ABSTRACT

Our invention titled A Procedure for Manufacturing Artistic and Utilitarian Articles From Stone, consists basically on cutting the stone blocks into flagstones to elaborate artistic and utilitarian objects and may be applied to nearly any kind of hard stone such as alabaster, onyx, marble, agate, etc. The flagstones are cut into pieces of different shapes according to the design of the object to work; then the stone pieces are refined with sandpaper to obtain a smooth and polished surface; finally the object is assembled by soldering the refined stone pieces using copper foil and lead or silver-based welding.
PROCEDURE FOR MANUFACTURING ARTISTIC AND UTILITARIAN OBJECTS FROM STONE

[0001] The following specification is presented by Veronica Osio Tamawiacki and Adriana Tamawiacki Flores, both Peruvian citizens who are applying for a utility patent in the U.S.A. for a procedure for manufacturing artistic and utilitarian articles from stone.

CROSS REFERENCE TO RELATED APPLICATIONS

[0002] We have an application for a patent filed in Peru with date Jul. 13, 2000 with code 000695.2000, titled in Spanish: “Procedimiento para la elaboración de Objetos Artísticos y Utilitarios en Base a Piedra” (Procedure for the Manufacturing of Artistic and Utilitarian Objects from Stone); but we have not made any printed publication neither have we published our invention yet.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0003] (Not Applicable)

REFERENCE TO A SEQUENCE LISTING A TABLE OR A COMPUTER PROGRAM LISTING APPENDIX

[0004] (Not Applicable)

BACKGROUND OF THE INVENTION

[0005] The field of endeavor to which our invention pertains is of the Utility Patent, for it is a new and useful process for working stones.

[0006] In Peru, in the late XVIth century, glass was very scarce, so the alabaster stone was used instead to cover window bays in colonial houses. The translucent quality of the alabaster stone was our source of inspiration to conceive the idea of making lampshades out of this material. Later on, we became familiar with the glass art and specially the stained glass assembling method for making artistic lampshades.

[0007] We thought it would be interesting to use this technique but with alabaster flagstones instead of glass, so we began to develop a method to adapt the stone for these purposes.

[0008] First we had to learn about recognizing the type of stone that could resist the cut into flagstones of 0.8 cm. of thickness, because there are different kinds of hardness for the same material and some type of stones just pulverized because they were too soft. So we learned that the hard stones were the most appropriate for cutting purposes and we began to diversify our use of stones into alabaster, onyx, marble and others.

[0009] Then, for the sanding of the flagstones we realized that there were some kinds of electric sanders that were too rough for this purpose because they broke the flagstones, so we had to search in the market for some kind of machinery with the adequate motor power.

[0010] To cut the flagstones into smaller pieces we first used manual saws. The inconvenience about this method was the enormous amount of work hours we spent in this phase of our work, and still the manual saws turned out to be too rough for the material and there was a high loss of prime matter due to brokerage. Then we began to get familiar with the modern electric ring saws that saved us time and work and flagstones from breaking.

[0011] For the grinding of the contours of the flagstone pieces we applied a manual method using sandpaper which was also time consuming, until we got to know the electric grinder with rotational grinding head witch worked very well with the stones.

[0012] The next step witch is the polishing of the cut pieces is always made by hand with sandpaper to get a more perfect finish as described in the detailed description below. Though the final luster made with oxalic acid is an idea we took from the marble tombstone sculptors in our country that suggested us to use this product for a refined finish.

[0013] From this stage on to the end of the process, the method we use is similar to the art glass conventional technique based on trimming the contour of the pieces with copper foil, and welding the trimmed pieces with lead or silver based welding as described in the detailed description of the invention that follows.

BRIEF SUMMARY OF THE INVENTION

[0014] The field of endeavor to which our invention pertains is of the Utility Patent, for it is a new and useful process for working stones.

[0015] This is a procedure that consists basically on cutting the stone into flagstones to elaborate artistic and utilitarian objects and may be applied to nearly any kind of hard stone such as alabaster, onyx, marble, agate, etc. The flagstones are cut into pieces according to the design of the object to work; then the stone pieces are refined with sandpaper to obtain a smooth and polished surface; finally the object is assembled by soldering the refined stone pieces using copper foil and lead or silver-based welding.

[0016] The described procedure applied to the stone has a great diversity of applications in artistic and utilitarian objects such as lampshades and lamp bases, mosaics, panels for doors and windows, coffers and boxes, chandeliers, frames for pictures and mirrors and ornamental figures in general.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] (Not Applicable)

DETAILED DESCRIPTION OF THE INVENTION

[0018] The invention consists on the application of a technique that allows us to use the stone in a novel way for the elaboration of artistic and utilitarian objects.

[0019] Our invention consists basically on cutting the stone blocks into flagstones to elaborate artistic and utilitarian objects and may be applied to nearly any kind of hard stone such as alabaster, onyx, marble, agate, etc. The flagstones are cut into pieces of different shapes according to the design of the object to work; then the stone pieces are refined with sandpaper to obtain a smooth and polished surface; finally the object is assembled by soldering the refined stone pieces using copper foil and lead or silver-based welding. This procedure is described in detail in the steps that follow:
Step 1: Laminate of the blocks of stone.

The rough stone blocks are cut into flagstones of approximately 0.8 cm. of thickness by means of machinery specialized in the cut of hard stones, such as diamond circular saws for cutting marble.

Step 2: Sanding of the flagstones

The flagstones are sanded by means of electric sanders to match the thickness and to plane their surface. For our work we use electric sanders of 60 Hz./3.3 Amps. which prevent the brokerage of the flagstones due to excessive vibration.

Step 3: Cut of the flagstones according to the design to work.

Based on a design pattern the polished flagstones are cut into smaller pieces by means of an electric ring saw or a manual saw, according to the difficulty of the shapes of the design to work. For the elaboration of spherical objects, such as certain type of lampshades, the cut of the pieces are made in angle so that the welding can leave a fine line.

Step 4: Grinding of the contours of the flagstone pieces until fitting exactly with the molds of the pattern to work.

The cut pieces are grinded in their contours by means of an electric grinder with rotational grinding head or manually by the use of sandpaper making them fit exactly with the contours of the molds of the pieces of the pattern as if they were the pieces of a puzzle.

Step 5: Refine sanding of the flagstone pieces The cut pieces go by a process of manual refine using sandpaper (Grit 200, 600, 1200 progressively) until achieving a perfectly smooth finish to the tact.

Step 6: Luster of the refined pieces with a polish.

The surface of the pieces is rubbed vigorously with oxalic acid that gives the shiny finish to the material.

Step 7: Trim of the contours of the pieces with copper foil.

Each piece is contoured with adhesive copper foil to allow the union among them within welding.

Step 8: Soldier of the trimmed pieces.

The pieces trimmed with copper foil are moistened with a solution based on zinc and chlorine and are welded to each other with lead or silver based welding. For this process we use welders of 60 or 100° C.

Step 9: Final polishing and protection of the welding lines.

As a final finish a commercial polish called Patina is reviewed on all the welded lines of the object. This polish gives the welded lines color, luster and protects them from corrosion.

This work procedure applied to the stone can be used for making a great diversity of objects such as lampshades and lamp bases, panels for doors and windows, coffers and boxes, chandeliers, pictures and mirror frames, ornamental figures and other artistic and utilitarian objects.

What we claim as our invention is:

1. A procedure to work the stone that consists in:
   a. laminating the stone into flagstones of approximately 0.8 cm. of thickness;
   b. sanding the flagstones with sandpaper or electric sanders until obtaining a uniform thickness and a smoother surface;
   c. cutting of the flagstones into smaller pieces according to the design of the object to work, by means of an electric ring saw or a manual saw;
   d. grinding of the contours of the flagstone pieces with sandpaper or electric grinders;
   e. refined sanding of the flagstone pieces with sandpaper of progressively increasing grit numbers (200 600, 1200) until obtaining a smoother uniform surface;
   f. polishing of the refined surface with oxalic acid to obtain luster;
   g. trimming of the contours of the flagstone pieces with adhesive copper foil;
   h. soldiering of the trimmed pieces with lead or silver based welding and a solution based on zinc and chlorine;
   i. protecting the welded lines with Patina that gives them color, luster and protects them from corrosion.

2. The application of the procedure described above to any kind of stone, such as alabaster, onyx, agate, marble, quartz, and others.

3. The application of the procedure described above for manufacturing artistic and utilitarian articles from stone such as lampshades and lamp bases, mosaics, panels for doors and windows, coffers and boxes, chandeliers, picture and mirror frames, ornamental figures and others.

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