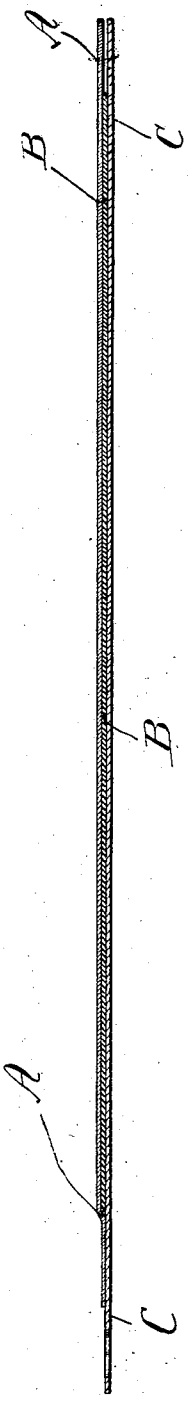
A. B. DICK.

STENCILING MATERIAL AND PROCESS OF USING THE SAME.

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1,101,258. Patented June 23, 1914.



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STENCILING MATERIAL AND PROCESS OF USING THE SAME.

1,101,258. Specification of Letters Patent. **Patented June 23, 1914.**

Application filed December 13, 1911. Serial No. 665,590.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, and a resident of Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Stenciling Material and Processes of Using the Same, of which the following is a specification.

Heretofore the process of duplicating autographic and typewritten matter has been most commonly practised by the use of a stencil sheet formed of open, porous paper coated with a waxy substance. The characters to be reproduced have been impressed, by stylus or type, either directly upon such sheet or upon a fine tissue sheet overlying the same. And it has been common to employ, beneath or back of such a stencil sheet, a so-called "perforating" or "extractor" sheet, of open-woven material such as silk gauze, to carry away the wax expressed by the impact of type, for example, from the stencil sheet.

As an improvement in the art of stencil duplication as thus described, it has been proposed to employ, instead of the wax-coated sheet above described, a sheet of open, porous material impregnated with coagulated protein and a suitable tempering agent such as sugar. Such a sheet is dry but hygroscopic and to adapt it for conversion into a stencil by pressure (as, for instance, by the impact of the type of a writing machine thereon), it is necessary to preliminarily moisten the sheet and this has commonly been done by passing a wet sponge over the surface thereof before placing the sheet in the machine. This practice is objectionable for various reasons, one being the lack of uniformity with which the moistening is accomplished, another being the evaporation of the moisture where completion of the stenciling operation is delayed, etc. By my invention these objections are wholly obviated, and, in addition, a better stencil, capable of producing better copies, results from the stencil-cutting operation.

In carrying out my invention I employ, preferably, a stencil sheet of the character above referred to, *i. e.* having a base of open, porous character, such as Japanese "Yoshino" paper, this being impregnated with coagulated protein combined, if desired, with a suitable tempering agent, such as white sugar. Such a sheet is dry but hygroscopic, is strong and durable and, after being stencilized, is capable of producing a large number of copies under the usual process of duplication. A stencil sheet such as that here referred to may be made by coating or impregnating a base of the character above described with a solution substantially as follows: Gelatin one part, white sugar one-half part, water three parts, alcohol five parts, glacial acetic acid, pure, one-tenth part, glycerin three parts and potassium dichromate in crystals, sufficient to sensibly color the compound.

I do not claim to have invented a stencil sheet so made, but refer to it here merely as an illustration of a sheet capable of use as a part of my invention and in which use it is desirable to moisten the sheet preliminarily to typing characters thereon. I wish it expressly understood, however, that I may use as part of my invention any stencil sheet, no matter what its construction, which may to advantage be employed in connection with my invention as hereinafter more particularly pointed out.

Combined with a stencil sheet such, for example, as that above described, I employ a backing sheet, preferably immediately underlying the stencil sheet and carrying within itself moisture in a suitable form. I prefer to use a sheet of soft and somewhat absorbent paper previously treated with a solution of glycerin and water in proper proportions, such, for example, as from seventy (70) to eighty (80) per cent. of water and from twenty (20) to thirty (30) per cent. of glycerin. If desired, I may also combine with the stencil sheet and moist backing, a third sheet of somewhat harder and firmer character, forming a carrier for the two overlying sheets and also acting to protect the platen of the writing machine from the moisture, etc.

In carrying out the stencil-cutting operation, the stencil sheet and moist backing sheet may be introduced into the machine in the usual manner. I prefer, however, as above indicated, to introduce into the machine all three of the sheets above described, which may, if desired, be secured together at one end. On the platen of the machine the stencil sheet will be exposed, the soft backing sheet will be next and the dry platen protecting sheet will lie next to the platen. In this correlation of stencil sheet and back-

ing sheet, the moisture of the latter will be taken up to a proper degree by the former, which, as heretofore indicated, is hygroscopic. Thereby the coating of coagulated protein upon the stencil sheet will become sufficiently softened to further the operation of producing the characters in such stencil sheet as a result of the impact of the type of the writing machine. This, therefore, dispenses with the necessity for preliminarily passing a moistened sponge over the surface of the stencil sheet, which is not entirely practicable and which is characterized by certain disadvantages, among them being the lack of uniformity with which the moisture is applied. There is, however, a further and important feature of the invention in the use of the soft backing sheet above described, in that when it is employed in the connection above stated, it greatly decreases the destructive fracturing of the interwoven fibers of the base of the stencil sheet, as well as such tendency as there may be, where the impact of the type is greater than necessary, to entirely cut the centers of loop letters from the stencil. As a result, by the use of the combination described, a better and more desirable stencil is produced, from which duplicate copies of a high order of excellence may be obtained.

The invention is illustrated in the accompanying drawing, in which the single figure is a longitudinal cross section, of a series of sheets combined as herein described. Of these, the upper sheet, A, is a stencil sheet of suitable character, as, for example, one having a paper base coated or impregnated with a compound such as that above stated. So far as my invention is concerned, this sheet is merely one which, whatever its character, can to advantage be moistened preliminarily to cutting the stencil thereon, or be operated on when overlying a backing of soft material. Immediately underlying the stencil sheet, A, is the backing sheet, B, above described, and both the stencil sheet, A, and backing sheet, B, as above shown, are combined with a firm paper carrier sheet, C, one end of which may be provided with suitable means (not shown) for securing the same to the drum of a duplicating machine, this being desirable since the carrier sheet will preferably be of greater strength than the stencil sheet or its backing, which are thereby relieved of strain. I prefer, although this is not essential, to secure the stencil sheet, A, to the carrier sheet, C, so that when it is desired to introduce the stencil sheet into the writing machine all that is necessary to complete the combination is to interleave the backing sheet, B, between the stencil, A, and the carrier sheet, C. Such carrier-sheet also tends to preserve the stencil-sheet against accidental injury when placing the latter in position on a duplicating-machine. After the stencil-sheet has been so positioned, the carrier-sheet, or a portion thereof, is removed to permit ink to pass through the characters in the stencil-sheet to the subjacent impression paper.

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

1. In stenciling material, the combination of two sheets superimposed for simultaneous insertion into a typewriting machine for the production of a stencil thereby, one of said sheets being dry but hygroscopic, the other sheet, underlying said first-named sheet, being adapted to moisten the latter, substantially as described.

2. In stenciling material, the combination of two sheets superimposed for simultaneous insertion into a typewriting machine for the production of a stencil thereby, one of said sheets being dry but hygroscopic, the other sheet, underlying said first-named sheet, being adapted to moisten the latter and to cushion the impact of the type thereon, substantially as described.

3. In stenciling material, the combination of two sheets superimposed for simultaneous insertion into a typewriting machine for the production of a stencil thereby, one of said sheets comprising a porous base coated or impregnated with coagulated protein, the other sheet, underlying said first-named sheet, being adapted to moisten the latter, substantially as described.

4. In stenciling material, the combination of two sheets superimposed for simultaneous insertion into a typewriting machine for the production of a stencil thereby, one of said sheets comprising a porous base coated or impregnated with coagulated protein, the other sheet, underlying said first-named sheet, being adapted to moisten the latter and to cushion the impact of the type thereon, substantially as described.

5. A backing-sheet adapted for insertion, in contact with a hygroscopic stencil-sheet, into a typewriting machine for the production of a stencil, said backing-sheet being impregnated with moisture, substantially as described.

6. A backing-sheet adapted for insertion, in contact with a hygroscopic stencil-sheet, into a typewriting machine for the production of a stencil, said backing sheet being impregnated with a moistening compound including glycerin and water, substantially as described.

7. The process of preparing a stencil which involves superimposing a dry but hygroscopic stencil-sheet upon an absorbent backing-sheet impregnated with moisture, simultaneously introducing said sheets into a typewriting machine and causing the type thereof to impact upon said stencil-sheet, then removing said sheets from the machine

and separating the same, substantially as described.

8. The process of preparing a stencil which involves superimposing a dry but hygroscopic stencil-sheet upon a soft, moist backing-sheet whereby said stencil-sheet will be affected by the moisture in said backing-sheet, simultaneously introducing said sheets into a typewriting machine and causing the type thereof to impact upon said stencil-sheet, then removing said sheets from the machine and separating the same, substantially as described.

This specification signed and witnessed this 27th day of November, 1911.

ALBERT BLAKE DICK.

Witnesses:
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