(No Model.)

C. T. MOORE.

PRINTING.

No. 362,987. Patented May 17, 1887.

Fig. 1.

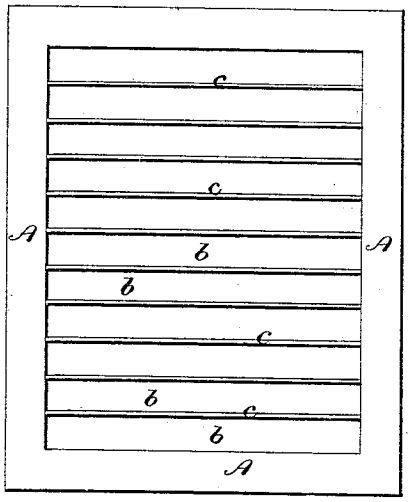


Fig. 3.

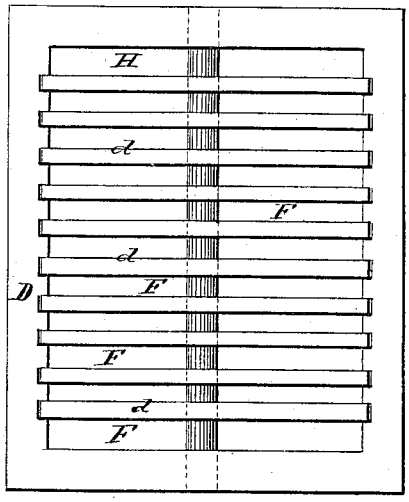


Fig. 9.

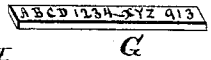


Fig. 2.

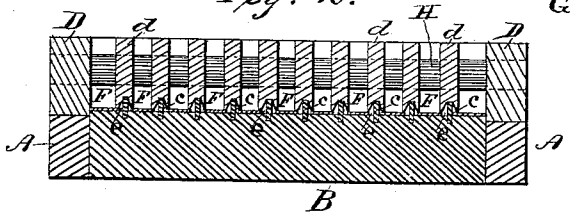


Fig. 4.

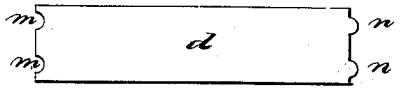


Fig. 5.

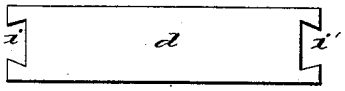


Fig. 6.

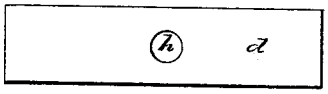


Fig. 7.

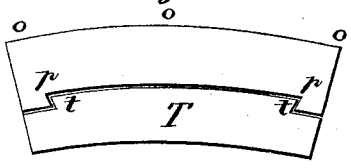
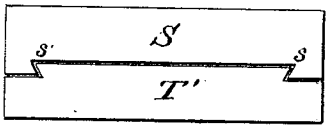


Fig. 8.



WITNESSES

Chas. R. Burr

Fred. B. Church.

INVENTOR

Charles T. Moore

by Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

CHARLES T. MOORE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE NATIONAL TYPOGRAPHIC COMPANY, OF SAME PLACE.

PRINTING.

SPECIFICATION forming part of Letters Patent No. 362,987, dated May 17, 1887.

Application filed February 12, 1884. Serial No. 120,440. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. MOORE, of Washington, in the District of Columbia, have invented certain new and useful Improvements in the Art of Printing; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention consists in certain improved stereotype line plates and forms adapted for use in the art of printing, in novel methods or processes of producing said line plates and forms, and in certain devices of novel and peculiar character employed in carrying said modes or processes into practice, all as will be hereinafter fully described and claimed.

In practice I take any material capable of receiving and retaining deep, clear, and distinct impressions from types by striking or pressing them upon or against it. For this purpose it will not answer to employ lead or other material in which the types displace the substance of the material laterally, so as to form burrs around the edges of the impressions, but in lieu thereof some substance like papier-maché or soft calendered or uncalendered paper, in which the types simply compress the material directly under their faces without disturbing the surrounding material of neighboring impressions. I find that dampened papier-maché or soft paper of suitable thickness answers the purpose well. I desire to be at liberty, however, to use the material in other conditions, and to use as a substitute for it any material which will receive and retain proper impressions, and will not be so acted upon by the molten metal or act upon said metal as to impair or prevent the result desired. Having thus provided the necessary material, I then make the impressions of letters, figures, &c., therein by means of types or dies struck upon or forced against it, using, preferably, a type writing or printing machine in which the types have sufficient force to indent or impress the material. If the material is not already in strips before the impressions are made on it, I cut it into strips afterward, each strip being sufficiently wide to accommodate a single line of impressions and have a suitable blank margin at each side of said line. The line-strips so made, if not of the right length, are then severed into suitable lengths corresponding to the lines of print to be produced, and are corrected and justified by the process set forth in my Letters Patent No. 201,436, dated March 19, 1878. I may then attach the lines to a sheet or to each other, place them in a mold, and cast the stereotype-plates upon them; but preferably I cast a separate stereotype-plate for each line of print to be produced, and I will describe one mode in which this part of my invention may be practiced—viz., as follows: After obtaining the corrected and justified line-strips, I attach them, with their impressed faces upward, to the bottom of the several compartments of a divided stereotype-mold, so that each line strip becomes a temporary bottom or bottom-lining of one of the compartments of the mold. I then cast the metal into the mold, thereby forming a stereotype-plate for each compartment thereof, and each plate adapted to print a single line in the book, newspaper, or other article to be printed. The plates thus produced are to be arranged in columns in the printing-press, and when thus arranged without spacing-strips or "leads" will print the matter "solid," but may be "leaded" in the usual manner.

In casting the plates from the line-strips I have devised a convenient mold for the purpose which I prefer to employ, and which I will now proceed to describe, by reference to the drawings thereof accompanying this specification, in which—

Figure 1 is a plan with the upper part of the mold removed; Fig. 2, a vertical cross-section of the entire mold without a cover. Fig. 3 is a top plan of the structure shown in Fig. 2; Figs. 4, 5, and 6, side elevations representing different forms of the partitions *d*, or the stereotype line-plate; Fig. 7, a side elevation of the line-plate and a segment of the cylinders used in a cylinder-press, and Fig. 8 a similar elevation of the same parts as used in a platen-press. Fig. 9 is a view of the impressed strip of papier-maché or its equivalent.

Similar letters of reference in the several figures denote the same parts.

In said drawings, A represents a rectangu-

lar frame or margin inclosing a slightly-elevated bed, B, the upper surface of which is divided by parallel projecting ribs *c c c* into a series of parallel beds, *b*, corresponding substantially in width and depth to the width and thickness of the line-strips above referred to.

D is a frame having transverse partitions *d d*, grooved along their lower edges, as shown at *e*, which fits closely down upon the device A B *c*, the frame D fitting upon the frame or margin A, the grooves *e* fitting upon the beads *c*, and the spaces F, between the partitions *d*, coming directly over the spaces *b*, between the ribs *c c*.

G is a line strip of impressed papier maché or its equivalent, which is adjusted in one of the spaces *b*, accurately fitting therein, and is retained in said space by means of any suitable adhesive substance, or by clamps or other equivalent mechanical means. Similar line-strips are arranged in the other spaces *b b*. The frame D is then adjusted upon the part A B *c*, in the manner above described, the lower edges of the partitions *d* resting along their centers on the ribs *c* and along both sides of their centers on the papier-maché strips, and assisting in smoothing down the latter and clamping them firmly in place. The two parts A B *c* and D *d e* are then locked, clamped, or otherwise securely fastened together, and the melted stereotype metal is placed in the spaces F *b* and allowed to cool, when it is removed, and each plate thus cast is found to be a perfect stereotype-plate of the matter impressed on the line-strip. The spaces F are of a length corresponding to the width of the page or length of the line to be printed, and are of such width that when the plates are arranged in columns in a printing press or machine the matter will be printed solid.

In constructing the parts D *d e* provision may be made for any expansion and contraction of the partitions *d* by fitting their ends in vertical slots in the frame with sufficient clear space between the ends of the plates and walls of the slot to accommodate the plates when expanded, but hold them securely when contracted.

To facilitate handling the stereotype-plates, a rod, H, may be made to pass entirely through the middle frame, D, and spaces F, as shown in Fig. 3, or dovetail bars may be made to pass through the frame and ends of said spaces, so that the stereotype-plates, when cast, will in the one case present the form shown in Fig. 5 or in the other the form shown in Fig. 6, or any other equivalent forms. The rod or bars are to be inserted, the metal cast in and cooled, and the rod or bars then removed. Upon raising the stereotype-plates out of the mold, the rod or bars may be inserted into the holes *h* or dovetails *i i*, as the case may be, thereby locking together all the plates so cast, enabling them to be conveniently handled, and preventing them from getting displaced or lost.

If it be desired that in any case the stereotype-plates are to be joined at their ends to make lines of double length or more, each plate may be cast with one or more recesses, *m*, in one end, and corresponding projections, *n*, in the other end, which recesses of one plate will interlock with the projections of the adjacent plate and hold the plates properly together during their use. The stereotype-plates cast from molds of the flat form represented in Figs. 4, 5, 6, 8 will not be applicable on cylindrical printing presses or machines; but by properly crowning the surface of the bed B and the other parts used in connection therewith, and covering the mold, as any mechanic skilled in the art of molding and casting will readily understand, stereotype-plates having curved printing-surfaces may be produced for use on cylinder presses or machines. Such a plate is represented in Fig. 7, in which *o o* indicate the curved outline or printing-surface of the plate, and *p p* represent a dovetail recess in the inner edge of the plate, whereby the plate is held on the printing press or machine cylinder. A segment of said cylinder is shown at T, having a raised dovetail bed, *t*, whereon the stereotype-plates are slid and locked by the dovetails, as will be readily understood.

The stereotype-plates for printing on the ordinary flat-bed presses may be constructed or secured to the bed in any analogous manner, as shown in Fig. 8, wherein T′ is a segment of the flat bed or platen of a press, and the stereotype-plate S is secured thereto by dovetails *s s′*, as shown. In casting the stereotype-plates as above described, the molds may be left open, and be filled by dipping them in the melted metal or by pouring it into them. The molds may, if preferred, be covered and filled through a gate-sprue, and in such case a passage or passages may be provided, whereby all the spaces F may by filled from a single gate.

The several compartments F may be so connected by a passage that when the stereotype-plates are cast they will all be connected together by a rib of metal extending from one to another. In such case the connecting rods and bars above described need not be employed, as the plates can be conveniently handled without them; but when the plates thus cast are to be used they would have to be sawed apart or the surplus metal removed.

Without departing from my invention the partitions *d* and ribs *c* may even be altogether omitted and the stereotype-plates cast in one body or block, including a greater or less number of lines of letters, and if it be desired to use a separate plate or block for each line of print the large block may be sawed apart between the lines, so as to reduce it to a number of blocks or plates, each having a single line stereotyped upon it; but I prefer to cast the stereotype-plates line by line, as above described, and recommend that mode as practically the best.

Having thus described my invention, I claim as new—

1. The improvement in the art of producing forms for printing, which consists in forming a matrix for each line of matter, stereotyping from said matrices, and assembling the resulting lines in forms, substantially as described.

2. The improvement in the art of producing forms for printing, which consists in forming a matrix-strip for each line, stereotyping said strips, and assembling the resulting lines in forms, substantially as described.

3. The improvement in the art of producing forms for printing, which consists in forming a matrix-strip for each line, justifying such strips, stereotyping such justified strips, and assembling the resulting lines in forms, substantially as described.

4. The method, substantially as described, of making stereotype forms to be used in the art of printing, which consists in molding the words of the negative form by separately forcing the individual type-letters composing the several words into strips of papier-maché, tin-foil, or other suitable material, stereotyping said strips, and uniting the resulting stereotype-lines into forms.

5. The method, substantially as described, of making stereotype-forms to be used in the art of printing, which consists in stamping the type in strips of papier-maché, tin-foil, or other suitable material, justifying said strips, stereotyping said justified strips, and uniting the resulting stereotype-lines to compose the aforesaid forms.

6. The method of forming a plurality of lines of machine-indented matter into a molding-surface on which to cast a stereotype, which consists of columnwisely bedding each line between thin metal divisions.

7. The improvement in the art of producing forms for printing, which consists in forming indented matrix-strips, placing said strips in separate compartments of a mold, stereotyping said strips, and subsequently clamping the resulting lines together, substantially as described.

8. A form for letter-press printing in page form, the same consisting of a series of independent bars, each bar having on its edge the characters to print a number of words.

9. The improved form for letter-press printing, consisting of a series of independent line-bars, each bearing the characters to print a plurality of words properly spaced or justified, said bars being of a height adapted to admit of their being locked firmly together by lateral pressure.

10. The combination of the frame, the matrix-bed, and the partitions, substantially as described.

11. The combination of the frame, the matrix-bed, the partitions, and the rod passing through the partitions, substantially as described.

12. The combination of the frame, the matrix-bed having the projecting ribs, and the partitions, substantially as described.

13. The combination of the frame, the matrix-bed having the projecting ribs, and the partitions provided with the grooves in their under edges, substantially as described.

CHAS. T. MOORE.

Witnesses:
F. H. CHALMERS,
FRED F. CHURCH.