E. RYE.

MODE OF PRODUCING LITHOGRAPHIC COPIES FROM PHOTOGRAPHIC NEGATIVES.

No. 109,551. Patented Nov. 22, 1870.

Fig. 1

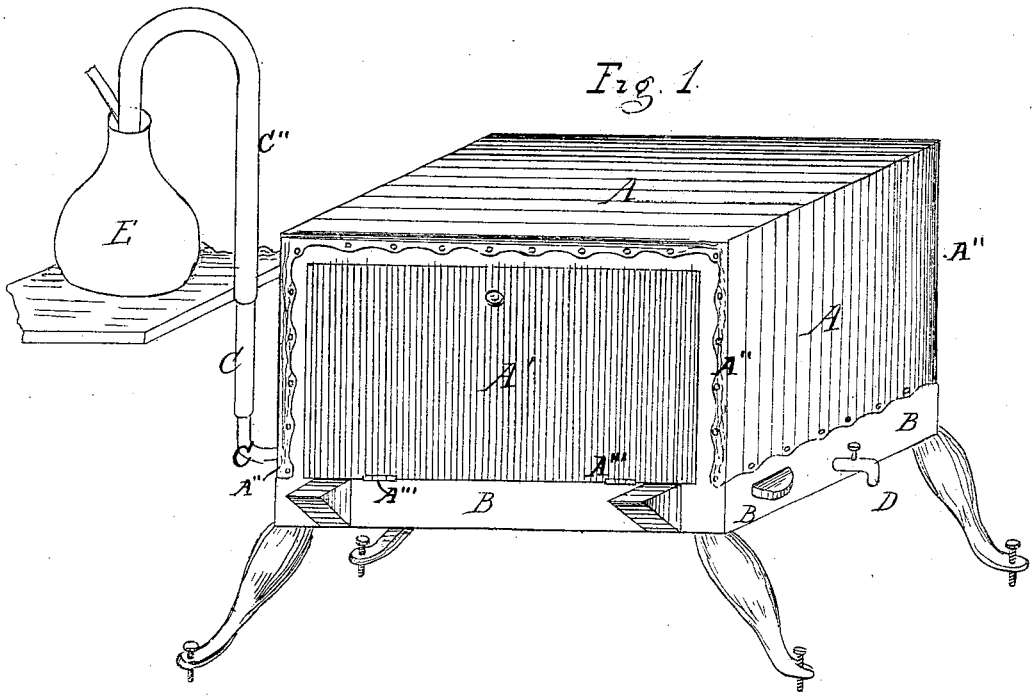
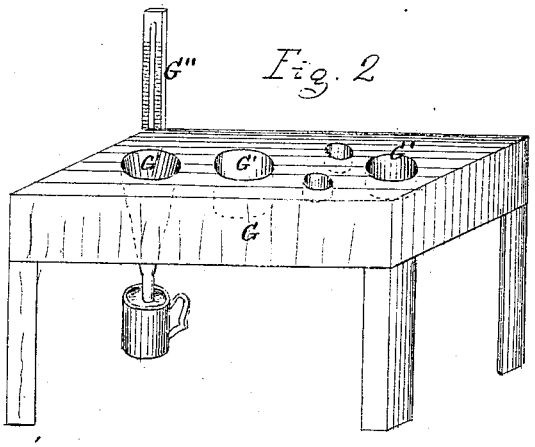


Fig. 2



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EMIL RYE, OF COPENHAGEN, DENMARK.

IMPROVEMENT IN THE MODE OF PRODUCING LITHOGRAPHIC COPIES FROM PHOTOGRAPHIC NEGATIVES.

Specification forming part of Letters Patent No. 109,551, dated November 22, 1870.

To all whom it may concern:

Be it known that I, EMIL RYE, of Copenhagen, in the State of Denmark, have invented a new and useful Improvement in the manner of producing a plate from which a Photographic picture (transferred to such plate from a Photographic Negative) may be printed as a Lithographic Copy or Copies; I do hereby declare the following description to be a full, clear, and exact representation of my invention, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a perspective view of a drying apparatus, and Fig. 2 is a perspective view of a closed vessel provided with perforations or recesses.

The nature of my invention consists in the preparation of a plate made of glass, porcelain, zinc, or other suitable material, which, after having undergone a chemical process, the picture from a photographic negative is transferred, and permanently secured in the coating which covers said plate, and as many lithographic copies as desired may be printed from it.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

The plate from which the lithographic copies are taken consists of glass, porcelain, zinc, or any other suitable material, and is prepared in the following manner: When the print-plate consists of glass, (ground glass is preferable,) its surface is polished very smoothly, thoroughly cleaned, and then provided with a coat of the white of an egg, and dried in the drying apparatus A. This apparatus consists of a rectangular-formed closed vessel, forming the bottom, and resting on four legs. Immediately above it, and at each corner of the vessel, is a vertical standard of about one foot in height, secured to the top plate of the vessel B. Between these four corner-posts canvas or other suitable colored fabric is suspended in such manner that a perfectly inclosed space is formed, which serves as an oven or drying-place, from which light is partly and dust entirely excluded. A door, A′, is provided at one of the sides of the drying-place, and hinged to the vessel B at A″. The bottom part or vessel B serves as a resting place for the plates to be dried; and in order to secure an equal temperature the vessel is filled with water, introduced through pipe C. Through the pipe D water may be drawn from the vessel B, and the heat is communicated through a lamp or other device placed below the vessel B. When the water has been introduced, a glass tube, C′, and the India-rubber tube C″, is secured to the induction-pipe C, through which the steam passes into the receptacle E.

In order to keep the water contained in the vessel B at about the same temperature, a thermometer may be attached at some convenient place.

Fig. 2 shows a perspective view of a closed vessel, G, into which bottles, &c., may be placed. Under the vessel G a lamp is placed, in order to heat the water contained in said vessel. A thermometer, G″, is attached at some convenient place, that the operator may ascertain and regulate the temperature of the water, and thus communicate the same temperature to the contents of the bottles, &c., which may be placed on top of the vessel G.

The plate, (print-plate,) after having been coated with the white of an egg and well dried, is then corroded in a solution of chrom-acid, and while the plate is still wet a solution consisting of one part of ichthyocolla and ten parts of water is poured over it, and then dried in the inclosure A. After this process is performed, the print-plate is again made wet with a solution consisting of the following ingredients: Water, ichthyocolla, white sugar, chromate of ammonia, albumen, and ox-gall; to this composition add lupulin, myrrh, benzoë, and tolu-balsam dissolved in spirit vini, and further add some drops of a composition consisting of iodide of cadmium, bromide of cadmium, and water. The print-plate is then dried in the inclosure A, and is now ready to receive the impression from the photographic negative.

The process of transferring the picture from the negative to the print-plate is performed in the usual manner, by the agency of light. The print-plate is then submerged in water till the greater parts of the chrom-salts are abstracted, and when it has become dry again it is ready for printing. When the printing process is to

be performed, the print-plate is submerged in water for from five to eight minutes; then a solution of chrom-sour-alum and ox-gall is poured over it, and then the print-plate is treated in the ordinary manner used by lithographers. The print-plate is, through an inking-roller, provided with the commonly-used lithographic ink, which is mixed with varnish or copaiva balsam. Any lithographic press and any kind of paper may be used.

When the operator desires to employ print-plates consisting of metal sheets, zinz ought to have the preference, it being the cheapest, and easiest to treat. The zinc print-plate is first provided with a well-polished surface, and then corroded with a solution of one part chrom-acid and forty or fifty parts of water; then washed in cold water, and a solution of from one to ten parts of ichthyocolla poured over it. Only in this preliminary working it is different from the process which the glass print-plate undergoes. The whole time required to prepare a print-plate will amount to about one or two hours.

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

1. The herein-described process for covering plates with plane and smooth surfaces with a preliminary coating prepared with chrom-acid, on which the picture from a photograph negative may be transferred and secured, and then serve as a print-plate from which lithographic copies may be taken, substantially as and for the purpose set forth.

2. The combination and arrangement of the drying apparatus, consisting of a closed vessel, B, forming the bottom, and provided with pipes C and D, standards A″, the cover A, and the hinged doors A′, substantially as described.

3. The combination and arrangement of the closed vessel G with the apertures G′, and thermometer G″, substantially as and for the purpose set forth.

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

E. RYE.

Witnesses:

C. F. CLAUSEN,

W. E. BENDZ.