

# UNITED STATES PATENT OFFICE

WILLIAM E. SAWYER, OF NEW YORK, N. Y.

## IMPROVEMENT IN COPYING-TELEGRAPHS.

Specification forming part of Letters Patent No. **171,050**, dated December 14, 1875; application filed November 5, 1875.

*To all whom it may concern:*

Be it known that I, WILLIAM EDWARD SAWYER, of the city of New York, in the State of New York, have invented certain new and useful Improvements in Copying or Autographic Telegraphs, of which the following is a specification:

My invention relates to a division of the improvements in chemical copying-telegraphs, set forth in my Letters Patent No. 159,460, dated February 2, 1875, in which I have made further improvements—namely, those included in the following description from the aforesaid Letters Patent:

“My invention includes two kinds of insulating ink—one a solution of silicate of soda, the other a mixture of gum arabic, or similar gelatinous or resinous substance, and bichromate of potash, properly colored. I do not propose, however, to only write the message in insulating ink upon a metallic surface, but also the writing of a message upon a special white or ordinary paper and transferring the lines of writing to a metallic surface lithographically, or by fixing the paper upon the metallic surface, and by washing with an acid, alkali, or other agent, destroying either that portion of the paper which is blank, or that portion which is covered by the lines of writing.”

It is important in a copying-telegraph to avoid the writing of a message for transmission upon a metal or a metallic surface. Although this end is attained in my invention described in the before-mentioned Letters Patent, I have found it possible to greatly improve upon the results secured by that invention, as will appear herein.

In respect of this division of my invention I preferred to use for the process set forth in the Letters Patent No. 159,460 an ink consisting of lithographic ink, water, and glycerine, properly colored. This ink is transferred readily by pressure to any metallic plate or metallic surface, especially to a zinc plate or surface. Finely-powdered asphalt adheres readily to the transferred lines of writing, and, upon being subjected to heat, a combination takes place, and, by the liquefaction and subsequent solidification of the asphalt, a hard

insulating writing surface is obtained. I find that almost any ink containing glycerine or oily matter will so transfer; and one of the best materials for the preparation of a plate in this manner is the earth-pitch of the West Indies. But a better process is comprised in my present invention. In preparing the plate after the message written upon ordinary paper has been transferred to the same I sprinkle over it any of the gums finely powdered, which require the addition of moisture before they will readily liquefy by heating. These gums adhere to the transferred lines of writing, and if the plate, thus prepared, be held for a moment where the gum will collect moisture—as, for instance, in a jet or box of vapor or steam—the lines of writing upon being subjected to heat acquire a firmness, solidity, smoothness, and insulating character not attainable in the before-described process. In all other respects the operation is substantially the same as that described in the foregoing quotation and my Letters Patent No. 159,460. I do not confine myself to the use of any particular writing-ink, however; nor to any particular insulating material; nor to sprinkling any insulating material upon the transfer; nor to subjecting the transfer to heat, as it is obvious the transferred lines of writing may be hardened in various ways—such as by chemical action, by drying in a wind-blast, by the action of light, &c.

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

In a copying-telegraph, the method of preparing a message for transmission, consisting in transferring the message to a metallic plate or metallic surface, sprinkling the transfer with an insulating material, subjecting the same to the action of moisture, and hardening the resultant raised surface by heat, light, or chemical action, as set forth.

The above specification of my invention signed by me this 10th day of October, 1875.

W. E. SAWYER.

Witnesses:

JAS. G. SMITH,  
JAS. A. KITTLE.