

1,379,433.

Patented May 24, 1921.

Fig. 1.

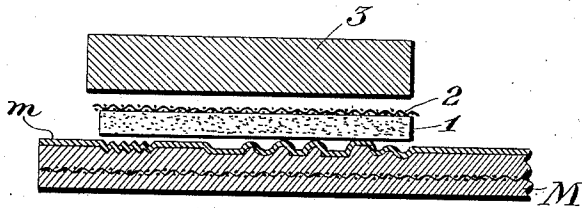


Fig. 2.

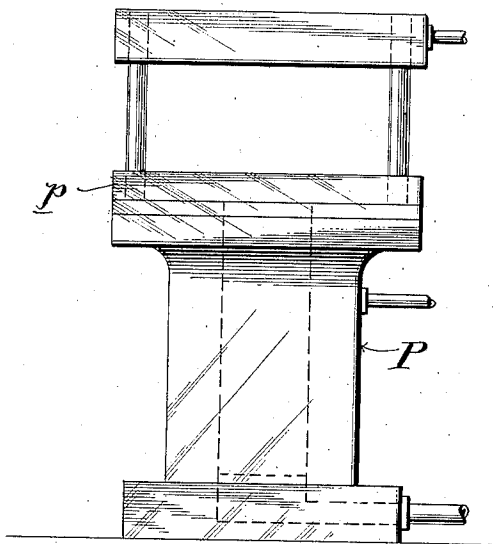


Fig. 4.

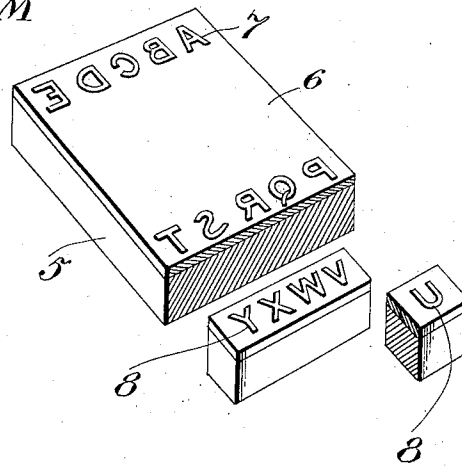
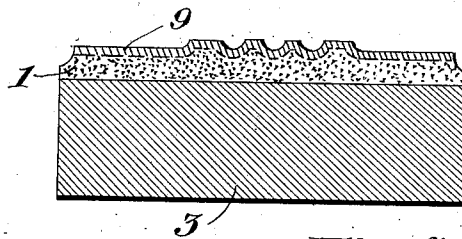
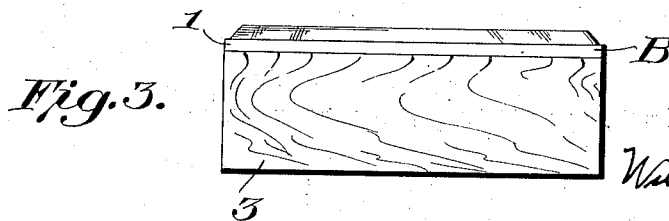


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WOODEN-BACK PRINTING-BLOCK.

1,379,433.

Specification of Letters Patent.

Patented May 24, 1921.

Original application filed April 25, 1916, Serial No. 93,493. Divided and this application filed December 2, 1920. Serial No. 427,832.

To all whom it may concern:

Be it known that I, WILLIAM J. YEOELL, a citizen of the United States, and resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wooden-Back Printing-Blocks, of which the following is a specification.

This invention relates to printing blocks and the present case is a division of my application Serial No. 93,493, filed April 25, 1916.

In carrying out the invention of the present divisional case it is my purpose to provide, in a unitary structure, a composite printing block comprising a base, such as wood, having imposed thereon a molded printing plate formed of a hard and set synthetic resin in the nature of a phenolic condensation product, such as that commercially known as "Redmanol," the union or attachment of the plate to the base being due to the penetrative quality of the phenolic material of the plate which enters the grain or pores of the wood during the molding or pressing operation. In some instances my invention contemplates surfacing the wooden backed phenolic plate with metal, thus forming a composite printing block having a metallic printing face.

Still another object of my invention is the provision of printing blocks such as above mentioned, which may be cut into sections to produce, at minimum expense, fonts of type of any desired size.

With the above recited objects and others of a similar nature in view, my invention consists in the printing block and in the method or process of making the same set forth in and falling within the scope of the appended claims.

In the accompanying drawing:

Figure 1 is a view in cross section showing a printing plate matrix and in conjunction therewith certain blanks from which one form of my wooden back printing block may be made, in this instance a layer or block of fibrous material being interposed between the plate blank of phenolic condensation product and the wooden backing;

Fig. 2 is a view in end elevation showing conventionally a press which may be used in forming my printing block under heat and pressure;

Fig. 3 is a view in end elevation of a printing block embodying my invention and comprising a wooden back with a printing plate of phenolic condensation product mounted thereon;

Fig. 4 is a perspective view showing the manner of forming a font of type from a printing block embodying my invention; and

Fig. 5 is a cross sectional view of a modified form of my invention and showing the printing plate of Fig. 3, formed with a metal surface.

Before entering into a detailed description of the invention as illustrated in the accompanying drawings, I will briefly state that in the formation of the printing plate proper I prefer to use a synthetic resin, such as the phenolic condensation product known as "Redmanol," for the reason that this material in its unset or plastic form may be readily and easily molded to exact dimensions, under the action of heat and pressure, and is capable when so molded of assuming a hard and set and substantially infusible form. This results in the provision of a structure which possesses the desired features of durability and strength, and is capable of withstanding the wear and tear and shocks and jars incident to usage and transportation. The attachment or union of the printing plate with the wooden backing block or base takes place during the molding operation because under the action of heat the plastic material from which the plate is to be made will penetrate the pores or grain of the wood and subsequently hardening will cause a firm union of the plate and backing or base. In Fig. 1 I have shown a strengthening sheet of fibrous material, such as fabric interposed between the blank of phenolic condensation product from which the plate is to be made and the wooden backing or base; and in Fig. 3 I have shown the printing plate as united directly with the backing, or without the interposed fibrous sheet. In both cases the union of the parts is due to the penetration of the phenolic condensation product into the backing or base.

Referring now to the accompanying drawings in detail and particularly to Fig. 1, the letter M indicates a suitable printing plate matrix, which is provided with a

metallic molding face *m*. This matrix and the manner of making the same is set forth in my aforesaid application, Serial No. 93,493. Upon the molding face *m* I impose a blank of plastic plate making material in the nature of a phenolic condensation product, such as Redmanol, and indicated by the numeral 1. In said Fig. 1, I have shown imposed upon this blank 1 a layer 2 of fibrous material, which may be a fabric such as linen or crinoline. I then superpose the wooden block-like backing or base 3 upon the fabric-backed phenolic blank. The matrix with the parts thus piled or assembled may now be placed in a suitable molding box, such as that shown and described in my earlier application, Serial No. 784,456, filed August 12, 1913, and the whole then placed upon the lower bed *p* of the press *P* and subjected to heat and pressure by closing the press as usual, to mold the printing plate and unite the same, in a unitary or integral structure, with the wooden backing or base. In the present instance I have simply shown this press as conventionally illustrated, as any suitable form of apparatus may be used for the application of heat and pressure and for the molding operation, such for instance as the apparatus illustrated in my earlier application, Serial No. 784,456, aforesaid. The molding of the printing plate may be attained by the exercise of a suitable pressure ranging, say from 1000 to 3000 pounds, applied for about five to twenty minutes and with a temperature ranging from 200 to 430 Fahrenheit, according to the character of the work.

If desired the printing block may be made by applying the wooden back or base 3 to the back of the blank of phenolic condensation product 1, and subjecting the parts then assembled, while on the matrix, to the action of the press with the final result that the plastic constituent, under the pressure and heat employed, will unite the wooden base or backing and the phenolic plate material in a unitary structure, nicely leveled, and capable of withstanding the rough usage of the printing room, the phenolic condensation product penetrating the grains or pores of the backing or parts as indicated at 4 in Fig. 3, the complete printing block being indicated as an entirety by the letter *B*.

This last mentioned mode of operation may be used to produce at a minimum expense fonts of type of any desired size, the method being of special utility for making large type like the common wooden type used for display printing.

In Fig. 4 I have shown a single sheet or block of wood indicated at 5 having formed thereon a facing 6 of phenolic condensation product, such as Redmanol, the union being accomplished under the conditions of

heat and pressure already described, and in conjunction with a mold box containing matrices for forming a font of characters, as at 7, the block or sheet being then sawed or cut as indicated in said figure, to form individual type 8, each with its own printing character or characters.

If it be desired to provide the printing plate of Fig. 3 with a sheet metal facing intimately and firmly connected therewith, this can be effected conveniently by applying to the metal face *m* of the matrix, a coating of a suitable fluid or paste, or powder, such as Redmanol, if that be the material of the plate blank 1, or by supplying such coating to the plate blank. The result is that when the parts have been subjected to heat and pressure to form the plate, and the latter is stripped from the matrix, the metal face *m* of the matrix will come away from the body portion of the latter in union with the plate 1, thus constituting a metal printing face upon the body 1 of phenolic condensation product, and having all of the valuable properties of the original sheet metal face of the matrix. It will be noted that a plate thus composed will have a sheet metal face permanently united with a body of phenolic condensation product mounted upon the wooden base, as shown in Fig. 5. However, I have found that for ordinary purposes the printing block provided with a printing plate made from the phenolic condensation product, as shown in Fig. 3, will give satisfactory results for ordinary work and, therefore, I can dispense with the metallic face in connection with my printing block.

What I claim is:—

1. A printing block comprising a base of wood and a printing plate of synthetic resin imposed upon the wood base with a portion of the synthetic resin penetrating the pores of the wood base and uniting said plate and base.

2. A printing plate comprising a base of wood and a printing plate of Redmanol imposed upon the wood base with a portion of the Redmanol penetrating the pores of the wood base and uniting said plate and base.

3. A printing block comprising a base of wood, a thin metal facing, and an interposed phenolic condensation product which is hard and resistant, said parts being united in integral form, and said metal facing having therein reliefs and depressions affording a working surface.

4. The method of forming a printing block which comprises forming a printing surface comprising a phenolic condensation product, and uniting the same to a base of wood by said formative act.

5. The method of forming a printing block, said method consisting in forming a printing plate of phenolic condensation

product upon a base of wood, and securing said materials together by said formative act.

5 6. The method of forming a printing block, said method consisting in forming a printing plate of Redmanol upon a base of wood and securing said materials together by said formative act.

10 7. The method of producing a printing block which comprises subjecting a matrix body, a wooden block having a surface coating of a fusible phenolic condensation product, containing a methylene hardener and a thin sheet of material capable of transmitting the impression and of being stripped from the hardened condensation product, to heat and pressure to simultaneously effect an impression and harden the condensation product.

15 20 8. The method of producing a printing block which comprises: uniting under heat

and pressure against a matrix body, a block of wood, a thin metal sheet, and an interposed body of potentially re-active fusible phenolic condensation product, to provide in a unitary structure, a metal-faced composite printing block. 25

9. The method of making printing blocks which comprises the steps of applying a sheet of a plastic synthetic resin to a base block, subjecting the parts to molding under heat and pressure to form printing characters in the sheet of synthetic resin and to harden and set the latter and to unite the same with the base block, and then dividing the united sheet and block to separate the characters. 30 35

Signed at Philadelphia, in the county of Philadelphia, and State of Pennsylvania, this 29th of November A. D., 1920.

WILLIAM J. YEOELL.