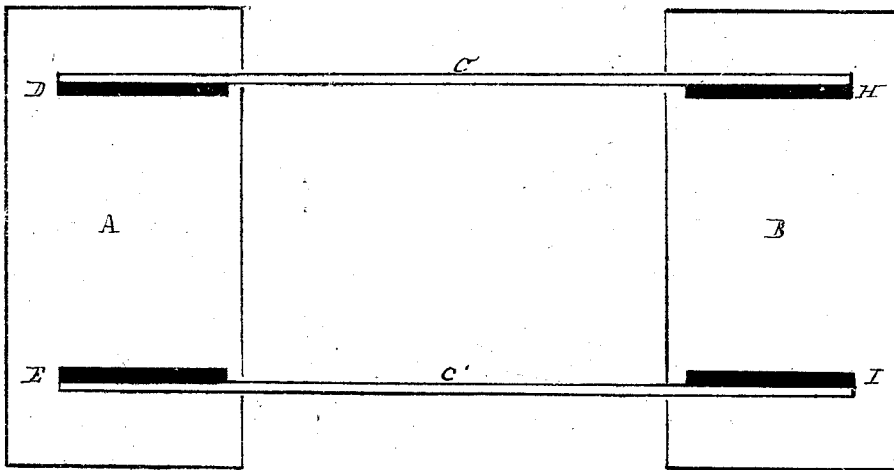


H. DUNCAN.

Copying by Means of the Electrotyping Process.

No. 147,618.

Patented Feb. 17, 1874.



WITNESSES.

Dennis Timmy
Chas. C. Wilson.

INVENTOR

Harris Duncan,

By *Cox and Cox*

His Attorneys.

UNITED STATES PATENT OFFICE.

HARRIS DUNCAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO HIMSELF, BENJAMIN DUNCAN, HERMAN
ALBRECHT, AND AUGUST ALBRECHT, OF SAME PLACE.

IMPROVEMENT IN COPYING BY MEANS OF THE ELECTROTYPING PROCESS.

Specification forming part of Letters Patent No. **147,618**, dated February 17, 1874; application filed
June 16, 1873.

To all whom it may concern:

Be it known that I, HARRIS DUNCAN, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Electrotyping, of which the following is a specification:

My invention relates to an improved process of forming plates for printing by means of electricity, its primary object being to dispense with the use of molds, as at present employed in the usual methods of electrotyping, when it is desired to produce a copy of any engraving, cut or printed matter, as more fully appears hereinafter.

I take a copper plate of suitable proportions, as highly polished and true as possible, and, having prepared the copy, make a negative transfer of it upon the plate.

The transfer may be made in divers ways, and I do not confine myself to any particular one. To more clearly describe my process, however, I mention an approved method that may be employed with good results.

If the copy is in such condition that a direct transfer may be made, I flow upon the polished surface of the plate a thin film of collodion, and, having dampened the copy with a solution of oxalic acid and water, place it carefully upon the prepared side of the plate, and, by means of a transfer-press, obtain the transfer. An electric bath of usual construction having been provided with the usual incidents, the plate is then immersed and placed in the position usually occupied by the copper plates in the ordinary electrotyping apparatus, which are removed.

Any electrotyping apparatus of usual construction may be employed, and I do not confine myself to any particular one.

To fully illustrate my process, however, I refer to the accompanying drawing, in which is shown a top view of a battery and bath, in which A is the battery, and B the bath. A solution of sulphuric acid and water may be placed in the former, and a solution of copper in the latter. C C' are the copper connecting-bands. To the band C is attached the zinc plate D, which is immersed in the acid solution, and the mold H, which is immersed

in the bath. To the band C' is attached the silver plate E, which is immersed in the acid solution, and the plate I, having upon it the transfer, which is immersed in the bath. The plates and molds having been arranged as above set forth, the electricity will remove those parts of the plate I not protected by the transfer, leaving an exact fac-simile of the copy in relief. After remaining in the bath a sufficient length of time, the plate I is removed, and the result in relief protected by the application of a negative, when it is again immersed, and the battery strengthened. The blanks are thus thrown out and the lines deepened at pleasure, the removal of the metal being regulated by applications of negatives, according to the necessities of the case and the will of the operator. The plate is thus completed, when it is made ready for the press.

It is obvious that the above process may be carried out in combination with the ordinary process of electrotyping, and also that the mold in which the copper removed from the plate is deposited may be adapted to form plates of any desired shape.

It is also plain that there may be inks that cannot be transferred, and to which the process has no relation.

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

The within-described process of forming, from an ink copy, a plate with lines in relief, by making a negative transfer upon a copper plate from the ink of the copy, and removing the unessential parts of the plate by means of electricity, substantially as shown and described.

In testimony that I claim the foregoing improvement in electrotyping, as above described, I have hereunto set my hand and seal this 4th day of June, 1873.

HARRIS DUNCAN. [L. S.]

Witnesses:

URIAH MATHEW,
MORRIS M. MATHEW.