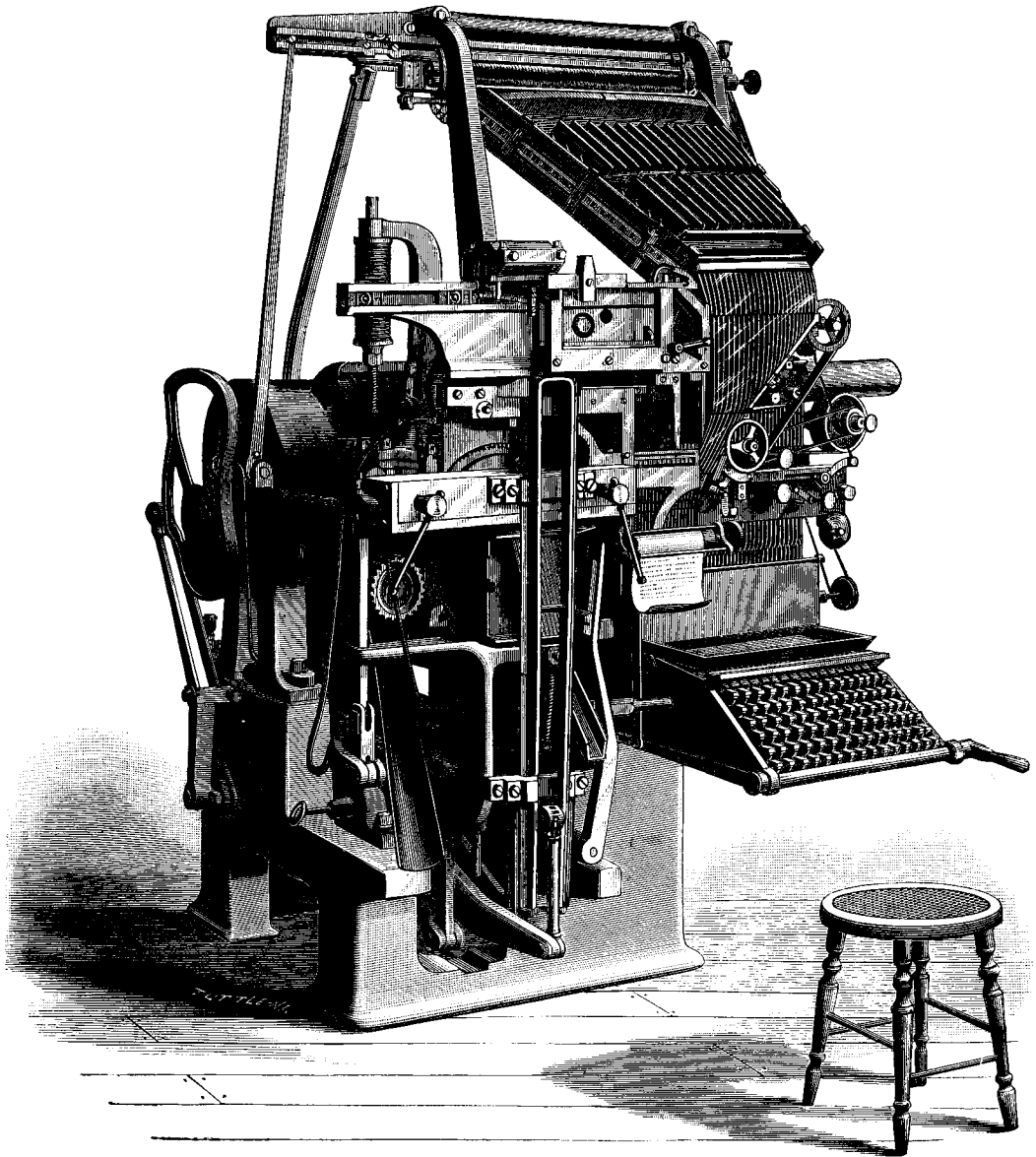


THE NEW LINOTYPE.



The Mergenthaler Printing Company,
154 NASSAU STREET, NEW YORK.

(TRADE MARK.)

LINOTYPE.

THE NEW LINOTYPE MACHINE.

This machine is intended to do away with the employment of movable printing type, and with the labor and expense of composition and distribution which attend their use. To this end it is adapted to produce and assemble, ready for use, the so-called "Linotypes," that is to say, type-high bars or slugs each bearing on its edge characters to print a complete line.

The machine is controlled by a series of finger-keys representing, like those of the typewriter, the characters to be printed, and as a result of the manipulation of the keys the machine produces and assembles the linotypes ready for immediate use.

The fundamental parts of the machine are a series of female type or matrices each containing a single letter or character, and a series of spacing devices or guides each of which is of variable thickness.

The assorted matrices are arranged in the channels of a magazine, provided with escapement devices connected with finger-keys so that the operation of a key is followed by the discharge of a matrix bearing the same character.

The space-bars are arranged in a magazine and discharged in like manner.

As the matrices emerge from the magazine they are received on an inclined traveling belt by which they are delivered, one after another, into a receiver, in which they are composed or assembled in line together with the spaces. The composition continues until all the characters to appear in a line are

assembled. The operator then depresses a lever and the assembled line of matrices and spaces is transferred to the face of a mold having the internal dimensions of the required linotype. The matrices and spaces thus assembled act jointly to close the face of the mold, and while in this position the spaces are automatically adjusted to elongate the line to the required limit, or as technically termed by the printer to "justify the line."

A melting pot containing at all times a supply of molten type metal and provided with a force pump is connected with the mold, and after the line of matrices is presented to the front the pump causes the molten metal to flow into and fill the mold, where it solidifies in the form of a bar or linotype, bearing on its edge the impress of the matrices which are, for the time being, assembled in the front.

After the linotype is thus formed the matrices are withdrawn, the mold moved, and the linotype automatically ejected and added to the series which preceded it.

As soon as the line of matrices and space-bars is removed from the mold the spaces are separated and returned to their magazine, while the matrices are transferred to a distributing mechanism by which they are returned to the magazine channels from which they started.

The distributing mechanism is of extreme simplicity. It consists essentially of a single bar extending horizontally above the upper ends of the magazine channels, and having along its sides a series of horizontal ribs, which differ in number and arrangement, over the respective channels.

The matrices have their upper ends notched and provided with teeth by which they may be suspended from this bar while being moved lengthwise thereunder. As each matrix is thus moved along the bar its teeth may engage and disengage certain of the ribs, and when the matrix reaches a point directly over its appropriate channel all of its teeth are, for the first time, disengaged, and it is permitted to descend by gravity into the magazine, there to remain until all of its predecessors in that channel have been called into use.

A simple mechanism is provided for transferring the matrices, one at a time, in rapid succession, to the distributor-bar, and for carrying them along the bar to the points of discharge.

The organization of the machine is such that the manipulation of the keys to assemble the characters for one line, the casting of the preceding line, and the distribution of a still earlier line are carried on concurrently and independently.

The machine is operated by a small expenditure of power; its principal parts move slowly, and it is free from excessive strain and wear.

The task of the operator is limited to the manipulation of the finger-keys and the simple movement required to start the line. As soon as one line is completed and started to the caster, he proceeds to set up another line. The keys are operated with a lighter touch than those of a typewriter.

The capacity of the machine, as now speeded, is from 8,000 to 10,000 ems per hour. An operator should be able to set as much matter in linotypes as he could produce on a typewriter. This is a familiar standard as to speed.

As the matrices for any type from agate to pica will run in the same channels, so any of the included fonts may be used in one machine. The machine may be quickly adjusted to produce linotypes of any required length.

The linotypes are ready to go at once into the form, without any second operation. New type is obtained for each issue. The spacing in any one line is uniform. Matter can be kept standing in metal costing seven cents a pound, and the investment in type and the wear and breakage of it avoided. When a line of matrices is once set up, casts from it may be repeated, at the rate of six per minute, as often as desired. Quad lines can be cast without composition. Arbitrary characters may be cast in the same line with the ordinary matrices. There can be no pi-ing. Leads are easily inserted. No distribution; the linotypes are melted over. The metal is kept hot by three Bunsen gas flames, consuming a total of about 15 feet per hour. About one-third horse power required for each machine. One machinist can attend to the largest newspaper installation. Weight of machine about 2,000 pounds.

Proofs are remarkably clean, as none of the errors of dirty distribution or turned letters can occur. When the operator sets a wrong character he is usually conscious of it, and he can remove it and substitute the correct one at any time before the line is cast. The line of matrices is easily read. Proof corrections and author's changes are made by re-casting the lines, and re-

quire much less time to accomplish than if made in a galley of type, as is evidenced by the following letter of Mr. Wm. H. Rand:

RAND, McNALLY & CO.

Chicago, Ill., May 3, 1890.

HON. L. G. HINE,

President, Mergenthaler Printing Co.,

154 Nassau St., New York City.

Dear Sir:

I have recently had made a series of experiments for the purpose of determining the relative length of time required in the correction of the galley on the Linotype, as compared with hand work; the result of which was as follows:—

A portion of matter from the daily press containing about 4,600 “ems” was taken, and into it were introduced a great number of errors of all sorts, including “outs” and “doublets,” and in that condition it was given to an operator on the Linotype, as copy. After he had set the matter with all its errors a proof was taken and the galley corrected by him. An accurate record of the time required was kept, showing that the composition took one hour and five minutes, and the correction 27 minutes.

The copy containing the errors was then given to the firm of Smith & Porter, of Boston, Mass., and a first-class hand compositor put upon the job, which was set as in the previous case. By hand work it took five and one-half hours to do the composition, and one and one-half hours to correct the galley.

This experiment conclusively disposes of the objection that the difficulty of correction would militate against the recognized advantages of the Linotype.

I send you herewith the proofs, that you may see the character of work done.

Printers will observe that in the case of the hand composition, the type yet remained to be distributed—certainly an hour and a half’s work—while distribution in the Linotype is automatic.

Very sincerely yours,

WM. H. RAND.

To illustrate the amount of composition accomplished at different rates of speed, a table has been prepared by an expert printer, from which it appears that

20	words	a	minute	equals	-	-	-	-	3,158	ems	an	hour.
25	"	"	"	"	-	-	-	-	3,947	"	"	
30	"	"	"	"	-	-	-	-	4,737	"	"	
35	"	"	"	"	-	-	-	-	5,526	"	"	
40	"	"	"	"	-	-	-	-	6,316	"	"	
45	"	"	"	"	-	-	-	-	7,105	"	"	
50	"	"	"	"	-	-	-	-	7,894	"	"	
55	"	"	"	"	-	-	-	-	8,684	"	"	
60	"	"	"	"	-	-	-	-	9,474	"	"	

The most prominent type setting machine in use requires one man to set, one to justify and a third to attend to the distributor, though one may attend to two distributors; that is to say, the wages of two and a half men must be paid for each machine used; and yet the output is not so great as from the New Linotype, which requires but one operator—the justification and distribution being entirely automatic. The difference in economy is obvious. We believe that when it comes to a test, operators can afford to, and will, set, justify and distribute on the New Linotype, on a piece scale of from 8 to 15 cents per 1,000 ems less than on any typesetting or other machine offered to the public. Compared with the scale for hand composition in the large cities, the difference will be 25 to 40 cents.

Our "Statements of Leading Papers," recently distributed, are based on machines of a different pattern from those we are now constructing, and offering for sale or lease. We designate this improved machine as the New Linotype. It uses no air blast, no electricity, requires less power, less gas, and gives a still better quality of work than the previous style. The speed is considerably greater, the keyboard is more easily and rapidly operated—indeed no special touch is required—and very little practice is needed to become proficient as an operator. We furnish "dummy" keyboards corresponding in every way

to the actual keyboards, and after practicing on these, so as to become familiar with the location of the keys, an operator can at once show good speed on the machine itself.

We invite you to call and witness the machines in actual operation, and to make a thorough investigation of the subject.

MERGENTHALER PRINTING COMPANY,

154 Nassau Street, New York City.

(Linotype Print.)

