Modern Automatic Type Making Methods

Refinement of Machine Design, Unique Methods for Determination of Accuracy of Matrix. The Microscope a Factor of Machine Installation

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The accuracy of any result, either mathematical or concrete machine construction, is only determined by the accuracy of the means by which the results have been reached, and the art of type making, in which the greatest accuracy is conceded by those who know, would perhaps be better appreciated were we to stop and consider the foundation upon which this concession is based, the building up step by step through the intricacies involved in the various processes that go toward making the master tools or matrices.

It is an art where the little things, measured in fractions of a thousandth of an inch are the big things as exemplified by the American Type Founders Company, of Jersey City, N. J., whose system makes each small step a refinement link in the whole chain of microscopic accuracy.

Preliminary

The preliminary work is that of the artist who designs the various characters of type, but this same mind must also be capable of carrying into the machine design, the kind of art that will reproduce itself, because machines have superseded the old-fashioned method of cutting originals by hand, and have enormously increased the production of new type faces. Whereas, in the old days, it took about 18 months to bring out a new Roman face or style of letter, in seven different sizes, at present it can be done in about five weeks, the result being superior to handwork, in both accuracy and uniformity, and having a wider range, and by range I mean size.

When the old-time artist made an unusually small size of type, say, for Bible use, he did it under a microscope, and with great strain on his eyes and nerves; at any moment the tool might slip and spoil the work. With the machine, however, and with no strain whatever, experimental punches have been cut so small as to be legible only with the aid of the microscope, too small, in fact, to print. It is not, however, for the purpose of perfection that the machine is desirable, for perfection in anything is tiresome, but it is essential that the letters be proportioned and shaped in such a manner as to cause the least strain upon the eye in reading, and at the same time produce a pleasing effect. When the printed page is viewed as a whole, and conveys information to the reader without attracting attention to itself, it is ideal, and the purpose and function of the machine is to give us that result.

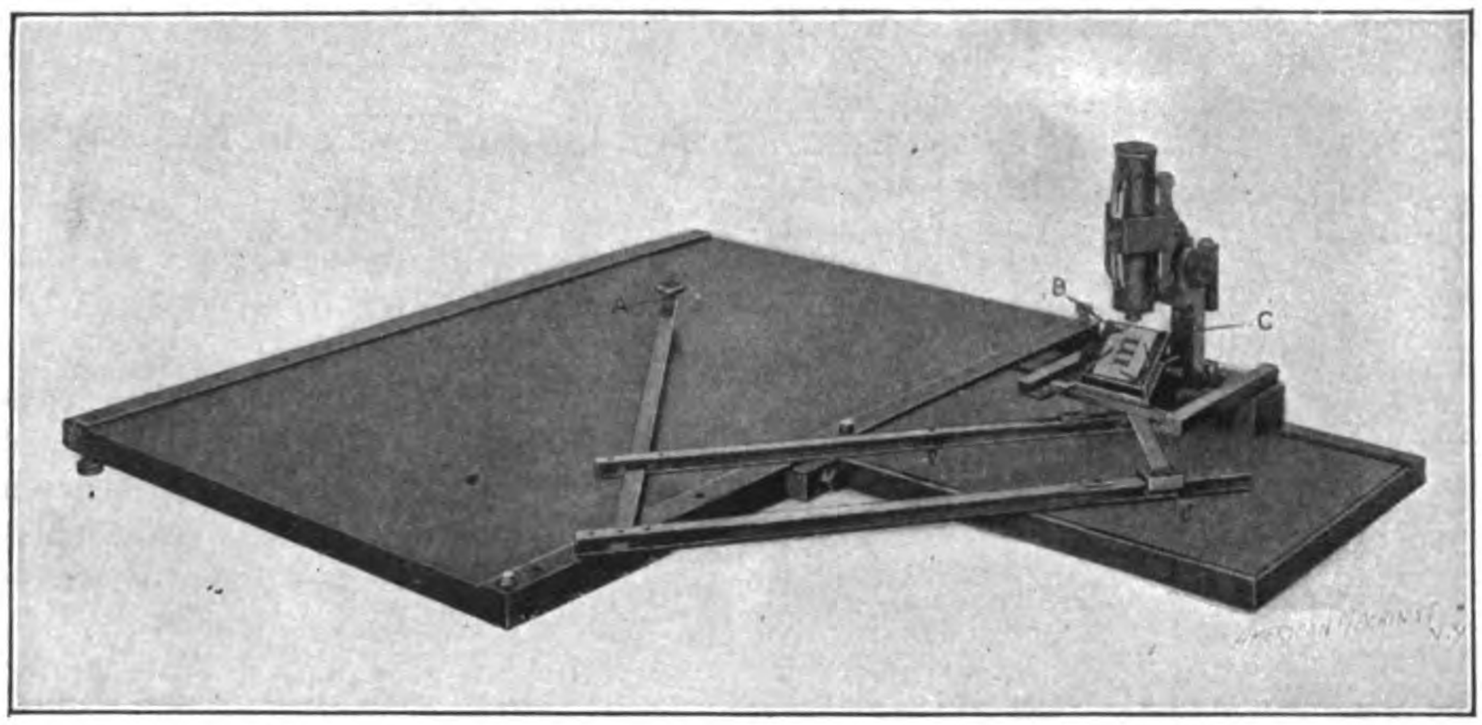

FIG. 1. DELINEATING THE CHARACTERS
A, tracing point; *B*, fingers for clamping character; *C*, bed plate showing angle possibilities.

Development of Pattern

When the design of the character or letter has been satisfactorily determined upon, being either submitted to the firm or originally designed by them, it is placed upon the delineating machine, as shown in Fig. 1, being drawn so large that all errors are easily seen and corrected and begins the first step in its round of reproduction.

This machine is a refined pantograph with microscope attachment. Directly beneath the focal point of the microscope is a small bed plate or holder upon which is placed the model character or letter clamped in place by means of spring fingers. The intersection point of the crosshairs of the magnifying instrument is focused on the outline of the character and the construction of the machine allows for constant change of position of the drawing, and consequently this intersection point which is made to follow the outline of the complete character and the pencil point of the extension arm of the machine reproduces the character enlarged.

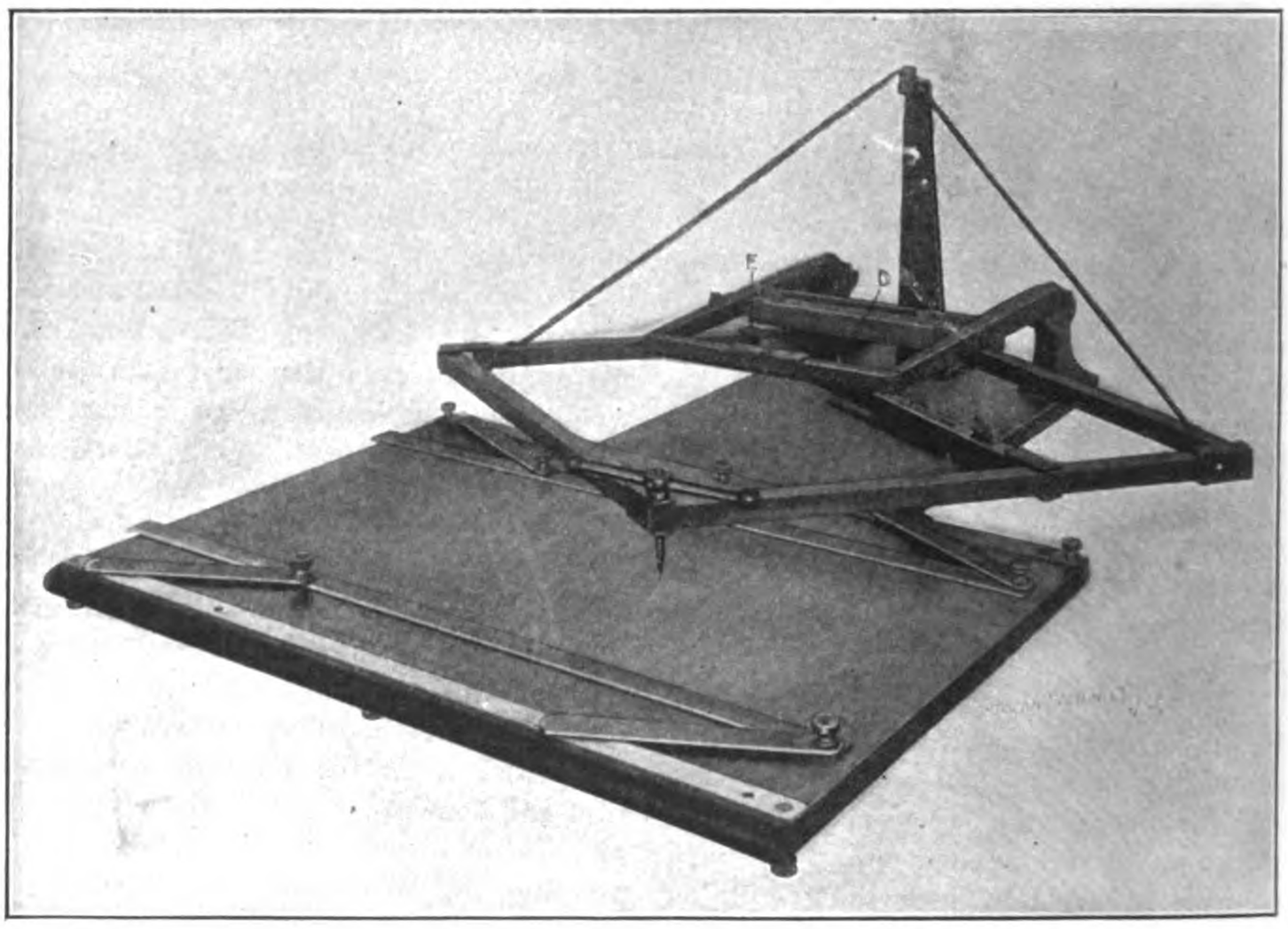

FIG. 2. DELINEATING ON WAX PLATE
D, tracing point inverted; *E*, frame for holding plate.

The bed of the holder upon which the