

J. R. ROGERS.
 LINE CASTING MACHINE.
 APPLICATION FILED FEB. 5, 1910.

958,317.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

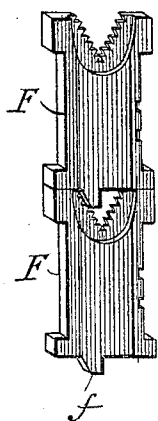


Fig. 1.

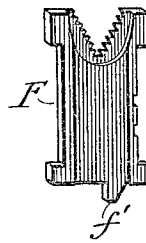
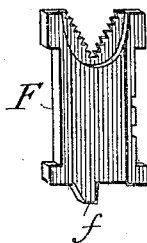


Fig. 3.

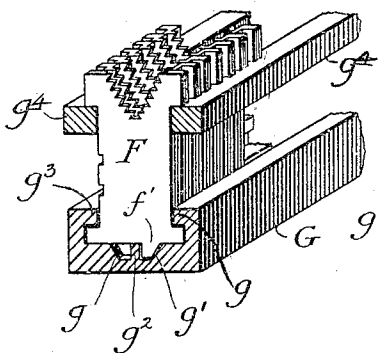


Fig. 4.

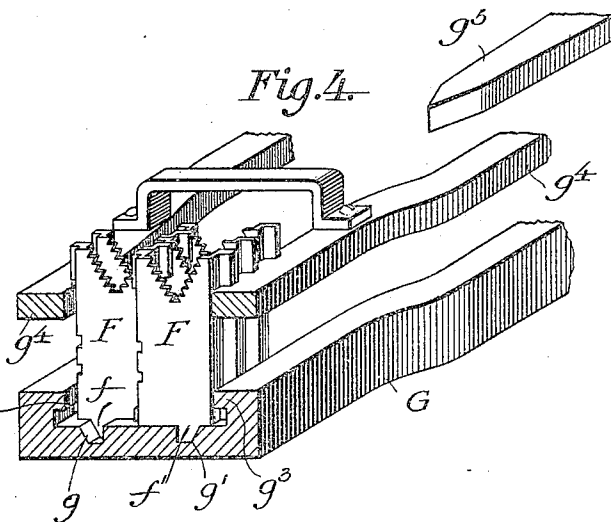
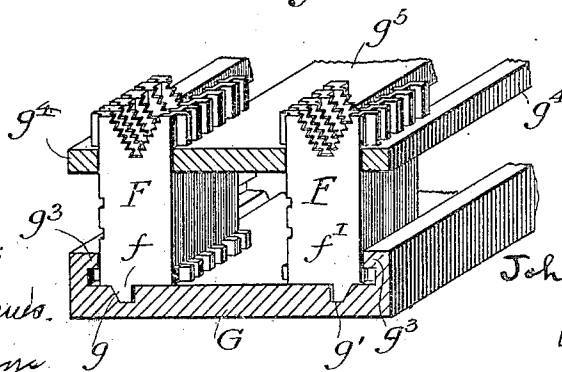


Fig. 5.



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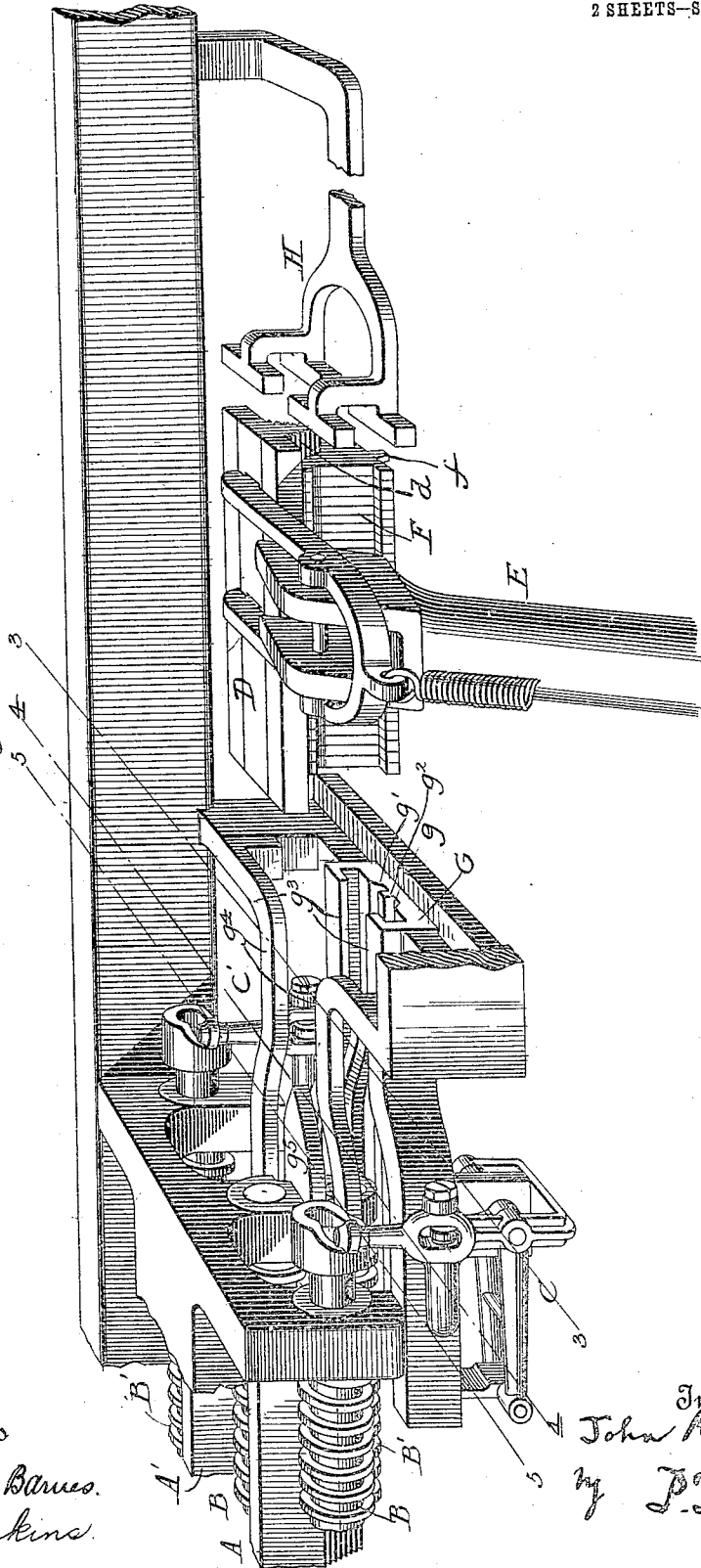
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2 SHEETS—SHEET 2.

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Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

LINE-CASTING MACHINE.

958,317.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed February 5, 1910. Serial No. 542,200.

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of the borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Line-Casting Machines, of which the following is a specification.

My invention relates to line casting machines in which circulating matrices are composed temporarily in line and presented to a mold for the purpose of forming type characters on printing slugs or linotypes cast therein. It has special reference to machines provided with two magazines, each containing a font or set of matrices and each combined with a distributor mechanism for returning the matrices to their appropriate channels in the magazine.

The object of the invention is to provide improved means for directing the matrices in the composed line to the proper magazine, and this whether the line is composed of matrices from one or both magazines. To this end I provide the matrices of the respective sets or fonts with projections located on opposite sides of the central line, and I provide in advance of the two distributors a mechanism to which the composed line is presented endwise, this mechanism including divergent rails or guides which act upon the projections on the matrices in such manner as to push them right and left as they are advanced toward the distributor, the matrices of each font being in this manner delivered to the proper distributor.

In the drawings I have shown only the parts to which my improvement relates, and it is to be understood that all other parts of the machine may be of any known or suitable construction, my improvement being applicable to various machines now well known in the art.

Referring to the drawings, Figure 1 is a perspective view showing matrices of two different fonts, constructed in accordance with my invention with distinguishing projections to cooperate with separating devices. Fig. 2 is a perspective view showing the receiving ends of two distributor mechanisms, together with my improved devices in operative relation thereto. Fig. 3 is a vertical cross section on the line 3—3 of Fig. 2. Fig. 4 is a perspective view, partly

in vertical section, looking toward the distributor on the line 4—4 of Fig. 2. Fig. 5 is a cross section on the line 5—5 of Fig. 2.

Referring to the drawings, A, A¹ represent two fixed parallel distributor bars designed to distribute matrices of different fonts or sets into the upper ends of two magazines, or into throats leading thereto.

B, B¹ are horizontal screws lying adjacent to the distributor bars, for the purpose of carrying the matrices along the same to the various points at which they are delivered into the magazines below.

C, C¹ represent two distributor lift boxes, so-called, for lifting the matrices from the ends of the composed lines one at a time to the feed screws and respective distributor bars.

D is a matrix lift carried by a vertical swinging lever E, and provided with a horizontally toothed bar *d* adapted to engage the teeth on the upper end of the matrices F, and thus hold the composed line in suspension. This elevator serves to lift the composed line from the lower part of the machine to a point in advance of the distributors preparatory to its distribution. The line may be composed wholly of matrices from either magazine or of matrices from both magazines.

So far as described the parts may be in all respects similar to those described in Letters Patent of the United States No. 436,531, or of any equivalent construction.

The object of my invention as described is to deliver the matrices from the elevator D to the appropriate or corresponding distributors, in order that they may be returned to the magazines from which they were delivered. To this end I proceed as follows: I construct the matrices F, as shown in Fig. 1, in all respects in the ordinary manner, except that the matrices of one font are provided at the lower end with a projection *f*, located on one side of the center, while those of the other font are provided with a corresponding projection *f*¹ on the opposite side of the center, this differentiation in the form of matrices belonging to the respective fonts being for the purpose of enabling the separating mechanism to distinguish between them and deliver them from the composed line in different or divergent paths to the respective distribu-

ters. Between the distributor boxes C, C¹ and the point to which the matrix line is raised by the elevator D I fix a stationary, horizontal plate G, upon and over which the
 5 matrix line is advanced endwise by means of a horizontal pusher H attached to a supporting slide in the main frame. This pusher is similar to the one used in the commercial Mergenthaler machine, except that
 10 its end is forked in order that it may straddle the toothed bar *d*, and widened horizontally so that it may act against the matrices as they are separated edgewise and thus carry them, through the guides herein-
 15 after described, into the respective lift boxes C and C¹, from which they are raised one at a time by the ordinary lifting fingers C to the distributor screws and rails. The plate G which gives support to the matrices
 20 advancing toward the distributor contains grooves *g* and *g*¹ to receive the projections on the lower ends of the matrices. At the receiving end these grooves are separated by a narrow rib *g*², and as they approach the
 25 distributor boxes they gradually diverge horizontally, so that as the matrix line is advanced the matrices will be caused to move edgewise to the right or left to such a distance that they may be carried into separate
 30 distributor boxes. The plate G is preferably provided with lips *g*³ to overlap the ears of the matrices and assist in guiding and holding them in position as they are advanced toward the distributor. I also recommend the
 35 use of the overlying fixed rails *g*⁴ to bear against the outer edges of the matrices near the upper ends, to assist in guiding and sustaining them. Immediately in advance of the distributor boxes I propose to employ a
 40 centrally fixed rail *g*⁵ to insure the full separation of matrices belonging to the separate fonts, and to assist in guiding them into the boxes as they are advanced by the pusher H.

It will be observed that the separated matrices are guided positively at the lower ends
 45 by the grooves *g*, *g*¹, and at the upper ends by the members *g*⁴ and *g*⁵, between which they pass. It is to be noted that the pusher H acts first to deliver the composed line
 50 from the elevator D to the separating devices above described, and also to urge the separated matrices forward to the respective distributor boxes C and C¹, by which the individual matrices are lifted from the ends
 55 of the respective lines, in a well known manner, to the distributor rails and screws. If the composed line consists entirely of matrices from one magazine, they will all pass through the one groove to the right or left,
 60 as the case may be, and into the corresponding distributor boxes; but if the line is composed of matrices from both magazines, they will be separated edgewise by means of the ears and grooves as they advance toward
 65 the distributor boxes, and each box will re-

ceive only the matrices belonging to the corresponding distributor.

It will be observed that in my mechanism the matrices are gradually separated edgewise while still in the composed line, and before they reach the devices by which they
 70 are lifted to the distributors.

I am aware that the matrices have been pulled apart edgewise by means of divergent, dove-tailed rails engaging corresponding notches in the vertical edges of the matrices, but in practice this construction is open to the objection that the notches are liable to become filled with molten metal, and to the further objection that the matrices are subject to undue wear and friction in traveling along the rails. It will be observed that my construction avoids the necessity of notching or otherwise cutting
 75 into the matrices. The projections on the lower ends of the matrices are of such form and so located that the projection on the foot of one matrix will enter the notch on the top of the next, so that there is no interference with the operation of the matrices in
 80 the ordinary magazine.

Having thus described my invention, what I claim is:

1. In a line casting machine matrices of one font having projections, and matrices of
 85 another font having projections in a different position, in combination with divergent guides to engage said projections and push the matrices in the composed line apart edgewise and means for moving the composed lines endwise along said guides.
 100

2. The combination with matrices provided respectively with projections *f* and *f*¹, a guide G having divergent grooves *g* and *g*¹ to engage the projections on the matrices,
 105 and means adapted to move a composed line of matrices along said guides, whereby separation of the matrices edgewise may be effected.

3. In combination, the two distributors,
 110 the distributor boxes for delivering individual matrices thereto, a matrix line elevator D, a carrier H to deliver the composed matrix lines therefrom, a matrix support G provided with divergent guides to
 115 engage the projections on the lower ends of the matrices, matrices having bottom projections to engage the respective guides.

4. In combination with matrices differing in form, means for advancing a composed
 120 line of said matrices, and stationary divergent guides, adapted to push the matrices of different forms in the composed line edgewise in opposite directions as the line advances.
 125

5. Matrices of different fonts, differing in form at their lower ends, in combination with a support to underlie the composed line, said support provided with divergent guides, adapted to separate the matrices
 130

edgewise, and stationary guides in position to engage the upper ends of the separated matrices.

6. In a mechanism for separating matrices
5 of two fonts, matrices differing in form according to font, divergent guides to separate the matrices edgewise, means for feeding the composed lines of matrices along said guides, two distributors to receive the separated matrices,
10 rices, and two lift mechanisms, adapted to

elevate the separated matrices to the respective distributors.

In testimony whereof I hereunto set my hand this third day of December, 1909, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:

HAROLD A. BURT,
LUCY E. SMITH.