
4. Method according to one of claims 1 to 3, wherein the uneven body surface is formed by an already hardened liquid layer or a printed circuit.

Applying a varnish layer to an uneven body surface



Applying a varnish layer to an uneven body surface

GERMAN PATENT

DE 10 2010 032 838 B4

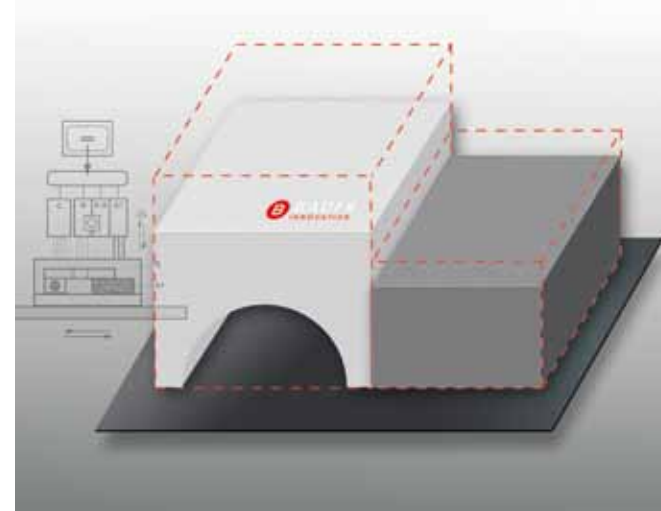
Filing: 30.07.2010

Patent holder: Jörg R. Bauer

Method and apparatus for applying a layer composed of a plurality of layer areas on a substrate surface.**Claims**

1. A method of , to a substrate surface by means of an application method wherein liquid droplets are electronically digitally deposited and hardened on a surface, containing the following steps:

- Definition of the geometric dimension and relative position of the layer regions and of the liquids assigned to the layer regions,
- Defining volume elements assigned to the layer regions, which are to be filled with the liquid assigned to the respective layer region,
- Determining the amounts of liquid to be inserted into the respective volume element in the form of droplets and



- Controlling the spraying of the droplets of the respective liquids onto the respective volume elements corresponding to the determined quantities of liquid, characterized in, that the quantity of liquid to be introduced into a respective volume element is determined by taking account of a change in volume of the liquid droplets between the spraying and the hardening of the liquid droplets in such a way that the volume element is completely filled by the hardened liquid.

6. Device for applying a layer (18) composed of a plurality of layer regions (20, 22), with predetermined geometrical dimensions and predetermined properties, to a substrate surface, containing

3-D printing with inkjet systems, whereby different layers with predetermined geometries and volumes are applied to a surface



US PATENT / EUROPEAN PATENT APPLICATION

US 10,664,073

WO 2016/155887 A1

Filing: 01.04.2016

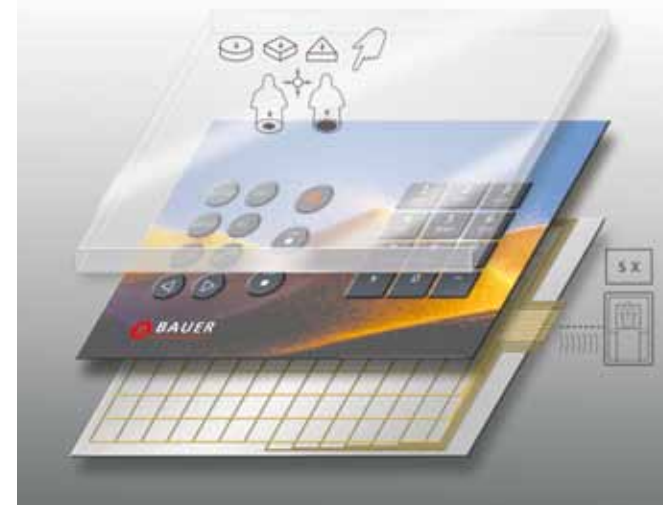
Priority: 02.04.2015

Patent holder: Jörg R. Bauer

TOUCHPAD AND SYSTEM FOR DETECTING AN OBJECT ON A DETECTION SURFACE, AND GENERATING AND OUTPUTTING OBJECT-SPECIFIC INFORMATION

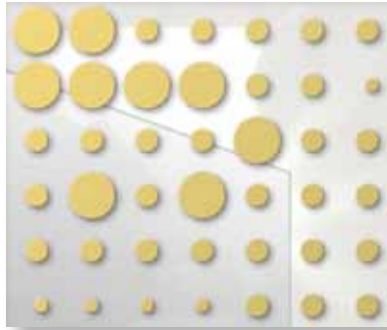
ABSTRACT

The invention relates to a touchpad comprising a plurality of first electrical conductors (24) and a plurality of second electrical conductors (28) which are arranged across the first conductors (24) in relation to the conductors (24, 28), and comprising a contact layer arranged over the conductors (24, 28), wherein a contacting thereof by the conductors (24, 28) causes a signal to be accessible, by means of which the location of the contacting of the contact layer can be determined, wherein the contact layer is formed as a decorative layer (30) which forms a visually and/or



haptically detectable decoration, or on which a visually and/or haptically detectable decoration is applied, wherein the decoration or the decorative layer are formed by means of an ink-jet printing method and/or the electrical conductors (24, 28) are formed by means of an ink-jet printing method.

Recognize and record movements of objects on a surface



GERMAN PATENT APPLICATION

DE 10 2013 019 272 A1

Filing: 16.11.2013 / Priority: 21.06.2013

DE 10 2012 009 345 A1

Filing: 08.05.2012

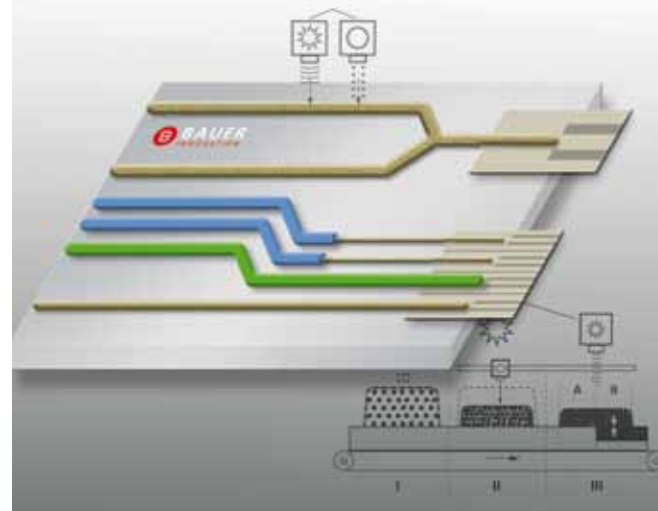
Patent holder: Jörg R. Bauer

Method for producing a conductive layer region with predeterminable geometries and contact point and component

Claims

1. A method of forming a conductive layer region (15) 2D or 3D on a substrate surface (10), characterized that
 - via a control device (20)
 - according to a predetermined trace layout (32), by means of an applicator (21), conductive particles are applied and
 - by means of a laser, which is guided according to the in the control device (2) deposited trace layout (32), so that the conductive particles are sintered / connected to a homogeneous, conductive layer region (15).

4. Method according to one of claims 1 to 3, wherein by means of the application device (21) different layer heights and cross-sectional geometries (33)

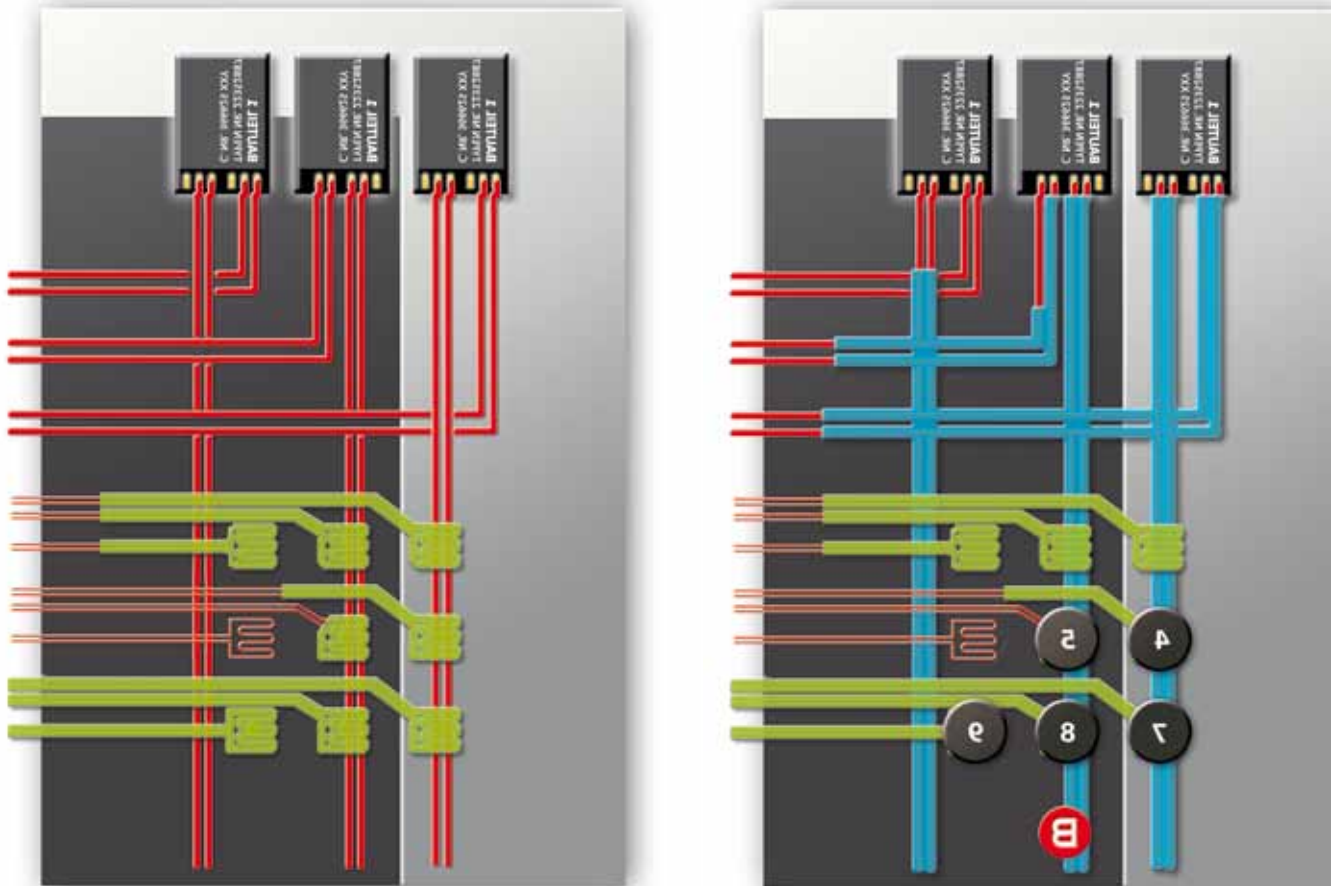


of conductive layer regions (15) can be produced in one working process by a position-related quantity control (16) and the position-related, variable power control of the laser (23).

6. Method according to one of claims 1 to 5, that when forming a conductive layer region (15), the melting point of the laser is guided in such a way that a solid adhesive bond is formed (welding) with an arranged below contact point / conductive layer region (43).

9. Method according to one of claims 1 to 8, wherein the geometry of a conductive layer region (15) on a substrate surface (10) is enclosed with a cover layer (18).

Producing a conductive layer region with predeterminable geometries and contact point and component



GERMAN PATENT APPLICATION
DE 10 2011 100 555 A1

Filing: 05.05.2011

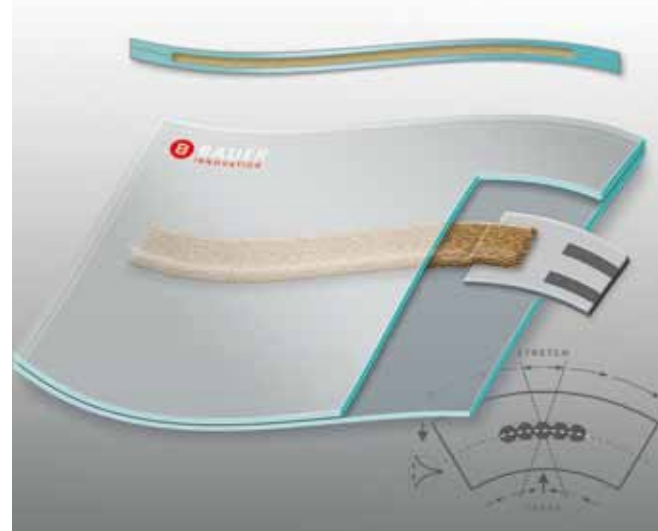
Patent holder: Jörg R. Bauer

**Method for producing a digitally generated,
 conductive functional layer in elastic
 substrates**

Claims

1. A method for producing a bendable and/or elastic substrate with a conductive functional layer, in which

- the substrate consists of two overlapping, bendable and/or elastic partial layers,
- curable liquid droplets are applied in a digitally controlled manner between the partial layers in order to form a geometric dimension of a conductive functional layer on a surface
- the upper sub-layer with the lower sub-layer and the functional layer applied therebetween form a firm bond and
- the material properties of the substrate-forming partial layer are coordinated with one another such that, when the substrate is bent, the conductive functional layer is located in a deformation-free layer region.



4. Method according to one of claims 1 to 3, wherein the application of the liquid droplets, for the production of a geometric dimension of the functional layer, the delivery of the order quantity is regulated positionally.

9. Component according to one of claims 6 to 8, wherein, the volume and the conductivity of the enclosed functional layer, formed in a pressure chamber between the substrate sublayers, remains constant in a deformation and/or the functional layer is encapsulated waterproof, form encapsulating in the component.

Conductive functional layer by means of digitally applied liquid droplets

