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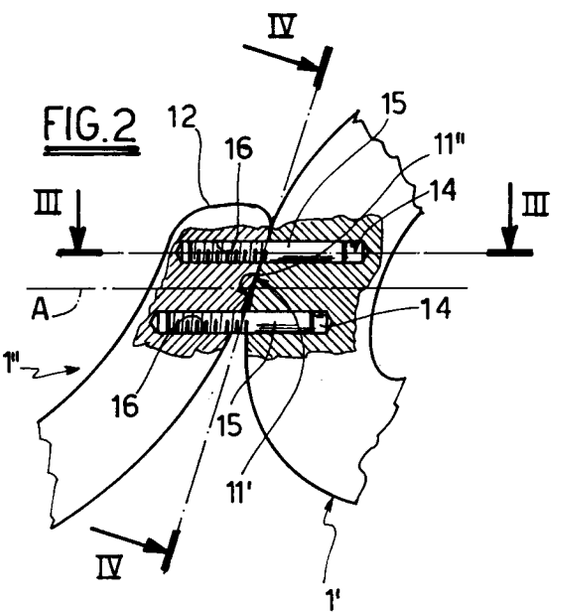
(54) Three-dimensional graphic signs combinable to form inscriptions for application to supports such as stone or walls.

(57) Each pair of adjacent signs (1' and 1''), with mutual connecting surfaces (11') and (11'') respectively, comprises two holes (14) formed through the connecting surface (11') of a first sign (1') and contained within the thickness of the sign (1'), their axes being parallel to each other and substantially parallel to the plane in which the signs lie; in addition each pair of signs (1' and 1'') comprises two pins (15) rigid with the second sign (1'') and projecting from the connecting surface (11'') of this pair with their axes parallel to each other and substantially parallel to the plane in which the signs lie, they being arranged for insertion as an exact fit into said holes (14) provided in the first sign (1') to enable the two connecting surfaces (11' and 11'') to be coupled in mutual contact; the distance between said holes (14) is equal to the distance between the pins (15), said distance being the same for each sign.

FIG.2



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This invention relates to graphic signs, particularly letters of the alphabet, which are combinable to form inscriptions for application to flat supports such as stone or walls.

A typical use of the invention is as inscriptions in letters (of bronze, brass or other materials) on tombstones or walls of buildings.

The present invention is particularly suitable for italic graphic signs.

Combinable graphic signs are known which can be connected together in pairs to form the required inscription, which behaves substantially as a rigid body. Consequently when the inscription has been composed it can be applied to the support much more rapidly and easily than with separate individual graphic signs.

Moreover, these combinable graphic signs can be series-produced, with the technical and economical advantages typical of series-production.

The object of the present invention is to improve said known combinable graphic signs, particularly in terms of their method of manufacture, which is currently only by casting, and also in terms of the possibility of manufacturing signs of small thickness, the reliability of sign alignment and the rigidity of the initially composed inscriptions.

Said object is attained by the three-dimensional graphic signs of the present invention as characterised in the claims.

With the present invention the signs can be conveniently manufactured not only by casting but also by other operations such as pressing, pantograph milling or blanking.

In this respect, to connect two signs together it is not necessary, as required for currently available letters, to form a precise recess in the rear face of the sign and extending into its body, to house an appropriate extension provided on the adjacent sign.

In the present invention the connecting surfaces to be coupled together can conveniently consist of flat surfaces substantially perpendicular or nearly perpendicular to the plane in which the signs lie, so that the signs can be manufactured conveniently by other operations such as the aforestated. In various circumstances this can lead to manufacturing cost savings in addition to allowing the use of materials and shapes not possible with casting.

Again according to the present invention, the graphic signs can be made thinner than is possible in the known art, because of the more convenient shape of the connecting surfaces.

Further according to the present invention, once joined together the graphic signs are precisely and stably aligned in the horizontal direction, this being an obvious advantage in applying the inscriptions to the support.

Moreover according to the invention, once joined together the graphic signs are precisely and stably coplanar in the plane in which they lie.

In addition, the signs can be joined together in an extremely simple and rapid manner.

The present invention is described in detail hereinafter with reference to the accompanying figures, which illustrate one embodiment thereof.

Figure 1 is a front view of a word portion composed of two italic letters according to the invention.

Figure 2 is an enlarged detail of Figure 1 relating to the joining region between the two letters.

Figure 3 is a section on the plane III-III of Figure 2.

Figure 4 is a section on the plane IV-IV of Figure 2.

Figure 5 is a rear view of Figure 1.

The graphic signs 1 are three-dimensional in the sense that in addition to possessing an appropriate plane extension (represented by the front view) determining the graphic significance of the sign, they also possess a certain thickness.

The signs 1 are manufactured separately and can be joined together successively in pairs to form the required inscription (such as a word).

In addition to italic letters, the signs 1 can represent numbers or a different type of letters. In this case a suitable element to act for example as a base has to be joined to the sign, these elements then touching each other to form an integral composed inscription as a single block.

Each sign 1 comprises at least one connecting surface 11', 11'' to make contact with a corresponding connecting surface 11'', 11' respectively on the adjacent sign, in order to form a group of signs 1 joined together in successive pairs along said connecting surfaces.

Generally each sign 1, particularly in the case of lower-case letters, comprises two surfaces 11' and 11'', one on the left side and the other on the right side, along which it is joined to a preceding sign to the left or to a subsequent sign to the right. In the figures the left connecting surface is indicated by 11' and the right connecting surface by 11''.

Certain signs, in particular upper-case letters, comprise generally a single surface 11'' as they generally act as an initial sign of the inscription.

All the surfaces 11' and 11'' lie at the same height from the sign base so as to be all centered along an ideal straight line A; in this manner each composition of signs 1 maintains perfect alignment in the horizontal direction.

In the case of italic letters (such as those shown in the figures), the right connecting surfaces 11'' can be advantageously provided at the end of a rightwardly extending join-up element (or fillet) 12 to graphically blend two letters together, whereas the left connecting surfaces 11' are provided on the

main body of the letter. Consequently the connecting surfaces 11' and 11'' advantageously match the graphic join-up region of the letters. Advantageously the thickness of the fillet 12 is less than the thickness of the main body of the letter so that the join-up line between the two letters is more "camouflaged" (see Figure 3 in particular).

The surfaces 11' and 11'' are perpendicular or nearly perpendicular to the plane in which the signs lie, ie to the plane of the support 2 on which the signs are to be applied.

To fix the signs 1 to the support 2 conventional means are provided, such as small pins 20 fixed into the body of the signs and projecting from the rear face 13 thereof for insertion into corresponding holes provided in the support 2.

To connect successive pairs of signs together, according to the invention for each pair of adjacent signs 1' and 1'', at least two holes 14 are provided through the connecting surface 11' of a first sign 1' within the sign thickness (ie the dimension perpendicular to the plane in which it lies), their axes being parallel to each other and substantially parallel to the plane in which the signs lie (ie the plane defined by the rear faces 13). According to the invention there are also provided at least two pins 15 rigid with the other sign 1'' and projecting from its connecting surface 11'', their axes being parallel to each other and substantially parallel to the plane in which the signs lie, for insertion as an exact fit into said holes 14 provided in the first sign 1' so as to bring the two connecting surfaces 11' and 11'' into contact.

In the figures said pair of adjacent signs 1' and 1'' is defined by the italic letters lower-case d (to the right) and upper-case A (to the left). The connecting surfaces 11'' of the letter A is provided at the end of its fillet 12, whereas the connecting surface 11' of the letter d is provided on the main body of the letter. Obviously the first sign 1' can be equally defined by the left sign and the second sign 1'' can be defined by the right sign.

In general, each lower-case sign 1 is provided with two holes 14 in its first connecting surface 11' and with two pins 15 projecting from its second connecting surface 11'' to allow pairs of letters to be joined together in succession to form inscriptions of indefinite length. The distance between the holes 14 of each sign is equal to the distance between the pins 15 of each sign, this distance being the same for each sign so that each sign can be joined to any other sign. In the illustrated embodiment the pins 15 are cylindrical as are the holes 14, these latter having a diameter less than the thickness of the sign 1 to enable them to be contained within it.

The pins 15 are advantageously manufactured separately from the signs 1 and then inserted with their portion 15' into suitable holes 16 provided through the second connecting surface 11'' (ie that to the left in the figures). That portion 15'' of the pins 15 projecting from the hole 16 is to be inserted into the hole 14 of the other sign (on the right).

In the embodiment shown in Figure 3, the portions 15' of the pins 15 are threaded, the holes 16 being correspondingly threaded to enable the portions 15' to be screwed into the holes 16 and remain rigid with the sign.

Conveniently the holes 14 and 16 are shorter than the corresponding dimension of the sign portions in which these holes are formed so that they do not open into the parallel surfaces opposite the surfaces 11' and 11''. The length of the projecting portion 15'' of the pins 15 is obviously not greater than the length of the holes 14, to ensure that when the portion 15'' is inserted into the respective hole 14 the connecting surfaces 11' and 11'' are able to come into mutual contact.

To make the connection between the signs more stable, after the pins 15 have been inserted into the respective holes 14 of the first sign 1', they are deformed by hammering. To allow this the pins 15 are made of a metal which can undergo permanent deformation by hammering.

For this purpose, in proximity to the connecting surfaces 11' and 11'' there is provided for each pin 15 at least one blind hole 17 through the rear face 13 and perpendicular to the plane in which the signs lie, it extending until it reaches the hole 14 or 16 into which the pin 15 is inserted. The hole 17 allows insertion of a pointed implement which, by being hammered, can deform the end of the pin passing into the hole 17. When the pins 15 have been deformed, they are also retained axially within the respective holes 14 or 16.

If the pin 15 has a threaded portion 15' screwed into the hole 16, said blind holes 17 are provided only at the holes 14, to deform the free portions 15'' and fix them to the first sign 1. If instead the portions 15' are smooth, the holes 17 are also provided at the holes 16 to deform the portions 15' and fix them to the second sign 1''.

Alternatively, the portions 15' can be fixed in the respective holes 16 by forcing them into the holes, or with the aid of an adhesive. The portions 15'' can be fixed in the holes 14 in the same manner.

In use, the pins 15 are preferably firstly engaged with the separate signs 1 by inserting the portions 15' into their holes 16 and fixing them by one of the aforesaid methods, so that each sign possesses a pair of pins 15 in addition to a pair of holes 14. The letters are then joined together in the required order, by inserting the projecting portions 15'' of the pins 15 into the holes 14. The portions

15'' can then be axially secured to the respective holes 14 by one of the aforesaid methods.

By virtue of the fixing of the pins 15 into the holes 14 and 16 the signs are secured to each other in a perfectly rigid manner and can form series of signs aligned along the straight line A and lying in the same plane.

As the connection between the holes 14 and 16 and the respective pins 15 can easily be made precise, the signs are joined together very stably (without them being able to undergo mutual rotation) and accurately.

In addition, if the graphic signs are manufactured by casting, the moulds can be used either to form signs to be joined together in accordance with the present invention or to form usual graphic signs, ie not able to be pre-joined together. In this respect, if cast signs are to be joined together they have to be further machined to form said holes 14 and 16. If not, they do not require machining and can be used as they emerge from the moulds. The same is also valid if the signs are formed by another method.

Claims

1. Three-dimensional graphic signs which are combinable to form inscriptions for application to flat supports such as stone or walls, each having at least one connecting surface (11', 11'') to make contact with a corresponding connecting surface (11'', 11') on an adjacent sign, in order to form a group of signs joined together in successive pairs, characterised in that each pair of adjacent signs (1' and 1''), having mutual connecting surfaces (11') and respectively (11''), comprises:

- at least two holes (14) formed through the connecting surface (11') of a first sign (1') and contained within the thickness of the sign (1'), their axes being parallel to each other and substantially parallel to the plane in which the signs lie;
- at least two pins (15) rigid with the second sign (1'') and projecting from the connecting surface (11'') of this pair with their axes parallel to each other and substantially parallel to the plane in which the signs lie, they being arranged for insertion as an exact fit into said holes (14) provided in the first sign (1') to enable the two connecting surfaces (11' and 11'') to be coupled in mutual contact;
- the distance between said holes (14) being equal to the distance between the pins (15), said distance being the same for each sign.

2. Graphic signs as claimed in claim 1, characterised in that each intermediate sign comprises:

- a first connecting surface (11') on one side and a second connecting surface (11'') on the opposite side;
- at least two said holes (14) provided in the first connecting surface (11');
- at least two said pins (15) projecting from said second connecting surface (11'');
- all the connecting surfaces (11' and 11'') being located at the same height from the base of the signs so that these are all centered along an ideal straight line (A) parallel to the base of the signs.

3. Graphic signs as claimed in claim 1, characterised in that said pins (15) have a portion (15') inserted as an exact fit into second holes (16) provided through the second connecting surface (11'') and contained within the sign thickness.

4. Graphic signs as claimed in claim 3, characterised in that said pins (15) have a threaded portion (15') to be screwed into said second holes (16), which are correspondingly threaded.

5. Graphic signs as claimed in claim 1 or 3, characterised in that after being inserted into the respective holes (14, 16), said pins (15) are deformed by hammering, said pins (15) being of a metal able to undergo permanent deformation by hammering.

6. Graphic signs as claimed in claim 5, characterised in that in proximity to said connecting surfaces (11', 11'') there is provided for each pin at least one blind hole (17) through the rear face (13) and perpendicular to the plane in which the signs lie, it extending until it reaches the hole (14, 16) into which the pin 15 is inserted, said blind hole (17) allowing the insertion of an implement for deforming the pin.

FIG.1

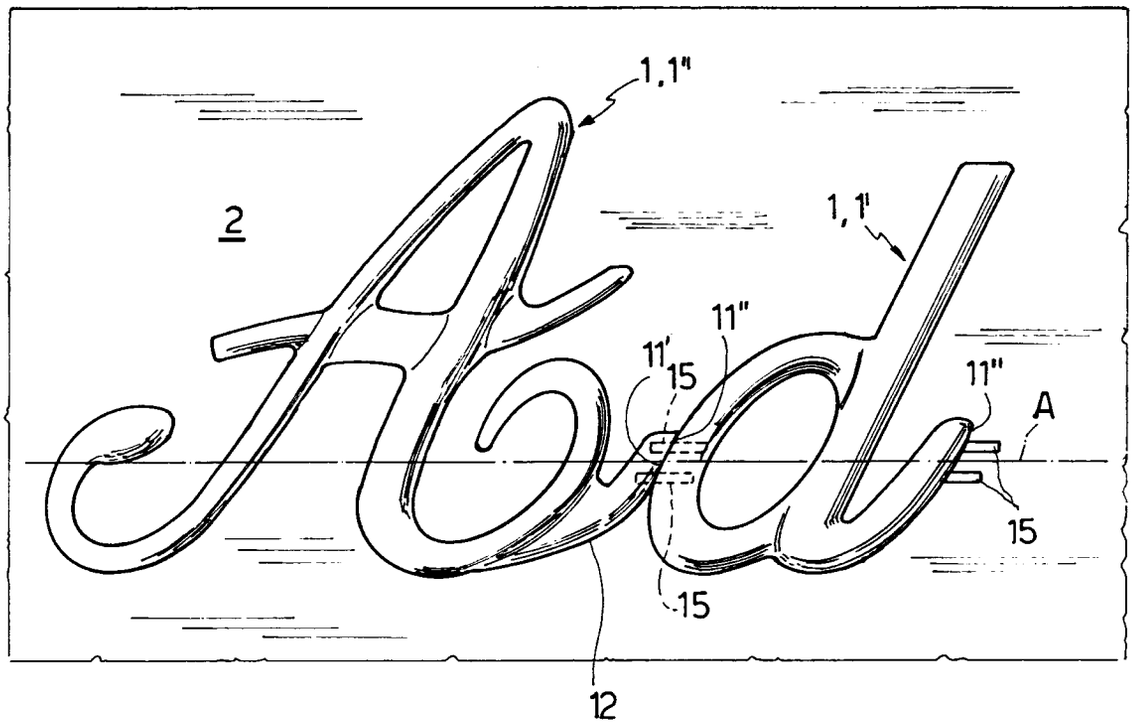
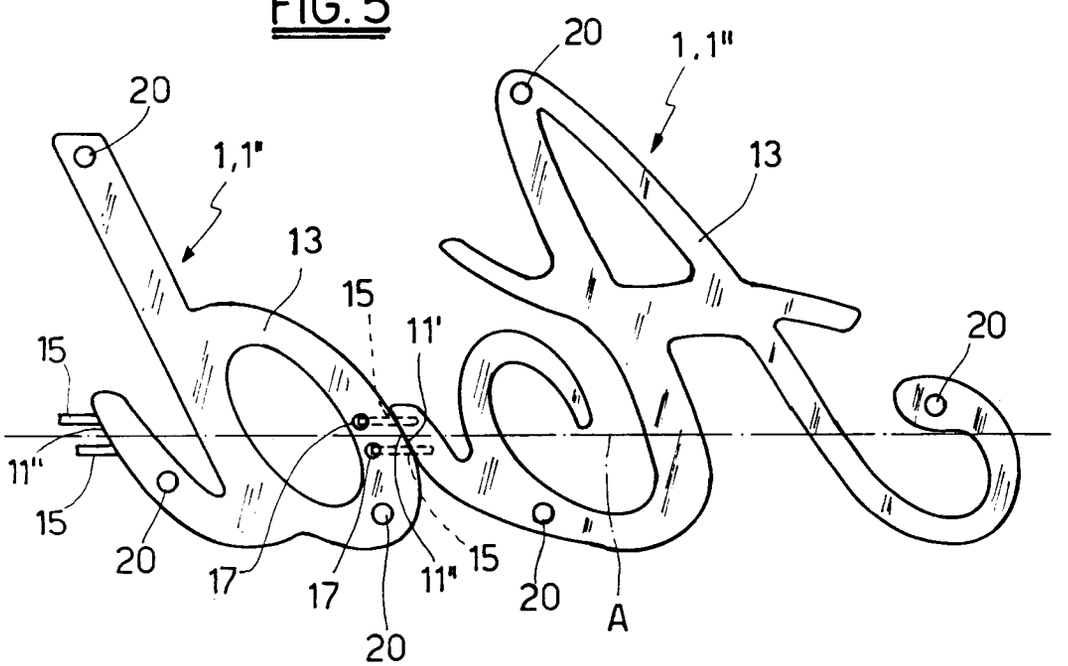

1,1"
2
1,1'
11"
11'
15
11"
A
15
15
12

FIG. 5


20
1,1"
20
1,1"
13
13
15
11'
15
20
11"
15
20
17
17
11"
15
20
20
A

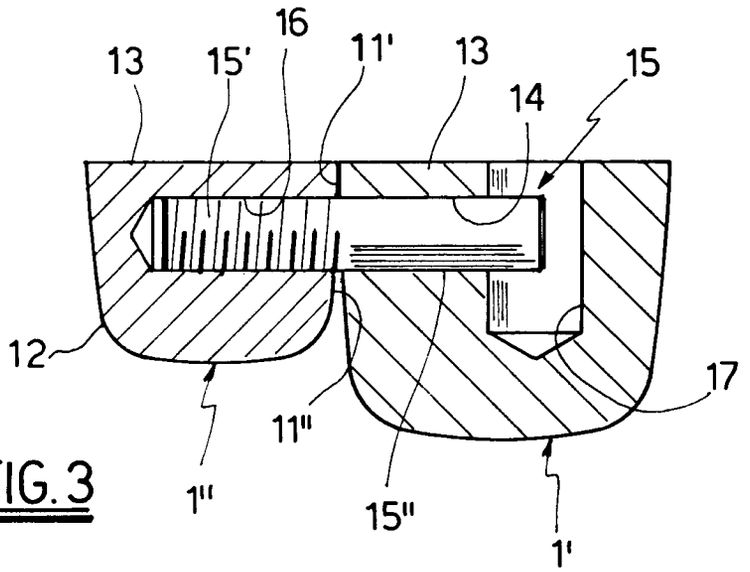


FIG. 3

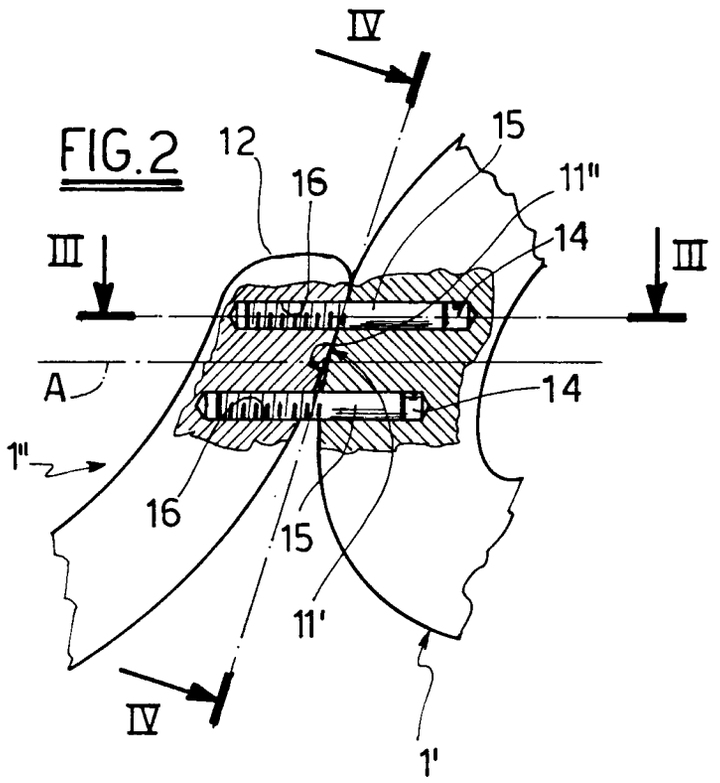


FIG. 2

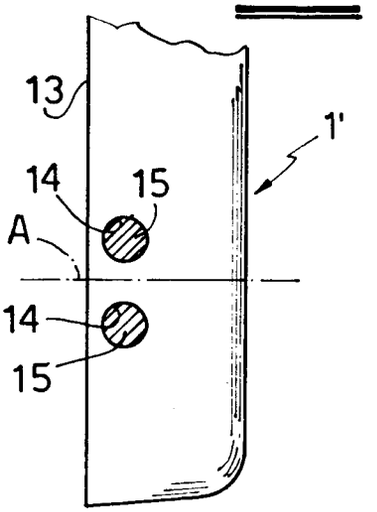


FIG. 4

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EUROPEAN SEARCH REPORT

Application Number

EP 93 20 1341

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-3 537 202 (BRAUN ET AL) * column 1, line 35 - column 2, line 43; figures *	1,2	G09F7/14 G09F7/02
A	US-A-3 081 569 (OWNBEY) * column 2, line 40 - column 5, line 45; figures 1,2,4 *	1,2	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	29 JULY 1993	TAYLOR P.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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