LETTERING AND NUMBERING MEANS

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ABSTRACT OF THE DISCLOSURE

Letters and numerals formed from laminated flexible strips with pressure-sensitive adhesive backings protected by treated release paper. An inner ply of metallized plastic is covered by a face ply of transparent plastic and carries the printed letters and numerals. The metallized plastic is embossed to provide a contrasting background. A detachable tab with mounting opening facilitates supporting for display and removing the release paper.

My invention relates to lettering and numbering means. More particularly, it concerns letters, numerals and punctuation marks formed of plastic and adapted to adhere to surfaces. A series of such letters and/or numerals may be readily assembled in a line, with automatically spaced characters, having an excellent appearance.

This invention concerns the making of signs and the like on an individualized rather than a mass production basis. For example a house or business number is individualized whereas most highway traffic signs are mass produced. In the past much individualized printing of signs and the like was done by sign painters (or often was foregone because of cost). The use of sign painters will continue but there is a large potential market for individualized sign printing and the like where the customer would like to minimize cost on a "do-it-yourself" basis, i.e., the householder making a residence number on his house, or his name, number and/or street on a mailbox; a business wanting to apply a company identification to its vehicles using its regular employees rather than to hire a sign painter, etc. It is consistent with present day trends to provide "do-it-yourself" products to minimize the use of outside skilled labor or to provide additional conveniences that would not be used if an outside laborer had to be hired. It is an object of my invention to provide means for lettering and numbering signs and the like on a "do-it-yourself" basis.

Business devoted to signs and the like may make some use of the product. For stylized signs my product will be inapplicable and for others some other product or hand painted letters will be preferable. However, there will be some occasions when my product will be the most applicable means of forming characters and will permit providing the lettering service at reduced cost and, perhaps, to a larger market resulting from the lower cost.

A sizable market for "do-it-yourself" lettering is in business, for purposes ranging from more identification marking to more customer oriented uses. The private and business applications may be best understood from the following partial list of types of articles to be marked and types of uses: aircraft and missile; automobile and other monograms; notebook covers and binders; bins; boats; business forms; cabinets; clocks; desk and modular elements; bus, taxicab, truck and trailer markings; cameras; camping equipment; cases; church, Sunday school, public school and other building door, room, and corridor markings; desks; displays; diving equipment; business and industrial equipment and machinery (including markings for inventory purposes); exhibits; factory signs and cabinets; fishing gear and tackle boxes; garden and other tools; golf bags and carts; house and business numbers; hospital signs; inventory control purposes; luggage; lunch pails; mail boxes; musical instruments and cases; name plates; owner name and gross weight (for various vehicles); parking lot signs; "personalizing"; quality gifts; recordings and recorders; safety signs; store fronts; ceramic tile surfaces; and, generally, other signs of many varied kinds. It is an object of my invention to provide means to form letters and numerals for the above listed and other applications.

Further desirable features include: economy; ease of application and quick setting; applicability to surfaces made of various materials and to surfaces having some type of deviations from flat varying from some surface irregularity or waviness to surfaces having curvatures; durability; protection from or resistant to soiling, and ability to withstand a suitable kind of cleaning; and appearance. It is a further objective of my invention to provide the above and other features.

My invention will be best understood from the following description and from the drawings in which:

FIGURE 1 is a face view of an element of means for forming a sign forming a specific embodiment of my invention, and includes a number and background, and includes backing to be removed during application.

FIGURE 2 is an edge view showing the first stage of tab and backing removal.

FIGURE 3 is an enlarged partial section.

FIGURES 4, 5, 6, 7, and 8 illustrate other characters forming letters and numerals, dashed lines between FIGURES 4 and 5 illustrating bringing elements into abutment.

Referring particularly to FIGURES 1, 2, and 3, each character forming element 10 is formed with two primary parts which are a plastic front sheet 12 and a paper backing sheet 14. The plastic front sheet 12 has a cut 16 (a partly or scored reversed line such as a perforated line is an equivalent) which divides sheet 12 into a lower main portion and an upper portion which, together with the backing sheet in the same area, forms a tab 18.

Tab 18 is used for hanging and marking of element 10 and for peeling off backing 14. The markings on the tab may include a trademark, a price, and the arrow 20 and notice "Peel Below" (for instructions in peeling off backing 14).

It will be noted that each tab 18 has an opening 22. The purpose of openings 22 is for hanging elements 10 on hooks for display. In order for elements 19 hanging free to remain with top and bottom edges horizontal, the positioning of openings 22 is critical. Considering FIGURE 1, if a line is drawn at right angles to top and bottom edges 24, 26 and through the center of the opening 22, it will be observed that half of the mass is at each side of that line. The same feature is true of the numerals and letters shown in FIGURES 4, 5, 6, 7 and 8 (which vary in width) which means that the distances from the upper left hand corners of the elements 10 to the centers of openings 22 vary according to the width of elements 10 (the width being partly responsive to the width of letter or numeral).

Plastic sheet 12 and backing sheet 14 are bonded with a pressure sensitive adhesive at interface 30. The peeling off of backing sheet 14 is demonstrated in FIGURE 2. Tab 18 is grasped and peeling starts at cut 16 and is continued from top to bottom until plastic sheet 12 is free from backing 14, at which point it may be bonded to a surface on which the sign is to be formed by means of the pressure sensitive adhesive 30. Release paper backing sheet 14 protects adhesive 30 until the backing sheet is removed.

Backing sheet 14 is preferably formed of silicone treated release paper. This means that adhesive 30 has minimum adherence to the silicon treated surface and when the backing sheet 14 is peeled from plastic face sheet 12 the
adhesive remains adhered to plastic sheet 12, whereby plastic sheet 12 has a pressure sensitive adhesive coating on its upper face for securing plastic sheet 12 to the surface on which the sign will be formed. A suitable acrylic adhesive can be used which will pressure bond to a variety of surfaces including but not limited to painted surfaces, glass, ceramic, wood, metal, most plastics, and paper. Those skilled in the art will understand the suitable selection of silicon treated release paper and acrylic pressure sensitive adhesive without further detail in this specification. Such adhesive will make a permanent pressure bond to surfaces as against aging, exposure to conditions in the outdoors, normal temperature conditions, rain, some flexing, reasonable forces tending to separate it from the supporting surface, etc.

Plastic sheet 12 is preferably formed of polyester film. The product line of Mylar (product of Du Pont) polyester includes suitable films which are highly transparent and are strong, tough and dimensionally stable, which may be embossed, and which may be metalized (having a metallic appearance). Plastic sheet 12 is shown in FIGURE 3 to be formed of two layers of plastic and, as a specific example, face ply 32 is a 2 mil transparent sheet of embedding grade Mylar and inner ply 34 is a 1 mil gold or chrome metalized Mylar film, which are bonded together. It will be understood that the plastic surface on sheet 12, hence, has a gold or chrome appearance from the metalized material. Those skilled in the art will understand the selection of a Mylar or other plastic film, the term "metalized," etc., without further detail in this specification.

The face of plastic sheet 12 is embossed around letter or numeral 40 to form a depressed flat bordering area 42 and further is embossed throughout the remainder of the area in a suitable background pattern which is illustrated as a grid type embossing 44 with vertical and horizontal lines or striations about 3/16" on centers. Preferably the numerals or letters (or punctuation marks such as the comma, the period or the dash) are painted black which will show up well against the gold or chrome background, the embossed flat border 42, and the striated background pattern 44. The black characters can be suitably printed by a screen process operation. In forming a set of numerals and/or letters a blank can be used (in which the plastic sheet 12 and the backing sheet 14 are already assembled in two superposed sheets) and one or more press type operations can be used to cut the borders of bodies 10, to form tab cut 16, and to perform embossing of 44. The screen process printing of numerals and letters 40 can be done on the complete blank in one operation.

Background pattern 44 is attractive and avoids the reflection of what otherwise would be a flat surface. Such reflection from a flat metal background is sometimes objectionable for appearance or best visibility of character 40. If the supporting surface has any irregularity, this tends to become noticeable if a flat reflective surface is used and is not noticeable when the grid pattern 44 is used.

Plastic sheet 12 is flexible. This means not only that it will flex as that pressure sensitive adhesive will bond to a surface having irregularities but it also means that sheet 12 can be bonded to other than a flat surface, such as a cylindrical object or other curved surface arced on a reasonable radius, and this feature will be most important in a number of applications.

The elements 10 can be provided in a number of sizes, such as 1/4", 3/16", 1/8", and 3/16" (as to the vertical height of the major portion of the plastic sheet from bottom edge 26 to tab cut 16). The style of letter can vary but the style illustrated has excellent appearance and legibility. Although the letters could be vertical, the slanted letters shown are preferable. The side edges 50, 52 of elements 10 are slanted in the same manner as the letters and an angle of 18-20° from the vertical is preferred.

Elements 10 are in a sense self-aligned, which is particularly important in a "do-it-yourself" product. In other words to form a word, number greater than 9, etc. a series of elements 10 are merely abutted side edge (50, 52) to side edge (see the dashed lines between FIGURES 4 and 5) with the bottom edges 26 forming a straight horizontal line to thereby form a composed line of characters. A space can be vacated (as between words) by marking a diagonal side edge line with an element 10 temporarily put in place as a guide, or by merely holding one element temporarily in the space until the next element to be fixed in position is 10, (e.g. by abutting to the temporary element. With reasonable care the elements can thus be properly formed and separated into words, etc. without any special equipment or skill. A blank spacer can be provided for permanent use in spaces between words.

Preferably elements 10 are varied in width, as shown, in which the M & W letters are wider than letters B and O, and in which the letter I is narrower. Suitable widths (i.e. length of bottom edge 26) would be on the following ratios: (1) if B, C, D, G, H, J, S, P, L, A, 2, 3, 4, 5, 6, 7, 8, and 9 are 13/16", (2) A, K, N, O, Q, R, T, V, X, Y, & and 3/16" wide, (3) M and W are 1/4" wide, (4) I, F, L, zero and Z are 11/16", and (5) E, F, L, zero and Z are 11/16". These widths would be appropriate for a height (bottom edge 26 to tab cut 16) of about 11/16". With these relative widths of letters, a pleasing effect is provided in a line, e.g. without variable spacing an M would appear to crowd a line and an I would appear to leave too much space. The varying widths of elements 10 has a similarity to varying widths of letters in typography but the varying widths are basically different from prior typography as it is actually the width of the entire element 10 (including the background pattern 44) which are varied (although of course, the characters 40 tend to vary in overall width correspondingly).

From the foregoing it will be observed I have provided new means for making signs having wide applicability to homes, businesses, industry, and public and private institutions which has various valuable features including those mentioned in the objectives and elsewhere in this specification. The product maximizes attractiveness for this type of sign, is easily applied, is very durable, is applicable to a wide variation of surfaces, contours and types of use (including the characteristics of flexibility for other than flat contours), and is most economical to produce in mass production methods.

Having thus described my invention, I do not wish to be understood as limiting myself to the precise details of construction shown, but instead wish to cover those variations thereof which will occur to those skilled in the art after learning of my invention and which are properly within the scope of my invention.

I claim:

1. Means to form characters of letters and/or numerals to be pressure-bonded to a surface comprising:

a. a flexible laminated structure in the form of a slanted parallelogram including:
   a. bottom layer of metalized polyester plastic film,
   b. said bottom layer having a character printed thereon,
   the edges of said character having a flat, embossed, depressed bordering area therearound,
   the remainder of said bottom layer having a grid-like embossing of evenly spaced vertical and horizontal lines to produce a contrasting background for said character,
a top, transparent, face-ply layer of polyester plastic superposed on said bottom layer of plastic,
a coating of acrylic pressure sensitive adhesive on the undersurface of said bottom layer of plastic,
a backing sheet of silicon-treated release paper covering said pressure sensitive adhesive, and
a detachable tab member adjacent the upper edge of said laminated structure for removing said
backing sheet,
said tab member having an opening therethrough located in such position that a support member placed therethrough will suspend said laminated structure with top and bottom edges substantially horizontal for display purposes,
the width of said laminated structure being determined in accordance with the character printed thereon,
whereby a plurality of such laminated structures may be assembled in side edge abutment to form a composed line with suitable spacing between characters.

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