

A. L. SALTZMAN.
METHOD OF PRINTING AND COMPOSITION UNIT.
APPLICATION FILED SEPT. 30, 1905.

1,034,839.

Patented Aug. 6, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

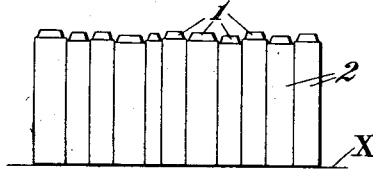


Fig. 2.

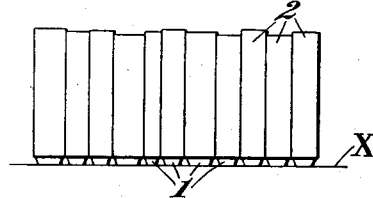


Fig. 3.

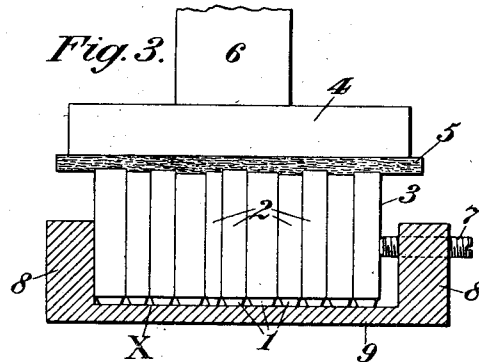


Fig. 4.

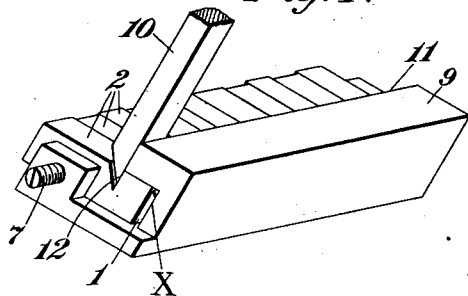


Fig. 5.

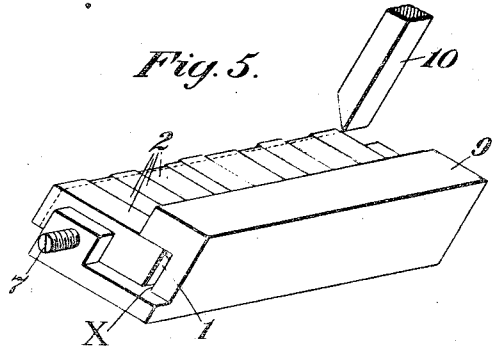


Fig. 7.

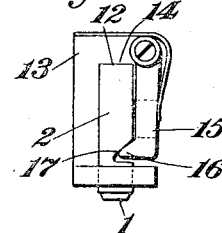
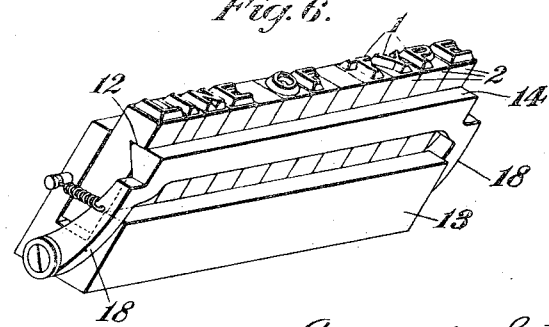


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 8.

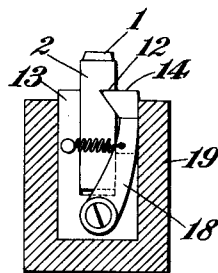


Fig. 10.

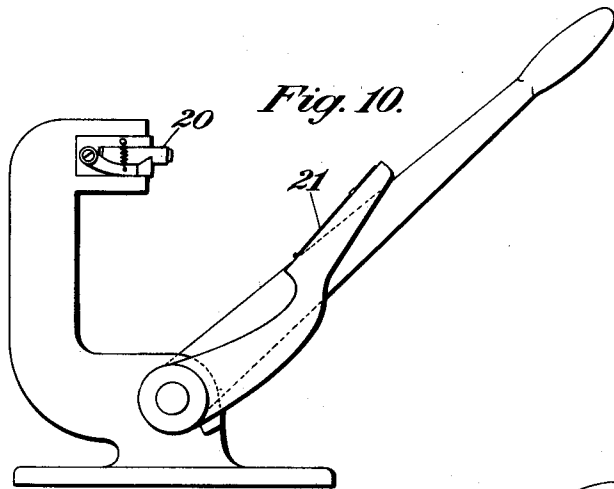


Fig. 11.

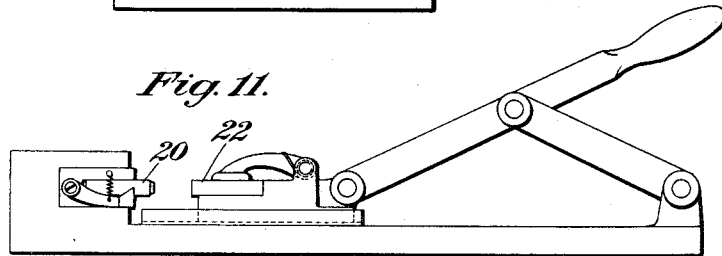


Fig. 9.

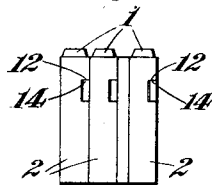
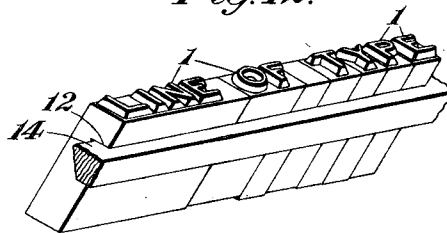


Fig. 12.



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UNITED STATES PATENT OFFICE.

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METHOD OF PRINTING AND COMPOSITION UNIT.

1,034,839.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed September 30, 1905. Serial No. 280,853.

To all whom it may concern:

Be it known that I, AUGUSTE L. SALTZMAN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Methods of Printing and Composition Units, of which the following is a specification.

The invention relates to the art of printing and has for an object the providing of a method of printing whereby the character-bearing faces of the types are brought quickly and accurately into a single plane and are then retained securely in such plane while impressions are made therefrom; to provide a method which is adapted to yield impressions of an excellent quality and which is well adapted for making impressions on an unyielding, or a comparatively unyielding, impression-receiving surface; to provide a composition unit which is the result of the carrying out of some of the steps of the method and which may be used in carrying out other steps thereof. These and other objects of invention will in part be obvious and in part will more fully appear hereinafter.

It is well-known in the typographic art that cast type bodies vary more or less in height, such variation being due to different causes, among which are slightly different composition of the metal used for the various type bodies, varying conditions of temperature and other physical conditions under which the types are cast and cooled. As a result of the differences in height, the types when composed and placed upon a plane supporting surface for the purpose of taking impressions therefrom, in the usual manner, will have their character-bearing faces at varying heights and in consequence thereof the form or composing unit will give an imperfect impression. This difficulty it has heretofore been endeavored in the art to overcome by underlaying or overlaying, the underlaying being generally used where the form or other composing unit consists of the types themselves while overlaying has been practiced to a greater extent where the form consists of an integral surface, such as an electrotype plate. In practice the make-ready methods mentioned, as is well-known, are actually approximations, good results being the fruit of tedious and repeated experimenting, which

is expensive, and furthermore the methods are inherently inaccurate as will be readily understood. Not only does the make-ready form a factor in the quality of the printing impression but the nature of the impression-receiving surface also constitutes a factor. The harder or more unyielding the impression-receiving surface, the more apparent will be the defects due to the difference in the heights of the types, and the less a given amount of make-ready will serve to eliminate these defects from observation.

The present invention effects the elimination of the tedious and expensive operations of making ready by underlaying or overlaying not only for the given composition but, when desired, for any composition in which the said types may be used thereafter under proper conditions. The character-bearing faces of the types having been brought accurately into a single plane, it will also be understood that impressions made upon unyielding surfaces, or those which are practically unyielding, such as a metal planographic surface, are of a superior quality, as the character-bearing faces of the types being in a single plane and the impression-receiving surface being also a plane an equal impression will be received on the said surface from all the types.

The advantages above enumerated, as well as other advantages, are derived from this invention.

The invention consists in the novel methods, steps, parts, articles and improvements herein shown and described.

The accompanying drawings, referred to herein and forming a part hereof, illustrate a manner of carrying out steps in the process and also embodiments of a composition unit included by the invention. It will be understood that the drawings do not necessarily represent actual proportions of the parts, but are more or less diagrammatic in character.

Of the drawings: Figure 1 represents a line of type bodies with their bottom faces true and their character-bearing surfaces in different planes; Fig. 2 represents a line of type bodies whose character-bearing surfaces have been brought into a single plane by being brought into contact with a plane surface; Fig. 3 represents a form of means which may be employed for bringing the character-bearing faces into a single plane;

Fig. 4 represents one way of establishing a true face in the type bodies parallel to the plane of the character-bearing faces of the types; Fig. 5 represents another way of accomplishing the result set forth in Fig. 4; Fig. 6 is a perspective view of a line of types having their faces in a single plane and having holding means for retaining the type bodies in proper position; Fig. 7 is a side elevation of a line of trued types with one form of holding means; Fig. 8 is a side elevation of a line of types corresponding to Fig. 6; Fig. 9 is a side elevation of a form consisting of trued types and provided with one form of holding means; Fig. 10 shows in a general way one manner of taking the impression from a line of types with their faces true; Fig. 11 shows in a general way the taking of an impression from such a line of types on to a line bar; and Fig. 12 shows in perspective a line of trued logotypes.

The method embraced in this invention may be carried out by hand or, if desired, mechanisms may be provided for automatically carrying out the method. In the drawings herewith steps of the method are illustrated as being carried out manually.

In the drawings herewith Figure 1 shows a line of types having their bottom ends resting upon a true surface X and showing differences in height of the various character-bearing faces 1, which differences, as hereinbefore indicated, it has been endeavored in the art to eliminate by making ready, that is, by changing through observation and experiment the supporting true surface X into an irregular surface of such conformation that it will more or less nearly negative or counterbalance the irregularities in the character-bearing surfaces of the types, and thereby cause them in a corresponding degree to approximate toward a true plane. In Fig. 2 of the drawings is shown a line of types which have had their character-bearing surfaces 1 brought into a single plane by being brought into contact with a true plane surface X, as contemplated by this invention.

By bringing the character-bearing faces of the types instead of the bottom ends thereof into contact with a plane surface, the character-bearing faces are immediately, positively and accurately brought into a single plane. If the type bodies are held or fixed in these relative positions while impressions are being taken, as further contemplated by this invention, resulting impressions will be secured much superior to those secured from forms or composition units as usually prepared for impression.

The character-bearing faces of the types are indicated herein by the reference numeral 1 and the type bodies by the reference numeral 2. In practice it may be found desirable and convenient to provide means

for causing the character-bearing faces 1 to come into close contact with the plane and to remain there while suitable means are applied to the line for the purpose of preserving the types in their true position. Any suitable means for doing this may be used, and a form of such means is shown in Fig. 3 of the drawings as applied to a line of types trued to a plane surface X, such form of means comprising a pad 4 with an elastic surface 5 resting upon the bottom ends of the type bodies and having a weight 6 resting thereon.

While, according to some features of the invention any suitable means for holding the trued line of types, or other composition unit, to such trued position during impression may be provided, other features of the invention contemplate the establishing of a true surface in each of the type bodies bearing a definite relation to the character-bearing face of the said type body, and the said true surface in each type body bearing the same relation to the character-bearing surface of the said type body that the true surface in each of the other type bodies bears to the character-bearing surface of the particular type body. The said true surface may be of any suitable character and may, if desired, be a plane surface and may further, if desired, be arranged parallel to the plane of the character-bearing surface. The said true surface may be established at any convenient point in the type body and is herein shown as being established in the side of the type body and also as being established at the bottom end of the type body. Such true surfaces are intended to coact with a true surface on the support for the form or composing unit in which the type bodies are included. It will be seen that the type bodies are thus retained fixedly in position with reference to each other and that the character-bearing surfaces will be maintained in a single plane.

It may be found advisable to apply temporary holding means to the trued line of types for preserving the types in position while the true surface is being established in the type bodies and any suitable means may be provided for this purpose. In the drawings herewith such means are shown in the form of a screw-threaded pin 7 working in one of the abutments 8 of the temporary holder 9, on one surface of which is the plane X. In this manner the line of types will be firmly held between the abutment 8 and the pin 7 after having been trued to position against the surface X.

Any suitable means for establishing the true surface in the type body may be provided and a form of such means is shown in Fig. 4 of the drawings wherein the said true surface is shown as being established in the side of the type body and parallel to

the character-bearing surface, the said surface being indicated by the reference numeral 12. The means for establishing the true surface shown herein comprise a cutting tool 10, the said tool being shown as working against a true face 11 which may be carried upon the holder 9. In Fig. 5 of the drawings the true surface 12 is shown as being established on the bottom face of the types, the manner of establishing the surface as there shown being generally similar to that shown in the preceding figure.

In connection with the true surface 12 it is contemplated by the invention in certain of its aspects, as hereinbefore indicated, to provide a corresponding true surface upon the supporting means for the composition unit during the taking of impressions from the said composition unit. In Fig. 7 of the drawings is shown a form of supporting means for a composition unit consisting of one line, the said supporting means being indicated generally by the reference numeral 13 and being provided with a true surface 14 which acts as a support for the line of type bodies by contacting with the true surface 12 of the said type bodies, said true surface 12 being here shown as on the bottom end of the type body. Suitable means for keeping the said true surfaces in intimate contact are contemplated and a form of such means is herein shown as a spring-pressed holding device 15 having a beveled jaw 16 working against a beveled surface 17 in the type body 2 to hold the surface 12 to the surface 14, as will be clearly understood from the drawings.

In Figs. 6 and 8 are shown lines of types having the true surface 12 established in the side of the type bodies 2 and having the true surface 14 carried by suitable means, a form of such means being shown as the pivoted spring-pressed arms 18 supported upon the supporting means 13 so as to coact with the said true surface 12 in the sides of the type bodies. The portion of the supporting device bearing the true surface 14 and the opening in the side of the type bodies constituting the line of types may be so shaped that as the carrier arms are impelled inward by their springs the surface 12 will be brought down into intimate contact with the surface 14, the line of types being at the same time firmly held with its opposite side in contact with the side of the holder 13, which may also be a true surface.

In certain aspects of the invention the method included therein is adapted for use in connection with composition units of various kinds, such as single words, lines, paragraphs, pages, etc. The method is well adapted for use where the composing unit consists of a single line and where such single line composing units are used to give impressions upon a proper impression-receiv-

ing surface such impressions being made a line at a time, if desired. According to certain features of the invention, therefore, it is contemplated to use a composing unit consisting of a single line from which, after its surface has been properly trued according to the method included in the invention, impression is made upon a proper impression-receiving surface.

Impressions may be made upon any suitable impression-receiving material, so far as many features of the invention are concerned, dependent largely upon the kind of work to be done. Paper, transfer paper, offset materials, matrix materials, planographic materials, or other suitable or convenient materials may be used. In certain aspects of the invention, however, the use of a planographic impression-receiving surface is contemplated, and such surface may be a unitary surface or, when desirable or convenient, it may be in the form of line bars. It will be understood, however, that for some purposes a line bar may be used which is not planographic in character, as for instance, a line bar adapted for offset printing might be used. The surface, whether planographic or otherwise, and whether in the form of a line bar or otherwise, may be yielding in character, or it may be of a practically unyielding character, as impressions of excellent quality are obtained by this invention upon surfaces of any character. The securing of excellent impressions upon a plane unyielding surface, which is effected by this method, is regarded of great value, as such impressions cannot be secured by the means usually employed in the art. As indicated, planographic bars may be used either for a final form or for a temporary form for pulling proofs and, after final correction, to have the composition transferred by any suitable means to a final form.

The method is well adapted for use where types have been composed into forms, by any suitable means, and after proof correction are fed into a machine for impression, preferably a line at a time, upon a suitable surface for receiving the composition. Such surface might conveniently be an offset surface, a transfer surface, or it can in such case be a planographic surface, or other suitable surface for the final printing form, as desired. A machine suitable for this operation is shown in my co-pending application for patent Serial No. 203,714 filed Apr. 18, 1904. It will be understood that uses of the invention herein set forth are illustrative and not restrictive in character.

Where the impressions are taken upon a surface which is adapted to be prepared for printing planographically, it will be understood that after the line of types has been trued up in the manner provided for by the

invention and after the types have been secured in their relative position so as to maintain the character-bearing surface in the plane to which they have been trued, any suitable medium, such as lithographic transfer ink, is applied to the faces of the types and an impression is then taken upon the impression-receiving surface. The said surface, as hereinbefore indicated, may be of planographic metal in the form of line bars, or where the matter has been finally corrected and the final form is needed the impressions may be made, if desired, upon a unitary surface adapted to be prepared for planographic printing. The surface may be further prepared in a manner well-known to the art. In using an offset surface, of a transfer surface, it is obvious also that any proper medium, such as a lithographic transfer ink, may be used.

In Fig. 8 of the drawings a form of holder is illustrated which may be used, if desired, where impressions are taken from a single line of types, or where a plurality of lines are used as a form, said holder being designated by the reference numeral 19.

In Fig. 9 of the drawings a composition unit is shown consisting of a form, the true surface on the type bodies being represented by the reference numeral 12, and a form of support carrying the true surface 14 shown as bars passing through the lines of types, the said surfaces being held in intimate contact by reason of the bars carrying the true surface 14 being made to accurately fit the recesses in the type bodies 2. It will be understood also that other forms of line units included within this invention are also adaptable for use in forms comprising a plurality of lines.

In Fig. 10 of the drawings a composition unit 20 consisting of a single line of types is shown as arranged in a mechanism adapted to yield an impression upon any general impression-receiving surface 21, while in Fig. 11 a similar composition unit is shown as being arranged in a mechanism to give an impression upon a line bar 22. It will be understood also that other forms of line constitute no part of the invention and are merely shown by way of illustration of ways of using one form of composition unit comprised by the invention.

While the description of the invention and the drawings have been referred especially to composition units made up of letter types, it will be obvious that the invention is applicable to other type units than letter units, as for instance, to logotypes. In Fig. 12 of the drawings a line unit comprising logotypes is shown the components of the line having their character-bearing surfaces 1 trued to a plane and having the trued surfaces 12 in the bodies of the logotypes and

14 in the support for the line suitably arranged in a manner similar to that used with single types.

From all the foregoing it will be understood that a method of printing and a composition unit have been provided which realize the objects of invention and advantages herein set forth, as well as other objects and advantages.

The invention, in its broader aspects, is not limited to the particular manner of carrying out the process or to the particular embodiment of the composition unit, as many changes may be made without departing from the main principles of the invention and without sacrificing its chief advantages.

What I do claim as my invention and desire to secure by Letters Patent, is:

1. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane, then establishing a true face in the body of each of said types, the true face in each type body bearing the same relation to the character-bearing face of the said type body as the true face in each of the other type bodies bears to the character-bearing surface of the particular type body, then applying a true face on the supporting means for the line of types to the true faces established in the types while an impression is made from the types.

2. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane, then establishing a true face in the body of each of said types, all of said true faces being in one plane which plane is substantially parallel to the plane of the type faces, then applying a true face on the supporting means for the line of types to the true faces established in the types while an impression is made from the types.

3. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane by bringing the said faces into contact with a plane surface, then establishing a true face in the body of each of said types, the true face in each type body bearing the same relation to the character-bearing face of the said type body as the true face in each of the other type bodies bears to the character-bearing surface of the particular type body, then applying a true face on the supporting means for the line of types to the true faces established in the types while an impression is made from the types.

4. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane by bringing the said faces into contact with a plane surface, then establishing a true face in the body of each of said types,

all of said true faces being in one plane, which plane is substantially parallel to the plane of the type faces, then applying a true face on the supporting means for the line of types to the true faces established in the types while an impression is made from the types.

5. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane, applying temporary holding means to the line of types in order to keep the types in fixed relative position, then establishing a true face in the body of each type, all of said true faces being in one plane substantially parallel to the plane of the type faces, then applying a true face carried on the supporting means for the line of types to the true faces established in the types while an impression is made from the types.

6. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a plane by bringing the said faces into contact with a plane surface, applying temporary holding means to the line of types in order to keep the types in fixed relative position, then establishing a true face in the body of each type, all of said true faces being in one plane substantially parallel to the plane of the type faces, then applying a true face carried on the support for the line of types to the true faces established in the types, and hold-

ing the last-named true faces to each other while an impression is made from the types.

7. The method of printing from a line of types which comprises bringing the character-bearing faces of the types into a single plane by bringing the said faces into contact with a plane surface, holding the types in fixed relative position after they have been so trued, applying a suitable medium to the character-bearing faces of the types, then taking an impression therefrom upon the surface of a planographic line bar, then transferring the impressed matter from a series of said planographic bars to a unitary planographic surface, preparing said surface for printing planographically, and then taking impressions from said surface upon an impression-receiving medium.

8. The process of printing from a plurality of types which comprises truing the surfaces of the types by bringing them into contact with a plane surface, establishing a true surface on each of said type bodies and supporting the types by a true surface bearing on said true surface in the type bodies during the impression.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUSTE L. SALTZMAN.

Witnesses:

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CLARA PHILLIPS.