July 9, 1929. G. R. PHILIP 1,720,568

SAND BLAST CARVING AND METHOD OF MAKING THE SAME

Filed Sept. 14, 1928

Fig. 1.

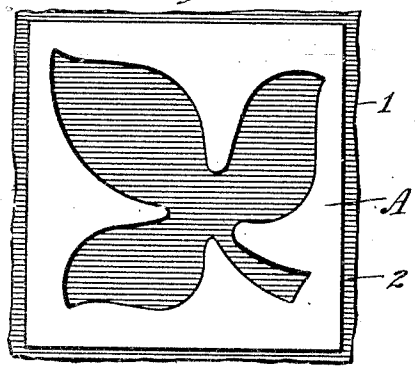


Fig. 2.

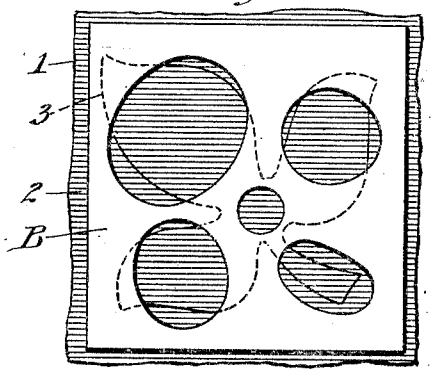


Fig. 5.

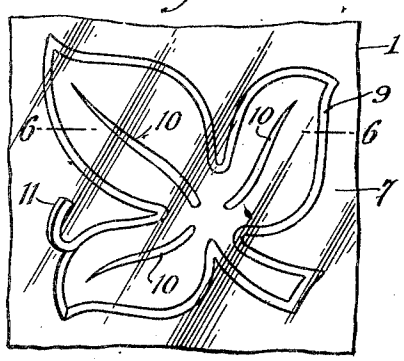


Fig. 3.

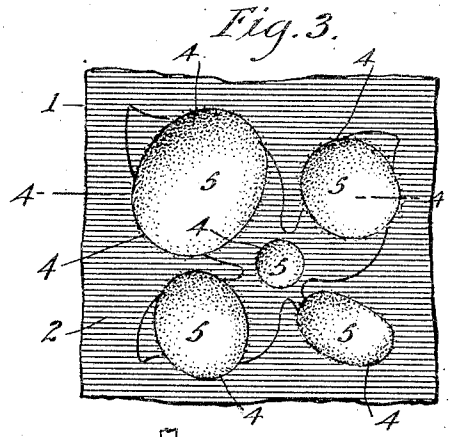


Fig. 6.

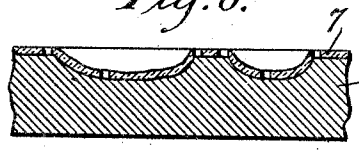


Fig. 4.

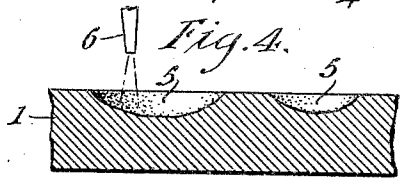


Fig. 9.

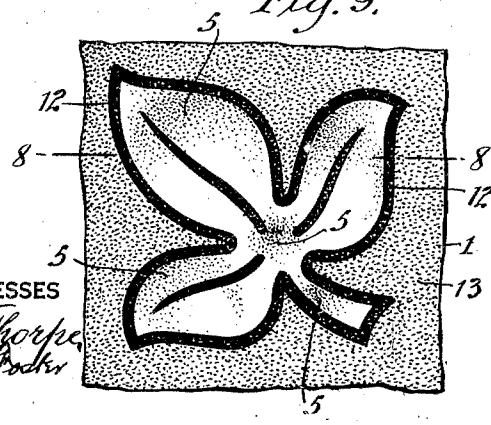


Fig. 7.

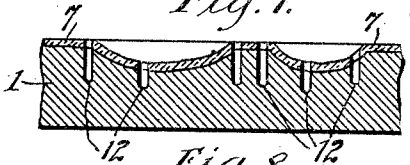
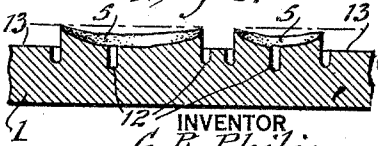


Fig. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SAND-BLAST CARVING AND METHOD OF MAKING THE SAME.

Application filed September 14, 1923. Serial No. 305,924.

This invention relates to sand blast carvings and method of making the same, and has more particular reference to relief carvings in stone although of course this invention is applicable to other material. To prevent repetition I shall hereinafter refer to the material as "stone."

An object of my invention is to provide a sand blast carving in relief, in which the edges of a leaf, flower or analogous design is formed having sharp edges and with the edges in a plane or planes out of parallel with the original surface of the stone. In other words, I make a carving by sand blast where the sharp edges of the design, as in the formation of a leaf or the like, follow the natural curvature or shape of the leaf both throughout the surface design of the leaf and the edge of the leaf so that portions of the edges of the leaf are in different planes as compared to other edges of the leaf and are not in the same plane as has been made heretofore.

In carrying out my improved method I employ a coating which is commonly known in the trade as glue and which resists the action of an abrasive blast such as sand, steel shot, silicon, carbide, boxite or any other abrasive material in the form of small particles which are blown by a blast against the same.

It is therefore to be understood that in the description and claims where I employ the term "coating" I use it to define a coating which will resist the blast of abrasive material and which will be adhesive so as to adhere to the stone.

In carrying out my invention I employ a transparent or semi-transparent coating through which the outlines in the stone beneath can be seen so that cutting of the coating and the sand blasting can be accurately performed without the employment of any additional means to locate the design below the coating.

I also provide a surface covering for the stone and this surface covering may consist of a piece of paper having a design thereon adhering to the stone or a piece of paper on which the design may be drawn or a piece or sheet of any other material on which the design may be drawn, or may merely constitute a whitewash or other covering matter placed on the stone on which the design may be drawn; and hence I do not wish to be limited to any particular covering for the stone and shall use the term "covering" hereinafter in its broadest sense to include any covering which may be placed on the surface of the stone and which will take a mark, and for convenience of description we will assume that the covering employed is merely a whitewash.

My invention consists in certain novel features of construction in the carving and certain novel steps in the method, all of which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a plan view showing the first step of my improved method which consists in placing a stencil on a stone having a covering thereon and in position to allow the outline of the design to be drawn on the covering;

Figure 2 is a plan view illustrating the next step of the method showing a second stencil having openings therein and in position on the stone to permit lines to be drawn on the covering of the stone to indicate the general outline of sinkages to be made in the stone;

Figure 3 is a view showing the next step in the method;

Figure 4 is a view in section on the line 4—4 of Figure 3;

Figure 5 is a plan view showing the next step in the method;

Figure 6 is a view in section on the line 6—6 of Figure 5;

Figure 7 is a view in section similar to Figure 6 showing the next step in the method;

Figure 8 is a view in section similar to Figures 6 and 7 showing the completed carving, this view being taken in section on the line 8—8 of Figure 9;

Figure 9 is a plan view of the completed carving.

In carrying out my improved method I preferably employ two stencils A and B. These stencils are formed preferably from a hard substance so that they may be repeatedly used.

The stencil A is cut out, leaving an opening forming a design, and in the particular illustration of the drawings this design constitutes a leaf. The stencil B has a series of openings therein which are of various sizes and shapes for a purpose which will hereinafter appear.

The first step of the method is to provide a covering 2 on the surface of a stone 1. The reason I employ this covering is that on a polished stone such as granite and the like

it is difficult to make a mark by a pencil or other instrument, and it is therefore necessary to provide a covering of some sort on which the line may be made.

As above stated, the covering may constitute various materials but for purposes of illustration we will assume that the covering is merely a surface of whitewash applied to the stone.

Assuming that this covering is on stone, the first step of the method is to draw on the stone the design to be made. This design may of course be drawn by freehand or it may be on the covering before it is caused to adhere to the surface of the stone, but for illustration we will assume that the stencil A is employed and is laid directly on the stone, and a pencil or other instrument traces out the outline of the stencil thus drawing on the covering the leaf or other design to be made, as indicated by the line 3 in Figures 2 and 3 of the drawings.

The stencil B is then placed in position over the design, as indicated in Figure 2 of the drawings, and the openings formed in the stencil guide a pencil or other marking instrument in making lines 4 over the design to outline what may be termed "sinkage areas". Marks of different colors are preferably employed to distinguish the lines made in utilizing the two stencils A and B so that they may be readily distinguished from each other.

The next step in the operation is indicated in Figures 3 and 4 of the drawings, which consists in utilizing a small nozzle 6 directed relatively close to the surface to blow concaved sinkages 5 in the stone as outlined by the lines 4.

These sinkages 5 in most cases extend beyond the edges of the design, indicated by the line 3, and they form sinkages of greatest depth at their intermediate portions, with said sinkages tapering upwardly to their edges although the exact surface design or configuration is capable of a wide latitude in accordance with the use of the nozzle.

The nozzle 6 is indicated diagrammatically in Figure 4 and, while in all probability the lines 4 will be obliterated by the action of the sand blast, for purposes of illustration I have left these lines 4 as remaining in Figure 3 of the drawings.

After the sinkages 5 are formed, the nozzle 6 is used to complete the surface contour of the design, as indicated by line 3, making the design preferably by concave sinkage and merging the surfaces of the first sinkages in the last made sinkages so as to give a smooth, curly, rounded or compound curvature to the surface of the design.

The next step in the method is to coat the entire surface of the stone with a transparent coating 7 and cut a line 8 through the coating, outlining the design. I also cut a second line 9 through the coating 7, spaced from the line 8 a short distance, say approximately one-sixteenth of an inch, and I cut spaced lines from the interior of the design indicating veins 10. After the coating is sufficiently dry, the strip of coating between the lines 8 and 9, indicated by the reference numeral 11, is removed, and the strips of coating forming the veins 10 are also removed. This step of the method is indicated in Figures 5 and 6 of the drawings.

The next step in the method is to subject the exposed surfaces of the stone to a sand blast, blowing down grooves 12 outlining the design and blowing veins into the stone. This step is indicated in Figure 7 of the drawings.

The next step in the method is to remove the coating 7 above that portion of the stone constituting the background 13 of the design, and then blowing down the background a distance less than the depth of the grooves 12.

When the coating 7 is removed from the stone the method is completed and the completed carving is illustrated in Figures 8 and 9 of the drawings.

In order that the novelty of the carving may be more clearly understood I have shown by dot and dash lines in Figure 8 what may be assumed to be the original surface of the stone, and it will be noted that not only are the sinkages or intermediate portions of the design in a lower plane than the original surface of the stone but also portions of the edges of the design are in a lower plane than the original surface of the stone, and it will also be noted that the edges of the carvings are sharp by reason of the employment of a method such as above described.

A contour can be given not only to the surfaces of a leaf, flower, petal or other design which will conform to the natural surface contour but the edge of said carvings may also take the natural curvature, bend or contour of a leaf, flower or other design.

So far as I have any knowledge I am the first to make a sand blast carving in relief, in which the edges of the design have a shape or contour curved or irregular and portions of said edge at least in a plane lower than the plane of the original surface of the stone or other material in which the carving is made.

I claim:

1. A method of making sand blast carvings, comprising first drawing a design on a stone or other article to be carved, then outlining on the design by other lines sinkage areas certain of said sinkage areas extending beyond the edges of the design, then blowing down the stone within the sinkage areas, then locating a coating on the stone, then outlining the design by a strip removed from the coating, then blowing down the surface of the stone where the latter is exposed, then removing the coating from that portion of the stone constituting the background, and then blowing down the background.

2. A method of making sand blast carvings, comprising first outlining a design on the stone, then outlining sinkage areas on the stone, certain of said sinkage areas extending beyond the edges of the design, then blowing down the sinkages within the sinkage areas, next blowing other sinkages within the design to form the surface contour of the design, then locating a coating on the surface of the stone, then outlining the design by a strip of coating removed from the stone, and also removing other portions of the coating where veins or other designs are to be formed, then blowing down the exposed surfaces of the stone forming grooves in the stone, then removing that portion of the coating above the background of the design, and then blowing down the background to a depth less than the depth of the grooves.

3. A method of making sand blast carvings, comprising first locating a covering on a stone or other article to be carved, then marking or drawing a design on the covering, then drawing or outlining sinkage areas on the design thus made, the lines of the design and the lines of the sinkage areas being preferably of contrasting colors, then blowing sinkages in the sinkage areas in the stone, then completing the surface design by a sand blast nozzle, then locating a coating on the surface of the stone, then outlining the design by a strip removed from the coating, then blowing down a groove in the exposed portion of the stone, outlining the design, then removing the coating from the stone around the design and blowing down a background of less depth than the groove.

4. A method of making sand blast carvings, comprising first locating a covering on a stone, then placing a stencil on the covering and outlining the design by a line drawn on the covering, then using a second stencil having openings therein, exposing portions of the design formed by the first mentioned line, portions of said openings extending beyond the line of said design, then drawing lines on the covering conforming in shape to the shape of the openings, employing a marking device to leave a line of a different color from the color of the first mentioned line, then utilizing a relatively small sand blast nozzle to blow sinkages within the sinkage areas and also complete the surface contour of the design, then locating a coating on the stone, then outlining the design by the removal of a strip of coating, then blowing down the exposed portions of the stone forming a groove around the design, said groove cutting across certain portions of the sinkage areas, then removing portions of the coating and blowing down the background.

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