

UNITED STATES PATENT OFFICE.

JOHN F. LOASE, OF GRAND RAPIDS, MICHIGAN.

IMPROVEMENT IN INKS.

Specification forming part of Letters Patent No. 150,475, dated May 5, 1874; application filed February 5, 1874.

To all whom it may concern:

Be it known that I, JOHN F. LOASE, of Grand Rapids, Kent county, State of Michigan, have invented certain Improvements in a Compound called "Sympathetic Ink," patented by D. C. McNeil, June 30, 1868, No. 79,374, and also a new and useful art, invented by said JOHN F. LOASE, having a necessary and dependent connection with the said improvements, all intended to aid electrotyping, stereotyping, and kindred arts, of which the following is a specification:

These inventions relate to that class of compounds, and also to an art, each depending on the other, which, to a considerable extent, lessen the labor and expense of electrotyping, stereotyping, and kindred arts.

To prepare said compounds, take—

(A.) Sulphuric acid, (commercial.)

(B.) Refined white coffee-sugar.

(C.) Pure soft water at ordinary temperature.

(It should be observed that the proportions of all the fluids are ascertained by fluid measure, and not by weight.)

(BC.) Dissolve one ounce (avoirdupois weight) of sugar (B) in twenty-three drams of water, (C.)

(ABC.) Mix sulphuric acid (A) with the sugar-and-water solution, designated by BC, in the proportion of two of the acid to one of said solution. This makes a very black compound, which attains a high degree of temperature while mixing. Let it become cold.

(1.) Mix some of the last-named compound, designated by ABC, with an equal quantity of water, (C.)

(2.) Mix some of the compound designated by ABC with twice the quantity of water, (C.)

(3.) Mix some of the compound designated by ABC with three times the quantity of water, (C.)

(4.) Mix some of the compound designated by ABC with four times the quantity of water, (C.)

(5.) Mix some of the compound designated by ABC with five times the quantity of water, (C.)

(6.) Mix some of the compound designated

by ABC with six times the quantity of water, (C.)

To use said compounds designated by the figures 1, 2, 3, 4, 5, and 6, respectively, apply them, like ordinary ink, upon one side only of bristol-board or other card-board of similar quality and nature, with a pen or other implement, according to the work desired. Put on as much of the fluid as the mark made will hold conveniently. Suffer the fluid to dry undisturbed. The compound designated by 6 makes a mark slightly elevated above the surface. The compounds designated by 5, 4, 3, 2, and 1, respectively, make marks raised higher and higher in the order indicated, the compound designated by 1 making the highest elevation.

The said marks are raised by any one of said compounds in proportion to the width of the mark made. Therefore, in writing a page of different-sized letters, or drawing a map, cut, or other work, two or more of the different grades of fluids designated by said numbers may be used to secure uniformity of height in all the work wherever that is desired.

The said art consists in the use of said fluids, as aforesaid, combined with the following methods of making molds and casts of and from the work done with said fluids, which molds and casts should be made as soon after as practicable, within about thirty days, owing to the corrosiveness of the fluids aforesaid.

The bristol-board or other card-board having the writing, cut, drawing, lines, or marks made with said fluids upon them, should first have a light coat of thin shellac varnish brushed evenly over the back. Next oil a perfectly smooth and level surface prepared for the purpose, and also oil the back of the card over the dried varnish. Stick the card down onto the smooth, level surface by means of the oil. Next oil the face of the card evenly. Fasten over the card a thin chase, large enough to leave a suitable margin between the work and the inner edges of the chase. Then pour pure melted wax, not too hot, over the oiled written surface. Take off the surplus wax carefully above the level of the chase with a straight float. When the wax has become hard, take off the chase, mold, and card. Separate the card from the wax

mold. The wax mold will be found to have a perfect impression of the cut, drawing, or writing, as originally upon the card. The wax mold so produced may then be prepared and used in electrotyping in the usual manner.

Plaster casts may be taken from such wax molds in the usual way, first oiling the wax mold evenly. Plaster casts may be taken directly from such cards by first brushing a light coat of thin shellac varnish over both sides of the card quickly, and then proceeding as above stated in taking a wax mold, except using fine plaster-of-paris mixed to the consistency of cream instead of wax. Harden the plaster cast and use it as is commonly practiced.

Other substances which answer the same purpose may be used instead of wax or plaster.

Where the work done is large, the bristol-board or other card used may be cut into sections, and the copper shells produced in electrotyping from the wax molds may be trimmed and united at or about the time of backing them with type-metal. Similarly in stereotyping and other cases.

Substantially the following method of making molds may be used: Varnish the back of the card or section thereof, as aforesaid; then glue or paste the card carefully onto a piece of

wood or other suitable substance of the right size and thickness, made perfectly smooth and level, or such other form as may be desired. Pour pure melted wax, or some other substance answering the same purpose, over the surface of the card without using oil; then heat the wax on the surface, distributing a thin coat of it over the whole surface of the card and the work executed thereon. Then use the mold so made as above specified.

I claim as my invention the following improvements upon the invention of said D. C. McNeil, viz:

1. The combination of sugar and water in about the proportions aforesaid, then mixing said sugar-and-water solution with sulphuric acid in about the proportions aforesaid, and when cooled mixing said last-mentioned compound with water in different proportions, substantially as and for the purposes specified.

2. The said art, consisting in the use of said fluids, as specified, combined with the methods of making molds and casts of and from the work done with said fluids, substantially as and for the purposes specified.

JOHN F. LOASE.

Witnesses:

WILLIAM D. FULLER,
JOHN H. STANDISH.