

UNITED STATES PATENT OFFICE.

WALTER R. FORBUSH, OF BOSTON, MASSACHUSETTS.

ARTIFICIAL LITHOGRAPHIC AND HECTOGRAPHIC STONE.

SPECIFICATION forming part of Letters Patent No. 516,370, dated March 13, 1894.

Application filed May 13, 1893. Serial No. 474,135. (No specimens.)

To all whom it may concern:

Be it known that I, WALTER R. FORBUSH, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Artificial Lithographic and Hectographic Stone, of which the following is a specification.

This invention has for its object the production of a cheap, efficient, light, and durable substitute for the expensive and heavy stones now commonly used in lithographic work. As is well known the stones suitable for lithography are expensive, not only on account of their comparative scarcity, but also because of the labor necessary to prepare them for use. The stones are very heavy, difficult to handle, and easily defaced, and when stored in large numbers become dangerous by reason of the weight. In the course of my experiments to devise a satisfactory substitute for the usual lithographic stone, I have discovered that a mixture of gelatinous and earthy matters, with a suitable liquid, makes an artificial lithographic surface which may be used either as a stone for lithographic work, or hectographically, or a combination of the two may be employed if desired, as will be described.

In preparing my artificial lithographic stone, I take substantially equal parts, by volume, of an earthy matter, such as talc, infusorial earth, or soap-stone, preferably in a finely divided condition, and thoroughly incorporate it with a liquid, such as glycerine, or water and glycerine, the glycerine preponderating. I then take the gelatinous substance, substantially equal in volume to the earthy matter, and which may be gelatine, animal or vegetable glue, or albumen, cut it into small pieces, and add to the liquid and earthy matter, mixed as described, place the ingredients preferably in a water bath, and heat until the gelatinous matter is entirely melted. The mixture is stirred from time to time to thoroughly intermingle all the ingredients, and when the gelatinous matter has been completely melted the mixture is poured

into a suitable mold and permitted to cool. If the mixture does not pour readily, water may be added thereto in sufficient quantity to attain the desired result. The surface of the slab or plate thus molded can be readily trued by ordinary grinding with an abrading material, such as sand or emery. The stone so made is light, durable, cheap and efficient. While the earthy matter may be mixed with water or a similar liquid which does not rapidly evaporate, with good results, I prefer to use glycerine, either wholly or in part, as the glycerine maintains the mixture soft and elastic for a long time, and in proper working condition. A separate stone made as described may be used for each color, as in usual lithographic work, the design being transferred thereto in any suitable ink capable of coagulating the gelatine or other gum, tannic and chromic acid, alum, bichromate of potash or ammonia, or salts of iron being some of the substances which will give to the ink the requisite property.

The artificial stone can be used hectographically by using anilines in the ink, or the outline of a design may be made in acid ink, using aniline colors for the other portions, and when ordinary greasy lithographic ink is applied to the surface the outlines will take up and the aniline colors repel it, so that the design will be produced upon a sheet of paper in aniline colors and lithographic ink outline. The printing surface is sufficiently elastic to produce a good impression, yet without yielding enough to distort the design. If it is not desirable to preserve the design, the surface of the stone may be cleaned by slight grinding with an abrasive substance.

There is practically no limit to the size of the stones made as described, they are very light as compared with the natural lithographic stone, and they are much less expensive.

I am aware that thin sheets or films of gelatine have been used as printing surfaces, and I do not claim such devices.

I claim—

1. The herein described artificial litho-
graphic and hectographic stone, composed of
gelatinous and earthy matters, and a liquid,
containing a preponderance of glycerine, in
5 substantially the proportions specified.

2. The herein described artificial litho-
graphic and hectographic stone, composed of
finely divided infusorial earth, glycerine, and
a gelatinous substance, intimately mixed and

incorporated with each other, in substantially to
the proportions specified.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

WALTER R. FORBUSH.

Witnesses:

GEO. W. GREGORY,
JOHN C. EDWARDS.