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F. J. WENDELL.

MANUFACTURE OF STEREOTYPE PLATES.

(Application filed Jan. 29, 1900.)

(No Model.)

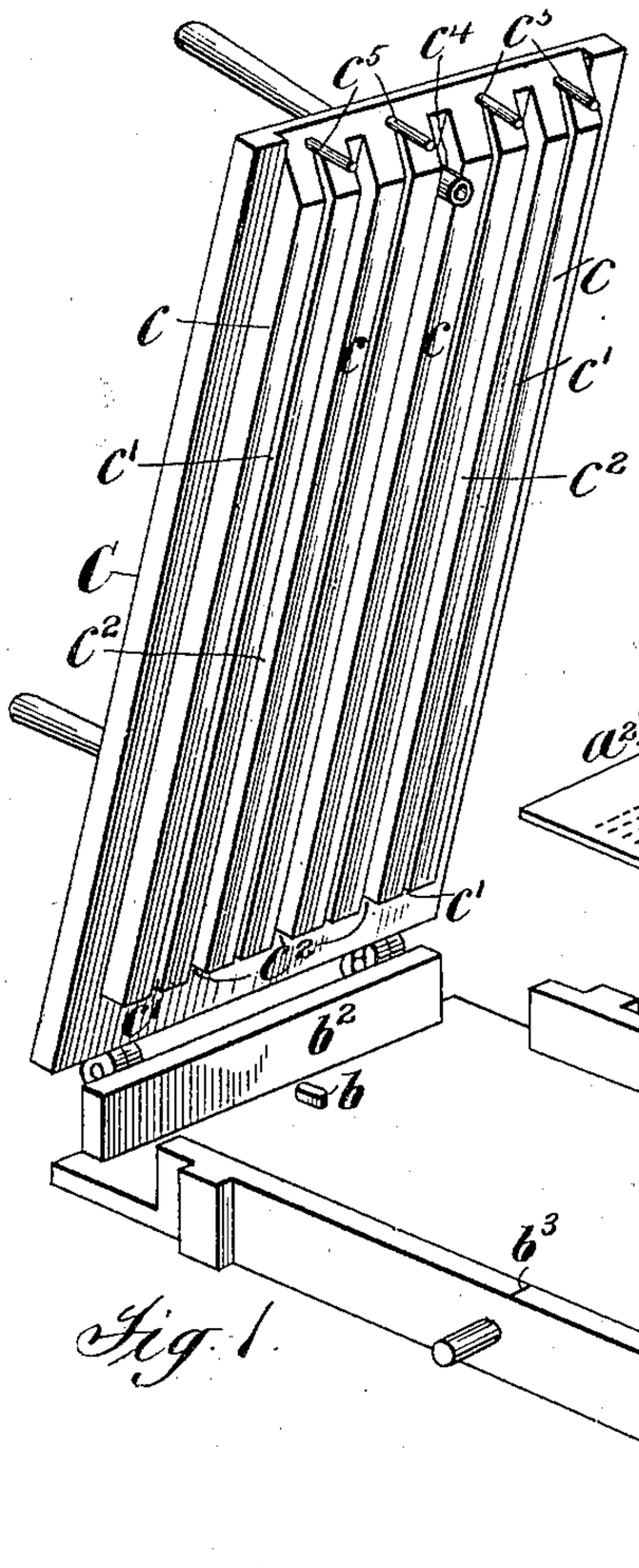


Fig. 1.

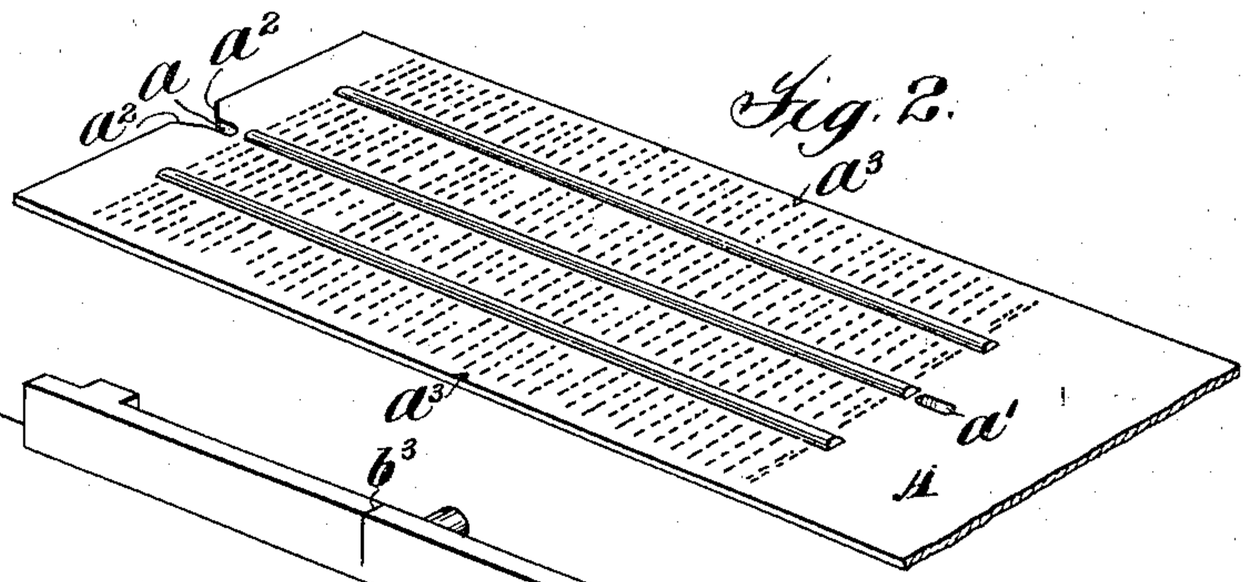
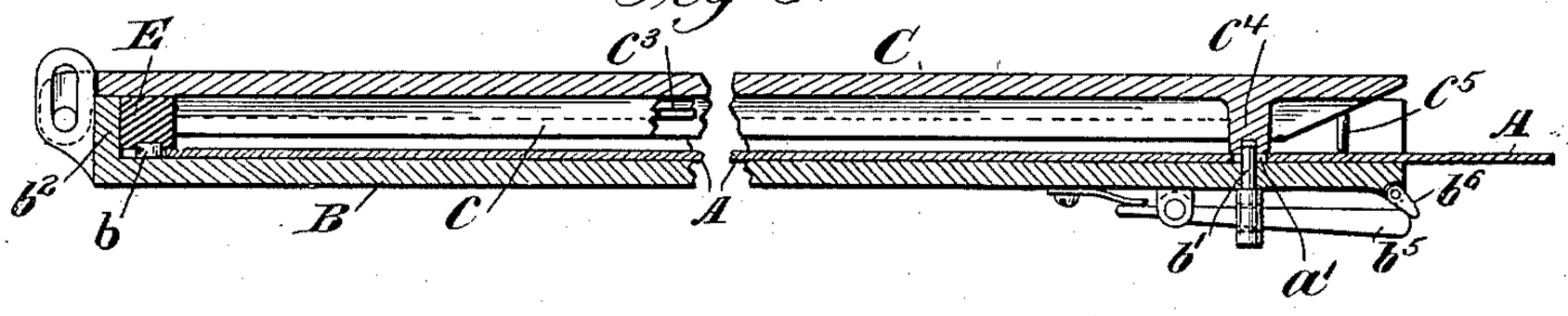


Fig. 2.

Fig 3.



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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF STEREOTYPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 656,312, dated August 21, 1900.

Application filed January 29, 1900. Serial No. 3,065. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND J. WENDELL, a citizen of the United States, and a resident of New York, (Brooklyn,) State of New York, have invented Improvements in the Manufacture of Stereotype-Plates, of which the following is a specification.

My invention relates to the manufacture of stereotype-plates, and has for its object to produce such plates with the matter in more nearly accurate alinement thereon than can be obtained by the means at present in use.

The main feature of my invention consists in adjusting the matrix, from which the stereotype-plate is to be formed, in the casting-box from central points of the matrix instead of from an edge or edges thereof, as heretofore. The advantages of this may be apparent when it is stated that the material of which the so-called "papier-mâché" matrices are made has a tendency to shrink after casting, and these matrices are generally used many times over. These advantages can be better pointed out after the invention has been explained.

My improvements may be applied to the manufacture of any kind of stereotype-plates—for example, flat or cylindrical plates, plates consisting of a single column of any width even to the extent of one or more whole pages of a newspaper, plates comprising several columns, or series of plates adapted to be used in printing more than one color.

While, as I have stated, my improvements are equally well adapted to the manufacture of cylindrical forms, as well as flat plates, by way of example only I have shown in the accompanying drawings a matrix and a casting-box adapted to produce flat plates.

In the drawings, Figure 1 is a perspective side view of a casting-box provided with my improvements, the figure representing the cover raised. Fig. 2 is a perspective view of the matrix. Fig. 3 is a longitudinal section through the center of the casting-box after the matrix is in place and the cover of the box closed down.

Figs. 1 and 2 show a box and matrix adapted to form a plate having four columns of matter; but it is evident that any other number of columns could have been shown. Before placing the matrix A into the casting-box B two recesses or openings $a\,a'$ are made within the area of the matrix at or near a central line and preferably in the longitudinal center, as shown. These recesses may be formed in any convenient manner—as, for instance, during the manufacture of the matrix—by means of projections on the make-up chase, in which case the portions of the matrix around the recesses are preferably reinforced by a stronger material, as linen, to prevent them from wearing larger from continual use.

In the bottom of the casting-box B, I provide two projections $b\,b'$, exactly corresponding to the positions of the recesses $a\,a'$ when the matrix is in place. While these recesses $a\,a'$ and projections $b\,b'$ may be of any desirable shape, they are preferably in the forms shown in the drawings. The projection b is shown as in the form of an elongated stud, and the recess a corresponds thereto for a portion of its length and then flares outward at a^2, being open to an edge of the matrix, whereby when the matrix is being put in place and its upper end pushed toward the rear wall b^2 of the box the open flaring sides a^2 of the recess a guide the matrix until the projection b registers with the portion of the recess corresponding to the projection. The other projection is in the form of a pin b', preferably adapted to be moved into and out of registering position for the purpose hereinafter explained. The recess a' to be placed over the pin b' is of the same width as the diameter of the pin, but is elongated, first, to allow of longitudinal shrinkage of the matrix, and, second, to permit the matrix to be moved slightly in a longitudinal direction.

To form a series of stereotype-plates adapted to be used for printing the same sheet in two or more colors, a suitable indicator, such as the mark a^3, Fig. 2, is placed at exactly the same position in reference to the completed sheet on each matrix of the series and another indicator, as the mark b^3, is provided on the casting-box, so that when the matrix is put in place it may be adjusted longitudinally until the marks a^3 and b^3 register. These marks $a^3\,a^3$ and $b^3\,b^3$ are preferably in a plane through a center of the area of the matrix at right angles to the line of adjustment in which the registering devices $a\,a'$ and $b\,b'$ are placed.

It may here be remarked that the recesses $a\,a'$, projections $b\,b'$, and marks $a^3\,b^3$ may be replaced by any other suitable devices without departing from my invention, which is to

provide any suitable means for adjusting a matrix in the casting-box from central points within the area of the matrix and one of the mold-faces.

The cover C of the casting-box carries the cores *c*, which, as here represented, are adapted to form three legs for each column, the space *c'* in the core-cover forming the center leg of the column and the space c^2 forming the two outside legs of the two adjacent columns.

After the matrix A is placed in the box B, the recesses *a a'* and projections *b b'* interlocking to register the matrix from its longitudinal center, the transverse gage-bar E, Fig. 3, is placed over the upper edge of the matrix against the rear wall b^2 and the cover C is lowered. A spool or socket c^4 on the cover passes over the pin *b'* and covers the recess *a'*, so that when the metal is poured into the box it cannot get into this recess. The gage-bar E has a depression in the under side to fit over the projection *b* and completely covers the recess *a*, so that the metal cannot enter it. This gage-bar E holds the matrix firmly at the inner end. Another purpose of the socket c^4 is to hold the matrix in place at the center of the outer end. Any suitable means may be employed to further aid in holding the matrix in place; but the pins c^5 (shown in Figs. 1 and 3) are well adapted for the purpose.

As before mentioned, the pin *b'* is preferably made movable. Any suitable means may be provided for this purpose—for instance, as shown in Fig. 3, a spring-actuated lever b^5 normally tends to hold the pin in its raised position; but by depressing the lever the pin is drawn down clear of the matrix, and a drop-wedge b^6 automatically holds the lever from returning until the wedge is pushed out again.

From these arrangements it will be seen that when the casting has been done the cover C with the cores *c* raised, the gage-bar E removed, and the pin *b'* withdrawn out of the recess *a'*, the matrix with the stereotype-form may be drawn out from the open end of the box longitudinally, as usual, without injury to the matrix or casting, the projection *b* offering no impediment in consequence of the open end of the recess *a*. It is evident, however, that the projection *b* may also be movable and the recess *a* not open at the end.

Heretofore it has been the custom to adjust the matrix in the casting-box from one or more of its edges. When the matrix shrinks, the column nearest the adjusting side may be nearly true—that is, the cores *c c* will come down about properly over the column; but the next column will be a trifle out of true—that is, its set of cores *c c* will not be accurately centered in relation to the column—and the third, fourth, fifth, &c., columns will be still more out, the farther away from the adjusting edge they are. With the first two or three columns this defect is hardly perceptible, but with the fifth, sixth, or seventh, and so on, the inaccuracy becomes serious—that is, when the plate is cut into columns those farthest from the adjusting edge often have the matter close to the cut on one side and with a wide blank space on the other side, and at times on the last column or two the matter itself will be cut. Another bad effect of adjusting from the side is that should there be the slightest inaccuracy in trimming the matrix all the columns will be untrue—that is, the space between the column-rule and matter will be wider at one end of the column than at the other end, the cores always remaining in the same position relative to the box no matter how the matrix is placed therein. With my improved means of adjusting from central points this last defect is entirely avoided and the minimum harm done in consequence of shrinkage. The column in the center where there is an uneven number of columns or the two center columns where there is an even number of columns, as shown, will be approximately true, the columns at each side not being far enough from the adjusting line to show any defects.

It is evident that the same principle of adjusting the matrix from the center may be applied to a cylindrical casting-box and matrix.

I claim as my invention—

1. The combination of a stereotype casting-box, with a matrix, said box and said matrix being provided with interlocking devices arranged within the area of one of the mold-faces of said box and of said matrix, midway of the edges of the matrix.

2. The combination of a stereotype casting-box, with a matrix, said box and said matrix being provided with interlocking devices arranged within the area and at or near the longitudinal center of one of the mold-faces of said box and of said matrix.

3. The combination of a stereotype casting-box, with a matrix, said box and said matrix being provided with interlocking devices arranged within the area and at or near the longitudinal center of one of the mold-faces of said box and of said matrix, and means for disengaging the said interlocking devices to allow the matrix with the casting formed to be withdrawn from the box longitudinally.

4. The combination of a stereotype casting-box provided with a stationary and a movable projection within the area of one of the mold-faces, with a matrix provided with two recesses one open to an edge of the matrix, the said recesses adapted to engage said projections, substantially as and for the purposes set forth.

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

FERDINAND J. WENDELL.

Witnesses:
EDITH J. GRISWOLD,
EDITH C. SARLES.