

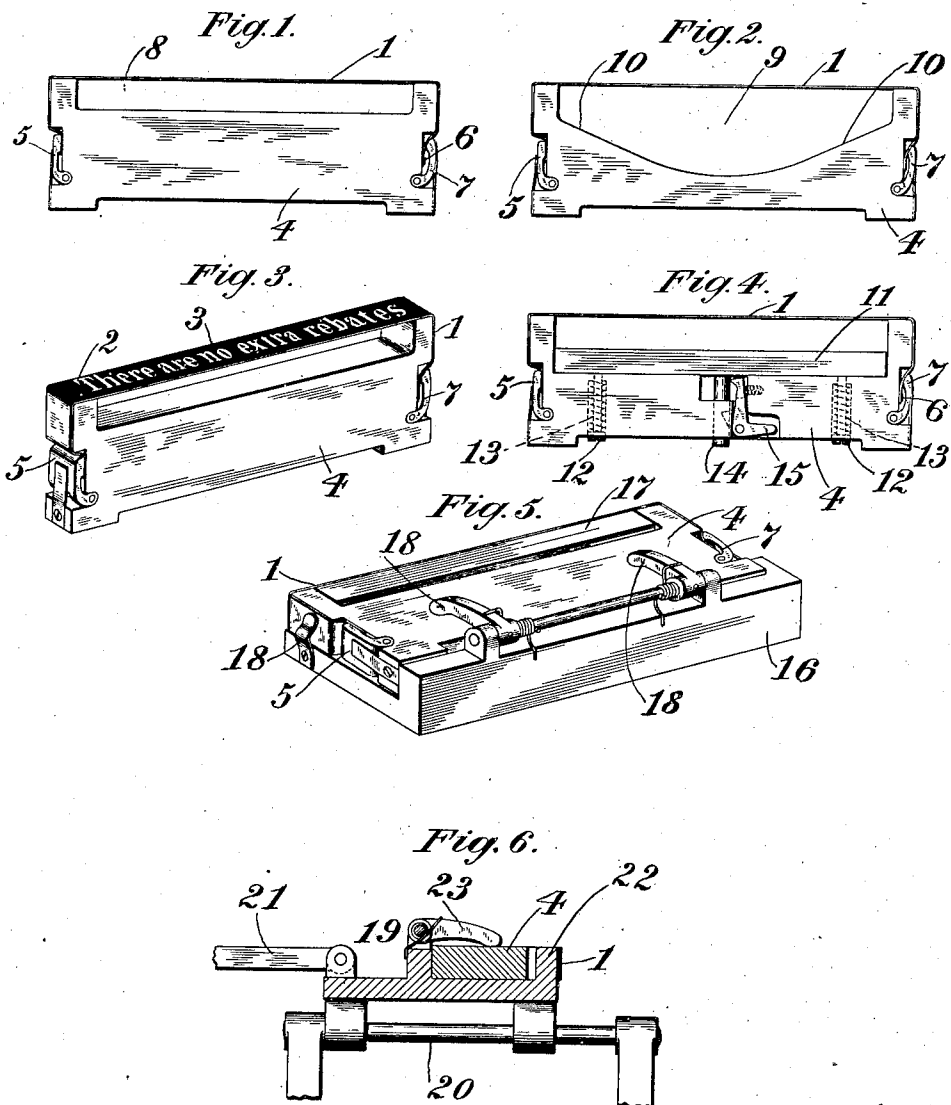
G. R. CORNWALL.

COMPOSING DEVICE.

APPLICATION FILED MAR. 6, 1906. RENEWED APR. 30, 1910.

1,013,477.

Patented Jan. 2, 1912.



Witnesses:

Auguste H. Sathman.

Milton Lenoir

Inventor,

George R. Cornwall

By

John S. Morgan
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE R. CORNWALL, OF RYE, NEW YORK, ASSIGNOR TO AMERICAN PLANOGRAPH COMPANY, A CORPORATION OF WEST VIRGINIA.

COMPOSING DEVICE.

1,013,477.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed March 6, 1906, Serial No. 304,457. Renewed April 30, 1910. Serial No. 558,655.

To all whom it may concern:

Be it known that I, GEORGE R. CORNWALL, a citizen of the United States, residing at Rye, in the county of Westchester and State of New York, have invented new and useful Improvements in Composing Devices, of which the following is a specification.

The invention relates to the printing art and more especially to the production of letter-press planographic printing plates, although the invention in some of its features, may be otherwise applicable in the art.

Objects of the invention are to provide a line bar or composition unit which will make a suitable impression upon a proper surface by the action of light and which also admits of great flexibility, latitude and rapidity in the making of corrections, modifications, transpositions and other changes such as are so frequently necessary in the preparation of letter-press matter for printing plates; to provide such a unit which may be easily manipulated as to alinement, relative positioning and otherwise. These and other objects of invention will in part be obvious and will in part more fully appear hereinafter.

The invention consists in the novel parts, articles, improvements and combinations herein set forth.

The accompanying drawings, referred to herein and forming a part hereof, illustrate one embodiment of the invention, with certain modified forms, the same serving in connection with the description to explain the principles of the invention.

Of the drawings; Figure 1 is a view of a line bar constructed in accordance with the principles of the invention; Fig. 2 is a view of a modified form; Fig. 3 is a perspective of the form shown in Fig. 1; and Figs. 4, 5, and 6 are also views of modified forms.

The invention comprises a line composition unit having a flexible surface, or flexible surface-carrying member, said surface having a line of characters thereon, the characters and the surrounding surface having different properties with respect to the transmission of light, that is, one being light transmitting and the other light arresting. The line composition unit or line strip, as it may be termed, may be used in various ways for the various purposes to which it is adapted, but according to certain features of the invention it is contemplated to use the

said strip in connection with a support in the form of a line bar upon which the strip is mounted. According to other features of the invention it is contemplated to have the supporting line bar for the strip of such shape as to permit proper use of the surface to receive and give an impression of the line of characters in various ways, as may be desired, and means embodying such features are contemplated by the invention, and various forms of such means are provided and set forth herein; according to other features of the invention also, it is contemplated to have the line of characters upon the strip in a definite relation to the line bar support in order that the line of characters on the strip may be registered with reference to another surface by the registration of the supporting bar.

In the accompanying drawings, which illustrate various forms of a composition unit constructed in accordance with the principles of the invention, the flexible character-bearing strip is shown as carried upon a supporting line bar, and the flexible strip and the line bar together in some senses may be regarded as the composition unit although the strip may be used without the support in certain connections. Referring, therefore, to the embodiment of the invention set forth in the accompanying drawings by way of example, a flexible strip is designated by the reference character 1. The said flexible strip carrying upon its surface a line of characters 2 is clearly shown in Fig. 3 of the drawings, the characters of the said line 2 and the surrounding surface 3 having separate properties with respect to the transmission of light. In Fig. 3 of the drawings the characters of the line 2 are shown as light-transmitting and the surrounding surface as light arresting.

As illustrated herein, the flexible surface 1 is shown carried upon a support 4 in the form of a line bar. According to certain features of the invention however, and in connection with certain uses to which the flexible character-bearing line composition unit might be put, other forms of support might be utilized. As shown herein, suitable holding and tension devices are provided for detachably retaining the flexible strip 1 in position upon the bar 4. In the illustrated form thereof the said devices comprise a spring-pressed jaw 5 located at

one end of the bar, a retaining device 6 of any suitable form such as a pin passing through the strip 1 and into the bar 4 at the other end, and a spring-pressed jaw 7 is also shown for holding the strip taut over the surface of the bar 4. It will be understood that the particular form of these devices is immaterial it being only essential that the flexible strip be properly positioned upon the surface of the bar and then held firmly to position.

In Fig. 1 of the drawings the line support 4 is shown with an opening 8 beneath that portion of the flexible strip 1 upon which is the line of characters so as to allow the free access of light to both sides of the strip. In Fig. 2 of the drawings an opening 9 of somewhat different form is shown which is designed for receiving between the bar and strip a light-emitting device, such as an electric lamp, or other suitable device. The surface 10 of the bar about the opening 9 may constitute a reflector and may be also of a conformation such as to cause an approximately equal distribution of light over the entire extent of the line of characters carried upon the flexible strip 1.

It may be desirable for certain uses to have a solid surface supporting the flexible strip throughout the length of the line of characters and for certain other purposes to have a free space entirely about the strip throughout the extent of the line of characters. Means for effecting these ends have therefore been provided by the invention and a form of such means is shown in Fig. 4 of the drawings, wherein a line bar 4 has a surface 11 movable into supporting contact with the flexible strip 1 and movable away from the said strip so as to allow a free space about it throughout the length of the line of characters. Devices for holding the surface 11 in either position are provided, which may be of any suitable or convenient form, and are shown herein as comprising what may be termed retracting devices for holding the surface away from the strip and retaining devices for holding the surface to the strip. The said retracting devices in the illustrated form comprise pins 12 working in apertures in the bar 4 and being acted upon by springs 13 which retain the surface 11 in contact with the bar 4 and away from the strip 1. The surface 11 may be moved into supporting contact with the strip 1 and is then held in position by the retaining device, the illustrated form of which comprises a pin 14 having a detent tooth or notch therein and a spring-pressed detent or pawl 15 adapted to fit into the said tooth or notch and retain the surface 11 in supporting contact with the strip 1.

There may be various occasions for having a surface in supporting contact with the strip 1 or for having the strip free upon

all sides. A particular instance is where the material of the strip 1 is light transmitting and a line of characters is imprinted thereon in an opaque medium, such as a suitable ink, or a line of characters is outlined thereon by the use of intagliated letters, the surrounding surface being then covered with an opaque ink or other suitable medium. During the imprinting operation it is necessary or desirable that a firm surface be in supporting contact with the strip 1 in order to secure an excellent impression. If the strip is to be used to impress a surface by the action of light while being supported upon the bar it may be desirable to permit access of light to the rear side of the strip, in which case the surface which has been in supporting contact with the strip may be removed.

Another form of means for providing the strip 1 with a suitable surface in supporting contact therewith, which surface may be removable when desired, is shown in Fig. 5 of the drawings. In the form illustrated in the said figure a complementary piece 16 is shown adapted to co-act with the bar 4 the said piece 16 carrying a surface 17 which is adapted to pass into supporting contact with the strip 1 when the bar 4 and the piece 16 are brought into coöperative relation. As shown in the said figure the bar 4 is adapted to be supported by the piece 16 and to be firmly held in position thereon at which time the surface 17 is in supporting contact with the strip 1. When it is desired to have the strip 1 free upon all sides, with this particular form, the bar 4 is removed out of coöperative relation with the piece 16 and is used alone. Suitable devices for holding the bar 4 and piece 16 in coöperative relation are provided and may be of any form that is convenient or desirable. The form of such means shown herein comprises several spring members 18 carried upon the member 16 the operation of which will be understood from an inspection of Fig. 5 of the drawings.

It may be desirable in connection with some uses of the said composition unit to provide a surface in supporting contact with the strip 1 when the strip is receiving a line of characters by imprinting from a line of inked types and as in such case it may be desirable and convenient that the imprinting be done by a machine, means have been provided in connection with a bar-carrying carriage, adaptable for use with such a machine, for providing a piece or part upon the carriage which will have a surface in supporting contact with the strip 1 while the supporting bar 4 is upon the carriage. A particular form of such means is shown in Fig. 6 of the drawings wherein a carriage of an imprinting machine is designated generally by the reference character 19 and is shown as traveling upon guides 20 and as be-

ing actuated by a link 21 which is connected to a suitable actuating mechanism. A piece 22 is provided upon the carriage which is adapted to have a surface in supporting contact with the strip 1 while the bar 4 is in position thereon. Suitable means for holding the bar in position thereon of any desired form may be provided and one form of such means is indicated herein generally by the reference numeral 23.

Various ways of making the flexible strip 1 with a line of characters thereon may be employed. One way of securing the said strip and line of characters has been briefly outlined above where the line of characters is imprinted upon a transparent strip in an opaque medium. If desired, a method may be utilized whereby the surface of the strip is sensitized with a coating carrying a silver salt or other suitable light-sensitive agent and after the strip has been imprinted, while protected from the action of light, it is subjected to the action of light with the ink thereon. The light will act upon the exposed portions and the remaining portions will be protected by the ink. The ink may then be removed and the strip developed and fixed in a well-known manner. The line of characters will then appear on the strip possessing opposite properties from the surrounding surface with respect to the transmission of light. The strip may be prepared in other ways also, which will not be set forth herein as the method of preparing the said composition unit is not the subject-matter of this application. Such a composition unit is adapted to supply various needs in the printing art. One instance of the use of such a composition unit is the impressing of letter-press matter upon a suitable plate, the line bars being assembled into forms for this purpose and after all desired changes have been made by manipulation of the bars, as by substitutions, transpositions, additions or removal thereof, in a manner which will be well understood, to bring the composed matter into the desired final form, the plate is subjected to the action of light beneath the form and is then prepared for printing either planographically or otherwise. Various kinds of plates are suitable for use with composition units which are effective to impress the plate by the action of light. One kind of plates is those which carry a bichromated colloidal coating, another kind is plates which have been sensitized with sensitive asphalt.

The uses of the composition unit set forth herein are merely illustrative and not restrictive in character, as the said composition unit may be put to other uses in addition to those indicated.

From all the foregoing it will be understood that a composition unit has been provided which realizes the objects of invention

and the advantages herein set forth, together with other objects and advantages.

The invention, in its broader aspects, is not limited to the particular constructions shown, nor to any particular constructions by which it has been or may be carried into effect, as many changes may be made in the construction 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. A composition unit including in combination, a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, and means for holding said strip in extended position.

2. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, and a support for the said strip.

3. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, and a support for the said strip in the form of a line bar.

4. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, a line bar support therefor, and means for holding the said strip in position upon the said line bar support.

5. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, a line bar support therefor, said line bar support being shaped to permit access of light to both sides of said strip throughout the length of the line of characters.

6. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, a line bar support therefor, means for holding the said strip in position upon the said line bar support, and means for placing tension upon the said line strip.

7. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, a line bar support therefor, and a surface constructed and arranged to be moved into sup-

porting contact with the said line strip and to be moved away from supporting contact with the said line strip.

8. A composition unit including in combination a flexible line strip having a line of characters, the characters and the surrounding surfaces possessing opposite properties with respect to the transmission of light, a line bar support therefor, and a surface constructed and arranged to be moved into supporting contact with the said line strip and to be moved away from supporting contact with the said line strip, and means for holding the said surface in either position.

9. A composition unit including in combination an element carrying a line of characters, the characters and the surrounding surface possessing opposite properties with respect to the transmission of light, and a supporting member movable into and out of supporting position with respect to the character carrying element.

10. A composition unit including in combination

a line strip having a line of characters, the characters and the surrounding surface possessing opposite properties with respect to the transmission of light, and means associated with the said strip whereby the composition unit is adapted for use in a typographic machine.

11. The combination with a strip adapted to receive a line of characters in a medium possessing opposite properties to the strip as regards the transmission of light, of means for supporting the strip while the line of characters is being impressed thereon, said supporting means and strip being relatively movable to permit the transmission of light through the strip after impression.

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

GEORGE R. CORNWALL.

Witnesses:

JOHN D. MORGAN,
CLARA PHILLIPS.