July 9, 1929. G. R. PHILIP 1,720,567

SAND BLAST CARVING AND METHOD OF MAKING THE SAME

Filed Sept. 14, 1928

Fig. 1.



Fig. 2.

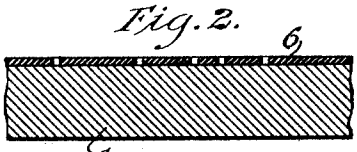


Fig. 3.



Fig. 4.



Fig. 5.

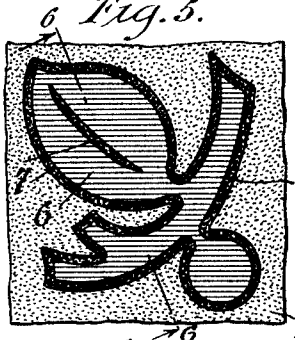


Fig. 6.

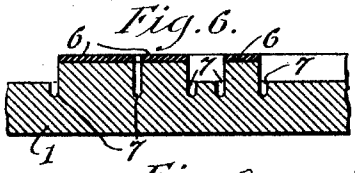


Fig. 7.

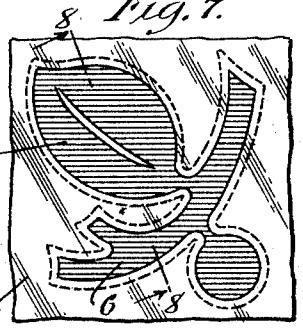


Fig. 8.

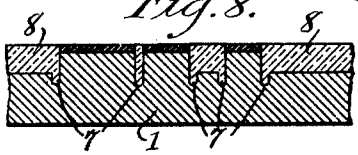


Fig. 9.

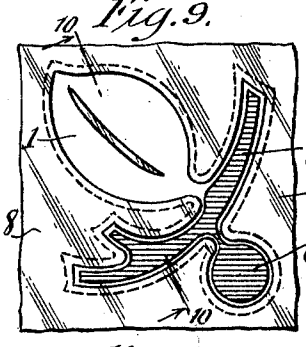


Fig. 10.

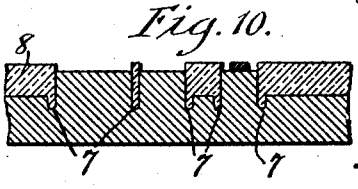


Fig. 11.

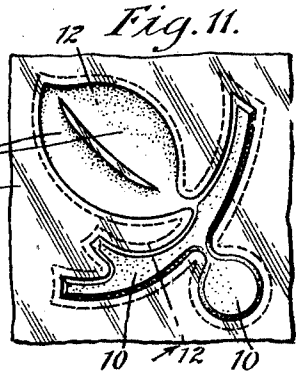


Fig. 12.

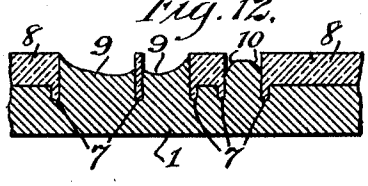


Fig. 13.

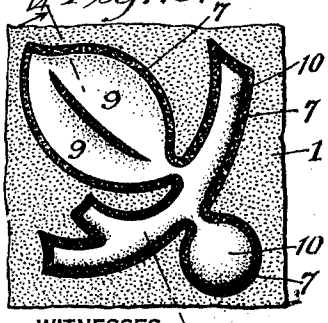
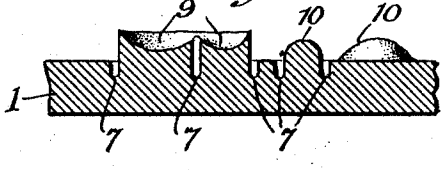


Fig. 14.



WITNESSES 14

Edw. Thorpe

L. W. Foster

INVENTOR

G. R. Philip

BY Munn & Co.

ATTORNEY

Patented July 9, 1929. 1,720,567

UNITED STATES PATENT OFFICE.

GEORGE RANNIE PHILIP, OF NORTHFIELD, VERMONT, ASSIGNOR TO CROSS BROTHERS COMPANY, OF NORTHFIELD, VERMONT, A CORPORATION OF VERMONT.

SAND-BLAST CARVING AND METHOD OF MAKING THE SAME.

Application filed September 14, 1928. Serial No. 305,923.

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 avoid 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 portions of the carving have a concaved contour and a sharp edge, that is, an edge less than a right angle in cross section, and also include in such carving a convex or convexed portions, that is, a contour which in cross section is convexly curved or tapered.

In the making of carvings as, for example, a carving including a leaf, a stem and berry, the leaf is concaved in surface contour and has sharp edges while the stem and berry are convexed in surface contour and have smooth edges as distinguished from the sharp edges of the leaf, and for convenience of description I shall hereinafter refer to my improved carving as a design composed of a leaf, stem and berry, although of course it is obvious that any analogous design might be made.

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, bauxite 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 employ a coating, such as is in common use, which is not transparent, and to distinguish the two coatings I shall refer to one as a "transparent coating" and the other as an "opaque coating".

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 and Figure 2 is view in section on the line 2—2 of Figure 1, illustrating the first step of my improved method.

Figure 3 is a plan view and Figure 4 is a view in section on the line 4—4 of Figure 3, showing the next step in the method.

Figure 5 is a view in plan and Figure 6 is a view in section on the line 6—6 of Figure 5, showing the next step in the method.

Figure 7 is a view in plan and Figure 8 a view in section on the line 8—8 of Figure 7, showing the next step in the method.

Figure 9 is a view in plan and Figure 10 a view in section on the line 10—10 of Figure 9, showing the next step in the method.

Figure 11 is a view in plan and Figure 12 a view in section on the line 12—12 of Figure 11, showing the next step in the method.

Figure 13 is a plan view showing the completed carving.

Figure 14 is a view in section on the line 14—14 of Figure 13.

In carrying out my improved method I locate on the surface of a stone 1 an opaque coating 6 of the desired thickness and allow this coating to dry. As above stated, to prevent repetition we will assume that the design constitutes a leaf, stem and berry.

After the coating is dry, a knife or other sharp instrument is employed to cut an outline of the design, this line being indicated by the reference character 2. A second line 3, spaced from line 2, is then cut through the coating and the strip of coating 4 between the lines 2 and 3 is then removed, as is also a strip of coating indicated by the reference numeral 5 to outline the design of a vein in the leaf. This complete step is illustrated in Figures 1 and 2 of the drawing.

The next step in the method is to subject the stone to the action of an air blast, cutting grooves 7 in the exposed surfaces of the stone and blowing these grooves as deep as desired, which of course forms the outline groove of the complete design and the vein of the leaf. This step in the method is indicated in Figures 3 and 4 of the drawing.

The next step in the method is to remove the coating 6 from that portion of the stone which is to form the background and then

blow down the stone to form the background, this background being blown a distance less than the depth of the groove 7. This step of the method is indicated in Figures 5 and 6 of the drawings.

The next step in the method is to cover all exposed surfaces of the stone and fill all the grooves with a transparent coating 8 and allow this coating to dry. This step in the method is indicated in Figures 7 and 8 of the drawings.

The next step is to entirely remove the opaque coating from the surface of the leaf design and remove portions only of the opaque coating from above the stem and berry design. Above the stem a narrow strip of opaque coating, centrally disposed, is left on the stone, and a small circular portion of coating is left above the berry, with other portions of the design exposed. This step in the method is indicated in Figures 9 and 10 of the drawings.

The next step in the method is to subject the stone to a sand blast, which blows down a sinkage or sinkages in the leaf portion of the design, as indicated at 9, and blows down the side portions of the stem and berry, as indicated at 10, leaving a tapering or convexed surface or contour to form the stem and berry, and a concaved contour or surface design to form the leaf, with the edges of the leaf sharp, and the edges of the stem and berry convexed, tapering or rounded. This step of the method is indicated in Figures 11 and 12 of the drawings.

After all coating has been removed from the stone the method is completely carried out and a finished carving, such as indicated in Figures 13 and 14 is the result.

I employ the opaque and transparent coatings as above indicated as the design can be observed as it advances through the several steps of the method, and the coating can be cut exactly as desired without employing stencils or any other means after the original cutting is made in the coating.

I claim:

1. A method of making sand blast carvings wherein portions of the carvings have a concaved surface contour and sharp edges, and the other portions of the carvings have a convexed surface contour, comprising first locating a coating on a stone or other article to be carved, then removing a strip of coating outlining a design, then blowing a groove in the stone where the coating has been removed, then removing the coating outside of the groove, then blowing down the exposed surfaces of the stone to form a background, then covering the background and groove with coating, then removing the coating entirely from that portion of the stone where a concaved sharp-edged design is desired, and only removing portions of the coating where convexed carvings are desired, then blowing sinkages to form concave carvings with sharp edges at the walls of the groove and blowing the side portions of the carving where the convexed design is required, and finally removing all the coating from the stone.

2. A method of making sand blast carvings wherein portions of the carvings have a concaved surface contour and sharp edges and other portions of the carvings have a convexed surface contour, comprising first locating an opaque coating on the stone or other surface to be carved, then removing a strip of coating outlining the design, then blowing a groove in the stone where the coating has been removed, then removing the coating outside of the groove, then blowing down the exposed surface of the stone to form a background of less depth than the groove, then covering the background and filling the groove with transparent coating, then removing the opaque coating from that portion of the stone within the groove where a concaved surface design is desired, and removing portions only of the coating above the stone where convexed portions of the carving are desired, then blowing down the exposed surfaces of the stone and concaving by sinkages portions of the design, and convexing by lateral deflection of the sand blast other portions of the design, and finally removing the coating from the stone.

GEORGE RANNIE PHILIP.