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AGENCY FOR AND METHOD OF EMBELLISHING SURFACES.

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1,406,538.

Patented Feb. 14, 1922.

Fig. 1.

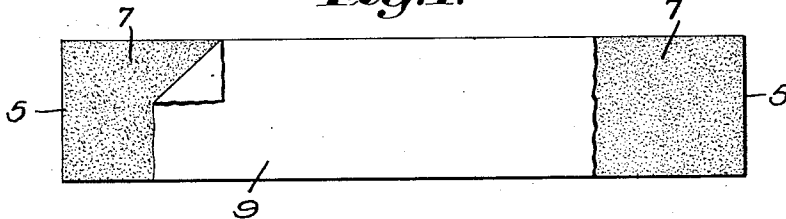


Fig. 2.

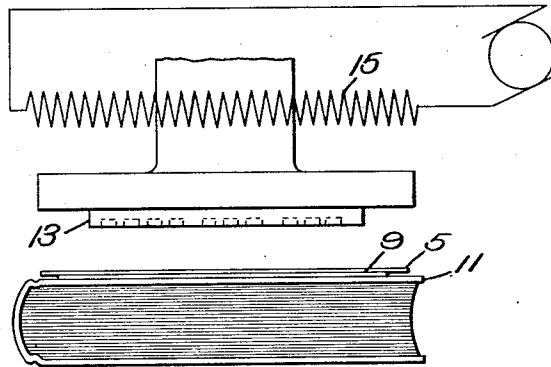
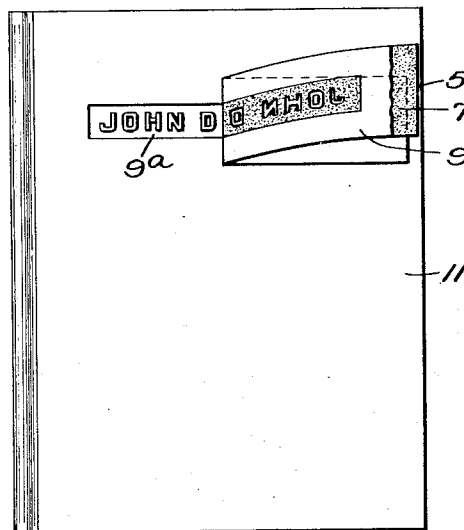


Fig. 3.



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1,406,538.

Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed October 25, 1917, Serial No. 198,528. Renewed July 6, 1921. Serial No. 482,871.

To all whom it may concern:

Be it known that I, WILLIAM E. CHOATE, a citizen of the United States, and a resident of Hamilton, in the county of Essex and Commonwealth of Massachusetts, have invented an Improvement in Agencies for and Methods of Embellishing Surfaces, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to the art of marking surfaces by the transfer thereto of thin covering films, usually in such a manner as to produce a design thereon. In particular it aims to provide an improved means whereby articles can be decorated with gold leaf or like tenuous metallic lamellæ in a convenient and expeditious manner while retaining a high standard of quality in the finished work.

My invention will best be understood by reference to the following description taken in connection with the accompanying drawings wherein:—

Fig. 1 is a view of a fragment of mounted gold leaf;

Fig. 2 is a partly diagrammatic view illustrating the method of using the same; and

Fig. 3 is a view illustrating the work at a later stage.

For convenience in description I shall herein refer specifically to gold leaf and to that method of marking surfaces by transfer commonly known as stamping. It has long been the practice to mark articles by applying to them a proper adhesive, such as albumen, spreading a leaf of gold upon their surface and pressing against the back of the gold leaf with a heated die of the desired design, which will develop the adhesive properties of the albumen and cause a local transfer of the leaf to the article along the outlines of the desired design. The difficulty attending this proceeding was due to the tenuous character of the gold leaf which made it very hard to handle. It was early proposed to mount the leaf upon a backing of paper, securing it thereto by a film of wax, but until recently the quality of work obtained by using leaf mounted in this manner was unsatisfactory. In my Patent 1,279,655, dated September 24, 1918, I have described the use of a mounting sheet of substantially amor-

phous consistency or texture without substantial irregularities either internally or superficially, to which gold leaf was superficially adhered by a film of wax. The particular material disclosed in the application referred to was thin paper of the kind commonly known as "glassine." It was found that by utilizing a backing sheet of this character results were secured comparable to those obtained by the use of the unmounted gold. The present invention contemplates the use of a sheet of this nature but substantially different from the one disclosed in the application referred to and one which is particularly desirable for certain purposes.

In accordance with my present invention I utilize a thin flexible sheet of concrete material, that is, a homogeneous material composed of coalescent particles without any structural character, and one of which the particles are adapted to flow and rearrange themselves during the stamping operation. As an example of such a material I may mention gelatin, by which I may include both ordinary skin and bone gelatin and agar-agar and similar so-called vegetable gelatins. I have obtained good results from a gelatin which is now placed upon the market for use in wrapping certain kinds of candies. This article is a pure gelatin, faintly yellow in color and tasteless, of the concrete consistency commonly associated with gelatin, and is marketed in the form of thin sheets with perfectly smooth surfaces and of a thickness of about one-thousandth of an inch. I am not informed as to the exact method whereby these sheets are manufactured but suppose that they are prepared by cooling the gelatin on plates of glass.

Referring to Fig. 1, I prepare a mounted gold leaf by taking a suitable piece of sheet gelatin and coating one face thereof with a film of wax, conveniently by rubbing the sheet with cold wax. Paraffine or carnauba wax is suitable for this purpose. The leaf of gold is then spread smoothly over the waxed surface and lightly pressed thereagainst. The gold will adhere to the wax and the whole forms a mounted leaf which may be conveniently handled. The gelatin sheet is light and flexible and has the advantage of being perfectly transparent, so that the person using it may see through it

to the surface which he may desire to ornament.

In Figs. 2 and 3 I have shown in a diagrammatic manner the method of using my prepared leaf for the purpose of marking the cover of a book 11. It will be understood that in this figure the thicknesses of the gold and gelatin are of necessity enormously exaggerated. The mounted leaf is placed on the book or other article with the gold 9 next thereto, and pressure is applied to the back of the sheet 5, usually by means of a die 13 which is heated. In Fig. 2 I have illustrated diagrammatically an electric resistance 15 associated with the die for heating the same.

Referring to Fig. 3, after pressure has been applied, the mounted leaf may be stripped off and the gold will be found adhering to the surface 11, as indicated at 9^a, at those locations where pressure was exerted. The remainder of the gold may be stripped off with the backing sheet 5.

The character of the thin sheet of gelatin admirably adapts it for this purpose. As explained quite fully in my patent referred to, the thinness of gold leaf is such that its lustre is destroyed by the irregularities which would be caused by the fibre of ordinary paper when used as a backing sheet and, even when no intermediary layer is used, satisfactory work is obtained by embossers only from very smooth dies. The gelatine sheet has no superficial irregularities and is absolutely without internal structure or, in other words, is an entirely concrete substance. Therefore it can in no way imprint undesirable irregularities on the surface of the transferred gold. Its flexibility and transparency are desirable properties. A further characteristic property is that it apparently softens slightly and becomes more or less plastic beneath the heated die. It is my belief, therefore, that the particles of the substance flow, as it were, and are permitted to rearrange themselves under the distorting pressure of the die. The result is that the pressure is very accurately transmitted through the backing sheet. When a backing sheet of paper is used, it is sometimes found that the pressure of the die will cut out fine portions of the paper which will be carried over to the work and which must be removed after the main portion of the sheet is stripped off. Furthermore, the work is not always clearly defined, by which I mean that the edges of the design are not as clear cut as might be desired. This is probably because small fragments of gold tear away, the gold breaking beneath the die just as a sheet of paper breaks when pulled, although on a much smaller scale. These small fragments beyond the outlines of the design are carried over with the die and give a somewhat rough

finish to the work. My belief is that this is due to the fact that the offsetting of the paper is not strictly perpendicular to its plane. Of course the difference is very slight according to ordinary standards, but the extreme tenuousness of the materials worked with must be borne in mind. If the depth of the impression is considerable, as in the case of rough and soft material, the effect is more marked. Whether my theory of the cause is accurate or not, the fact is that the use of the gelatin sheet gives an exceedingly sharp definition, which for certain kinds of work would make its use desirable although it is more expensive than glassine paper described in my earlier application. In particular, if the design were delicate tracery or if, as herein illustrated, a large surface or background of the metal were transferred to the surface on which smaller parts, as the letters here shown, would stand forth in the original color of the marked surface 11, the use of leaf mounted on a plastic or quasi-plastic sheet, as herein described, would insure perfect results without sacrifice of convenience in handling.

While I anticipate the major field of usefulness of my invention to be in connection with gold leaf, it is applicable to other metallic leaves and to color media.

Having thus described a particular embodiment of my invention, what I claim as new and desire to secure by Letters Patent is:

1. An improved article for use in stamping consisting of a thin carrier sheet of gelatin having a metallic leaf adhering to a face thereof, the opposite face being exposed to receive the pressure of a stamping tool.

2. As a new article of manufacture, a thin sheet of concrete material which softens and becomes plastic under heat and a metallic leaf superficially adhering thereto on one side thereof, said sheet being normally of a coherent, resistant character to provide a carrier for the leaf and adapted to receive the pressure of a marking instrument directly on the other side.

3. A laminated material for use in marking and ornamenting surfaces comprising a thin flexible backing sheet of gelatin, an intermediate cereous film and a layer of transfer material.

4. As a new article of manufacture for stamping, a metallic leaf mounted on a face of a thin sheet, coherent, of material of which the particles are capable of relative flow and rearrangement under the stamping operation, the other face of said sheet being exposed to receive the pressure of a stamping tool.

5. The method of marking surfaces by the transfer of a portion of a sheet of tenuous material from a backing to the surface by the application of pressure localized to the

design to be transferred characterized by the use of sheet gelatin as the backing through which the pressure is applied. instruments and to which the pressure is directly applied.

6. The method of marking surfaces by the transfer of a portion of a sheet of tenuous material from a backing to the surface by the application of pressure localized to the design to be transferred characterized by the use of a backing of sheet material of which the particles are capable of relative flow and rearrangement under the pressing 5 15

7. The method of stamping with metallic leaf characterized by application of the pressure of the heated die directly to and through a thickness of material of concrete consistency and which becomes plastic thereunder.

In testimony whereof, I have signed my name to this specification. 20

WILLIAM E. CHOATE.