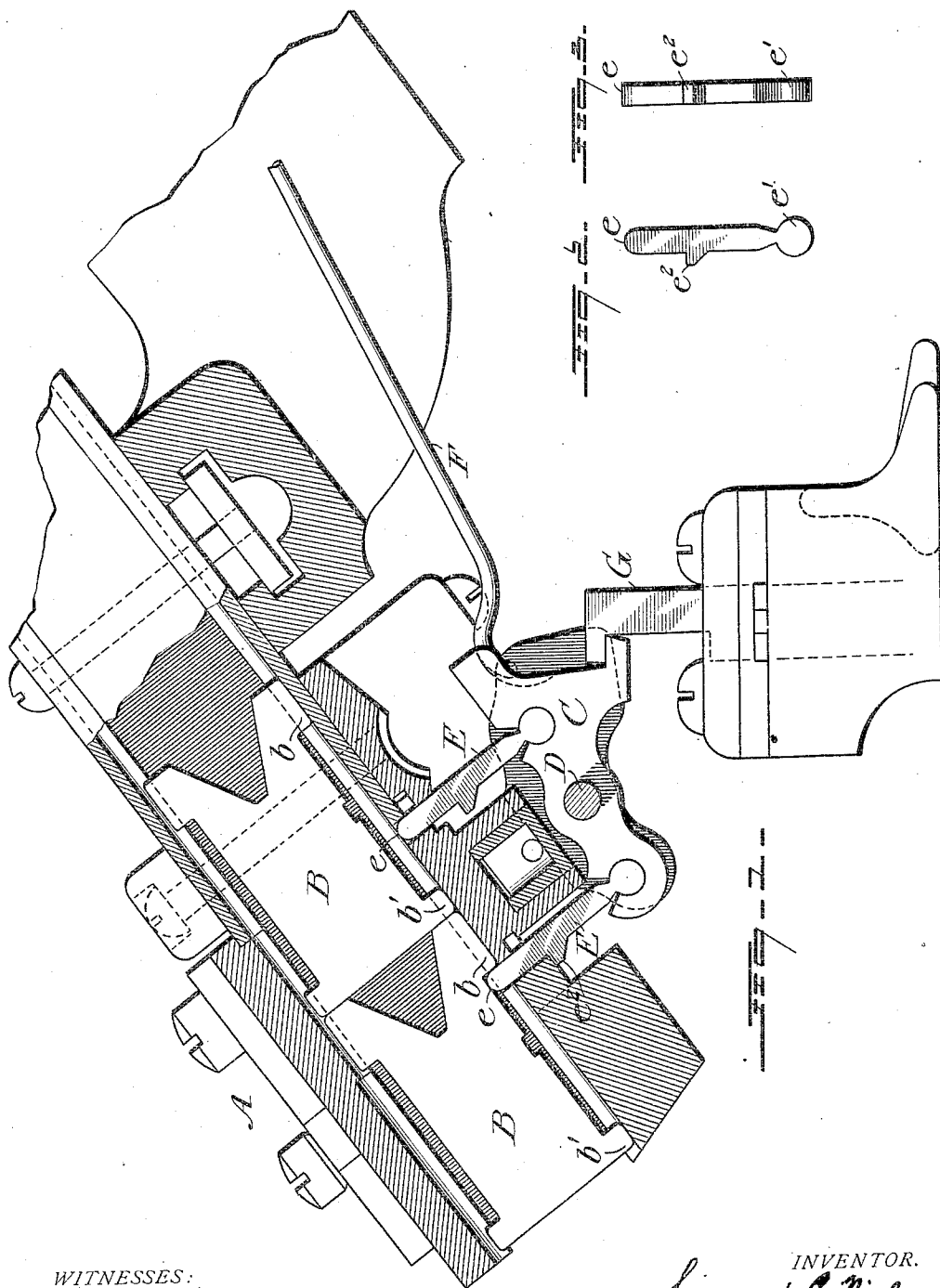


S. C. NIELSEN.
 LINE CASTING MACHINE.
 APPLICATION FILED MAY 6, 1910.

1,049,518.

Patented Jan. 7, 1913.



WITNESSES:

Geo. P. Kingsbury.
James Atkins.

INVENTOR.

Sigurd C. Nielsen
 BY *P. J. Dodge*
 ATTORNEY.

UNITED STATES PATENT OFFICE.

SIGURD C. NIELSEN, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER
LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

LINE-CASTING MACHINE.

1,049,518.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed May 6, 1910. Serial No. 559,729.

To all whom it may concern:

Be it known that I, SIGURD C. NIELSEN, 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.

This invention has reference to line-casting machines of the character represented in Letters Patent of the United States No. 436,532, wherein matrices having projecting ears at their ends, and carried in a channeled magazine, are released one at a time from each channel by an escapement device consisting of a centrally pivoted lever, carrying at its opposite ends two pawls which are projected alternately into the magazine channel.

Heretofore it has been the custom to construct these pawls with great precision, and with their upper ends beveled on the lower side and vertical on the upper side, against which the ears of the matrices impact. It is necessary for the pawl to be retracted in order to disengage the upper ear of one matrix and then return in time to enter between the two ears of the succeeding matrix as it follows the one released. These actions involve a very accurate timing and very close fitting of the parts in order to insure the certain delivery of the one matrix and the certain engagement of the next, and at the same time to prevent the pawls from improperly striking against the lower or outer edges of the matrix ears—the effect of which would be to wear them improperly and to cause hesitation in their movements.

I have discovered that the desired results can be obtained, the action of the parts improved, and the necessity for extremely accurate fitting avoided, by giving the upper end of the pawl a semi-circular or rounded form.

My invention consists in an escapement having the upper or active end of its pawl or pawls rounded lengthwise of the magazine.

Except as to the features specifically described and claimed herein, the machine and the escapements may be in all respects of the ordinary construction.

I have illustrated my improvement as incorporated in an escapement mechanism

such as now commonly used in commercial Mergenthaler linotype machines.

In the drawings: Figure 1 is a vertical longitudinal section through the lower end of the magazine and its escapement mechanism, including my improved pawl. Fig. 2 is a side view of one of the pawls. Fig. 3 is a front view of the same.

Referring to the drawings, A represents the inclined magazine, consisting of parallel top and bottom plates, having their inner faces provided with longitudinal channels or grooves to guide the upper and lower edges of the matrices.

B represents the matrices, having at their upper and lower ends the projecting ears *b* and *b'*.

C is one of the escapement-levers mounted on a central horizontal pivot D, and carrying at its opposite ends the two escapement pawls E and E'. These pawls have their lower ends, *e'*, made of rounded form as shown and mounted in corresponding seats in the lever, while their upper ends are guided and arranged to project upward through the bottom of the magazine into one and the same channel therein in order to engage the ears of the matrices. Each pawl is formed with a stop shoulder *e*² to encounter a fixed surface and thus limit the distance to which the pawl enters the magazine.

The vibratory motion of the lever C projects the upper ends of the two pawls alternately into the magazine, in the path of the matrix ears, one being withdrawn as the other is advanced. The vibratory movement of the lever may be effected by a spring F, urging the same in one direction and a vertically guided reed G connected with the keyboard mechanism and acting in opposition to the spring.

So far as described, the parts are all constructed and arranged to operate in the ordinary manner, each movement of the lever and pawls to and fro resulting in the release of the foremost matrix and the advance of the next matrix by gravity to the position vacated by the first matrix.

Passing now to my improvement, it is to be noted that the upper ends *e* of the pawls instead of being made of angular form as heretofore, are of rounded or semi-circular

form, this curvature extending lengthwise of the magazine and being such that when a pawl is in its elevated position it will present a flat surface, below the rounded portion, in contact with the upright surface of the matrix ear. If by chance the corner or lower surface of a matrix ear encounters the top of the pawl, the rounded surface will permit the matrix to pursue its course, or cause it to move slightly upward in the magazine, as the case may be, so that the pawl may complete its upward movement.

If the wear of the parts is such that the upper end of the pawl is not withdrawn wholly below the channel in which the matrix travels the impact of the matrix ear striking on the rounded surface will be sufficient to drive the pawl downward, so that the matrix may pass thereover.

I believe it to be wholly new to provide a pawl which is mechanically retracted with a rounded surface at the upper end on the side toward which the matrix approaches, so that if it end projects fractionally into the magazine it will be driven backward or outward by the impact of a matrix.

Practical experience has demonstrated that pawls rounded in the manner herein shown give the escapement an easier and more certain action than that of those constructed in the ordinary manner.

Having described my invention, what I claim is:

1. In a typographical machine, escapement devices adapted to control the release of the type or matrices, the said escapement devices comprising a pawl movable into and out of the path of the type or matrices, and the said pawl having its type or matrix en-

gaging portion rounded to facilitate the engagement or disengagement of the pawl with the type or matrices.

2. In a typographical machine, escapement devices adapted to control the release of the type or matrices, the said escapement devices comprising a plurality of pawls movable into and out of the path of the type or matrices, and each pawl having its type or matrix engaging portion rounded to facilitate the engagement or disengagement of the pawl with the type or matrices.

3. In a typographical machine, escapement devices adapted to control the release of the type or matrices, the said escapement devices comprising a pawl which moves rectilinearly into and out of the path of the type or matrices, and the said pawl having its type or matrix engaging portion rounded to facilitate the engagement or disengagement of the pawl with the type or matrices.

4. In a typographical machine, escapement devices adapted to control the release of the type or matrices, the said escapement devices comprising a plurality of pawls which move rectilinearly into and out of the path of the type or matrices, and each pawl having its type or matrix engaging portion rounded to facilitate the engagement or disengagement of the pawl with the type or matrices.

In testimony whereof I hereunto set my hand this 27th day of April, 1910, in the presence of two attesting witnesses.

SIGURD C. NIELSEN.

Witnesses:

JOHN R. ROGERS,
DAVID S. KENNEDY.