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S. LIPSIUS

1,928,668

RAISED PRINTING

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Fig. 1.

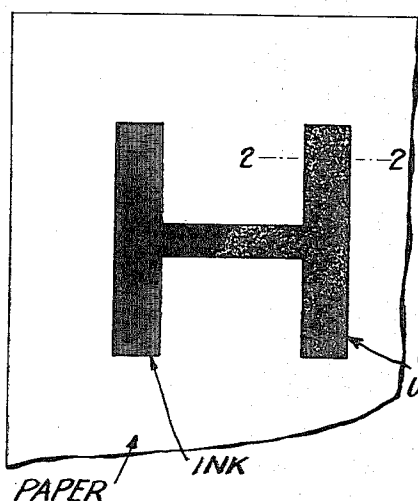


Fig. 2.

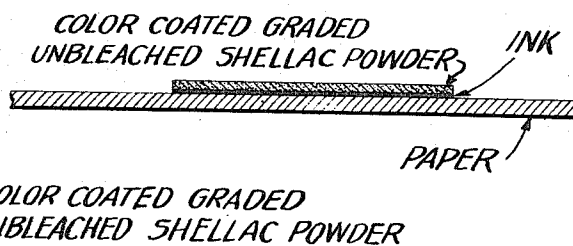


Fig. 3.

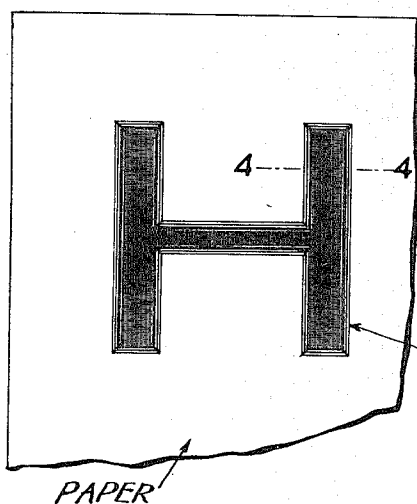
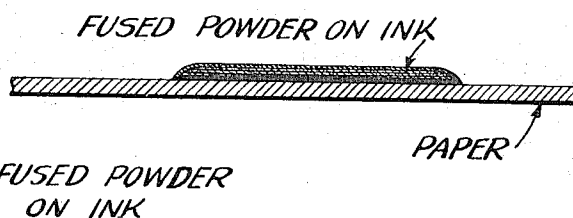


Fig. 4.



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RAISED PRINTING

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10 Claims. (Cl. 41—26)

This invention relates to the art of "raised printing" as set forth in United States Patent 1,146,182.

The objects of the invention, primarily, are to enable the use of less expensive and more lasting materials than the materials which have been required heretofore and to produce with such less expensive materials, as good, or better results than have heretofore been attained.

The special novel features of the invention will be set forth in the following specification and will be found broadly covered in the claims following.

The drawing accompanying and forming part of this specification illustrates, in necessarily exaggerated form, features of the invention.

Fig. 1 is a broken plan view illustrating a printed letter on a sheet of paper and having the color coated graded unbleached shellac powder applied to the right hand portion of the same.

Fig. 2 is a further enlarged broken cross-sectional view as on line 2—2 of Fig. 1, illustrating a layer of the color coated unbleached shellac applied and adherent to the wet ink of the printing.

Fig. 3 is a broken plan similar to Fig. 1, illustrating the final product, with the powder fused on the ink.

Fig. 4 is a greatly enlarged broken cross-sectional detail of the color coated graded unbleached shellac fused with the ink.

Prior to this invention and, as disclosed in the patent above referred to, it has been found that the best results are attained by the use of a "refined" or "bleached" shellac. This material however, has one great objection that seriously limits its usefulness. The treatment necessary to bleach the shellac deprives it of certain qualities and leaves it in condition, in which it will deteriorate rapidly and become insoluble and infusible with age. In using bleached shellac for the manufacture of varnishes or the like, this fault is overcome by putting the shellac in solution as soon as possible after it is bleached. This remedy however, cannot be utilized in the present instance, where the shellac must be kept in the powder form and as dry as possible. Consequently, the use of bleached shellac in raised printing has constituted a serious problem, particularly where the product must be shipped any considerable distance or be kept a considerable length of time. Aging conditions affect the bleached shellac product, rendering it partially or wholly insoluble in the ink to which it is applied and infusible or difficultly fusible and, or fusible only at such temperatures as may scorch or injure the paper.

The unbleached or orange shellac, while easily kept in usable condition, has certain objectionable characteristics, making it unsuitable as a direct substitute for the bleached shellac.

Particularly, the matter of color has made the unbleached shellac unsuitable as a substitute, the orange color showing up to an undesirable extent in the finished product, particularly in printing in which there is shading and in the finer, dull gloss effects simulating engraving.

The present invention makes it possible to use the unbleached shellac, without the objections and disadvantages heretofore attendant thereto.

Briefly, the invention involves the bonding with the unbleached shellac of a color or colors which, with fusion of the shellac on the ink, will so blend or become effective therewith, as to give to the final product the desired color.

The bonding of the blending or neutralizing color with the shellac may be effected in various ways. Particularly however, is it desirable that the color be so combined as not to affect the solubility or fusibility of the shellac and its tenacious and resilient character when combined with the paper in the final product.

It has been found possible to accomplish these desired results in at least two different ways. Both methods involve the principle of partially melting the granules of shellac and causing the coloring material to adhere as a coating to the sticky granules.

In one method, a solvent for the shellac, such as wood alcohol, butanol, or the like, is used to moisten and partially dissolve the shellac and the color is mixed therewith while the granules are in this sticky condition. The solvent quickly evaporates, leaving the color particles surrounding the shellac granules, thus preventing the granules sticking together and leaving a dry color-coated shellac powder to work with.

By way of example, for producing an engraving effect compound, the process has been carried out as follows:

A good quality light orange shellac has been used, ground to the desired fineness; for a medium grade, the powder should pass through 160 copper wire mesh. With each pound of this powder, there is thoroughly mixed approximately 1/64 lb. of best carbon black. To approximately each pound of the mixed shellac and color there is quickly sprayed or even poured on about 1/2 gill of wood alcohol or other suitable solvent and then quickly the materials are incorporated and worked together as by being lightly rubbed by hand or mechanical means, so as to cause the

fine color particles to more or less completely coat the grains of shellac.

The quantity of color used is so small in proportion to the amount of shellac that the tenacity and resiliency of the shellac are not injuriously affected. Furthermore, the application of the coloring simply as a coating, instead of in solution with the shellac, apparently makes this coloring keep its position as an outside coating on the shellac when it subsequently fuses on the printing, giving even more definite printing effects than are attained with the bleached shellac.

In the second method of bonding or binding the color to the shellac, heat is used as the dissolving agent with portions of graded orange shellac and color mixed as above. Only sufficient heat is applied to partially fuse the shellac.

Among practical methods, a vibrating machine, such as is used for grading powders is employed, with a closed bottom tray substituted in place of the vibrating screen and subjected to gas or electric heat distributed uniformly. As an instance, in a tray of approximately 25" x 25" exposed heating surface, a ten pound mixture of orange shellac and color is vibrated for about one minute to insure substantially uniform admixture of shellac and color. Then a fusing heat is turned on for approximately 10 or 15 minutes, or until proper amalgamation has been accomplished. Care is exercised to actually effect adhesion of the color particles to the shellac granules, without causing fusion of the mass. When the heat is turned off and the vibration stopped, the tray should be quickly removed to overcome tendency of accumulated heat to fuse the mass.

The color-coated powder, as in the first instance above, should be graded to eliminate oversize particles, which may have been produced by fusion of granules and then be passed through a fine sieve of about 250 mesh to eliminate any color that may not have become properly amalgamated.

For the so-called embossing compounds, the same procedures may be followed, the grading being heavier in accordance with understood practise in the use of embossing compounds.

The several views in the drawing will be understood from the foregoing without further description.

While carbon black has been given as an example of color, it will be understood that this is not by way of restriction and that other colors will be used, in accordance with requirements.

The invention makes it possible to use orange shellac as the principal ingredient of engraving and embossing compounds and these new compounds possess the advantages of unbleached shellac as regards keeping qualities and the like, so necessary for practical purposes, where the materials must be shipped long distances, stored over long periods or be set aside for use only from time to time. In addition to savings accomplished by the elimination of loss and waste, the product actually is less expensive and has greater tenacious and resilient characteristics than the former bleached product and produces just as definite or even more marked color printing effects. The new product has the further advantage that denser color effects may be obtained, because of the fact that coloring is carried by the powder, in addition to the color in the ink.

Furthermore, as the shellac swells in fusing and the coloring on the surface of the granules in effect "floats" to the top, the color is more pronounced, because it is at or near the true surface, instead of being covered by the full thickness of

the shellac, as in past practise. While the bonding of the coloring to the grains of shellac is an adhering surface coating, this attachment nevertheless is sufficiently permanent for any subsequent handling in the production of raised printing either by the hand method or by automatic machine, etc.

Without further analysis, the foregoing will so clearly reveal the gist of this invention that others can by applying current knowledge readily adopt it and make various changes without omitting certain features that from the standpoint of the prior art fairly constitute essential characteristics of the generic or specific aspect of the invention and therefore such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims.

What is claimed is:

1. That step in the art of raised printing, which comprises moistening granules of unbleached shellac and applying thereto while moist a surface coating of coloring, while retaining the shellac in the granular form, suitable for application to printing ink for producing raised printing effects.

2. That step in the art of raised printing, which comprises partially dissolving granules of unbleached shellac while in contact with coloring matter and thereby adhering the latter thereto as a surface coating.

3. That step in the art of raised printing, which comprises mixing a relatively small quantity of dry coloring with moistened unbleached shellac powder and thereby causing the coloring to adhere as a surface coating to the shellac granules.

4. That step in the art of raised printing, which comprises mixing a relatively small quantity of dry coloring with unbleached shellac powder and causing the coloring to adhere as a surface coating to the shellac granules by the use of a small quantity of shellac solvent.

5. That step in the art of raised printing, which comprises mixing a relatively small quantity of dry coloring with unbleached shellac powder and causing the coloring to adhere as a surface coating to the shellac granules by the use of heat regulated to effect only a superficial melting of the granules of shellac.

6. The process of producing raised printing effects, which comprises partially dissolving granules of unbleached shellac and mixing with the same while partially dissolved, finely powdered coloring material and thereby binding the latter as a surface coating on the powder granules.

7. The process of producing raised printing effects, which comprises partially dissolving granules of unbleached shellac and mixing with the same while partially dissolved, finely powdered coloring material, thereby binding the latter as a surface coating on the powder granules, dusting the color-coated powder on printed matter and applying sufficient heat to fuse the powder and cause the coloring to float to the surface of the fused material.

8. As a new article of manufacture, powder for raised printing effects, comprising granules of unbleached shellac having surface coatings of coloring bound thereto by adhesive characteristics in the shellac.

9. As a new article of manufacture for use in the production of raised printing effects, unbleached shellac powder granules having rela-

tively small proportions of coloring attached thereto by a dissolved and subsequently hardened surface film.

10. The process of producing raised printing effects, which comprises mixing shellac powder and coloring in the presence of moisture suffi-

cient to cause the coloring to coat the granules of shellac and subsequently applying heat to the color coated powder sufficient to fuse the shellac and enable the coloring to float to the surface of the fused material.

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