UNITED STATES PATENT OFFICE.

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AUGUST WOHLFARTH AND CONSTANTIN GARTENFELD, OF LEIPSIC, GERMANY.

IMPROVEMENT IN METHODS OF APPLYING METALLIC POWDERS TO WALL AND FLOOR COVERINGS.

Specification forming part of Letters Patent No. **218,102**, dated July 29, 1879; application filed February 3, 1879.

117-15

To all whom it may concern:

Be it known that we, AUGUST WOHLFARTH and CONSTANTIN GARTENFELD, of Leipsic, in the German Empire, have invented a new and useful Improvement in the Method of Applying Metallic Powders to Wall and Floor Coverings, which is set forth and described in the following specification.

The gold and silver patterns or designs of paper-hangings, tapestry, oil-cloth, and wall and floor coverings in general have commonly, until the present time, been produced by impressing the design upon the paper or cloth with a thick varnish of linseed-oil or other glutinous substance, and then covering it with leaf-gold or leaf-silver, or strewing thereon bronze-powder. This process is objectionable, because a surface-coating of gold or silver leaf or bronze-powder is liable to wear or rub off, and it also necessitates the use of a large quantity of the aforesaid material, thus making the ordinary wall and floor coverings with bronze and gold and silver patterns expensive articles.

We are aware of the fact that it has been proposed to print a colorless and concentrated alkaline silicious solution on paper, so as to form a base for the reception of leaf metal or other metallic substance usually employed in gilding and bronzing paper and other analogous surfaces. The patent granted to Frederick Kuhlmann, of Lille, France, August 12, 1856, No. 15,520, sets forth this last-specified method of printing, and, furthermore, it describes the admixture of silicate of alkali with metallic pigments and various mineral and other colors for producing materials for painting, printing, varnishing, writing, and other analogous purposes.

The present invention consists in the method of applying gold, silver, or bronze powder to wall and floor coverings and analogous surfaces, which consists in mixing the said powders with soluble glass and imprinting the mixture upon the said surfaces before the composition hardens, as will be hereinafter more fully described.

In carrying out our invention we take one weight part of gold, silver, or bronze powder and mix it with two parts of water-glass, soluble glass, or silicate of soda, thus producing a printing-color which, distributed in the usual manner upon suitable printing blocks or rollers, can be transferred upon paper, oil-cloth, and textures, as well as upon wood, glass, porcelain, metal, and leather. The soluble glass takes the place of the varnish or oil heretofore employed.

The design printed by the aforesaid compound dries rapidly, and cannot be removed by water or oil unless the latter are in a boiling state. The design is also not liable to be affected by light and warmth and the injurious influence of oxygen and sulphureted hydrogen which so commonly effect the alteration and destruction of designs produced in the ordinary manner—that is, by strewing the colors on the previously-printed design.

In addition to the simplified manner of printing attained by the use of our compound, we are enabled to produce designs which may be considered permanent or unchangeable, this feature being particularly desirable in connection with textile fabrics, because the latter can be washed without detriment to the design, it being obvious, however, that boiling water must not be used.

The proportions above mentioned will give the most favorable results; but if it is deemed desirable to give a greater or less consistency to the compound or mixture, this may be accomplished by varying the amount of coloring-matter used in connection with the water-glass.

In consequence of the rapid drying of our mixture the process of printing must be performed in an uninterrupted manner, in order to avoid the hardening of the mixture upon the distributing devices or the printing-form. In order to prevent such a hardening from immediately taking place, the mass may be made more liquid by adding a suitable quantity of warm water—say ten to twenty per cent. The same result may also be obtained by the admixture of glycerine, of molasses, or of a solution of sugar in water, these last-men-

D-Mol
D-Glycerol

tioned substances serving also to take up or absorb the printing-color in a perfect manner.

The color which remains upon the distributing device or printing-form after the performance of the printing operation can readily be removed by washing with hot water, thus recovering the bronze and preventing the cementing of the printing-forms.

Having thus described our invention, what we claim as new is—

The method of applying gold, silver, or bronze powder to wall and floor coverings and analogous surfaces, which consists in mixing the said powders with soluble glass and imprinting the mixture upon the said surfaces before the composition hardens, substantially as and for the purpose set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

AUGUST WOHLFARTH.
CONSTANTIN GARTENFELD.

Witnesses:
FRIEDRICH KUNTZE,
ALBERT RHONE.