

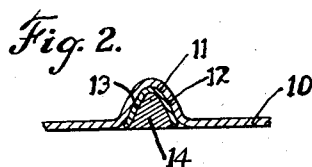
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PROCESS FOR PRINTING FOR THE BLIND

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PROCESS FOR PRINTING FOR THE BLIND

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12 Claims. (Cl. 101—32)

This invention relates to new and useful improvements in printing for the blind.

The invention more particularly relates to such printing where raised characters (those pushed up from the back leaving a cavity in the back) is used for reading by the sense of touch. Such raised characters generally are composed of different arrangements of dots. This type of printing is very expensive, but not very durable in that after repeated reading the reader's fingers pass so many times over the raised surfaces that they become worn and cannot be read further. In order to make the printing as durable as possible very thick paper is used and consequently the books so printed are very thick but contain very little printing matter.

To better understand the invention the old process used in printing for the blind is now given. A special machine having a key board with six keys and a control, is arranged so that any combination of the keys produce a corresponding arrangement of pins which are adapted to correspondingly form a special kind of matrix. This matrix is composed of two zinc sheets or other soft material connected together on one end. The machine operates very similarly to a typewriter to form the matrix, these matrix sheets moving to new positions upon each operation of the control. The paper sheet material is next formed by placing the paper between the sheets of the matrix and applying pressure thus embossing the paper.

It is an object of this invention to provide a process whereby the monotype, linotype, or any other similar machine or hand set type may be used to form the characters for blind printing and whereby the paper may be printed upon a conventional letter press printing press or similar press. The gaining of this object is of great advantage for various reasons. First of all the monotype, linotype, and other machines are highly developed compared with the crude machines now used exclusively for printing for the blind. The superior development of the linotype and monotype, etc., is due to the fact that it is used in regular printing. Furthermore the feature which allows the paper to be printed at a regular printing press is so great an advantage over the printing of sheets from the matrices previously here explained that there is absolutely no comparison between the two as regards speed. The reason for this lies in the fact that the printing machines are highly developed, since they

are used for regular printing, as contrasted with the apparatus used for printing for the blind.

It is a still further object of this invention to reinforce the raised characters on the paper material on their under side. The ascertaining of this object is a tremendous improvement over the present reading material for the blind. When the raised characters are reinforced these characters are more durable under the wearing action of the tips of the fingers during reading. Further a thinner sheet of paper may be used and consequently the book printed is much thinner but contains much more reading matter in relation to books printed according to present methods.

A still further object of this invention is to take advantage of the printing press for the application of adhesive on the under side of the raised characters which is adapted to hold the reinforcement material.

The invention still further proposes the provision of a process as mentioned which is simple and which may be efficiently carried out in practice.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:—

Fig. 1 is a fragmentary plan view of a sheet of paper printed according to this invention.

Fig. 2 is a fragmentary enlarged sectional view taken on the line 2—2 of Fig. 1.

To understand the invention the following is given as one of the most approved sequences of steps to carry out the process:—

First type is set on the monotype, linotype or other machine or hand set and used as a male die. The standard machines and type may be slightly altered so as to have the necessary characters for reading by the blind. Next a female die should be formed from the male die. This preferably should be done by placing the male die within a conventional printing press and causing the press to engage the male die against a material which now forms the female die. The dies and press are now ready to print according to this invention.

The press should be run in a conventional manner and the sheet material passed in between the male and female dies. The male die should be wetted with adhesive material so as to

engage into the under sides of the raised characters formed by the printing. Preferably the adhesive material should be printer's ink, but might be any other material.

5 Next a resinous material or shellac, or fusible powder or other material should be engaged upon the rear side of the printed sheet while the ink or adhesive is still wet. The final step is the application of heat to cause it to fuse to the
10 adhesive. When it becomes hard it serves to reinforce the characters. Material which sets instead of fuses may also be used to accomplish the reinforcing and so eliminate the heating step. Also material which sets or fuses and it-
15 self sticks may be used and so the step of applying the adhesive may be eliminated.

In Figs. 1 and 2, a sheet of paper printed according to this invention has been disclosed. Reference numeral 10 indicates the paper upon
20 which the blind characters 11 are arranged. These characters are formed by pressing the paper up from the back so as to form a cavity 12 on the back side of the paper. Within this cavity there is engaged adhesive material 13,
25 engaged therein by printing as previously described. Reinforcement material 14 is fused together with this adhesive material preferably by dusting powdered resinous or other fusible material or material which is capable of setting
30 and sticking to the adhesive material 14, upon the back side of the sheet 10 so as to fill in the cavities 12. If the material 14 is of the fusible type the printed sheet must be passed through a suitable heater to cause fusing.

35 It should be understood that the raised characters 11 are produced on a conventional printing press by a male and female die. Further it must be borne in mind that the male die is inked by the conventional printing press with
40 printer's ink or adhesive material so that simultaneously with the printing which causes the raising of the characters, the adhesive material is deposited within the cavities on the back side of the sheet. While this adhesive material is
45 still wet, or in adhesive condition, the reinforcement material 14 is engaged in place.

It will be readily understood that printed matter according to this invention will be more durable than printed matter according to previous processes. When the blind read printed
50 matter they pass their fingers over the raised characters, which, after continuous use wear down and become unreadable, but with the reinforcement upon the under side of the raised characters they maintain their raised conditions for much greater wear and tear during
55 use. In addition the sheet material 10 may be of thinner material than ordinary blind printing in that the strength of the material itself is not depended upon for maintaining of the raised characters in proper reading condition.

60 While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit or the scope of the appended
65 claims.

70 Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

75 1. Printed matter for the blind, comprising sheet material having characters raised from the

surface forced up from the under sides and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material.

2. Printed matter for the blind, comprising 80 sheet material having characters raised from the surface forced up from the under side and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material, said 85 reinforcement material being fusible material adhesively engaged in place.

3. Printed matter for the blind, comprising 90 sheet material having characters raised from the surface forced up from the under sides and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material, said reinforcement material being fusible material adhesively engaged in place, said fusible material 95 being a powder.

4. Printed matter for the blind, comprising 100 sheet material having characters raised from the surface forced up from the under side and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material, said reinforcement material being a fusible powder fused into place.

5. Printed matter for the blind, comprising 105 sheet material having characters raised from the surface forced up from the under side and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material, said 110 reinforcement material comprising adhesive material engaged in the under sides of said characters, and fusible material fused together with said adhesive material.

6. Printed matter for the blind, comprising 115 sheet material having characters raised from the surface forced up from the under sides and reinforcement material in the under side of each of the raised portions of the characters and within the bottom surface of said sheet material, said 120 reinforcement material comprising adhesive material engaged in the under sides of said characters, and fusible material fused together with said adhesive material, said adhesive material being printer's ink. 125

7. A process for printing for the blind, consisting of printing material with a male and female die, adding adhesive material on said male die during the printing to engage it on the under side of said raised characters, and while the adhesive is still active, applying and fusing material therewith to reinforce the characters. 130

8. A process for printing for the blind, consisting of printing material with a male die and a female die, adding adhesive material on said male die during the printing to engage it on the under side of said raised characters, and while the adhesive is still active, applying and fusing material therewith to reinforce the characters, said adhesive material being printer's ink. 140

9. A process for printing for the blind, consisting of printing material with a male and female die, adding adhesive material on said male die during the printing to engage it on the under side of said raised characters, and while the adhesive is still active, applying the fusing material therewith to reinforce the characters, said fusible material being a powder. 145

10. A process for printing for the blind, consisting of using characters as a male die, forming a 150

female die from said male die, printing sheet material from said male and female dies, applying adhesive material on said male die during printing to engage the adhesive material upon the under side of the raised characters, placing fusible powder in the raised characters, and applying heat to fuse the powder to said adhesive material.

11. A process for printing for the blind, consisting of using characters as a male die, forming a female die from said male die, printing sheet material from said male and female dies, applying adhesive material on said male die during printing to engage the adhesive material upon the under side of the raised characters, placing fusible powder in the raised characters, and applying heat to fuse the powder to said adhesive material.

12. A process for printing for the blind, comprising printing material with raised from the surface forced up from the under side characters and simultaneously applying adhesive material upon the under side of the characters, placing fusible powder within the embossed characters, and applying heat to cause fusing of said fusible material.

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