

Dec. 16, 1924.

G. L. SCHUESSLER

1,519,634

ART OF PRINTING

Filed May 1, 1924

3 Sheets-Sheet 1

Fig. 1

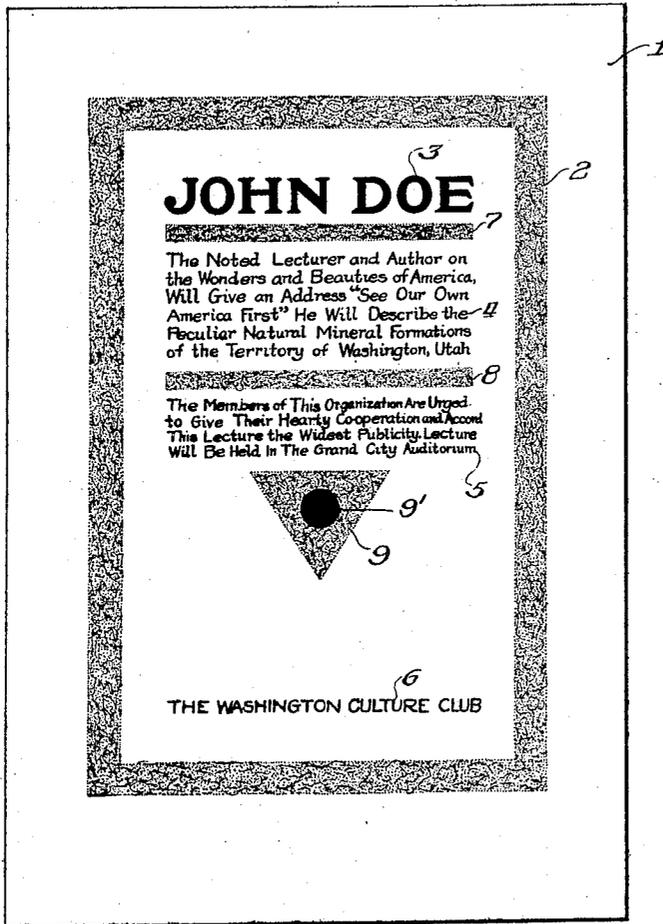
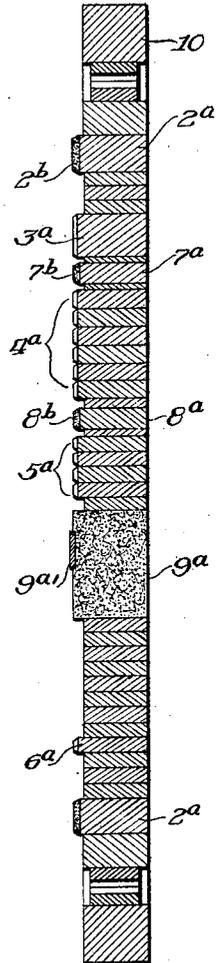


Fig. 2.



Witness

[Handwritten signature]

Inventor:
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3 Sheets-Sheet 2

Fig. 3.

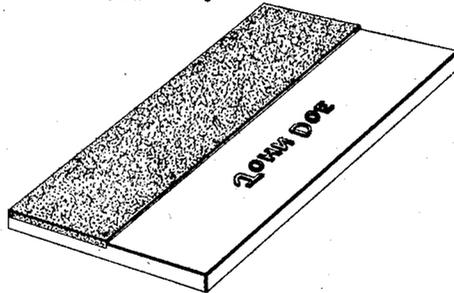


Fig. 4.

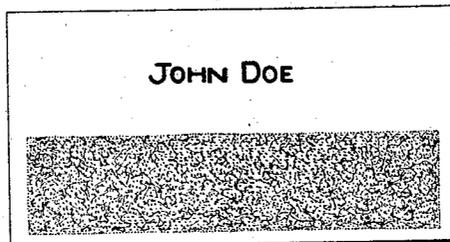


Fig. 5.

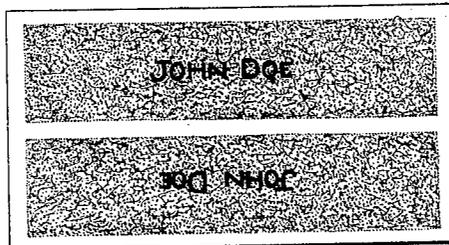


Fig. 6.

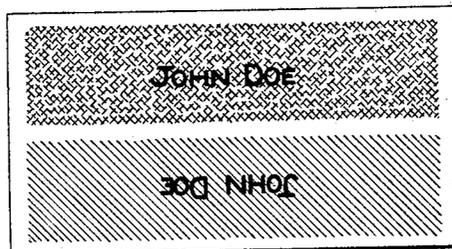
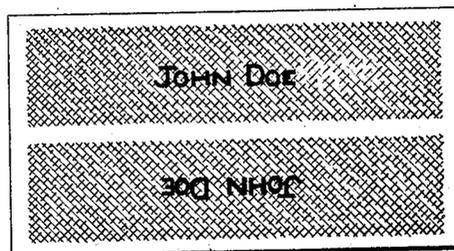


Fig. 7.



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3 Sheets-Sheet 3

Fig. 8.

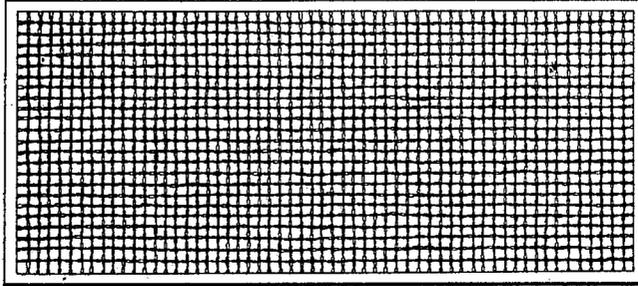


Fig. 9.

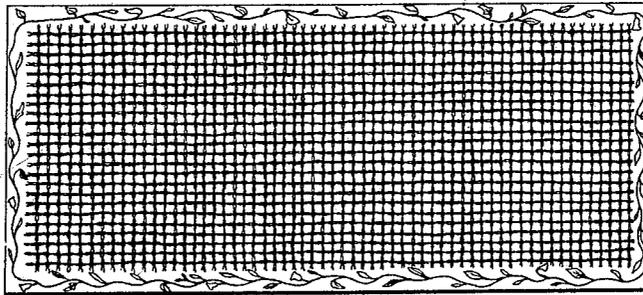
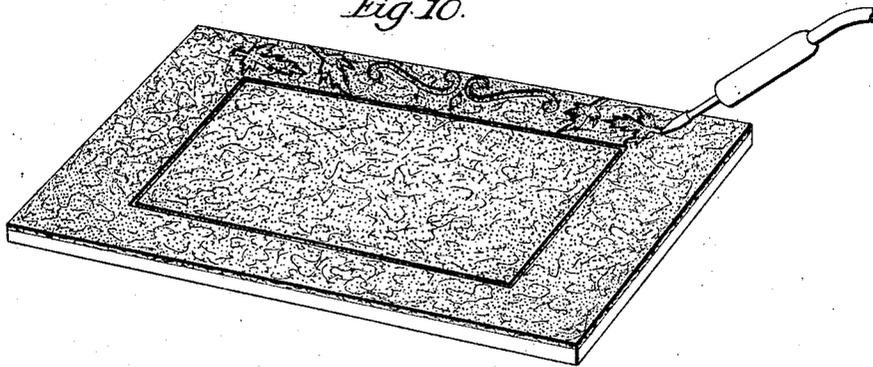


Fig. 10.



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UNITED STATES PATENT OFFICE.

GEORGE L. SCHUESSLER, OF CHICAGO, ILLINOIS.

ART OF PRINTING.

Application filed May 1, 1924. Serial No. 710,231.

To all whom it may concern:

Be it known that I, GEORGE L. SCHUESSLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Art of Printing, of which the following is a specification.

This invention relates to a method of and instrumentality for tinting surfaces by the art of printing, hereinafter referred to as tint printing; that is to say, producing upon surfaces, impressions composed of an aggregate of fine lines which, by blending with unprinted portions of the surface presents the appearance of tinting or subdued surface coloring.

The invention proceeds upon the principle that if a printing element having its impression surface provided by fibers sufficiently loose or segregated to leave upon the imprinted surface definitions of their individual form, be inked after the usual manner of inking relief printing surfaces, and such impression surface be impressed very lightly upon the surface to be printed, the outlines of the contacting surfaces of individual fibers set off by interspersed unprinted spaces will be left clearly discernible, and an effect will be produced simulating engraving, half-tone work, or effects of the so-called "Ben Day" process, and the density of the tinting thus produced can be varied at will by regulating the approach of the printing surface toward the surface to be tinted, with consequent determination of the relative number of sub-fibers, or fibers within the plane of the outermost fibers, to be brought to the plane of imprint; the degree of approach, however, being always restricted to one that will produce surface contact of individual discernible fibers as distinguished from solid or blurred impression of a saturated pad.

In the accompanying drawings—

Figure 1 is a face view of an imprint produced by a printing form composed in part of printing elements constructed and used in accordance with the present invention, and in part of printing elements or type having rigid printing faces.

Figure 2 is a transverse section of a printing form employed for producing the effect shown in Figure 1.

Figure 3 is a perspective view of another

printing form composed in part of rigid face composition and in part of a fibrous printing element for tinting purposes.

Figure 4 is a view showing the effect of one impression made by the printing form of Figure 3.

Figure 5 shows the effect of two impressions of the form shown in Figure 3 with the workpiece turned so that the area which received the composition matter on the first impression will receive the tinting matter on the second impression without obliterating the composition matter, and the composition matter of the second impression will be imposed upon the tinted area resulting from the first impression.

Figures 6 and 7 are views corresponding to Figures 4 and 5, in which the tinting effect is the result of superposed impressions from two different forms.

Figures 8 and 9 represent surface effects each resulting from an imprint of a printing element, the impression of the surface of which is provided by a fabric woven from threads of fibrous material, together with borders provided by rigid printing forms.

Figure 10 illustrates a method of developing double designs in a printing surface composed of a fibrous mass.

Referring to Figures 1 and 2, 1 represents a sheet of paper having imprinted thereon a frame 2 of tinted effect, letter-press matter 3, 4, 5, and 6 produced by hard face printing characters or type, rules 7, 8, of tinted surface effect, and a geometrical device 9 which is also of tint effect. Portions 2, 7, 8, and 9 of the imprint shown in Figure 1 were produced by the printing elements 2^a, 7^a, 8^a, and 9^a of the printing form shown in section in Figure 2, while the remaining parts of said imprint were produced, respectively, by the rigid type or printing elements 3^a, 4^a, 5^a, and 6^a of said printing form, all of said printing elements being locked up in the usual manner in a frame 10. The printing elements 2^a, 7^a, and 8^a are each composed of a body portion of some rigid material, preferably wood, having printing surfaces 2^b, 7^b and 8^b composed of masses of fibrous material, which may be either felted, woven from threads of fibrous material, or otherwise assembled in a mass, provided it be left in such condition that its fibers are sufficiently free to lend to the im-

print clear definition of the individual fibers, and thus give an effect which is composite in that it is made up in part of lines of fiber and in part of intermingled portions of the original surface printed upon, remaining untouched by the pigment, ink, coloring matter, or whatever may be used in the process. As shown in Figure 2, the fibrous printing element may be a solid block of fiber, such as shown at 9^a, which gives the impression 9 of Figure 1.

An important advantage of the method of printing and the instrumentality for printing herein described, is that by regulating the pressure of the fibrous printing element the number of fibers that will reach the surface of the imprint may be varied. Thus, an increase of pressure will naturally compact the fibers of the printing mass in a manner to bring to the surface of imprint, through the spaces between the outermost fibers, additional fibers which normally lie within the outermost fibers. But care must be taken to avoid too great a pressure, as this would bring so many fibers into the printing surface as to approach too nearly a solid mass and destroy the effect of a blend of lines and unprinted surface.

Another important feature of the invention resides in the effect of combining the new printing elements with solid or rigid printing elements in the same form, in that the rigid printing elements determine the plane of arrest of the printing form and consequently limit pressure upon the fibrous printing elements, so that by properly determining the height of the fibrous printing elements, the density of their impressions may be governed and the most delicate effects insured.

As suggested in Figures 3 to 7 inclusive, the invention lends itself successfully to the tinting of surfaces which are also to bear composition matter, and this may be effected economically even though the composition imprint and tinting imprint, with respect to any given area, be made at different times. That is to say, by taking a form large enough to correspond with a plurality of ultimate impressions to be made, and subjecting each workpiece to two impressions, but shifted in position so that composition matter and tinting effect of the first impression will, respectively, coincide in area with the tinting effect and composition matter of the second impression, two complete tinted imprints bearing the composition matter will be produced, and by properly severing the resultant workpiece, two printed articles are obtained. Thus, Figure 4 represents the first impression from the form of Figure 3; Figure 5 shows the result of two impressions therefrom; and similarly, Figures 6 and 7 show the effect, respectively, of one impression and two im-

pressions made from a form which differs from that of Figure 3 by having the fibrous printing surface made of a fabric of characteristic texture, together with a hatched or etched rigid printing form associated with the composition matter.

Figures 8 and 9 are imprints made from fibrous printing forms composed of open weave fibrous thread fabrics together with a rigid border printing element in each instance, and Figure 10 suggests a method of developing pattern work on a printing form having a fibrous impression surface, as by the use of the so-called pyrex process, in which intaglio of desired outline are burned into the surface, leaving the remainder of the fibrous printing surface in relief.

Some of the advantages of the process herein described, as well as the instrumentalities disclosed for carrying out such process, are that by said process and instrumentalities results at least equivalent to and generally better than those obtainable by previously known methods are assured, without the expense of drawing, etching, or other elements of known practice. Moreover, while adapted to be used with different colors of ink on the same job, the invention lends itself for convenient and economical development of plural color effects by the use of one and the same ink, merely by changing the density of the imprint developed from the fibrous printing elements, or by different fibrous printing elements in one and the same form, which, as explained, results from determining the pressure imposed upon and the consequent degree of compression of such fibrous elements in making the imprint. As compared with ordinary plural color work, the invention effects a great saving in that it avoids the step known to the art and defined as "stripping for color", saves one lock-up, one make-ready, one registry, one wash-up, and all but a single ink; and it saves all but a single impression multiplied by the number of copies required, as well as spoilage unavoidably incident to same.

The invention is susceptible of various changes in details without departing from the spirit of the invention. For instance, the art of printing from a form composed of both a fibrous printing element and a rigid printing element, may be realized by cementing upon, embedding into, or otherwise combining with a fibrous printing element, a solid printing face or element which will be brought into impress by the same operation which brings the fibrous printing surface into impress, the fibrous body being relied upon to yieldingly sustain the solid printing face in the impression plane, so that if it is more prominent than the fibrous portion of the printing element, it will retire under pressure to permit the

latter to reach the impression plane. Such an arrangement is suggested at 9' in Figure 1, and 9^a in Figure 2.

I claim:

5 1. The improvement in the art of tint printing, which consists in pressing upon a surface to be tinted, an inked form having a fibrous impression face, the approach of the impression face to the surface being
10 limited to a degree which leaves upon the surface delineations of the fibrous elements of the impression surface with interspersed unprinted portions of the surface.

15 2. The improvement in the art of tint printing, which consists in pressing upon a surface to be tinted, a form having its impression face produced from fibrous material, the fibers of which are sufficiently segregated to leave upon the printed surface
20 their individual impressions interspersed with unprinted surface portions; the impression face being surface inked, and the approach of the printing form to the surface being restricted within a degree to
25 prevent massing of the fiber imprints.

3. The improvement in the art of printing, which consists in impressing upon a surface to be printed, a compressible mass of inked fibers, some of which are sufficient-
30 ly loose to leave a definition of individual fibers in the imprint, the approach of the mass to the surface being printed being regulated to determine the proportion of fibers of the mass that meet surface contact.

35 4. The improvement in the art of printing which consists in simultaneously impressing a printing element having an inked surface composed of a compressible mass of fibrous material and a rigid printing
40 element, and regulating the compression of the fibrous printing surface by the seating of the rigid printing element.

45 5. The improvement in the art of printing, which consists in simultaneously impressing, upon the material to be printed, a compressible printing element having an inked surface composed of fibrous material adapted to tint the surface with which it
50 contacts, and a printing element of rigid character which limits compression of the compressible printing element, and thereafter repeating the imprint with the areas

that receive the compressible and rigid elements in the first imprint, respectively, beneath the rigid and compressible element in
55 the second imprint.

6. The improvement in the art of tint printing, which consists in the pressing upon a surface to be tinted, an inked form having its impression face composed of relatively
60 loose superposed fibers; the approach of the printing form to the surface being established at a degree which causes individual and separately discernible imprints of the outermost fibers with interspersed spaces of
65 unprinted surface, and with imprints of additional fibers lying within the plane of the outermost fibers, intersecting the imprints of the fibers first named, and subdividing said interspersed surface portions. 70

7. The improvement in the art of tint printing, which consists in impressing upon a surface to be tinted, a printing element having an impression face constructed of a fabric of individual threads composed of
75 fibers, the approach of the printing face to the surface being limited to a degree which leaves an impression of the pattern of the fabric defined by lines of tint printing composed of fiber impressions. 80

8. A printing form, composed of elements some of which have rigid impression faces and others of which have impression faces
provided by a mass of fibers.

9. A printing form, composed of elements,
85 some of which have rigid impression faces and others of which have impression faces provided by a mass of fibers, with outermost fibers sufficiently free to leave definition of individual fibers in the imprint of such
90 elements.

10. A printing form, composed of elements, some of which have rigid impression faces, and others of which have impression
95 faces provided by a mass of fibers; the planes of presentation of the two kinds of printing elements being such that pressure of the fiber-faced element is limited by seating of the rigid-faced element in the imprint of the form. 100

Signed at Chicago, Illinois, this 25th day of April, 1924.

GEORGE L. SCHUESSLER.