

A. C. & G. R. CAREY.
Method of Embossing Metal for Printing Surfaces.

No. 215,792.

Patented May 27, 1879.

Fig:1.

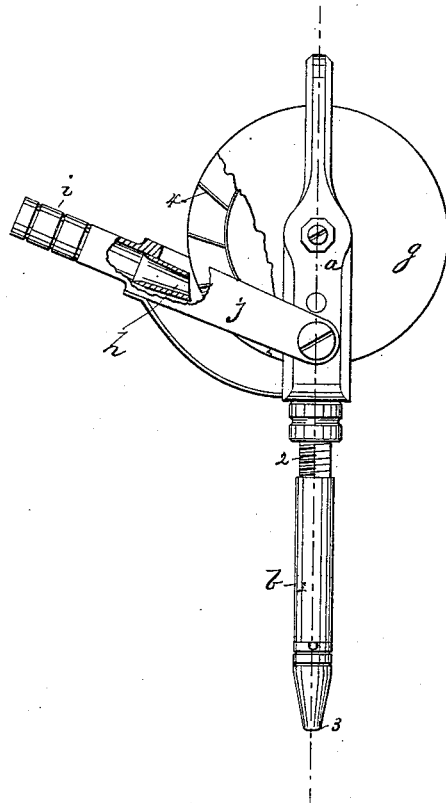


Fig:2.

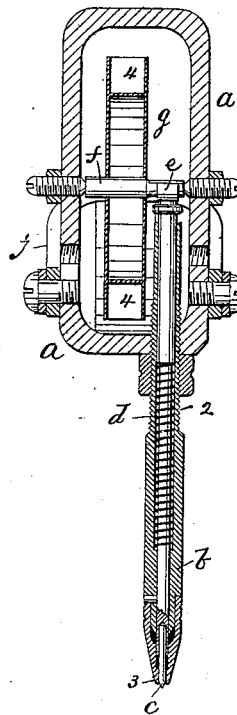


Fig:3.

Tested & approved M. W. C.

Witnesses.

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UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY AND GEORGE R. CAREY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN METHODS OF EMBOSSING METAL FOR PRINTING-SURFACES.

Specification forming part of Letters Patent No. **215,792**, dated May 27, 1879; application filed March 21, 1879.

To all whom it may concern:

Be it known that we, AUGUSTUS C. CAREY and GEORGE R. CAREY, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Methods of Embossing Metal for Printing Purposes, of which the following description, in connection with the accompanying drawings, is a specification.

The invention consists in producing autographic-printing surfaces without the use of copy, by writing upon sheet metal with an instrument adapted to impart, in rapid and regular succession, blows making indentations of uniform height on the reverse side of said sheet metal, from which the impressions are taken, which indentations are in the form of one's own caligraphy, so that a person may issue in his own handwriting any number of letters, circulars, or other writings.

Figure 1 is a side elevation of an instrument used in practicing our invention, which we have named "metalograph;" Fig. 2, a section thereof on dotted lines, Fig. 1; and Fig. 3 is a plan view of one of our metalograph-sheets.

The instrument shown and herein referred to as a metalograph consists of a frame, *a*, and a tubular foot or rest, *b*, adjustably connected therewith, as herein shown, by means of screw-threads 2 on the rest, the latter acting as a guide for the hammer *c*, having its lower end rounded or blunted, so as, by a blow on the thin sheet metal, to indent the same as the frame is moved over the surface of the metal with the lower end, 3, of the foot or rest in contact therewith, the said hammer being elevated, as herein shown, by a spiral or other spring, *d*, and being thrown down in rapid succession by a cam or cams, *e*, on the shaft *f*, deriving its motion, preferably, by a vane or wheel, *g*, acted upon by a blast of air issuing from a mouth-piece or air-discharge, *h*, in operative connection by a pipe, *i*, or otherwise, with a suitable apparatus for generating a blast or strong current of air—as, for instance, a bellows or blower.

As herein shown, the mouth-piece is held in a bracket, *j*, made adjustable on the frame *a*, so as to vary the angle of presentation of the air-blast to the blades 4 of the wheel.

It is obvious that instead of this wheel we might employ as a driving means for the ham-

mer an electro-magnet, such as is used on the stencil-pen, which has a sharp or perforating point, and which in operation is driven at each descent through the paper upon which the pen operates. In fact, the hammer may be operated by any suitable or well-known power.

The sheet metal, when being struck by the hammer, will be supported upon some yielding substance, such as one or more thicknesses of cloth or sheet india-rubber, such as commonly sold for packing purposes. After embossing or indenting the sheet metal, which is of such thickness as to have produced upon its opposite face raised letters or characters, the said metalograph-sheet, with the raised portions of its letters or characters uppermost, is laid upon a suitable supporting-surface, and then upon the said raised face of the said metalograph-sheet is laid a sheet of impression-paper, if it is desired to print in color, and upon the impression-paper is placed a sheet of paper or other material to be printed upon in fac-simile of the metalograph-sheet.

If it is desired to employ this metalograph-sheet in a printing-press for printing or embossing, we strengthen or back this sheet with metal, or metal and wood, as now commonly practiced by electrotypers.

It will be noticed that the letters raised by this our process are not as though made by a sharp or even blunt pointed tool drawn over the metal plate while pressed in contact therewith; but raised letters are produced composed of a continuous series of conical or rounded projections, the said rounded or conical but smooth-faced projections, in close and continued series, serving as the raised face of each letter, the said raised portions of each letter acting as does the face of an ordinary type, and being adapted to rest against and co-operate as a printing-type with paper, either moist or dry, as in ordinary printing or embossing, and to imprint or emboss the said paper without breaking, tearing, or perforating its surface.

By this our improved method we are enabled to quickly and cheaply produce a metalograph-sheet which is an efficient and practical substitute for an electrotype, by or from which merchants, or other persons so desirous, may rapidly and economically produce circulars,

or circular-letters, or cards in duplicate in fac-simile of handwriting, or to portray or delineate anything which may be portrayed or delineated by pen or pencil.

When using this metalograph-sheet, the surface of the sheet being printed will be pressed firmly in contact therewith, or with impression-paper thereon, by means of a suitable impression-roller having a yielding surface.

As shown in the drawings, the acting face of the hammer is removable upon the hammer-rod.

It has been proposed to transfer to metal a design printed or otherwise produced on paper by making a succession of indentations upon the metal on lines of the design as said metal is moved beneath dies. From the metal sheet so produced the design can be printed. It has also been proposed to make upon metal sheets the outlines of maps, letters, figures, and objects in nature or art by indenting, by a hand-punch or style, such sheets at intervals, such indentations being segregated to such extent as to furnish only an outline of the object as opposed to or distinguished from a connected or continuous line representation. Both of these plans differ from our invention, in that it is impossible by either of said plans to produce a printing-surface that shall be in one's own handwriting.

We are well aware that we are not the first

to provide means for printing from fac-similes, nor of means for making autographic-printing surfaces. The electric-pen, papyrograph, and manifold-writing processes all enable one to do this. Our invention is limited to the production of autographic metal printing-surfaces by means of blows imparted in regular and continuous succession with an instrument used in the same manner as a pencil or pen in writing, whereby one's own handwriting is produced in such shape as to provide a printing-surface from which copies of letters, &c., in autograph may be had unlimitedly.

We claim—

The within-described improvement in the art of producing raised letters of equal height upon sheet metal for printing purposes, by means of a regular succession of rapid or quick blows of uniform force imparted by mechanism held in the hand and operated as a pen or pencil, after the manner of writing, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

AUGUSTUS C. CAREY.
GEORGE R. CAREY.

Witnesses:

G. W. GREGORY,
N. E. WHITNEY.