(No Model.)

T. BIGELOW.

PRINTING TYPE.

No. 351,355. Patented Oct. 26, 1886.

FIG. 1.

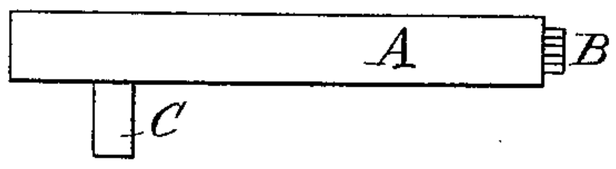


FIG. 2. FIG. 3. FIG. 4.

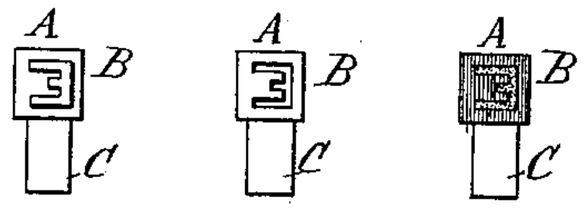


FIG. 5.

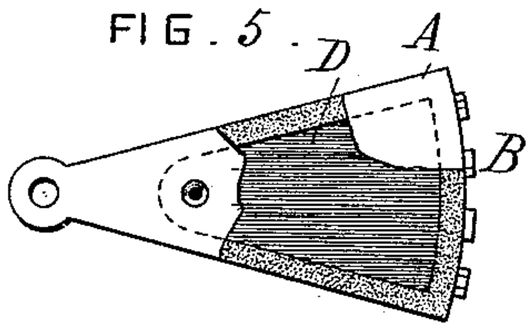


FIG. 7.

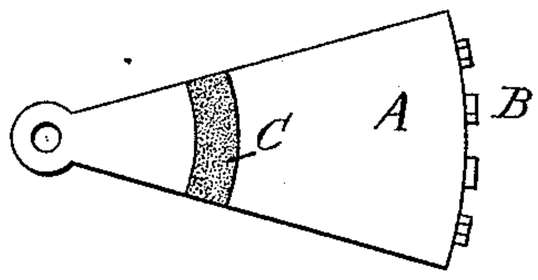


FIG. 8.

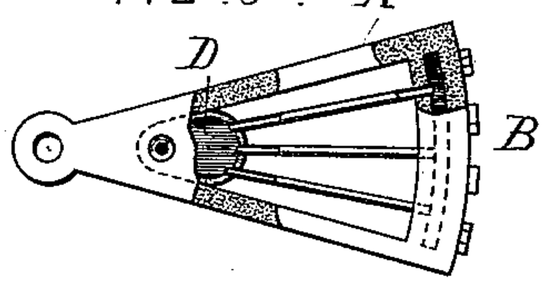


FIG. 6.

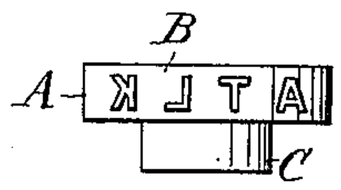


FIG. 9.

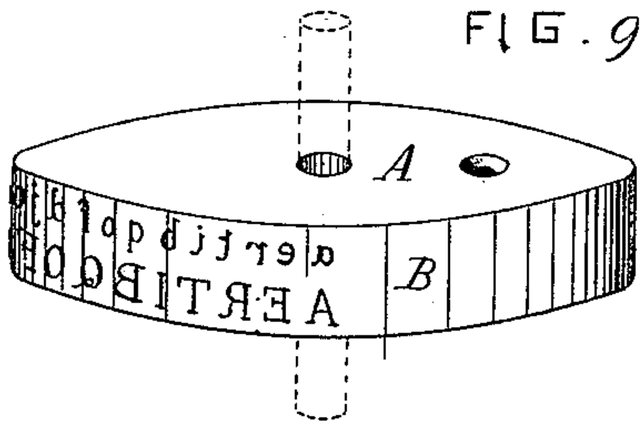
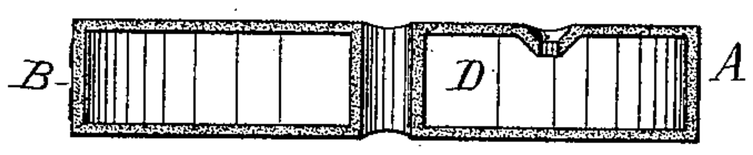


FIG. 10.



WITNESSES

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PRINTING-TYPE.

SPECIFICATION forming part of Letters Patent No. 351,355, dated October 26, 1886.

Application filed January 21, 1886. Serial No. 189,316. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY BIGELOW, a citizen of the United States, and a resident of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Printing-Type; and I do hereby declare that the following specification, taken in connection with the drawings annexed to and forming part of the same, furnishes a full and clear description of the invention sufficient to enable those skilled in the art to which it pertains to make and operate the same.

My invention relates to printing-types used in type-writers, type-writing machines, and printing-machines.

It has for its object the construction of printing-type out of porous or minutely-tubular material of natural or artificial origin, through the tubes or pores of which type, opening upon their printing surface or channel, ink or an equivalent printing-fluid may be conveyed to said printing face or channel, and thence be transferred directly to paper, or whatever it is desired to print upon, without the intervention or employment of inking ribbons, tapes, or rollers; and also the provision of means whereby such type may be automatically supplied with ink or printing-fluid from a well, fount, or a substance charged with said fluid or ink. These objects I attain by the device and construction shown in the accompanying drawings, in which—

Figure 1 is a side view of my improved type-body in longitudinal shape. Figs. 2, 3, and 4 are end views of the same, respectively showing the type in relief upon, recessed in, and delineated on the type-body. Fig. 5 is a top view of my improved type-body in segmental shape, showing several printing-faces on the same. Fig. 6 is an end view of the face of the type-body shown in Figs. 5, 7, and 8. Fig. 7 is a view of the under side of the type-body shown in Fig. 6. Fig. 8 is a top view of my improved type-body in segmental shape, showing the printing-faces, the feeding pores or tubes, and the point where ink is supplied. Fig. 9 is a view of a circular form of my improved type-body. Fig. 10 is a sectional view of the type-body shown in Fig. 9.

Referring to the drawings, A is the type-body. B is the printing face or channel of the type. C is the absorbent extension of the type-body, through which the ink or printing-fluid is supplied to the type-body; and D is the well, fount, or source of supply of the ink or fluid.

Similar letters refer to corresponding parts in the several views.

In the construction of my improved type I employ any suitable natural or artificial porous material. Among such as are adapted for use in that direction are porous clay, vulcanite made porous by molding minute wires in its substance, and subsequently withdrawing them or destroying them by chemical processes, minute glass rods or tubes built up into a body, a body of metal built up of fine wires, partially carbonized or baked porous woods, and substances having incorporated in the body thereof hair or other fiber which are capable of being eliminated therefrom by heat or chemical processes.

The porous body of my improved type may be constructed with but a single letter, figure, or character cast, molded, carved, or delineated upon it, or it may be constructed of such a form that several letters, figures, or characters may be cast, molded, carved, or delineated upon it. In either form, however, the pores or tubes opening upon the face or channel of the type must have communication with a source of ink or fluid supply, either a well, fount, or a substance charged with ink or fluid or with a cavity or receptacle containing said ink or fluid situated in the type-body.

The ink or printing-fluid must be brought in contact with an absorbent portion of the type-body. This may be done by permitting an absorbent portion of the type-body to dip into a well or fount containing the ink or printing-fluid, as indicated by the letter C in Figs. 1, 2, 3, 4, 6, and 7. Such absorbent portion may be brought in contact with a substance charged with ink or printing-fluid, as also indicated by the letter C in Figs. 1, 2, 3, 4, 6, and 7; or the absorbent portion may be at the rear end of the type-body, and said end may be connected or brought in contact with a well or fount containing ink or printing-fluid or a substance charged with ink or fluid.

My invention also embraces the varnishing,

glazing, or coating of the exterior of the type-body, except the printing face or channel of the type and the point of absorption of the ink or printing-fluid, with a retentive material which is capable of resisting the action of the particular fluid or ink employed in printing. Among the materials adapted for such purpose are any of the many compounds used for glazing earthenware—copal, asphalt, and mastic varnishes, or a solution of rubber in benzine or chloroform. The purpose of the use of this coating material is to fill up the outer pores or tubes of the type and body, and thus prevent evaporation or waste of the ink or fluid by leakage, and to keep out dirt. It also limits the exit of the ink or printing-fluid to the printing face or channel of the type, and allows the ink or printing-fluid to enter the type-body only at the latter's absorbent portion.

My improved type may be either cast, molded, or carved in relief upon or recessed below or delineated upon the printing end of the type-body, provided the printing face or channel of the type is supplied with ink or printing-fluid through the pores or tubes of the type-body opening thereon. Whether the type and body shall be cast, molded, or carved depends upon which of the various porous materials I have specified is employed. In the case of porous earth that may be cast or molded and then baked, care being taken that the material is free from grit and is rendered sufficiently plastic to fill the mold or cast, and that it is thoroughly baked, this porous earth may be baked in blocks or small bricks, and the type faces or channels may be carved thereon. If vulcanite, rendered porous as I have specified, is used, it is preferable to carve the letters, figures, or characters upon it. If a body of glass rods or tubes is used, it may be cast or molded into the desired form, and the same course may be taken with a body of fine metal wires. The partially carbonized or baked porous woods may be carved to the desired form.

The advantages which are secured by the use of my porous type are lightness, durability, cheapness of material, and ease of manufacture and operation, while the results obtained are fully equal to those reached by the employment of metal wood or type. Moreover, in the case of type-writers and type-writing machines, the use of my porous type does away with inking ribbons or tapes, which are not always reliable as ink-supplying mediums, and often smirch and tarnish the paper used in printing with said machines.

The use of my type in printing-machines dispenses with inking-rollers, a saving of both time, expense, and labor.

I am aware that printing-types have been constructed with an internal receptacle adapted to be filled with ink and having an opening corresponding to the letter, character, or figure through which said ink is fed and supplied to the printing-face of the type; but in said device the ink enters the printing-surface of the type in such volume as to produce a blur when the type-face is impressed upon paper or other material. By my invention the ink or printing-fluid is drawn from the source of supply through the internal pores or tubes of the type-body, and reaches the printing face or channel of the type through the pores or tubes opening thereon. Its flow is steady and uniform, and insures a clear, distinct, and legible impression upon the paper or other material to which said ink or fluid is transferred. I therefore do not claim a fountain-type constructed with an opening in the face corresponding to the letter, character, or figure to be produced, and charged with self-supplying ink; but

What I do claim, and desire to secure by Letters Patent, is—

As a new article of manufacture, a printing-type constructed of porous material and varnished or glazed on its exterior, excepting its absorbent surface and its printing face or channel, and adapted to automatically feed its printing face or channel with ink or an equivalent printing-fluid by capillary attraction or pressure, substantially as described.

TIMOTHY BIGELOW.

Witnesses:
JOHN E. NORCROSS,
FRANCIS W. HANAFORD.