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(54) Method of manufacturing labels and/or sheets and products obtained by means of said method.

(57) The method initially entails the erosion etching of a metal die (1), thus obtaining recesses (2,3,5,6) in which thermosetting plastic material is introduced to fill the die. Plastic material is then selectively removed from at least one of the previously filled recesses (2,3,5,6), and more thermosetting plastic material of a different color is subsequently introduced therein. The steps of introduction and removal of plastic material of different colors in other recesses can be repeated. The recesses (2,3,5,6) having thus been filled with the plastic material of the desired color in the desired combination, more thermosetting plastic material is spread on the filled die (1), coupling thereon a sheet of synthetic fiber which constitutes a support for the plastic material. The subsequent steps entail the pre-heating of the die in an oven and its final heating in a heated press. The cooling of the die (1) then takes place in the press and at the end of said step the resulting sheet and/or label is removed from the die.

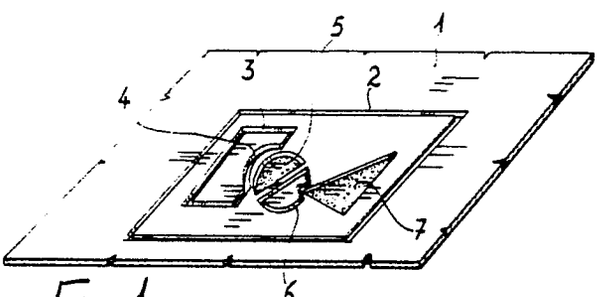

Fig.1

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METHOD OF MANUFACTURING LABELS AND/OR SHEETS AND PRODUCTS OBTAINED BY MEANS OF SAID METHOD

The present invention relates to a method of manufacturing labels and/or sheets and products obtained by means of said method.

A known type of label currently in use is composed of a synthetic or mixed base fabric, on which one or more raised elements of plastic material are coupled by pressure.

The disadvantage of such known types resides in the fact that the plastic part easily detaches from the fabric, thus altering the essential characteristics of the label.

Another known type of label is composed of a leather or imitation leather support, on which a pattern or a word is hot-pressed.

The main disadvantage which can be observed in such known types resides in the fact that during washing the print is slowly removed until it becomes illegible.

Other labels of a known type are obtained by silk-screen printing on any sort of base; this method allows the obtainment of different colors but the resulting label is not provided with raised letters, and moreover the same colors are removable, for example, when washing the item of clothing with which they are associated.

Another known type of label comprises, as a base, a sheet of spread material over which a passage with silk-screen ink is performed.

Subsequently the sheet is passed on a high-frequency press which raises the silk-screen printed area.

The main disadvantage which can be found in this method and in the resulting labels resides in the fact that the raised area, upon successive washes, tends to shrink losing its elasticity and therefore being subject to breakages.

The main aim of the present invention is therefore to eliminate the disadvantages described above in known types, by devising a method of manufacturing labels and/or sheets which is provided with multi-coloured or raised areas which are not subject to degrading due to washing or weathering thereof or to the normal use of the item of clothing or object with which it is associated.

Within the scope of the above described aim, a further important object is to devise a method of manufacturing labels or sheets which are provided with multicolored, and/or mutually intersecting, raised areas.

Another object is to obtain labels or sheets which have three-dimensional characteristics.

Another important object is to provide a method of manufacturing labels or sheets which have remarkable decorative characteristics for the item of clothing or footwear or for any object with which they are associated.

A not least object is to provide a method of manufacturing labels and/or sheets which can be easily and quickly associated with an item of clothing and which are provided with an optimum resistance to tearing.

The aim and the objects mentioned above and others which will become apparent hereinafter are achieved by a method of manufacturing labels and/or sheets, characterized in that it comprises the following steps:

a) erosion etching of a metal die;

b) introduction of thermosetting plastic material of a uniform color into the recesses of said die;

c) removal of said plastic material from one or more of the previously filled recesses;

d) introduction of thermosetting plastic material, different in color with respect to the one used previously, in the recesses freed in the preceding step;

e) eventual repetition, in sequence, of steps c and d;

f) cleaning of the die;

g) spreading on the die of a layer of thermosetting plastic material;

h) coupling, on the spreading, of a sheet of synthetic fiber suitable to act as a support for said thermosetting plastic material;

i) pre-heating of the die in an oven;

l) final heating of said die on a heated press;

m) cooling of the die in a press;

n) uncoupling of the resulting sheet and/or label from the die.

According to another aspect of the invention there is provided a label, which is characterized in that it is provided with a basic support suitable to allow its subsequent stitching to an item of clothing or of footwear or to another object and its non-deformability, said sheet and/or label being provided with one or more mutually intersecting raised areas.

Further characteristics and advantages of the invention will become apparent from the detailed description of a preferred, but not exclusive, embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Fig. 1 is a perspective view of an etched die;

Fig. 2 is a perspective view of the die after the first introduction of thermosetting plastic material into the recesses;

Fig. 3 is a view of the die after the removal of the plastic material from some of the previously filled cavities;

Fig. 4 is a further perspective view of the die after the introduction of more thermosetting plastic material of a different color;

Fig. 5 is a perspective view of the die, on which a layer of thermosetting plastic material has been spread and to which the sheet of synthetic fiber has been coupled;

Fig. 6 is a view of the finished product removed from the die after the pre-heating, heating and cooling steps.

With reference to the above described figures, the method initially entails the erosion etching of a metal die 1, preferably in magnesium or aluminum, to define, in the described exemplary embodiment, a first continuous etching or recess 2, which, for illustrative purposes, has an essentially rectangular shape comprising, in the space delimited thereby, four other etchings.

A second etching or recess, indicated by the reference numeral 3 and similar to the previous etching, also has, for example, an essentially rectangular shape, a side thereof indicated by the reference numeral 4 being partially complementarily shaped in an arc of a circle.

In the exemplified embodiment, adjacent to the side 4, a third etching or recess 5 is provided in which the entire material corresponding to a half-circle is removed.

Adjacent to the third etching 5, a fourth etching or recess 6 similar to the first etching 2 and the second etching 3 is formed, for instance, in the shape of a half circumference, the perimetral edge whereof is complementarily shaped with respect to the corner of a triangle.

Indeed, at said point, adjacent to the fourth etching, a fifth etching or recess 7 is formed, which is similar to the third etching 5 wherefrom the material corresponding to a triangle is removed.

The subsequent step of the process entails the introduction of thermosetting plastic material 8, of a uniform color, in all of the recesses formed in the die 1.

The third step entails the selective removal of the plastic material 8 from one or more of the recesses, for example, from the first etching 2, the third etching 5, and the fourth etching 6.

Said removal can be effected manually or automatically by means of suitably tools such as a pointed element or a nozzle aspirating the material 8.

Once the selected recesses defined by the first, third and fourth etchings are freed, more thermosetting plastic material 9, of a different color with respect to the previous material, may be introduced therein.

The successive step of the process then entails the trimming or cleaning of the die by means of suitable solvents which remove excess parts of thermosetting material 8 or 9 not accommodated in the preset recesses provided in the etchings.

Once the die 1 has been cleaned, a layer 10 of thermosetting plastic material, preferably of a different color with respect to the previous ones, is spread.

Immediately after the spreading, which may be of a manual kind or performed by means of a suitable machine, said layer 10 is coupled to a synthetic fiber sheet 11.

In order to allow the perfect coupling of the layer 10 to the sheet 11, the die 1 undergoes a first pre-heating step in an oven for a preset time and at a preset temperature.

After removing the die from the oven, it undergoes a final heating in a heated press, said press allowing the obtainment of an optimum coupling between the layer 10 and the sheet 11.

Again in order to facilitate the latter coupling, the die, once the heating is complete, is cooled by being placed within a press provided with suitable cooling ducts.

The die then undergoes a preset thermal curve which, together with the fact that the final phase of the heating and the cooling step occur within a press, allows the plastic material 8 and the plastic material 9 to adhere perfectly to the surface of the layer 10 superimposed thereon, and said layer 10 to adhere perfectly to the synthetic fiber sheet 11.

Once said steps are completed, the sheet 10 is then removed from the die, thus obtaining, after the appropriate cuts proximate to the perimetral edges of the etching 2, a label 12.

The label 12 is provided with a basic support composed of the synthetic fiber sheet 11, said sheet giving the label 12 a remarkable resistance to tearing and preventing deformations of the layer 10 of plastic material.

Moreover, the sheet 11 imparts said label with a mechanical resistance so as to allow, for example, its stitching to an item of clothing or to any object to which it must be coupled.

The label 12 is furthermore provided, on the surface opposite to the one of the sheet 11, with raised areas which are shaped complementarily with respect to the recesses provided with the etchings 2, 3, 5, 6 and 7.

The raised areas thus obtained are furthermore provided with different colors.

Moreover, neither the label nor said raised areas can be degraded, for example due to the washing of said label, even if said washing is performed industrially, for example by means of suitable stones intended to artificially wear the item of clothing to which they are stitched.

It has thus been observed that the invention achieves the intended aim and objects, a method having been achieved which allows the obtainment of labels and/or sheets wherein the text or the decorative elements provided thereon are raised, as well as provided in different colors and in no way subject to change in the course of time.

Said labels or sheets are furthermore provided with remarkable decorative characteristics, which increase the originality of the item of clothing with which they are associated.

Naturally, the invention thus conceived is susceptible to numerous modifications and variations, all of which are within the scope of the same inventive concept.

Thus, for example, by means of the same process one may obtain labels, sheets, plates provided with words, symbols, drawings or any other decorative element.

The material which composes the die may furthermore be any, and any method may be used for effecting the etching of said die.

Materials, dimensions of the etchings, the number thereof and the number of the introductions of plastic material in different colors may be any according to the requirements.

Claims

1. Method of manufacturing labels and/or sheets, characterized in that it comprises the following steps:

a) erosion etching of a metal die;

b) introduction of thermosetting plastic material of a uniform color into the recesses of said die;

c) removal of said plastic material from one or more of the previously filled recesses;

d) introduction of thermosetting plastic material, different in color with respect to the one used previously, in the recesses freed in the preceding step;

e) eventual repetition, in sequence, of steps c and d;

f) cleaning of the die;

g) spreading on the die of a layer of thermosetting plastic material;

h) coupling, on the spreading, of a sheet of synthetic fiber suitable to act as a support for said thermosetting plastic material;

i) pre-heating of the die in an oven;

l) final heating of said die on a heated press;

m) cooling of the die in a press;

n) uncoupling of the resulting sheet and/or label from the die.

2. Method according to claim 1, characterized in that it comprises a first step of erosion etching a metal die.

3. Method according to the preceding claims, comprising a second step of introduction of plastic material characterized in that it can be performed by means of suitable injectors, said insertion occurring at the recesses obtained during the etching step.

4. Method according to the preceding claims, characterized in that it comprises a third step in which the removal occurs of said plastic material from one or more of the previously filled recesses.

5. Method according to the preceding claims, comprising a fourth step characterized in that it comprises the introduction of thermosetting plastic material at the recesses freed in the previous step, said plastic material being provided with a different color with respect to the one already used in the second step.

6. Method according to claims 1 and 4, characterized in that the removal of the plastic material is performed by means of nozzles which aspirate said plastic material.

7. Method according to the preceding claims, comprising a fifth step characterized in that it consists of the repetition, in sequence, of the third and fourth step to obtain a die the recesses of which, obtained by etching, are filled with thermosetting plastic material of different colors.

8. Method according to the preceding claims, comprising a further step consisting in the cleaning of the die by means of a suitable solvent capable of removing plastic material not arranged in the recesses obtained by etching, a layer of thermosetting plastic material, preferably provided with a different chromatic composition with respect to the previous ones, being successively spread on said die.

9. Method according to the preceding claims, comprising a further step characterized in that immediately after the introduction into the die of a layer of thermosetting plastic material, a sheet of synthetic fiber is coupled thereto.

10. Method according to the preceding claims, characterized in that it comprises in a subsequent step, the pre-heating in an oven of the die for preset times and at preset temperatures, said die undergoing a final heating in a press which is heated according to a preset thermal curve.

11. Method according to the preceding claims, comprising a further step characterized in that is comprises the cooling of the die in a press according to preset times and temperature gradients.

12. Method according to the preceding claims, comprising a last step characterized in that it consists of the removal of the sheet and/or of the label resulting from the association of the synthetic fiber sheet with the layer of plastic material spread on the die, and with the plastic material introduced in the recesses obtained by etching on said die.

13. Sheet and/or label according to claim 1, obtained by means of said method, characterized in that it is provided with a basic support suitable to give non-deformability and resistance to tearing to the layer of plastic material connected thereto, said basic support being provided with such a structure as to allow the eventual stitching of said label of sheet to an item of clothing, to an item of footwear or to another object.

14. Sheet and/or label according to claim 1 and 13, characterized in that it is provided, on the surface opposite to the one of the basic support, with one or more raised areas which constitute an integral part of said label, said areas being even mutually intersecting and provided with different chromatic combinations.

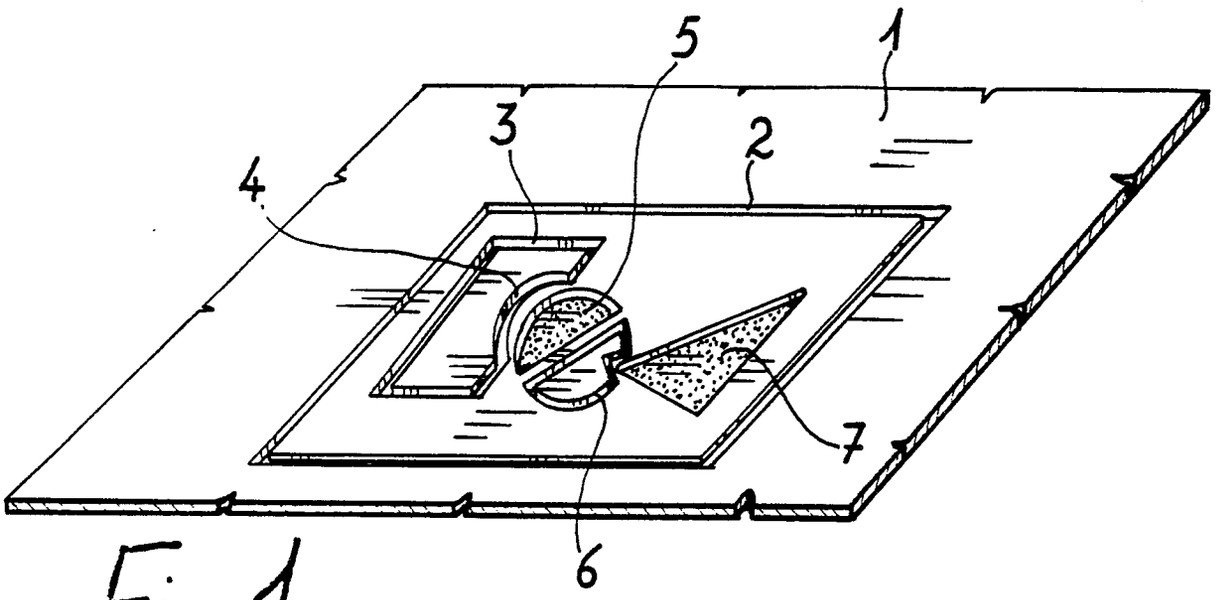

Fig. 1

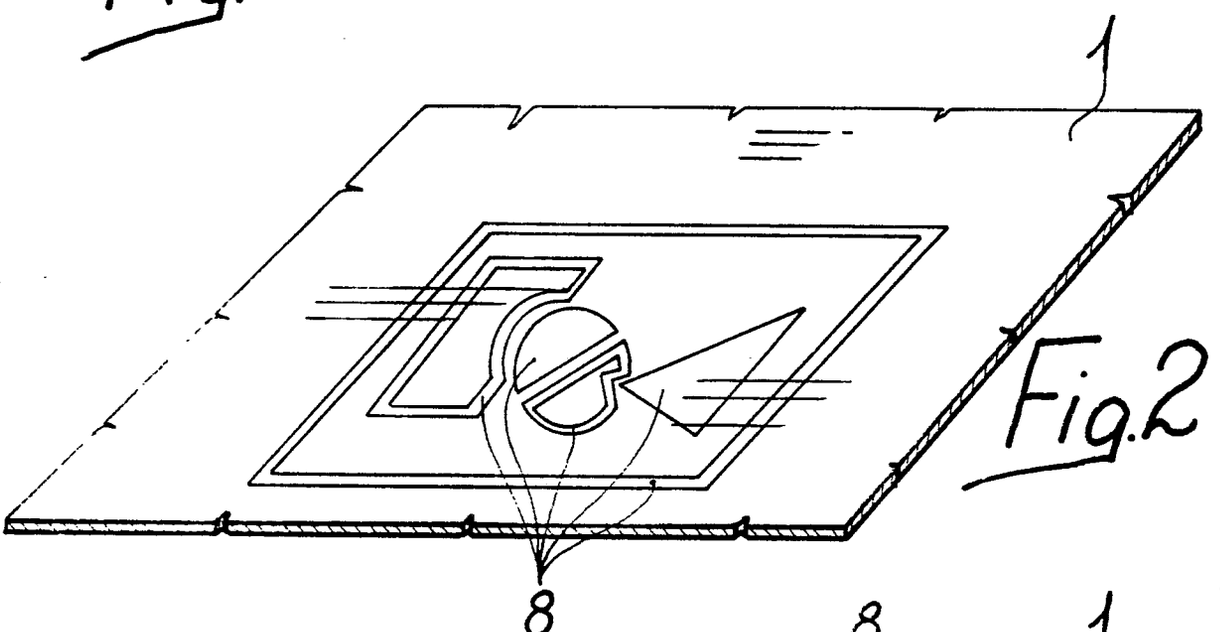

Fig. 2

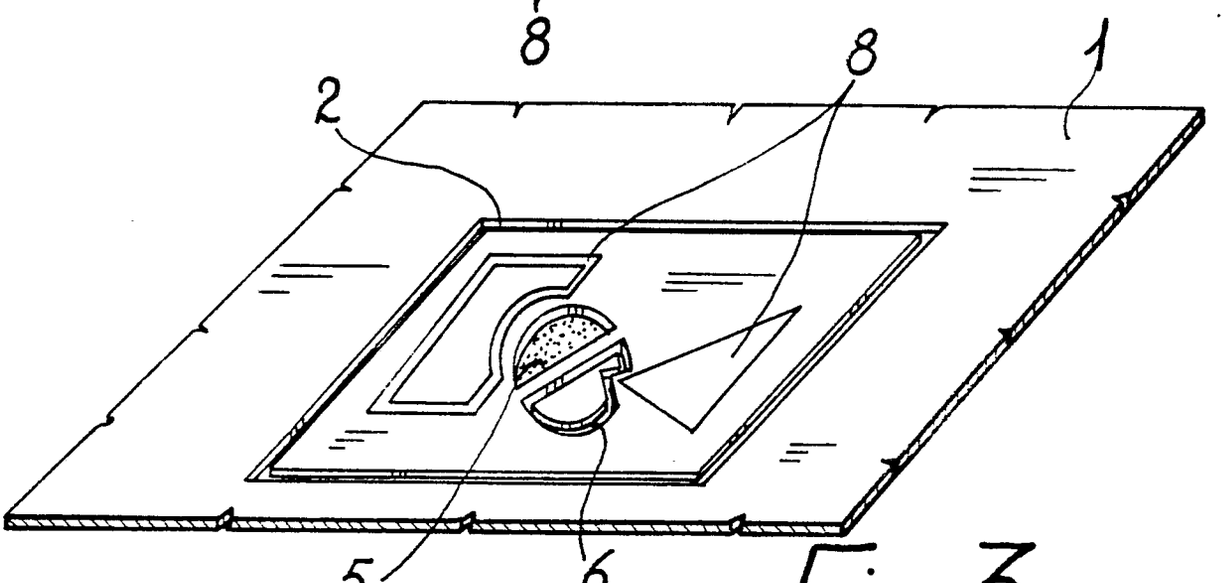

Fig. 3

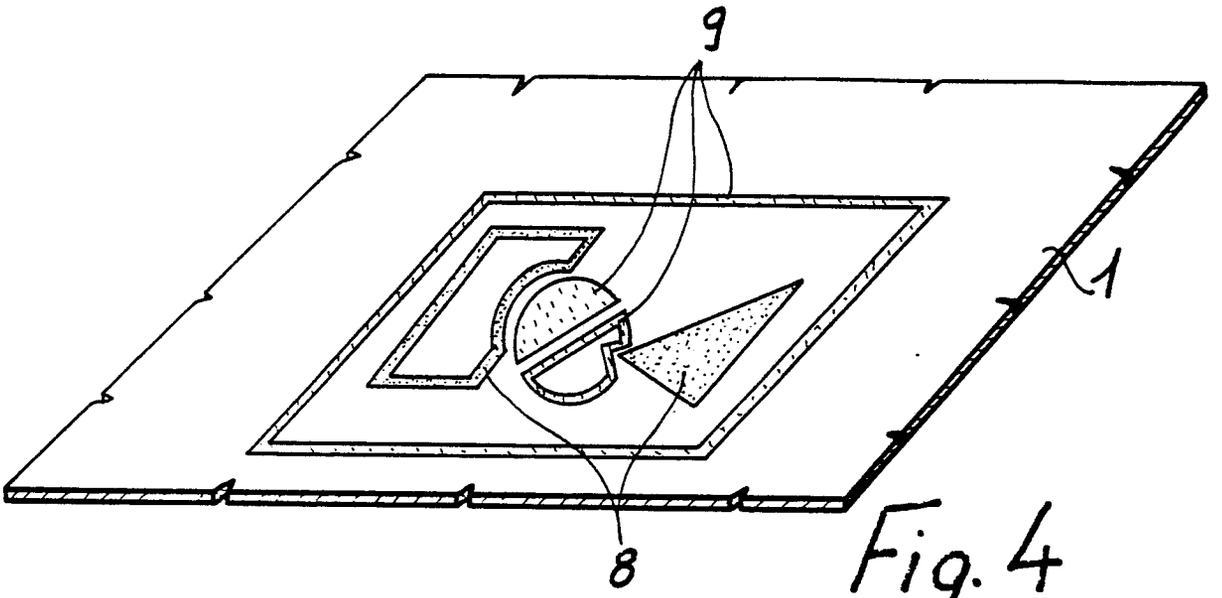

Fig. 4

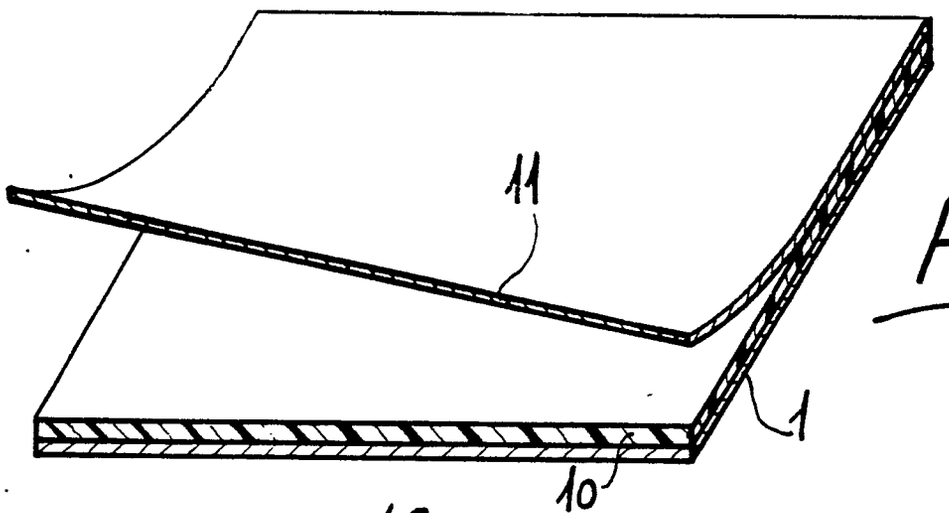

Fig. 5

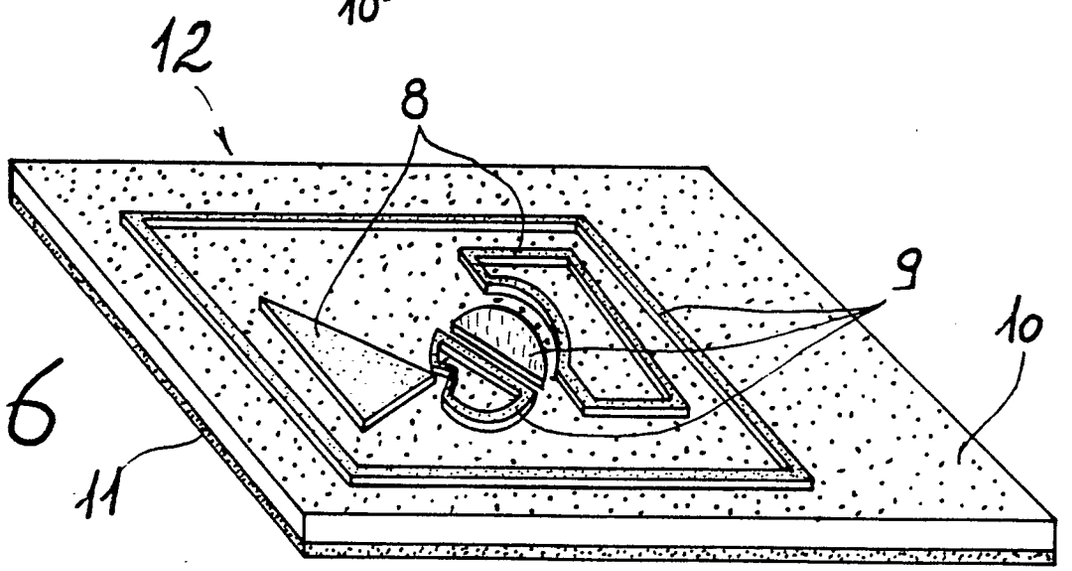

Fig. 6