UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF AND GEORGE HARRINGTON, OF WASHINGTON, D. C.

IMPROVEMENT IN CHEMICAL TELEGRAPHY.

Specification forming part of Letters Patent No. **166,859**, dated August 17, 1875; application filed July 25, 1874.

CASE No. 88.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Newark, in the county of Essex and State of New Jersey, have invented an Improvement in Chemical Telegraphs, of which the following is a specification:

The object of this invention is to record dots and dashes upon chemically-prepared paper by electric decomposition for telegraphing.

The invention consists in forming the decomposing stylus or pen of tellurium and wetting the paper with water or any liquid conductor. I prefer water to which has been added a quantity of hydrate lime or potash.

If the stylus, tipped with tellurium, is connected to the zinc end of a battery, and the drum or plate upon which the moistened paper rests be connected to the copper end of the battery, hydrogen is evolved at the point where the tellurium touches the paper. The hydrogen combines with the tellurium to form hydrotelluric acid, which has a red color, but is instantly decomposed in contact with the air, and forms a black pigment, which is permanent. I have found that this reaction is more delicate than that of iodide of potassium, which is the most delicate known in chemistry. This decomposition of tellurium has the peculiar characteristic over all other metals that it produces the mark with hydrogen, and also that the mark, at its first formation, is not a precipitate like the ferrocyanide of iron when an iron pen and ferrocyanide of potassium are used, which has a tendency to adhere to the stylus after the current has ceased, and produce attenuation of the signals; but the permanent color is formed by the action of the air after the decomposition has taken place: hence the signals will be much sharper.

I claim as my invention—

1. The method of recording telegraph or other signals by the electro-decomposition upon moistened paper or other material of a stylus of tellurium.

2. A paper moistened with hydrates of lime, potash, or the cyanides of potassium, for use with a tellurium stylus, for the purpose set forth.

Signed by me this 1st day of June, A. D. 1874.

THOS. A. EDISON.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.