

UNITED STATES PATENT OFFICE.

EDWARD PAYSON LAWTON, OF CHARLESTON, SOUTH CAROLINA.

COPYING-INK.

SPECIFICATION forming part of Letters Patent No. 690,862, dated January 7, 1902.

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To all whom it may concern:

Be it known that I, EDWARD PAYSON LAWTON, a citizen of the United States, residing at No. 4 Aiken Row, in the city and county of Charleston, State of South Carolina, have invented a new and useful Copying-Ink, of which the following is a specification.

My invention relates to an improvement in writing-ink and more particularly to what is known as "copying-ink."

The object of the invention is to produce an ink wherewith a dry copy can be made—in other words, to make an ink from the writing with which a copy can be made on tissue-paper without the use of moisture or a letterpress by merely placing the tissue-paper on the writing and rubbing it with the fingers.

In making my improved copying-ink I employ coloring-matter in solution, and with this I combine ammonium chlorid in the proportion of about one hundred and twenty grains to the fluid ounce and sugar in the proportion of about one hundred grains to the fluid ounce, or instead of sugar I may use thirty drops of mucilage or a similar quantity of glycerin as equivalents of sugar.

Any commercial writing fluid may constitute one of the ingredients of my ink, and if the said writing fluid contains sugar or some equivalent substance it is then simply necessary to produce a copying-ink in accordance with my invention to add to such writing fluid chlorid of ammonium in substantially the proportions stated.

While good results can be obtained by the addition of chlorid of ammonium to commercial writing fluid containing sugar, I prefer to make my ink as follows, using the ingredients in substantially the proportions stated:

Infusion of nutgalls, thirty cubic centimeters; ferrous sulfate, (copperas,) twenty cubic centimeters; ammonium chlorid, (sal-ammoniac,) one hundred and twenty grains; sugar, one hundred grains; carbolic acid, three drops.

If desired, mucilage or glycerin may be substituted for sugar, or both of these may be used in conjunction with sugar. If desired, twenty grains of common salt may be used in addition to the other ingredients specified.

The quality of enabling the making of a

dry copy is due to the composition of ingredients specified, and more particularly to the sal-ammoniac, (ammonium chlorid,) which ingredient in my compound imparts to the ink certain qualities which enable the transfer-
ence of sufficient coloring-matter to a dry tissue-sheet to produce a copy of the writing on the latter and at the same time avoid or counteract the adhesive quality of the sugar, and thus prevent the tissue from sticking to the writing and becoming torn during its removal. The use of sal-ammoniac also causes the coloring-matter to penetrate the tissue instead of merely adhering to the under surface thereof, as is the case with ink made in accordance with my formula, but omitting the sal-ammoniac. When the coloring-matter merely adheres to the under surface of the tissue, it is liable to stick to other sheets and transfer more or less thereto.

The theory of operation of my ink may be stated as follows: Experiment has shown that when my ink is used there will form on the same as it dries a sort of film or crust which will preserve or retain sufficient moisture under it or between it and the surface of the sheet to permit a copy to be made with a sheet of tissue-paper when the latter is placed upon the writing and rubbed by the hand of the user. The ink will penetrate the fiber of the tissue and will not stick to the writing.

It might be possible to obtain a copy from writing with ink omitting the sal-ammoniac, if the tissue be applied to the writing before all the moisture has evaporated, but such a copy is objectionable. In making a copy from ink from which the sal-ammoniac has been omitted the adhesive quality of the sugar is alone depended upon to effect the transference of ink to the tissue, and the ink will merely adhere to the under face of the tissue without penetrating the fiber thereof to any appreciable extent. The sticky character of the ink will cause the tissue to adhere to the sheet on which the writing has been produced and cannot be withdrawn without danger of tearing the tissue. Furthermore, the ink on the tissue will retain its sticky characteristic and when placed in contact with other sheets will be liable to stick thereto.

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

1. Copying-ink consisting of an infusion of
5 nutgalls, ferrous sulfate, sugar and chlorid of ammonium in substantially the proportions stated.

2. Copying-ink consisting of nutgalls, ferrous sulfate, sugar, chlorid of ammonium and carbolic acid.

EDWARD PAYSON LAWTON.

Witnesses:

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