UNITED STATES PATENT OFFICE.

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ART OF PRINTING, LITHOGRAPHING, &c.

SPECIFICATION forming part of Letters Patent No. 412,183, dated October 1, 1889.

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To all whom it may concern:

Be it known that I, OLIVER G. HOLT, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in the Art of Printing, Lithographing, &c., of which the following is a specification.

My invention relates to type and plate printing, lithographing, and similar impression-work by means of an ink applied to the impression-surface. Heretofore inks employed for such purposes have been manufactured articles, compounded of various ingredients, of which boiled linseed-oil is the usual vehicle for pigments to give color, and for resins or other gums to give both brilliancy and body. In preparing such inks great caution must be exercised in securing the proper proportions of the ingredients employed, as well as in grinding and boiling them.

My invention consists in lithographing, printing, &c., by means of maltha. This maltha which is employed is a natural product, and it occurs in nature in a semi-fluid condition. This natural semi-fluid maltha is characterized by its being of a consistence approximating that of ordinary commercial printing-ink by its color (which when in bulk is nearly black) and by its homogeneous character. It occurs in nature in an almost absolutely pure condition, there being practically no foreign substances mingled with it, and when obtained in bulk it is of a uniform and homogeneous consistence and character throughout its mass. I have found by repeated experimental tests that this material not only possesses all the desirable qualities of the best printing and lithographing inks, but also possesses greater elasticity, toughness, and indelibility. It unites with paper to such a degree that no solvent, so far as is now known to me, will remove the impression entirely. It also has the merit of great brilliancy and tone, while its drying qualities are superior to those of the best commercial printing-inks. While when taken from the earth its color, if in bulk, is nearly black, when applied to paper by type or lithographic stone it presents a rich dark-gold color. This semi-fluid maltha is capable of use directly as a printing-ink without any manipulation or treatment. If, however, of not quite the proper consistence to enable it to be used immediately as an ink, it can be thinned or thickened, as circumstances demand, by means well known in the art. Ink of any desired color may be obtained by adding to the maltha a pigment or pigments in small quantities, usually about ten per cent.

Maltha is found in certain sections of the United States and in some foreign countries. It can be prepared for use, as above described, at much less expense than any ordinary printing-ink. The improved ink is used for printing purposes by apply it to the impression-surface.

In using the semi-fluid maltha, type-printing, plate-printing, lithographing, and all other kinds of impression-work—such as that known as "crayon" work and "pen" work—can be done with equal facility. This range of adaptability is one of the important characteristic features of printing by means of semi-fluid maltha, whereas in printing with ordinary inks different kinds of ink are required for different characters of work.

I make no claim to printing with an ink composed of hard asphalts—such, for example, as grahamite. In order to print with such hard asphalts, it is necessary to first reduce them to a condition in which they can be worked, either by grinding into a powder or by fusing, and then it is essential to add oil or other ingredients to them before an ink can be formed. The result of these necessary manipulations is to add to the cost, making the ink so prepared quite expensive. The semi-fluid maltha, on the contrary, requires little or no treatment to enable every character of printing to be done by it.

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

1. The herein-described improvement in

the art of type and plate printing, lithographing, and doing other impression-work, which consists in printing, lithographing, &c., by means of semi-fluid maltha.

2. The herein-described improvement in the art of type and plate printing, lithographing, and doing other impression-work, which consists in printing, lithographing, &c., by means of an ink composed of semi-fluid maltha and of a pigment or pigments.

OLIVER G. HOLT.

Witnesses:
CHARLES G. RICHIE,
WALTER EVANS.