UNITED STATES PATENT OFFICE.

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PRINTING COMPOUND.

1,082,099. Specification of Letters Patent. Patented Dec. 23, 1913.

No Drawing. Application filed May 25, 1912. Serial No. 699,740.

To all whom it may concern:

Be it known that I, FRED A. PUTNAM, a citizen of the United States, residing at Melrose, county of Middlesex, State of Massachusetts, have invented an Improvement in Printing Compounds, of which the following description is a specification.

This invention relates to a printing compound for use in printing or marking on leather, cloth, paper, etc., and particularly to a compound which is adapted for use with those machines which are designed to mark or print an impression on parts of shoes, hat bands, tops of boxes, tags, whether made of leather, paper, or cloth, etc.

The objects of the invention are to provide a printing compound which is quick-drying in the sense that it will dry or set immediately when the impression is made with a heated type member or die, so that the goods printed on can be handled freely without rubbing or smutting the printed impression, and without danger that the impression will be transferred from one piece to another when the printed boxes are stacked one on the other; to provide a compound which is water-proof, so that the printed impression will not wash off from the article; to provide a printing compound which is flexible in that the impression will not be affected in any way by crumpling or bending or folding the material on which the impression is made; to provide a printing compound having the above characteristics which will not clog up on the impression member of the printing machine as it is being used so that the impression member is practically a self-cleaning member; to provide a printing compound of this nature which can be given any desired color by merely adding suitable dye material thereto; and also to provide a novel printing compound having other advantages and characteristics which will be more fully hereinafter described and then pointed out in the appended claims.

My improved printing compound is in semi-liquid or pasty form and is of such a nature that it can best be used in connection with a heated die or impression member. When the improved compound is thus used in connection with the heated die, the heat of the latter will heat the compound which is applied to the impression face thereof and render the compound very fluid, and when the coated impression member is applied to the work the fluid compound is readily and entirely transferred from the die to the face of the work. The compound has the quality of penetrating more or less into the pores of the work and thus becomes permanently attached thereto, and the compound has such characteristics that the heat of the die will produce a burnished impression. Further, the printing compound is of such a nature that the heat of the die evaporates any liquid constituents thereof so that the impression is dry the instant that it is made, and the printed impression, therefore, does not need to be subjected to any drying process to prevent it from rubbing or smearing.

I obtain my improved printing compound by taking some suitable wax, preferably a vegetable wax, as a base (for instance, the wax commonly known as carnauba wax being highly suitable for this purpose), and then cutting this wax with a suitable solvent which has quick-drying non-staining properties. I find that carbolic acid makes a good solvent for the wax, although my invention is not necessarily limited to this solvent, as any solvents for the wax which have the quick-drying non-staining properties and the capacity of readily mixing with the coloring matter to be used will answer the purpose. If carbolic acid is used, I find that a compound of the proper consistency can be secured by using a pint of the solvent for every three to five ounces of the wax. Wax and solvent used in these proportions will form a more or less pasty mass which, however, does not have tenacious or sticky qualities, but is more waxy in its nature. The compound thus made has no defined color, but is adapted to take anilin dyes of any color. These dyes may be added in a variety of ways. In some instances the anilin dye of whatever color may be mixed with an oil vehicle to bring it into semi-fluid form, and then this compound may be mixed with the wax compound. Linseed oil or olive oil will answer for this purpose, although it is desirable to use as little oil as possible to secure the desired result. Some coloring material may be ground in the wax and thus mixed directly therewith without the use of the oil vehicle. This method is preferable in some instances because it adds to the quick-drying properties of the printing compound. The presence of any quantity of oil in the compound tends to retard the drying operation. By means of the anilin dyes

the printing compound can be given almost any desired color. The compound can also be made to produce a gilt or gold impression by mixing with the wax a bronze powder, or powdered gold; or powdered silver or an aluminum bronze may be used for giving a silver color. In any event after the coloring is mixed with the material, then the compound will have a waxy consistency in semi-fluid form which will tend to harden somewhat as it stands, but which becomes thinner and more liquid when it is stirred.

This printing compound is intended to be used in connection with a heated impression member, and in using it the impression face of the heated impression member will first be coated with the compound by means of an ink roll or any other suitable mechanism, and then the coated impression member will be impressed against the work. The heat of the impression member renders the printing compound extremely liquid and fluid, and when the coated impression member is applied to the work the compound is readily transferred to the work. The nature of the compound is such that it penetrates the pores of the leather, cloth, or other material to a certain degree, thus carrying the dye matter with it, and the heat of the impression member facilitates this operation. Further, the heat of the impression member vaporizes the volatile constituents of the printing compound so that the impression is dry the instant that it is made. Moreover, because of the waxy consistency of the compound the heated impression member serves to burnish the impression and the waxy constituents of the compound flow over and inclose entirely the particles of coloring matter so that when the impression is made it is practically supplied with a wax coating which renders the impression water-proof. This water-proof quality is also partly secured by the fact that the hot liquid wax carries the coloring matter into the pores below the surface of the work, and the wax tends to fill the pores where the impression is made and thus seal the coloring matter therein.

The compound has this characteristic that it does not clog up on the impression member and the impression member becomes a self-cleaning one. This is due to the facility with which the ink compound is transferred from the impression member to the work and to the fact that the compound seems to have a stronger attraction for the work than for the die member. By the term "quick drying" as used in the specification and claims I mean quick drying in the sense that the impression will dry immediately when it is made with a heated type member or die.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A printing compound composed of a water-repellent base dissolved in carbolic acid and mixed with a coloring ingredient to form a pasty, but non-sticky mass which is rendered thinly fluid by heat.

2. A printing compound comprising a vegetable wax dissolved in carbolic acid and containing a coloring ingredient.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRED A. PUTNAM.

Witnesses:
H. R. FLETCHER,
E. C. LONGFELLOW.