H. G. ANTARAMIAN.

ORNAMENTING PROCESS AND APPARATUS.

APPLICATION FILED SEPT. 11, 1920.

1,431,917. Patented Oct. 17, 1922.

Fig. 1

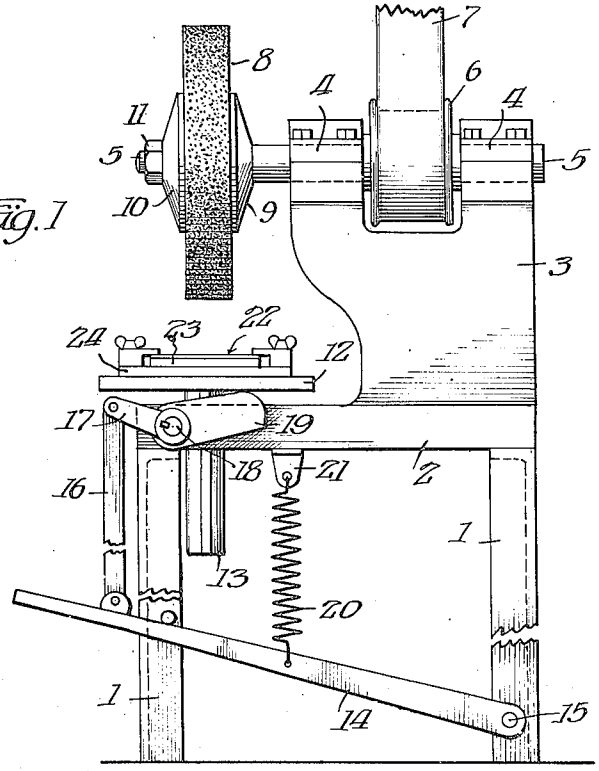



Fig. 5

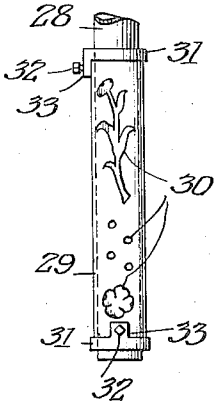



Fig. 2

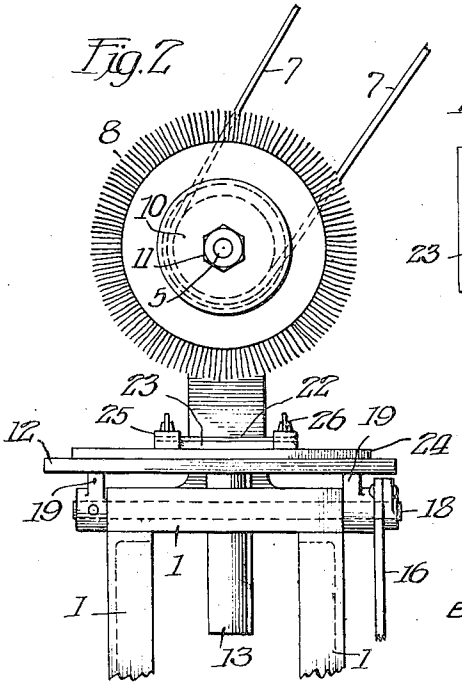



Fig. 4

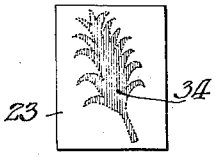
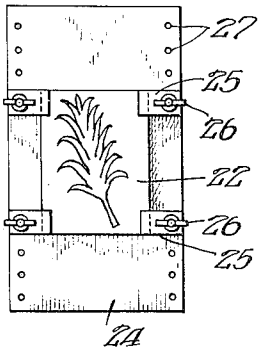



Fig. 3




INVENTOR:
HRANT G. ANTARAMIAN,
BY Fisher, Fowle, Clapp & Doane
ATTYS.

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# UNITED STATES PATENT OFFICE.

HRANT G. ANTARAMIAN, OF KENOSHA, WISCONSIN.

## ORNAMENTING PROCESS AND APPARATUS.

Application filed September 11, 1920. Serial No. 409,732.

*To all whom it may concern:*

Be it known that I, HRANT G. ANTARAMIAN, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Ornamenting Processes and Apparatus, of which the following is a specification.

My invention relates to ornamentation wherein a design or pattern is formed on the surface of an article by brushing or otherwise working such surface through apertures in a plate which is laid on the surface and has openings therethrough forming the design or pattern which is to be applied to the article.

The principal objects of my invention are to provide an ornamentation of a new character; to provide a process and apparatus for effecting such ornamentation; to effect such ornamentation by brushing or similarly treating the surface of an article so as to mark a design or pattern thereon; to apply the ornamentation by brushing the surface of the article through openings in a stencil which is laid upon the surface of the article; and, in general, to provide improved ornamentation, which may be readily and economically applied to a surface, particularly of metal, so as to leave the design marked thereon in a manner to afford a novel and pleasing appearance.

On the drawings—

Fig. 1 is a side view of a machine for carrying out my process of ornamenting;

Fig. 2, a fragmentary front view of the machine;

Fig. 3, a top view of a work-holding device having the work mounted thereon ready to be operated upon by the machine;

Fig. 4, a view of the finished surface with the design marked thereon; and,

Fig. 5, a view showing the manner in which designs may be applied to tubing or articles having a cylindrical surface.

Referring to the drawings, the reference numeral 1 indicates the base of a machine which has a top 2 with a bracket 3 extending thereabove and provided at its upper end with spaced bearings 4 in which a shaft 5 is mounted to rotate. A pulley 6 is fixed on the shaft 5 between the bearings 4 and is engaged by the belt 7 whereby the shaft is rotated.

The shaft 5 projects beyond one of the bearings 4 so as to overhang a portion of the machine top 2, and has a wire brush wheel 8 detachably mounted on the projecting end thereof. The brush 8 may be attached to the shaft 5 in any convenient manner, as for example, by providing the shaft with a clamping disk 9 fixed thereon and a clamping disk 10 which is slidable in the shaft and adapted to be clamped against the brush wheel 8 by a nut 11 which is threaded on the outer end of the shaft.

Mounted directly below the wire brush wheel is a work support comprising a plate 12 having a depending stem or spindle 13 which slides vertically in a suitable bearing provided therefor in the table top 2, so that the support 12 and work thereon may be elevated so that the work is operated upon by the brush 8. The raising and lowering of the support 12 is effected by a pedal 14 which is pivoted at 15 to the base 1 of the machine, and is connected by a link 16 to a crank arm 17 on a shaft 18 which is journaled horizontally in the frame of the machine under the table top 2 and has a pair of spaced arms 19 engaging the underside of the plate 12. A spring 20 is connected at one end to the pedal 14 and at the other end to a bracket 21 on the underside of the machine top 2, so as to normally hold the pedal 14 in the elevated position, as shown in Fig. 1, in which position the work supporting plate 12 is permitted to assume the lowermost position.

In carrying out my invention I provide a stencil 22 of thin material, such as sheet steel, in which the desired design has been cut, and place this stencil on the surface of the article to be ornamented, as for example, the plate 23. In practice I prefer to employ a jig or block 24 with buttons 25 adjustably secured thereon by thumb screws 26 so that the plate 23 and stencil 22 may be firmly clamped together on the jig or block 24. The jig or block 24 may be provided with a number of threaded openings 27 to receive the thumb screws 26 so as to adapt the block or jig to hold work of different sizes and shapes.

After the stencil 22 and plate 23 have been clamped together on the jig or block 24, the latter is placed upon the work support 12. The brush 8 is rapidly rotated and the pedal 14 depressed so as to raise the work support 12 and bring the upper surface of the stencil 22 against the periphery of the brush. The wire bristles of this brush, working

through the openings in the stencil, brush the portion of the surface of the plate 23, exposed through the opening or openings in the stencil 22, thereby graining or roughing such exposed surface of the plate 23, so that the design as outlined by the stencil is marked upon the surface of the plate 23. In operation, the jig or block 24 may be moved around on the work support 12 to insure thorough brushing of every portion of the exposed surface, and completely mark the pattern on the surface of the plate 23, which marking, when the stencil 22 is removed, will appear upon the surface of the plate 23, as indicated at 27 in Fig. 4.

This method and machine may be readily employed for ornamenting surfaces of different form than the flat surface of the plate 23, as for example, a tube, such as shown at 28 in Fig. 5, may have a tubular stencil 29 inserted thereon, said stencil being provided with openings 30 forming the desired ornamental design, and the stencil covered tube 28 then subjected to the rotating brush 8. It is, of course, necessary that the tubular stencil 29 shall be held securely on the tube 28 and this may be accomplished in any suitable manner, as for example, by clamp rings inserted on the tube 28 and having set screws 32 inserted through laterally projecting ears 33 on the rings so as to clamp the stencil 29 onto the tube 28.

An important feature of my invention is the use of a circular brush with the bristles projecting radially therefrom whereby the area of contact is of small extent and the working face of the brush curves away from the face of the stencil at both sides of the point of contact, thus permitting the bristles to readily enter through the openings of the stencil and effectively act upon the surface upon which the design is to be marked. The effectiveness of the brush is further increased by the rotation of the brush which causes the bristles to be held extended by centrifugal force, and the ends thereof are forced thereby to penetrate corners and small openings in the stencil plate, which might otherwise not be reached, and thus completely mark the design of the stencil on the surface over which the stencil is laid.

It is to be understood that the machine shown is merely illustrative and any type of machine may be employed which has a brush with bristles or other weaving or rubbing means adapted to work through a stencil opening and mark the design on a surface to which the ornamentation is to be applied and, furthermore, that the method may be employed to apply ornamentation to articles of various materials and to surfaces of any form or shape. It is therefore to be understood that various changes and modifications are contemplated and the scope of the invention is to be determined by the appended claims.

I claim as my invention:

1. The improvement in the art of metal ornamentation which comprises holding a stencil against the surface of the metal and pressing the periphery of a circular brush against the outer face of the stencil and simultaneously rotating the brush so that the ends of the bristles of the brush are forced into the apertures of the stencil against the exposed portions of the surface.

2. The method of ornamentation which comprises holding a stencil on the surface to be ornamented, pressing the periphery of a circular brush against the outer face of the stencil and rapidly rotating the brush so that the bristles are impelled by centrifugal force to enter the openings in the stencil plate and mark the pattern of the stencil on the surface.

3. The method of ornamentation which comprises clamping a stencil against the surface of an article to be ornamented, and pressing the periphery of a rapidly rotating wire brush against the top of the stencil so as to abrade the portions of the surface exposed through the stencil and thereby marking the design of the stencil on the surface of the article.

4. In an apparatus of the class described, the combination of a rotatable brush, means for holding a stencil on the surface of an article, a support for the combined article and stencil, and means for effecting relative movement of the brush and the support so as to press the periphery of the brush against the surface of the stencil.

HRANT G. ANTARAMIAN.