A. Chace.

Stereotyping.

No. 108,879. Patented Nov. 1, 1870.

Fig. 1

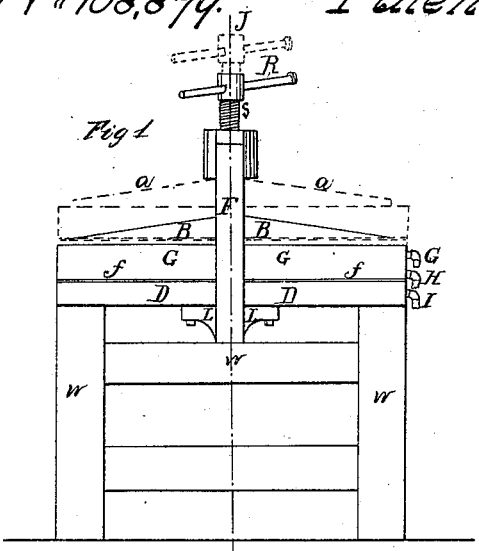


Fig. 2

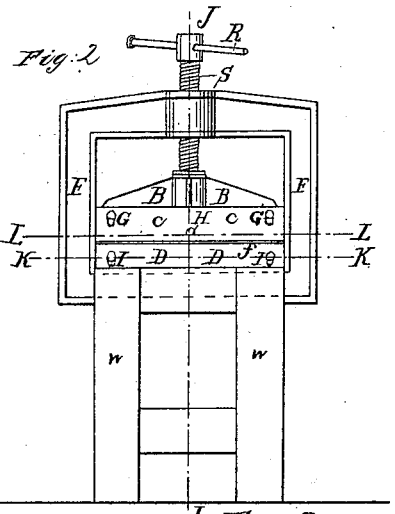


Fig. 3

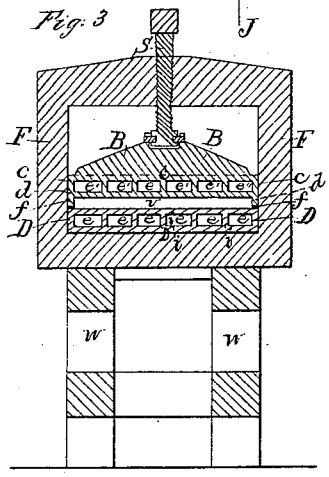


Fig. 4

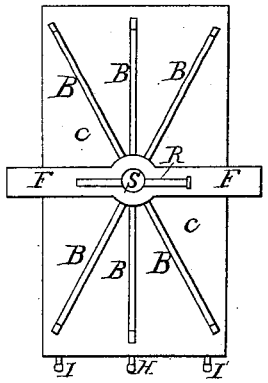


Fig. 5

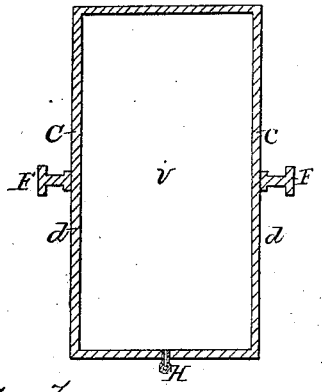


Fig. 6

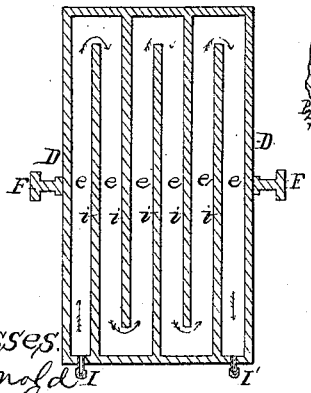
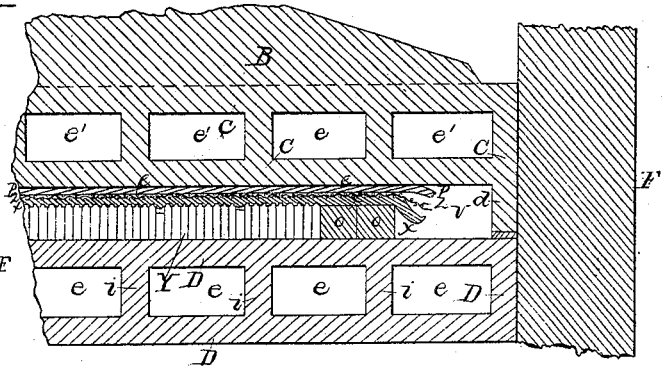


Fig. 7



Witnesses.
J. G. Arnold
Allen Gray.
John Cutler Arnold

Inventor;
Alonzo Chace.

United States Patent Office.

ALONZO CHACE, OF ITHACA, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO EZRA CORNELL OF SAME PLACE.

Letters Patent No. 108,879, dated November 1, 1870.

IMPROVEMENT IN STEREOTYPING.

The Schedule referred to in these Letters Patent and making part of the same.

I, ALONZO CHACE, of Ithaca, Tompkins county and State of New York, have invented an Improved Method of Drying Stereotype-Matrices, together with certain devices for effecting the same, of which the following is a specification.

This invention relates to the drying of stereotype matrices in a vacuum, and to the combination of a vacuum-chamber, and accompanying chambers above and below it, so arranged as to provide a vacuum, heat, and condensation of vapor, for the purpose of drying the said matrices at a minimum expenditure of time, temperature, and power as nearly as may be. It is especially adapted to the rapid and economical drying of papier-maché stereotype-matrices at a temperature which will not injure the type.

The following is a description of the accompanying drawing:

Figure 1 is a side elevation of a machine or apparatus devised for the purpose of applying my invention.

Figure 2 is an elevation, showing that end of the apparatus which is toward the right hand in fig. 1.

Figure 3 is a vertical transverse section through the line J J in fig. 1.

Figure 4 is a plan.

Figure 5 is a horizontal longitudinal section through the line L L in fig. 2.

Figure 6 is a horizontal longitudinal section through the line K K in fig. 2.

Figure 7 is a fraction of the same section shown in fig. 3, enlarged, with a form of type, matrix, &c., in the position which they occupy while drying.

W W, figs. 1, 2, and 3, represent a wooden frame, upon which the apparatus rests.

F F, figs. 1, 2, 3, 4, 5, 6, and 7, is an iron screw-frame, through the upper part of which passes the screw S, figs. 1, 2, 3, and 4.

The lower part of the screw S is fastened to the platen C C, in such a manner as to allow the said screw to turn without becoming detached.

By turning the lever R, figs. 1, 2, and 4, the screw S, and with it the platen C C, is raised and lowered, as shown by the dotted lines, fig. 1.

This frame F, fig. 1, has upon its under side the projecting pieces L L, by means of which it is fastened to the bed D D.

D D is a hollow bed or box, figs. 1, 2, 3, 6, and 7, containing the air or steam-tight chamber *e e e e e e*, divided into as many apartments as letters by the partitions *i i i i i*, figs. 3, 6, and 7.

Fig. 6 shows, in section, a plan of this chamber, which is furnished with an ingress-pipe, I, and an egress-pipe, I', through which steam, hot or cold water may be made to flow in the direction of the arrows, thus heating or cooling the chamber, and, by its means, the contents of the vacuum-chamber V, as may be desired. Any liquid or gas may be employed to heat or cool this chamber. The bed D D is of iron.

C C is a platen, figs. 1, 2, 3, 4, 5, and 7, provided with the strengthening-braces B B B B B B, fig. 4.

This platen C C is of iron, and contains the chamber *e' e' e' e' e' e'*, figs. 3 and 7, which, in all respects of construction, is like the similar chamber *e e e e e e* in the bed D D, already described, which description, both of construction and use, answers for this chamber. Either of these chambers may be used to furnish the vacuum-chamber V and its contents with heat or cold, as will be found desirable in the process of drying, these chambers C C and D D being connected with reservoirs of hot and cold liquid or gas, which reservoirs, forming no part of my invention, are not shown. The best result will be obtained by using one of these chambers for heating the contents of the vacuum-chamber V, and the other for condensing the vapors given off, upon the cold wall which forms a partition between it and the said vacuum-chamber V. It is immaterial which of these chambers is employed as a heating and which as a cooling-chamber, and either may be used alone, though, of course, with less effect.

Two objects are attained by applying heat to the contents of the vacuum-chamber V: first, more rapid evaporation; second, the preventing the matrix from freezing, as would otherwise occur from absorption of heat during the rapid evolution of vapor. Cooling the surface of one side of the vacuum-chamber V would tend to cool the whole chamber, and so retard the evaporation but for the counteracting influence of the heat proceeding from the other surface. As it is, with proper experience, the cold wall may be made to condense the vapors of the vacuum, and thus relieve it of their tension, without checking the process of drying, but, on the contrary, greatly assisting it.

The vacuum-chamber V, figs. 3, 5, and 7, is formed by screwing the platen C C down upon the bed D D, figs. 3 and 7. The platen C C has a recess formed by the rim *d*, which, brought down upon the bed D D, incloses the space V.

Air-tight contact between *d* and D is secured by placing the packing *f* between them, and the space V, thus inclosed, becomes the vacuum-chamber.

In fig. 7 is shown the position of the type, matrix, &c., while drying.

Y is the form of type.

O O, the chase and furniture.

x x x x the matrix.

z z, a sheet of wire-gauze.

p p p p, a layer of cloth, paper, or equivalent absorbing material. The matrix, gauze, and absorbent, each, are of equal area with the form of the type. The wire-gauze *z z* allows the free exhaustion of the air and escape of vapor from the matrix *x x x x*.

The layer of cloth or paper retains any moisture condensed upon the lower surface of the platen C C, which is thus prevented from dropping back upon the matrix *x x x x*.

From the vacuum-chamber V the air is exhausted (by any of the well-known methods of obtaining a vacuum) through the pipe H, figs. 1, 2. and 5.

The screw S, the screw-frame F, and a plain platen, containing no chamber of any kind, but used to keep the matrix in its place while drying, are used now in drying papier-maché stereotype-matrices. A steam bed or box is also used for the same purpose, upon which the type (with matrix and blankets upon it) is heated by steam to a degree of temperature not far from its melting-point. This expels the moisture from the matrices, but gradually injures the type by causing them to lengthen unequally.

Matrices, however, dried in a vacuum, as hereinbefore described, may be obtained as rapidly as by the old process, at a temperature not exceeding 80° Fahrenheit, thus avoiding all injury to the type.

I do not claim the application of heat to the drying of matrices, nor the method of raising and lowering the platen C C; but

I claim as my invention—

Providing the stereotype-matrix drying apparatus with the vacuum-chamber V, to be used alone or in combination with the chambers C C and D D, substantially as and for the purpose hereinbefore set forth.

ALONZO CHACE.

Witnesses:

J. G. ARNOLD,
ALLEN GRAY,
JOHN GILLET ARNOLD.