

# UNITED STATES PATENT OFFICE.

TRUMAN J. PEARCE AND MELVIN W. BEARDSLEY, OF OAKLAND, ASSIGNORS  
TO THE PARAFFINE PAINT COMPANY, OF SAN FRANCISCO, CAL.

## PAPER AND PRODUCTS AND MANUFACTURE THEREOF.

SPECIFICATION forming part of Letters Patent No. 348,995, dated September 14, 1886.

Application filed March 21, 1885. Serial No. 159,880. (Specimens.) Patented in England February 5, 1885, No. 1,604; in France March 30, 1886, No. 162,442, and in Belgium March 30, 1886.

*To all whom it may concern:*

Be it known that we, TRUMAN J. PEARCE and MELVIN W. BEARDSLEY, citizens of the United States, residing in the city of Oakland, Alameda county, State of California, have invented certain new and useful Improvements in Paper and Products and Manufacture thereof; and we do hereby declare that the following is a full, clear, and exact description of our said invention and of the manner in which we produce, apply, and carry out the same.

Our invention relates to improvements made in all kinds of paper.

We have discovered that by treating paper with a mixture of bisulphide of carbon and maltha, as hereinafter explained, it will acquire new properties and a new character to such a degree that it becomes a new article of manufacture and of commerce. The compound itself is new, and it may be made with many variations of its incidental qualities—such as are common to other substances—and yet all of the newly-found characteristics which are peculiar to itself will be preserved. Upon the compound itself Letters Patent have been granted to us, No. 338,868, dated March 30, 1886, and the formulas given in said Letters Patent are employed by us in this invention when found applicable.

The following are the modes in which our compound should be prepared for the treatment of paper to give it a new character and new properties, as mentioned. We give here in some formulas, but would not be understood as limiting ourselves thereto, as the proportions may be varied to make a thicker or thinner composition. It is better to make the new compound for some purposes of thicker consistency than it should be when it is intended for other purposes, and on account of this fact we will herein specify enough of the various proportions in which the bisulphide of carbon should be mixed with the maltha, in order to make the compound of any desired consistency and quality, to illustrate the nature of the mixture and enable persons skilled in the use of paints and oils to make any grade desired of the compound which the mixture of bisulphide of carbon and maltha is capable of pro-

ducing, both when other substances are and when they are not mixed with the compound. In this mixture the various well-known properties of various substances may be employed to produce their natural effect—such as, for instance, asphalt, which tends to make the compound more tenacious and adds body to it; sulphur, which furnishes hardness and smoothness of surface, but makes it more brittle when it becomes dry; rosin, which tends to make the compound flow more freely, and also adds hardness to it; paraffine, which makes it more elastic and pliable. Therefore, when desirable to give the compound special characteristics for special purposes, a proportion may be added to the compound of any of these substances. Dirt and all impurities should be removed from the maltha if found therein, as they tend to injure the mixture.

We make the compound very limpid and suitable for saturating paper for some uses by mixing forty (40) parts of bisulphide of carbon with sixty (60) parts of refined maltha in its solid form.

We make the compound extremely heavy and stiff by mixing twenty-five (25) parts of the bisulphide of carbon with twenty-five (25) parts of refined maltha and twenty-five (25) parts of refined asphalt. This mixture is as thick in consistency as it could well be applied with a brush, and it would be of extreme hardness after being applied. In this form the compound would answer very well for covering coarse paper for roofs and surfaces exposed to the elements and not subject to abrasion; but even for such purposes we would prefer the compound mixed with thirty-four (34) parts bisulphide of carbon and sixty-six (66) parts refined maltha. This would be a good form of the compound for most of the uses to which paper painted or saturated with it would generally be applied.

All the proportions herein given are intended to be ascertained by weight.

We apply the mixture while cold to paper, either with a brush or by saturation, or in any convenient manner. It may be applied either on both sides or on one side only. For some purposes it would be desirable to apply it on one side only—such as, for instance, on the



back side of wall-paper in papering rooms. In such cases the paper would be made less combustible, and would be strengthened and protected against the effects of the elements which might reach it through the walls of the house, and the room itself would be more nearly weather-proof, while the embellished face of the paper would be left with all its beauty unimpaired.

Paper treated with the mixture is made water-proof, and in a very high degree impervious to the elements, and is less easily burned than common paper. It can be made of greater elasticity or of increased stiffness, according to the uses for which it is intended and the consistency of the compound with which it is treated. For wrapping-paper and paper bags and similar purposes it should be treated with the compound in a more limpid condition, while paper intended for roofing purposes and for protecting surfaces exposed to the elements should be treated with the compound of the thicker consistency.

A good way to apply the compound to paper is to use two horizontal calender-rollers somewhat longer than the width of the paper to be treated. The lower roller should have its lower part immersed in the compound. The paper should pass between the rollers as they are revolved, and in such case the lower roller will carry the liquid up to and saturate the lower side of the paper. If it is desired to saturate both sides, the paper should be made to pass through the liquid either around the lower roller or otherwise. The pressure of the rollers can be regulated so as to give a smooth and an enameled surface to the paper.

Although the compound is applied to the

paper cold, it very soon dries and attains the normal degree of hardness which it is desired that it should perpetually maintain when the paper treated is applied to its intended use. In this respect it differs from the compounds heretofore used, which have to be applied hot, and which harden as they cool; or, if they are soft when they are cold, they remain soft an indefinite length of time after being applied, and the articles treated with them are liable to smear whatever they come in contact with.

Paper treated with the mixtures herein described is made stronger and tougher and retains its pliability. It possesses a smooth dry surface or finish and will not smear or rub. There is such a complete union between the paper and the mixture with which it is treated that it will not peel, crack, or harden, or otherwise change the surface. The process is carried on at normal temperature as regards both the paper and the mixture, and the fiber of the paper is not burned or injured in any manner. By treatment with the mixtures paper is rendered less inflammable than untreated paper. In addition to its water-proof qualities the treated paper is odorless.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

As a new article of manufacture and commerce, paper painted or saturated with a compound of bisulphide of carbon and maltha, substantially as herein set forth.

TRUMAN J. PEARCE. [L. S.]

MELVIN W. BEARDSLEY. [L. S.]

Witnesses:

EDWARD E. OSBORN,

L. OSBORN.