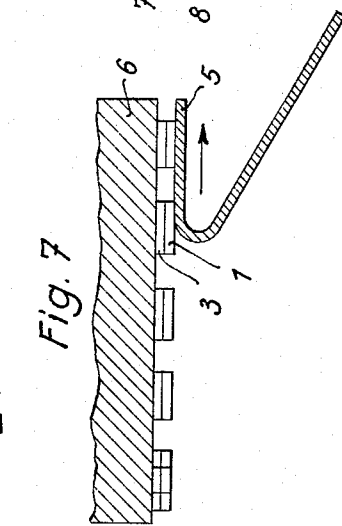
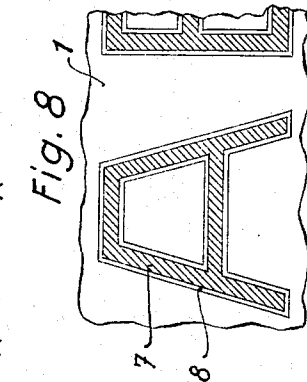
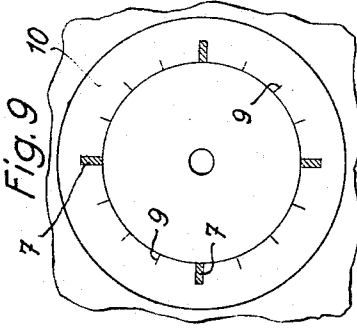
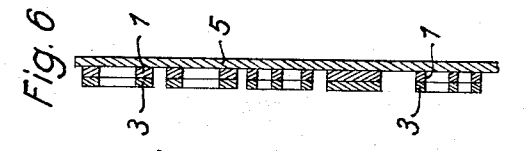
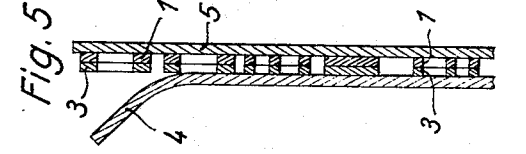
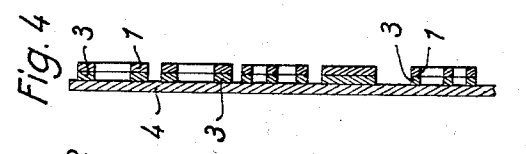
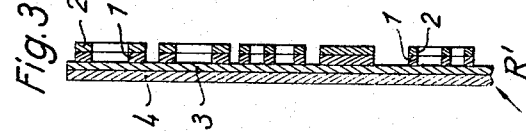
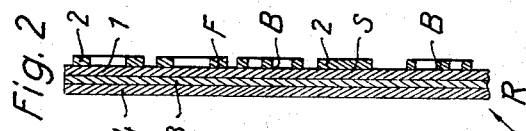
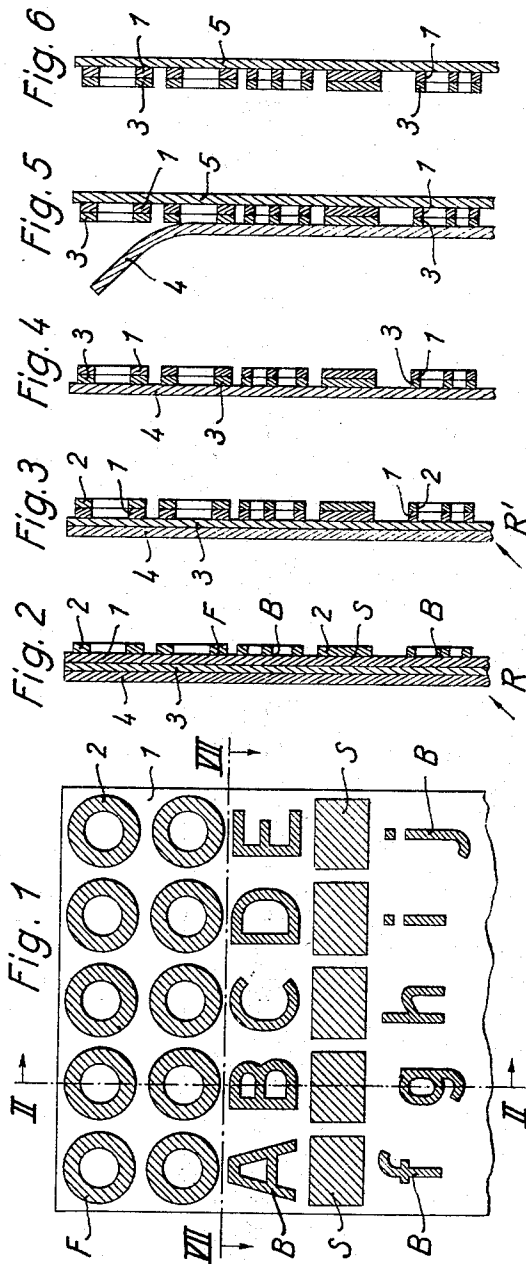


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A. POHLENZ
METHOD OF PRODUCING SELF-ADHESIVE LABELS, LETTERS, CHARACTERS
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INVENTOR:

ARMIN POHLENZ

by

Jacob L. Kollin,

ATTORNEY

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3,287,192

METHOD OF PRODUCING SELF-ADHESIVE LABELS, LETTERS, CHARACTERS AND SYMBOLS

Armin Pohlenz, 112 Bergstrasse, Lahr, Baden, Germany

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2 Claims. (Cl. 156-3)

This invention relates to a method of producing self-adhesive labels, letters, characters and symbols of metal foil, especially aluminum leaf, which are provided on their back with a coat of adhesive for attaching them to a given ground or support. Labels as understood by, and comprised within the scope of, the invention are also label-like components as, for example, indicating dials for photographic cameras.

It is the object of the invention to provide a method of producing articles of the above identified kind, in which any mechanical processing is eliminated.

This object is achieved according to the invention by providing a method of producing self-adhesive labels, letters, characters and symbols of metal foil, especially aluminum leaf, which comprises the steps of (a) applying etching resist to those areas of the front side of said metal foil to be etched in which said labels, letters, characters and symbols are to remain in the finished product, (b) coating the back of said metal foil with an adhesive, (c) covering said adhesive with a plastics foil having little cohesive property for said adhesive to complete the formation of a blank, (d) subjecting said blank obtained by the first three process steps to an etching liquid to decompose and remove the parts of the metal foil not covered with said etching resist down to the coat of adhesive thereby to obtain a worked blank and (e) subjecting said worked blank to a solvent to wash off said etching resist and at the same time said adhesive located in the interspaces between said labels, letters, characters and symbols.

Conveniently the etching resist may be applied only after the metal foil has been imprinted or inked in the said areas of its front side.

A considerable advantage consists in that the prints as well as the etching resist can be applied to the same surface of the metal foil.

For coating the back of the metal foil with an adhesive it is considered particularly convenient to use a reactivatable adhesive, the exact meaning of which term will be explained hereinafter.

The finished labels may be drawn off the adhering to their back and packaged individually, but as a matter of course they may also be delivered as interconnected by the plastics foil.

For producing exposed self-adhesive characters, the method proposed by the present invention comprises the further steps of covering the front side of said characters with a holding foil having an adhesion higher than that of the plastics foil covering the back of the metal, and removing the plastics foil.

The realization of the method according to the invention will now be described by way of example and with reference to several preferred embodiments shown in the accompanying drawing, in which:

FIG. 1 is an elevational view of part of an aluminum leaf having individual labels, letters and symbols printed thereon and covered with etching resist;

FIGS. 2, 3 and 4 are vertical cross sections showing the result of the essential steps of the method according to the invention;

FIGS. 5 and 6 are similar views showing the result of further method steps for producing exposed characters;

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FIG. 7 is a sectional view showing the exposed characters while being applied to a given ground or support, and

FIGS. 8 and 9 are elevational views, on a larger scale, of details of the letters and symbols or the like provided on the metal foil.

FIG. 1 shows part of an aluminum leaf 1 having individual labels S, letters B and symbols F printed thereon and covered by etching resist 2.

The coat of etching resist 2 on top of the imprinted labels S, letters B and symbols F can particularly be seen from FIG. 2 showing a blank R to be subjected to an etching liquid. On the back of the aluminum leaf 1 there is provided a coat of reactivatable adhesive 3 which in turn is covered by a plastics backing sheet having a weak adhesive property for said adhesive.

The term reactivatable adhesive defines an adhesive which after application completely dries up and only shortly before use is "reactivated" by means of a special solvent.

The plastics backing sheet 4 adheres relatively slightly to the coat of reactivatable adhesive 3 which should be resistant to the etching liquid.

FIG. 3 shows a worked blank R¹ obtained from the blank R after having subjected the latter to an appropriate etching liquid for a sufficient period of time. As can be seen from this figure, at the places where the front side of the aluminum leaf 1 had not been previously covered with the etching resist 2 the aluminum has been completely decomposed and removed. The final shape of the labels, letters and symbols is already apparent, although the latter are still interconnected by the coat of adhesive 3. In the next step the blank R¹ is subjected to an appropriate solvent, such as acetone, which washes the etching resist 2 off the front side of the aluminum leaf 1 and also removes the adhesive from the interspaces between the labels, letters and symbols.

After this step the finished labels, letters and symbols provided with a coat of adhesive 3 on their back sides and held together by the continuous plastics foil 4, are obtained. This condition is shown in FIG. 4.

It is to be noted that the coat 3 consisting of adhesive, which is preferably of the reactivatable type, has been completely removed except for the portions at the contact surfaces of the labels, letters and symbols, so that after the application of such labels, letters and symbols the adhesive need not be washed out of any interspaces.

If exposed characters or the like are to be produced, the method proposed by the invention is extended by the following two steps:

On their front side the characters are covered with a continuous holding foil 5, as shown in FIGS. 5 and 6, the adhesion of which is preferably higher than that of the plastics foil 4 which then is removed as indicated in FIG. 5. As can be seen especially from FIG. 6, the characters are held in the desired positions by means of the holding foil 5. Then the coat of adhesive 3 must be reactivated and the characters can be glued to a ground or support 6, as shown in FIG. 7. After application of the characters, the holding foil 5 is removed as indicated.

FIG. 8 shows on a larger scale a letter "A" in two different colors, having for example a red inner field 7 and a narrow gilt edge 8. The colored printing or inking of the aluminum and the application of the etching resist 2 can be effected by a known printing method and on one and the same side of the aluminum leaf 1.

As a further example of application of the method according to the invention, FIG. 9 shows a polychromatic dial having markings 7 produced in red and markings 9 produced in black and a silver ground 10.

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By using the method proposed by the invention, the following advantages are obtained:

The relatively high costs involved in making the punching tools are eliminated. This proves particularly advantageous when producing labels in small quantities or of intricate contours. As a matter of course, punching presses are not necessary any longer, either.

A further advantage of the proposed method as compared with punching consists in that the finished labels and the like are free from burrs or flashes, and surfaces scratched by the punching tools are avoided. Moreover, in the production of labels according to the proposed method the checking of the labels is greatly simplified, for now all the labels S produced from one aluminum leaf 1, which are still interconnected by the plastics foil 4, can be inspected simultaneously and need no longer be taken in hand individually for this purpose. This applies particularly when numerous similar individual labels S have been produced from an aluminum leaf 1.

Another considerable advantage results from the possibility of effecting the printing and etching operations from the same side, viz. the front side. This feature also accounts for the easiness of producing accurate and polychromatic characters.

It is self-evident that also different surface finishes, such as bright and tarnished, can be obtained. Further it is to be noted that when the reactivatable adhesive is used at the same time as an etching protective, one process step can be economized.

I claim:

1. A method of producing self-adhesive accurate patterns of metal foil, free from burrs and flashes comprising, in combination, the steps of:

imprinting patterns on the front side of a metal foil;

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applying etching resist to said patterns on the front side of the metal foil after the patterns have been imprinted; applying to the back side of said metal foil a reactivatable adhesive,

covering said adhesive with a backing sheet having a weak cohesive property for said adhesive, to complete the formation of a blank,

etching the areas of the metal foil which are not covered with the resist all the way down to the surface of the reactivatable adhesive, to decompose and remove the parts of the metal foil not covered by said etching resist, simultaneously washing off the etching resist and removing the adhesive which underlies the etched areas with a solvent therefore, thereby completely removing the resist and adhesive, covering the front side of said patterns with an adhesive holding foil having a stronger adhesive property than that of said backing sheet and

removing said plastic backing.

2. The method of producing patterns according to claim 1, wherein said metal is aluminum.

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ALEXANDER WYMAN, *Primary Examiner*.

JACOB STEINBERG, *Examiner*.

W. M. POWELL, *Assistant Examiner*.