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T. BARISH

2,326,604

METHOD OF MARKING

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Fig. 1

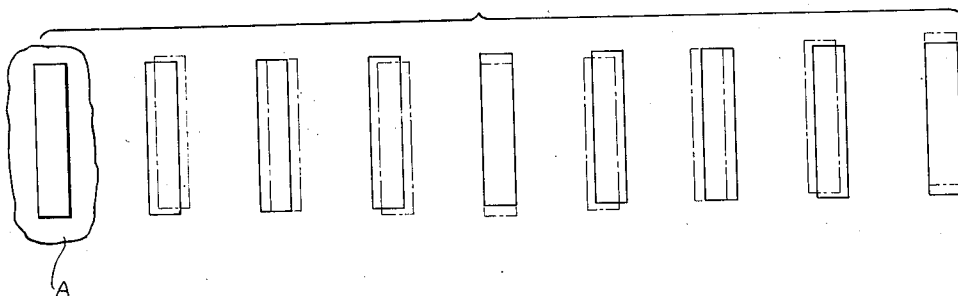


Fig. 2

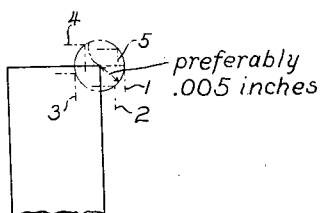


Fig. 4

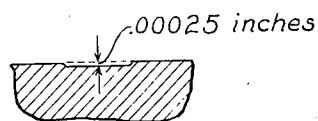
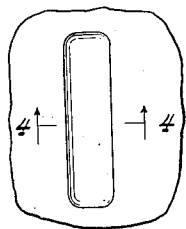


Fig. 3



Fig. 5



Fig. 6

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METHOD OF MARKING

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3 Claims. (Cl. 101—32)

This invention relates, generally, to the art of marking surfaces and, more particularly, provides a new and improved method of marking or reproducing letters, numbers or other forms or symbols on a surface.

It is the principal object of the invention to provide a method of marking a surface, in which a tool formed in the shape of the letter or letters or other form which is to be marked on the surface, is brought into face-to-face contact with the surface and then given a translatable motion of very small stroke with respect to the size of the letter, thereby wearing in the surface the desired letter or other form. In the preferred application of the invention the letter is given a rotary translatable movement, but it may be given a straight-line translatable movement or one of any other desired shape.

Other objects and features of novelty of the invention will be made apparent by the following description and the annexed drawing, it being understood that such description and drawing are only illustrative of the invention and impose no limitation thereon not imposed by the appended claims.

Referring to the drawing, in which the same reference numerals refer to corresponding parts,

Fig. 1 is a series of views showing the successive positions assumed by a tool in the shape of the letter I as it is moved in rotary translatable movement in accordance with the invention in order to mark the letter I on a surface;

Fig. 2 is an enlarged partial view of the upper end of the letter I, showing diagrammatically the rotary translatable movement thereof in accordance with the invention;

Fig. 3 is a view showing the marking on the surface at the end of the marking operation illustrated in Figs. 1 and 2;

Fig. 4 is a view taken on the line 4—4 of Fig. 3, and

Figs. 5 and 6 are diagrammatic views showing the positions assumed by the letter I as it is given movements other than rotary translatable movement in accordance with the invention.

It is often necessary to mark letters, numbers or other forms or symbols, or groups of these, on hard surfaces such as metal plates or stones. Such marking on metal plates is now effected either by electric or acid etching, both of which methods involve known and serious disadvantages. The method provided by this invention achieves the desired marking in a new and simple manner and is not subject to the disadvantages referred to.

In the practice of the method according to the invention a tool is provided which is formed in the shape of a letter, number or symbol, or a group of these, which is to be marked on a surface. This pre-formed tool is brought into face-to-face contact with the surface at the point thereon at which the marking is desired. The letter is then given a translatable movement while the surface being marked is held from any movement whatsoever. This translatable movement may be a straight-line movement, or rotary translatable movement, or may be along a curved line. It has been found that rotary translatable movement causes very good results and is simple to produce. The stroke of movement is very small and, preferably, is of the order of five thousandths of an inch. In no case does the letter rotate as a whole.

In Fig. 1 of the drawing are shown the successive positions of the letter I in being marked on a surface A by an application of my method employing rotary translatable movement. The original position of the letter is shown in full lines in each of the various parts of Fig. 1, while the successive positions assumed by the letter are shown in broken lines. In Fig. 2 are shown the various positions assumed by the upper right-hand corner of the letter, these being marked by the numerals 1 to 5, inclusive. Each point of the letter moves in a similar circle, the radius of which is very small with respect to the size of the letter and preferably is approximately five thousandths of an inch, or of the order of that dimension. During the marking the letter is pressed toward the plate and the process is continued until several hundred rotary translatable movements have been made. An apparatus for use in causing such rotary translatable movement of the tool is shown in my co-pending application Serial No. 412,639.

It will be apparent that the method may be carried out by the use of movements other than rotary translatable movement. The tool may be given a straight-line translatable movement in any direction or may be moved in translation along a curved path. In Fig. 5 there are shown in broken lines the successive positions through which the letter I passes when given a straight-line translatable movement in a direction at right angles to its length, while in Fig. 6 the broken lines show the successive positions of the letter when given a straight-line translatable movement in the direction of its length. In both Figs. 5 and 6 the original position of the letter is shown in full lines. In both cases, and

in all other movements of the tool in accordance with the invention the movement is translatable in nature and the stroke of movement is very small with respect to the size of the marked letter.

At the completion of the marking according to the described method it will be found that the desired letter is reproduced on the surface. If rotary translatable movement has been used, this marked letter will be larger than the tool used, in all directions, by an amount equal to the radius of the rotary translatable movement and will have rounded corners, as shown in Fig. 3. If a straight-line translatable movement has been used each marked letter will be larger than the marking letter, by an amount equal to the stroke of movement, in the direction of the translatable movement. Each letter, number or other symbol, or group of these, will be permanently marked on the surface by a depression worn therein by the marking tool, as shown in Fig. 4, such depression being of the order of twenty-five ten thousandths of an inch deep.

If the part to be marked is steel or other metal, I have found that a steel or carborundum tool may be used. If a steel tool is used in marking a steel surface a lapping compound may be advantageously used. No such compound will be required if a carborundum tool is used.

The marking tool is preferably moved in translation at a high speed in order to effect the marking quickly and to achieve best results. I have found that a speed of 3600 R. P. M., in rotary translation, or 3600 oscillations per minute, in non-rotary translation, give good results but higher or lower speeds may be used if desired.

While the invention is not limited in any way

to the marking of any particular kind of surface, it has been found to be particularly useful in marking very hard surfaces. However, because of the fact that very low pressure is required between the marking tool and the surface being marked, the method is also very useful in marking fragile surfaces.

While I have described and illustrated certain series of steps for carrying my invention into effect, it will be understood by those skilled in the art that other steps and methods may be practiced without departing in any way from the spirit or scope of the invention, for the limits of which reference must be had to the appended claims.

I claim:

1. The method of marking on a fixed surface which consists in bringing into face-to-face engagement with the surface a tool having substantially the form and size of the marking which is to be made on the surface, and continuously moving the tool along the surface over a path which is repeated at a high frequency and which is very short with respect to the size of the tool, while maintaining the tool in substantially constant orientation with respect to the surface to thereby wear into the surface a depression having substantially the size and form of the tool.

2. The method according to claim 1, in which the tool is given a straight-line reciprocatory movement.

3. The method according to claim 1, in which the tool is so moved that each point thereof repeatedly moves through a circular path the radius of which is very short with respect to the size of the tool.

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