

UNITED STATES PATENT OFFICE.

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METHOD OF AND APPARATUS FOR USE IN PRINTING.

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To all whom it may concern:

Be it known that I, HORACE P. ODELL, a citizen of the United States, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Methods of and Apparatus for Use in Printing, of which the following is a specification.

This invention relates to the art of printing and its object is to make possible the printing of fabrics and such porous papers as wall-paper and the like so that there will be a quick drying of the color without the sheet or the color being injuriously affected. As an instance in which the invention may be used with great advantage I may name the printing of sheets with a pattern by a progressive process, as by blocks or stencils. As at present performed, this printing is carried on without any drying. If the figure, or a part of a figure, comprehended by the printing device occupies the whole or nearly the whole area of the device the printer in order to avoid marring the finished work by accidental contact of the printing device with the still wet color thereon at present has to skip areas in the sheet so as to give the wet areas time to dry, returning later to print the skipped areas. This involves waste of time and it frequently is the cause of the printer making mistakes in his work. If drying were present the printer could proceed directly from one area to the next; and there would be the additional advantage that "bleeding" or running of the color would be prevented and sharply defined pattern-contours would be obtained. It is not new to dry a sheet while positioned for printing and this I do not broadly claim. But it is new to dry according to the method and by the means which I shall hereinafter set forth.

In the drawing,

Fig. 1 is a plan of the table, it being shown broken away at intervals;

Fig. 2 is a transverse section of the table on a larger scale, the section being on line 2-2 of Fig. 1;

Fig. 3 is a side elevation of the table, also shown broken away at intervals; and

Fig. 4 illustrates a detail.

The body of the table, which as usual is quite long and narrow, includes a bottom wall *a*, two side walls *b* and two end walls *c*, all of sheet-metal, wood rails *d* being secured to the exterior of the side and end

walls by screws or otherwise *e*. As will appear, these rails serve as means to which to attach the sheets of material to afford padding on the top or working surface of the table. Legs *f* formed of angle-iron support the table body, they being bolted thereto at intervals and preferably braced by the braces *g*. The body also includes a top wall *h* which, for a purpose to appear, is formed of some such composite refractory material as asbestos "lumber" (an asbestos compound formed in sheets) of such thickness and consequent stiffness as to withstand the strain incident to printing pressure. The top wall is preferably in sections, as shown by Fig. 1, and they are supported by angle-iron strips *i* and *j* extending longitudinally of the table, the two lateral strips *i* being bolted to the side walls *b* and the intermediate strips being bolted to angle-iron uprights *k* which are bolted to the bottom wall *a*; the top surfaces of the several sections of wall *h* are of course perfectly flush with each other and the sections abut edge to edge.

m designates the gaging abutment, which is an angle-iron strip secured by screws *n* to the top of one of the rails *d*.

As usual in this class of printing, padding is used on the working surface of the table in order to insure good printing impressions, and the layers to form this padding are shown in Fig. 4, where the layers *o*, *p* and *q* may respectively be wadding, oil-cloth and muslin, or the like. The wood rails serve as means to which to tack or otherwise secure the padding as is usual in this art.

Within the box formed by the walls *a*, *b*, *c* and *h* are heating coils *r*, as for steam, which may be connected with a source of heat in any way.

When the printing is done the steam is of course admitted to the coils *r*, so that the sheet properly arranged on the table is subjected to the heat applied thereto through the medium of the composite refractory body *h*; the printer may avoid skipping areas of the sheet and, instead, print them one directly after another, and there is the further advantage that the color does not run in the fibres of the sheet, each figure or part of the pattern being invariably left sharply defined, because before the color can run or "bleed" it dries in situ. These results, of course, are also incident to the use of a metal

body heretofore proposed to afford support for the sheet when the same is heated and they would also accrue in the use of a body, like glass for example, composed of a refractory substance in which cohesion rather than adhesion is the force uniting its particles. But such materials, I have found, are quite unsuitable because they hold the heat and act to bake the color as well as the sheet to be printed, destroying the life of both and weakening the sheet, especially if it is of delicate texture, by in effect burning it. To accomplish the drying, without the injurious effects mentioned, I therefore use a refractory substance of composite nature, i. e., in which the particles are united by adhesion. Since the heat is then not held by the refractory body but is diffused rather than concentrated the drying proceeds without injury to the sheet being printed or to the color.

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

1. The method of printing a porous sheet which consists in supporting the sheet on a

composite refractory body, imparting heat through said body to the sheet, and during the heating of the sheet applying the printing color thereto.

2. The method of printing a porous sheet which consists in supporting the sheet on a composite refractory body, applying the printing color to the sheet, and imparting heat through said body to the sheet.

3. The method of printing a porous sheet which consists in supporting the same on a composite refractory body having a flat supporting surface, imparting heat through said body to the sheet, and during the heating of the sheet applying the printing color to fragmentary portions of the heated sheet one after another.

4. A structure to form a support for a porous sheet to be printed including a hollow body having means to heat the interior thereof and having an exterior supporting wall for the sheet formed of composite refractory material.

In testimony whereof I affix my signature.

HORACE P. ODELL.