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UNITED STATES PATENT OFFICE.

EDWARD E. PRAY, OF PLAINFIELD, NEW JERSEY.

ANTISEPTIC WALL-PAPER.

SPECIFICATION forming part of Letters Patent No. 766,842, dated August 9, 1904.

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To all whom it may concern:

Be it known that I, EDWARD E. PRAY, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Antiseptic Wall-Papers, of which the following is a specification.

This invention has reference to the manufacture of wall-papers; and its object is to antisepticize the paper, together with the inks used in connection therewith, by a highly efficient and active antiseptic such as will prevent the lodgment of bacteria or germs.

An object is to employ as an antiseptic a substance highly germicidal and vermicidal in its effect and yet which will not in any way affect the health or have any poisonous effect on the human system.

It is commonly known that wall-paper is hygroscopic, as are also the inks or colors used in printing the same. The abnormal humidity of the atmosphere has a tendency to disintegrate and cause the decay both of the paper and the colors thereon, thereby forming a fertile field for the lodgment of bacilli and other germs.

In the manufacture of wall-paper it is usually, but not invariably, the practice to flow or brush onto the surface of the paper a "ground" composed of a suitably-prepared diluted solution of the color desired, then by successive reciprocating or rotating brushes to rub or brush this ground well into the paper. The paper is then dried, and such various designs and colors as desired are successively printed thereon by any of a variety of means—as, for instance, by hand or by machines specially designed for such printing. As this design-printing is done with comparatively thick colors and usually over the ground, it does not impregnate the paper materially, but remains mostly on the surface thereof or on the surface of the ground thereon, if a ground has previously been applied, and stands up more or less therefrom, somewhat in the nature of an overlay or embossment.

In making my improved wall-paper I first prepare the color for the ground, if a ground is to be used, by mixing with the thin sized solution of the desired color some suitable antiseptic chemical so that the integrity of the color will be maintained and in sufficient quantity and so as to counteract any tendency to putrefaction in the sizing with which the color is mixed, but in sufficient quantities to sterilize the paper which it impregnates and to be an active agent to sterilize such microorganisms and kill such small vermin as may come in contact therewith.

I have used several compounds whose antiseptic qualities are more or less well known. In preparing the colors for my improved process, however, I preferably employ an antiseptic which is rich in hydrocarbon—such, for instance, as a true creosote made from wood-tar and which is non-poisonous, as contradistinguished from the creosotes made from coal-tar, which are highly poisonous. Hydrocarbon oils and turpentine are examples of this class. I have also found that the salicylates are efficient as germicides and antiseptics when used in my improved process. Methyl salicylate and phenol salicylic acid are examples of this class that I have used with success. Balsamic products, such as benzoic acid, are also efficient. I have also used with success various compounds of naphthol, such as beta-naphthol. I have also found that the addition of a small proportion of nitrogen in compound to the various foregoing compounds increases their efficiency. For this addition of nitrogen I have successfully employed, for instance, nitrobenzol.

Having prepared the color by mixing in suitable proportions the sizing, antiseptic, and coloring-matter, I then treat the paper or other material therewith. This ground-color may be applied in a variety of ways; but I preferably apply it by means of soft brushes. Said ground being in a highly-fluid state will naturally soak more or less into the paper; but I prefer to use further and definite means to cause said antiseptic ground to impregnate the paper in a more thorough manner. I preferably accomplish this by means of scrubbing the wet coated surface of the paper with brushes or other suitable appliances—such, for instance, as felt cushions. By continuing this process a sufficient time the antiseptic

solution is largely incorporated with the paper. This scrubbing or brushing may be performed by hand or by suitable machinery.

I next prepare the color or the various colors necessary or desired for printing the design. For these I use as a vehicle any suitable sizing mixed or combined with an antiseptic in a similar manner, as set forth more fully in connection with the description of the preparation of the ground-color. In the case of the design-colors, however, I preferably use a larger proportion of the antiseptic compound than in the case of the ground-color. This is because the design-colors usually do not cover the whole surface of the paper, and to have their antiseptic action of high efficiency they are made correspondingly stronger. It is also more practicable to increase the proportion of antiseptic compound in the design-colors than in the ground-colors, as the former are not so diluted as the latter and is therefore better able to carry an increased amount of the antiseptic.

I have found the creosote of wood-tar absolutely non-poisonous in its effect upon the human system, while its range of uses is limitless as an antiseptic, disinfectant, germicide, and vermicide. It is soluble in water and has a pleasant odor, partly of creosote and partly of pine. I usually mix one part of such creosote to about one hundred parts of water.

A further feature of this improvement resides in the fact that the antiseptic taken from wood-tar has a greater affinity for the oxygen than the color used in the paper. Consequently it is highly efficient as a brightening and preserving agent, not only for color, but for the paper itself. This is especially true with respect to the specific brightening properties of the antiseptic when applied to anilin colors.

It will now be seen that I have provided a highly antisepticized and germicidial wall-paper which will positively destroy all germs and bacilli coming in contact therewith and which is distinctly non-poisonous and harmless to the human system.

It will also be observed that the properties of the wood creosotes are such as to preserve the integrity of the volatile colors usually used on wall-papers.

It will also be observed that a wall-paper prepared and treated in accordance with this invention is inimical to bacteria or vermin, but harmless to the higher organisms.

Having thus described my invention, I claim—

1. A wall-paper treated with an antiseptic derived from wood-tar.

2. A wall-paper impregnated with an antiseptic comprising a creosote derived from wood-tar.

3. A wall-paper sized with an antiseptic, a portion of whose ingredients are derivative from wood-tar.

4. A wall-paper impregnated with an antiseptic derived from wood-tar, and decorated with colors mixed with wood creosote.

5. A wall-paper printed with an ink mixed with wood creosote.

6. A wall-paper whose ground-color is charged with a low proportion of antiseptic and whose decorative colors are charged with a larger proportion of such antiseptic.

7. A wall-paper treated with a substance inimical to bacteria and vermin but harmless to the higher organisms.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 20th day of May, 1904.

EDWARD E. PRAY.

Witnesses:

JOHN O. SEIFERT,

C. A. WEED.