

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN THE MANUFACTURE OF INK FOR PRINTING POSTAGE-STAMPS.

Specification forming part of Letters Patent No. 52,869, dated February 27, 1866.

To all whom it may concern:

Be it known that I, JAMES MACDONOUGH, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Printing-Ink adapted for printing revenue-stamps, postage-stamps, and the like, which are to be canceled when used; and I do hereby declare that the following is a full and exact description thereof.

My invention is intended, without expense or difficulty, to lessen or avoid altogether the chance of a removal of the canceling mark or marks.

My ink is so readily dissolved by acids or other chemical reagents, as also by water, oil, and, in fact, nearly or quite all kinds of liquids, that a canceling-mark cannot be taken off without dissolving and thus removing or obscuring the ink with which the devices are originally printed, and it is at the same time "short" and adapted for plate-printing, is capable of being handled with freedom, and of being bent, folded, pressed together, and otherwise treated in the ordinary manner required for the handling, packing, and transporting of the printed stamps without involving the removing or changing the whole or any portion of the ink.

I have experimented for a long period on the employment of glycerine in printing-inks. Nearly or quite all coloring-matters may be ground in glycerine and thus manufactured into ink, and the glycerine will dissolve with such facility as to render it impossible to wash the canceling-ink from the stamp without removing the original glycerine-ink. The extreme ease with which devices so printed may be destroyed or obscured renders it desirable to modify and diminish the solubility of the ink by the use of an additional material. Gelatine, animal or fish glue may be employed for this purpose with success; so, also, may starch or flour; so, also, may dextrine, gum-tragacanth, gum-arabic, or other gums which are soluble in water. Albumen may be employed with success; but the expense makes it preferable to use some of the other materials. Linseed-oil or linseed-varnish (boiled oil) may also be used with success; but the tenacity with which linseed-oil retains its hold on the coloring material and resists the action of any reagent for

a little time renders it less desirable. A drier should, of course, be employed with raw linseed-oil, and driers may be used with any of the materials I have above designated as desirable to modify the soluble character of my glycerine-ink.

The proportions of the ingredients may vary according to the uses for which the ink is intended and the climates or conditions in which it is to be used or through which it is to be transported. It is found, for example, that stamps prepared in New York to be used in a hot climate must be prepared with precautions which are unnecessary in manufacturing stamps to be used in Maine or Iowa. It will usually be found expedient when gelatine is employed to use about the same quantity of gelatine as of glycerine, when albumen is employed to use about equal parts of albumen and glycerine, when starch or flour is employed to use a smaller quantity—say about one-half as much starch or one-half as much flour as of glycerine, and to use still less of dextrine or analogous gums. In using linseed-oil (raw) it is well to use about one-half as much oil as glycerine, and in using varnish (boiled or burned linseed-oil) to use about one-quarter as much varnish as glycerine.

I can use any two or more of these materials instead of one, to be mingled with the glycerine and thus form the vehicle for the coloring material. The compound vehicle, composed of glycerine with one or more of the modifying materials designated, may be made by the means described a long period in advance of the addition of the coloring-matter, and may be transported and sold for use as a vehicle, allowing the purchaser to grind it with various pigments, according to the color he may require.

The mode of proceeding which I consider the best to carry out my invention, having economy and convenience as well as efficiency in view, is to put on the stone or in the tub equal quantities of ordinary glycerine and ordinary gelatine of commerce and add sufficient coloring-matter with a very small quantity of the common drier known in the trade as "patent drier." The gelatine should be reduced to the consistency of jelly by previously soaking it with water and afterward warming it before presenting it to the other ingredients.

After incorporating these thoroughly with the knife or other suitable agitator, grind the whole together in the mill, and the ink is ready for use.

The proportions of the ingredients may be varied to suit any required condition. Other driers may be used, as litharge or sugar of lead, or the drier may be varied at pleasure or may be omitted altogether when sufficient time can be allowed for the ink to harden without it, and all the ordinary precautions may be employed which are known among ink-manufacturers to make the ink of a proper consistency and quality, whether for plate or surface printing.

I propose to use this ink for the printing of postage, revenue, royalty, proprietary, and all other stamps which represent a pecuniary value and require to be canceled to prevent a fraudulent second use.

I am aware that several parties have proposed the preparation of stamps which would not require a canceling-mark, or which were self-canceling, or from which the canceling-mark could not easily be removed without removing the original ink or destroying the stamp; but the means proposed by them were different from my improved ink. My ink will more certainly and more economically accomplish the desired result, inasmuch as stamps printed with my ink may be made just sufficiently sensitive, and are as portable as those now in use, and they can be manufactured with about the same facility without change of machinery, addition of processes, or serious increase of expense, and without changing the body color of the ink.

It will be observed that mine is an ink which can be used either for plate or surface printing, and which possesses the peculiar property or quality of being readily decomposed or destroyed when even the most simple and an-

tagonistic solvents are applied to it mechanically. Reagents cannot be applied chemically with any greater success, for while they would have free access to the body of the ink, the mere immersion and necessary handling of the printed impression while it was being acted upon would remove the ink.

Impressions with my improved ink may be printed upon with another color of the same or a different ink when desired. The method adopted by the Treasury Department of the Government and by the banks for securing legal-tender notes and other issues, coupon-bonds, bank-notes, and other papers representing value and requiring to be secured against scientific counterfeiting and alteration can be well carried out by the use of this ink—viz., the printing of two colors upon the face of the document, so arranged that one color is printed partially over the other. If one of the colors were printed in this ink, the other, printed in the ordinary printing-ink, could not be removed without destroying the impression.

Having now fully described my invention, what I claim as new therein, and desire to secure by these Letters Patent, (marked A,) is as follows:

1. A sensitive and soluble printing-ink adapted for both plate and surface printing, made with glycerine, for the purpose of printing postage and other stamps and preventing the fraudulent removal of canceling-marks, substantially as herein set forth.

2. Glycerine in combination with gelatine or an equivalent material adapted to reduce the solubility of ink made therewith, substantially as and for the purpose herein set forth.

J. MACDONOUGH.

Witnesses:

T. D. STETSON,
D. W. STETSON.