

No. 625,666.

Patented May 23, 1899.

P. M. FURLONG.

COMPOSITE PRINTING PLATE AND PROCESS OF PRODUCING SAME.

(Application filed Mar. 1, 1899.)

(No Model.)

Fig. 1.

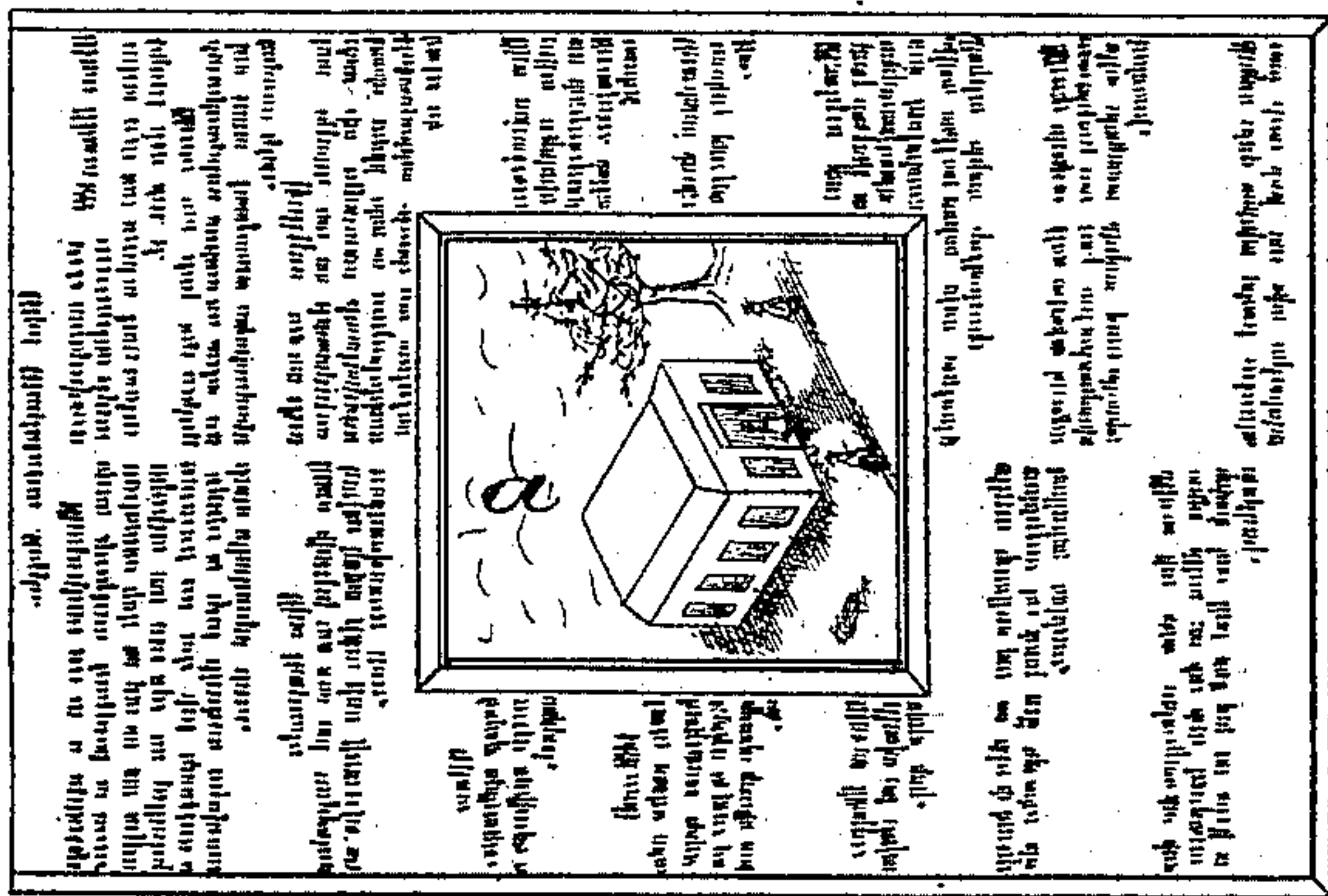


Fig. 2.

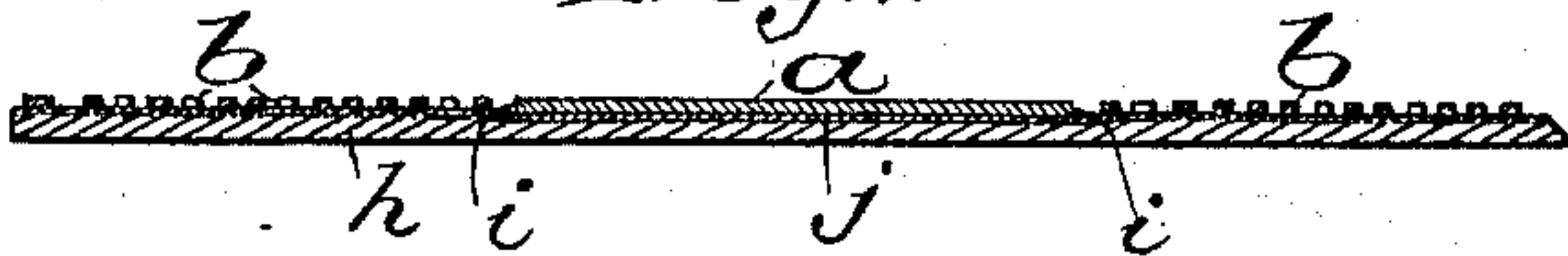


Fig. 3.

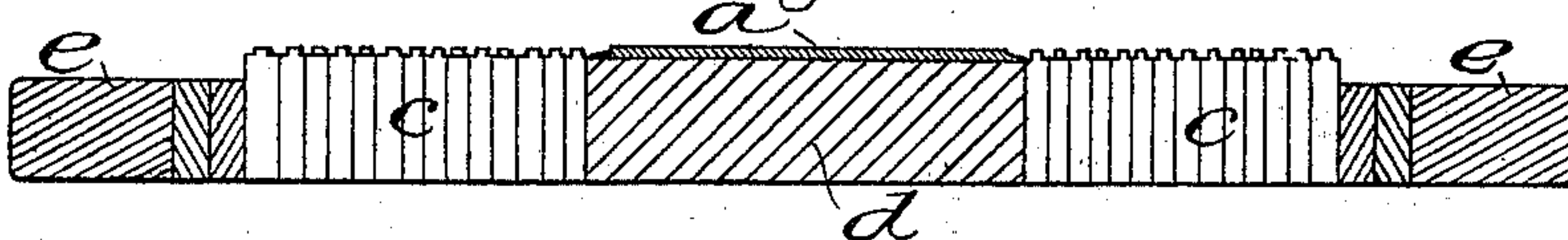


Fig. 4.

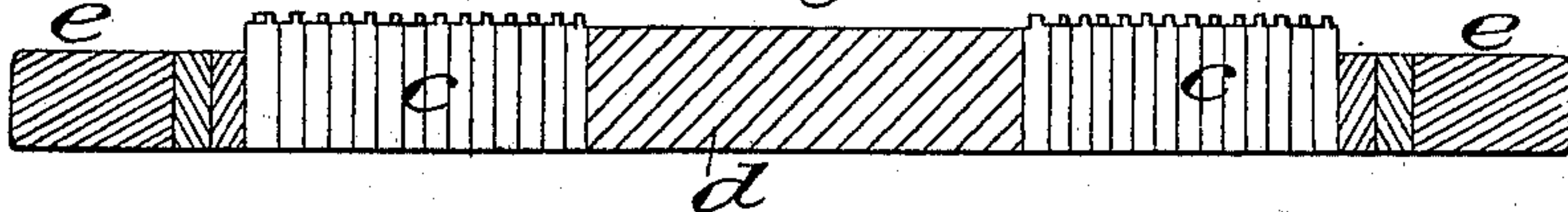


Fig. 5.

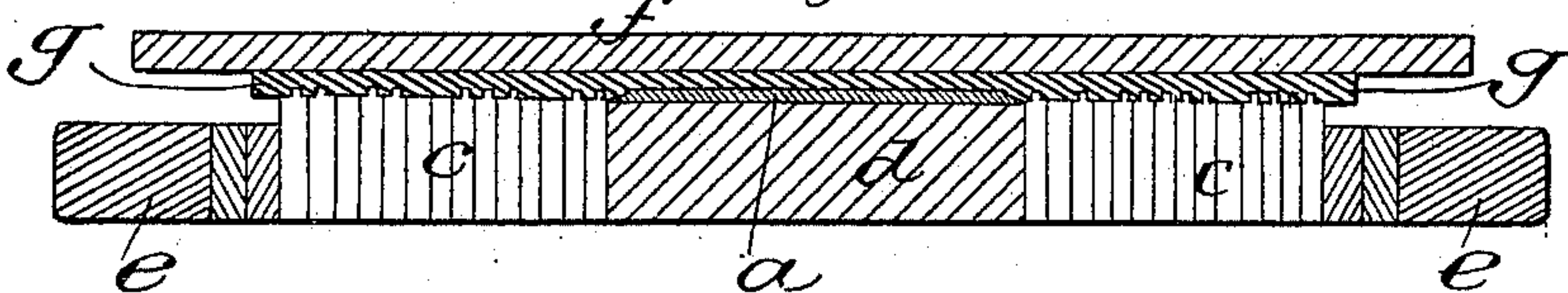


Fig. 6.

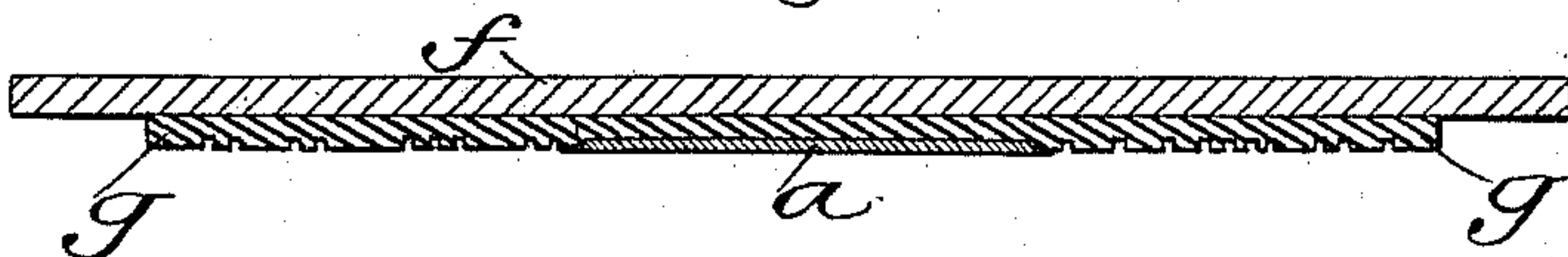
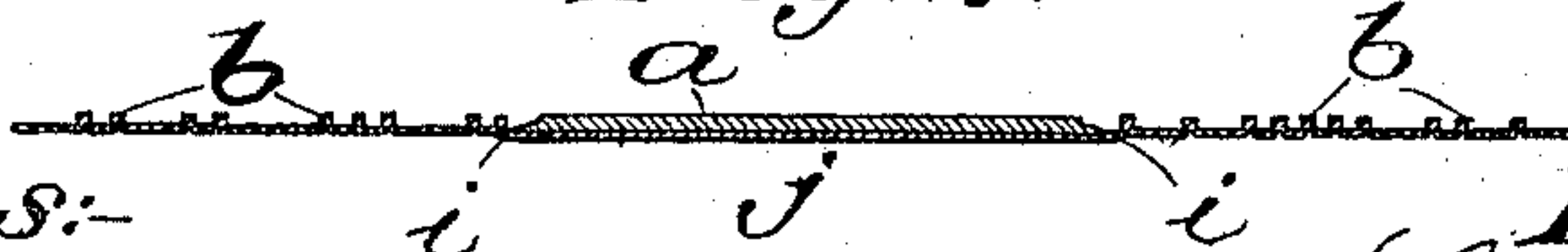


Fig. 7.



Witnesses:
Edward Cresser
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Inventor:
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by attorneys
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UNITED STATES PATENT OFFICE.

PATRICK M. FURLONG, OF NEW YORK, N. Y.

COMPOSITE PRINTING-PLATE AND PROCESS OF PRODUCING SAME.

SPECIFICATION forming part of Letters Patent No. 625,666, dated May 23, 1899.

Application filed March 1, 1899. Serial No. 707,330. (No model.)

To all whom it may concern:

Be it known that I, PATRICK M. FURLONG, a citizen of the United States, and a resident of the borough of Brooklyn, in the city of New York and State of New York, have invented a new and useful Improvement in Composite Printing-Plates and the Process of Producing the Same, of which the following is a specification.

10 This invention relates to printing-plates in which illustrations are combined with reading matter, and particularly to what are known as "composite" plates, in which etchings for illustration are combined with elec-
15 trotypes of reading matter.

It is well known in the printing trade that printing from duplicates is inferior to that produced from originals, and consequently many publishers of illustrated books and pe-
20 riodicals insist on having the original etched or engraved plates (generally of copper) inserted into electrotypes containing reading matter. These plates or "etchings," as they are called, are generally about one-sixteenth
25 of an inch thick, while electrotypes vary from three-sixteenths to a quarter of an inch in thickness. Heretofore etchings inserted into electrotypes have been united therewith by solder, and to so unite them it was necessary
30 first to "back up" the thin etching with an alloy composed of lead, antimony, and tin to the thickness of the electrotype before soldering. This method is expensive, and, moreover, the soldering of the joints, which must
35 be done from the back, produces on the face of the plate a swell or ridge which causes extra expense in printing, because of the unevenness of the plate and the necessity for extra "overlays" in order to produce an even
40 impression on the printed sheet, and notwithstanding the most careful "make-ready" such plates are sure to show wear at the soldered joints, and the result of this is defective print-
45 ing. At best this expensive and unreliable method of obtaining a composite plate is only a makeshift, as the soldered joints are liable to separate when the plates are on the print-
ing-press, thereby often causing annoying and expensive delays by "smash-ups."

50 The object of the present improvement is to provide a composite printing-plate which is less costly than and also free from the de-

fects of those heretofore known and used; and to these ends my invention consists in the process hereinafter described with refer- 55
ence to the accompanying drawings and in the composite plate thereby obtained.

Figure 1 of the drawings is a face view of such a composite plate, and Fig. 2 a section of said plate. Figs. 3, 4, 5, 6, and 7 are sec- 60
tional views illustrating the several stages of the process.

In Figs. 1, 2, and 7, *a* designates the etching, and *b* the electrotype of the reading mat-
ter. In Figs. 3, 4, and 5, *c* designates the 65
types for said electrotype. In Fig. 3 the type and the etching and a base or blank block *d*, preferably of metal placed under the latter to make it type-high, are represented
as placed together in the type in the chase *e*. 70
The etching and the said base *d* having been properly trimmed to fit into the type-form, the etching is removed and the base *d* alone
locked up in the form with the type, as shown in the section Fig. 4. This removal of the 75
etching is necessary in order that the type may be blacklead to cause it to relieve freely from the molding composition in the opera-
tion of molding and it being preferable that the face of the etching should not be black- 80
leaded. After blackleading the type-form the etching, having had its back thoroughly cleaned, is replaced face upward on the base
within the form, with its face flush with the 85
types, as shown in Fig. 3, and then the surface of the molding composition having been coated with plumbago the form is molded in
the usual way, as illustrated by Fig. 5, in which
90 *f* designates the metal plate of the molding-case with the edge-guards removed, and *g* the wax or molding composition on said plate
inverted upon the form. When the mold thus obtained is lifted from the form, the etch-
ing will be found embedded in and adhering 95
to the molding composition, face inward, as shown in Fig. 6. The mold containing the
etching is then blacklead in the usual way preparatory to being placed in the electro-
typing-bath; but before being placed in the 100
bath the exposed back of the etching should be freed from black-lead and scraped bright
to insure the incorporation of the electrode-
posited metal with the back and edges of the etching while forming the electrotype-shell *b*,

as indicated at *ii* in the sections Figs. 2 and 7, where it will be seen at *ii* and *j* that the electrodeposited metal which forms the shell *b* is continuous and unbroken over the edges of the etching to the back thereof, thereby forming a perfect union between the electrotype and the etching, so that when the shell is removed from the mold it brings the etching with it, the two forming practically one plate, which after having been freed from adhering wax or molding composition may be backed with composition metal *h*, as shown in Fig. 2, and finished in the same manner as ordinary electrotypes.

By this simple, direct, and economical process an absolutely perfect incorporation of an etched plate with an electrotype of reading matter is obtained.

What I claim as my invention is—

1. A composite printing-plate in which an etched or engraved plate and an electrotype-shell are united by the same metal as that of which the said shell is composed, substantially as herein described.

2. A composite printing-plate in which an etched or engraved plate and an electrotype-shell are united by an extension around the edges of said plate and over the back thereof of a portion of the electrodeposited metal of which the said shell is composed, substantially as herein described.

3. The process of obtaining a composite printing-plate including an etched plate and an electrotype of reading matter, which consists in first, locking up in a form of type a blank block of the size of the etched plate; second, blackleading the type-form; third, placing said plate loosely in said form with its face flush with the types therein; fourth,

obtaining in plastic material placed in contact with said form and plate a mold from the type in said form; fifth, removing said form from the mold with the plate adherent thereto; sixth, blackleading the face of said mold but leaving the exposed back of the plate bright or free from black-lead; seventh, subjecting the mold containing the embedded etching to the action of an electric current in a solution of a metallic salt, which action produces a metallic deposit over the mold and the back of the etching at the same time, thereby insuring a union between the metallic deposit and the back of the etching, substantially as set forth.

4. In the process of obtaining a composite printing-surface including an etched plate and an electrotype-shell, the production in plastic material of a mold from a type-form while the etched plate is embedded in said mold, and the removal of a deposited metallic shell from the mold with the said plate adherent to it, substantially as herein described.

5. In the process of obtaining a composite printing-surface the successive acts of embedding an etched plate, face inward, in a mold taken from a type-form and of depositing in said mold and over the edges and back of said plate, by electrometallurgy, a metallic shell which unites said plate and metallic deposit, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of February, 1899.

PATRICK M. FURLONG.

Witnesses:

EDGAR A. TREDWELL,
CHARLES E. SPRAGUE.