

(No Model.)

G. D. CARROLL.

METHOD OF DRYING PRINTED SHEETS.

No. 273,816.

Patented Mar. 13, 1883.

Fig. 1.

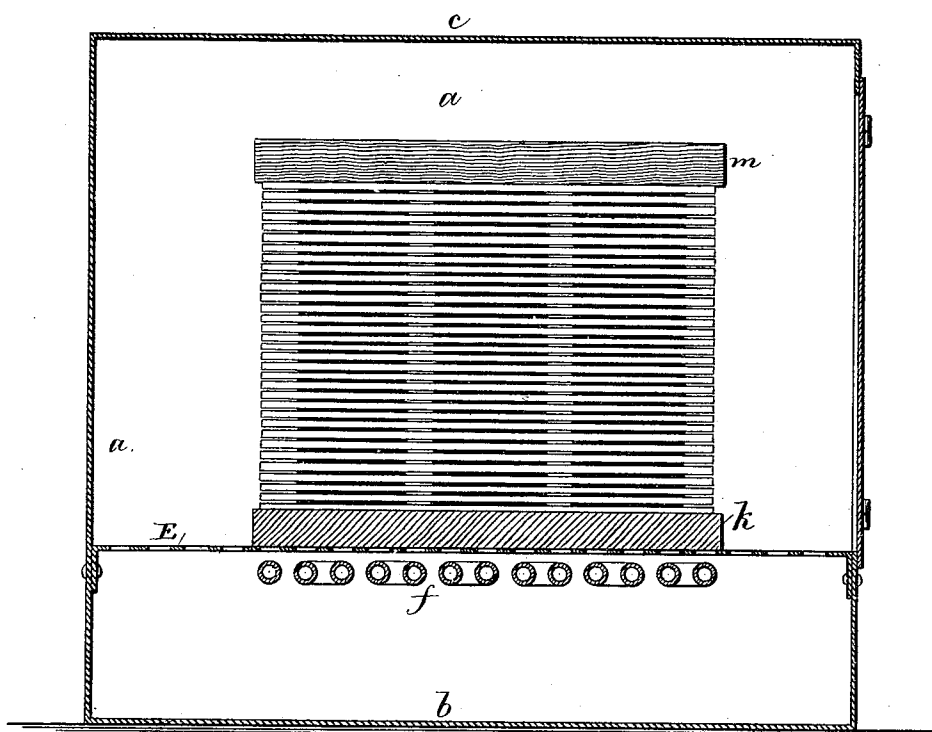
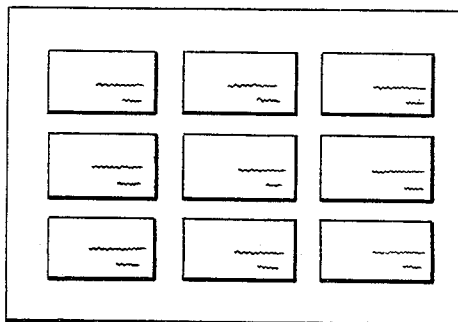


Fig. 2.



Witnesses  
Chas H. Smith  
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# UNITED STATES PATENT OFFICE.

GEORGE D. CARROLL, OF YONKERS, NEW YORK, ASSIGNOR TO MANFRED C. CARROLL, OF SAME PLACE.

## METHOD OF DRYING PRINTED SHEETS.

SPECIFICATION forming part of Letters Patent No. 273,816, dated March 13, 1883.

Application filed November 14, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE D. CARROLL, of Yonkers, in the State of New York, have invented an Improvement in Methods of Drying Printed Sheets, of which the following is a description.

In printing bank-notes and similar articles the sheets of paper have been placed in frames or hung up and exposed to heat for the purpose of setting the ink. Sheets of paper that are printed with types have been placed between sheets of card-board and subjected to pressure to smooth the sheets and remove the raised type-impressions produced by the heavy pressure of type in printing.

My invention is made for the purpose of hardening the ink, and thereby lessening the time consumed in drying the work, so that the printed sheets may be delivered in a perfect condition more quickly than heretofore.

In the printing of wedding-cards, invitations, notices, and all plate-work, also lithographic printing and letter-press type-printing, it has heretofore been usual to spread out or interleave the printed sheets and allow the ink to dry by atmospheric action. This mode of drying is very slow, and under some atmospheric conditions the ink does not harden in less than twenty-four to forty-eight hours. The consequence is that work cannot be finished and delivered in time, or else it is sent off before the ink is properly hardened, causing them to lay off and blur, disfiguring the beauty of the printing. Efforts have been made to harden the ink of plate-printing work of the character indicated by placing the same in heated chambers, such as used for bank-notes and similar printing; but all such efforts have failed, because the heat curls up the cards and printed sheets and disfigures them, so that they are not adapted to the market.

I print the wedding-invitations, cards, or other plate printing, also lithographic printing from stone, also letter-press work from type, electrotpe, wood, or other material, in the usual manner; but instead of spreading the same out to dry, either by the ordinary or artificial heat, I place the same between sheets of thick paper—such as straw-board—and lay the sheets and boards one on the other. I then place the pile into a steam or

other heated oven, care being taken not to squeeze or compress the sheets, and only to have sufficient weight of straw or other boards in the pile, or weights upon the pile, to prevent the sheets or cards from curling up. This gives opportunity for the heat to penetrate freely and dry the ink, and for the vapors to pass off from the ink.

By this improvement I am able to dry the ink much more rapidly than heretofore, and at the same time to keep the printed cards or sheets in a flat condition, so that they are ready for delivery in a few hours after printing.

In carrying out my invention I make use of an oven such as shown in Figure 1 of the annexed drawings, wherein—

*a a* are the sides, *b* the bottom, and *c* the top, of the oven. Suitable doors are also provided. *E* is a shelf in said oven, which by preference is perforated metal, and *f* is a range of steam heating-pipes. The heat may be derived from any suitable source. The bottom board, *k*, is to receive upon it the sheets of straw-board or similar thick paper or plates, the printed matter being laid between the sheets as the pile is made.

Fig. 2 is a plan view, illustrating how cards may be laid upon the sheets as they are successively piled up. The top board, *m*, serves to keep the respective sheets in place, and this, with the bottom board, *k*, allows the workman to lift the pile of sheets into or out of the oven, or to insert the pile during the drying operation.

I claim as my invention—

The method herein specified of hardening the ink on printed sheets, and at the same time preventing the cards or paper warping, curling, or buckling, consisting in laying the printed sheets or cards upon large sheets of straw-board or other suitable material, covering the same with a second sheet and making a pile, then introducing the same into a heated chamber, substantially as set forth.

Signed by me this 10th day of November, A. D. 1882.

GEO. D. CARROLL.

Witnesses:

GEO. T. PINCKNEY,  
WILLIAM G. MOTT.