C. MUEHLEISEN.

TYPOGRAPHICAL LINE CASTING MACHINE.

APPLICATION FILED AUG. 25, 1911.

1,009,851. Patented Nov. 28, 1911.

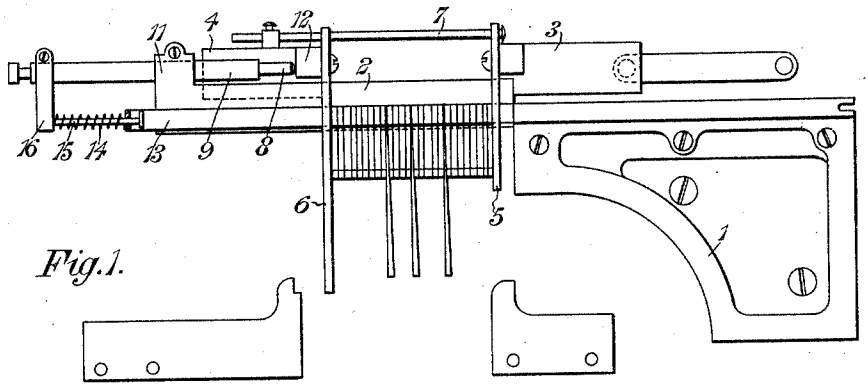


Fig.1.

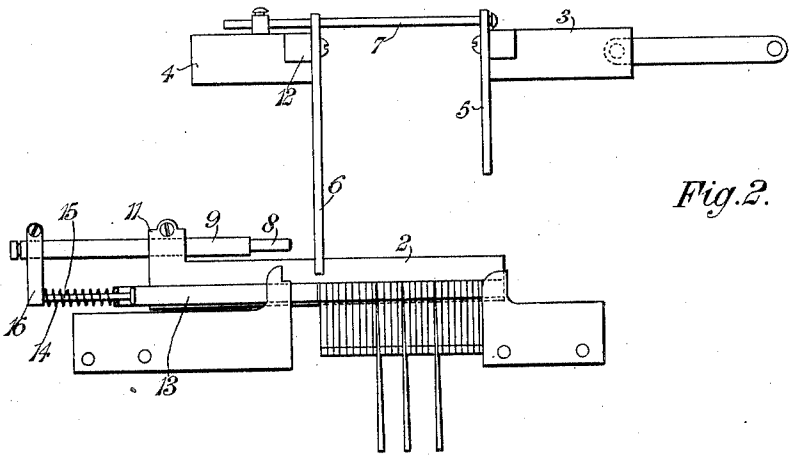


Fig.2.

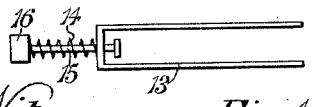


Fig.4.

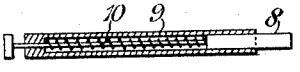


Fig.3.

Witnesses

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TYPOGRAPHICAL LINE-CASTING MACHINE.

1,009,851. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed August 25, 1911. Serial No. 646,014.

To all whom it may concern:

Be it known that I, CARL MUEHLEISEN, a citizen of the United States of America, residing at Chausseestrasse 23, Berlin, N. 4, in the Empire of Germany, have invented new and useful Improvements in Typographical Line-Casting Machines, of which the following is a specification.

In typographical line casting machines such as those known commercially under the trade mark "Linotype", the transfer of the composed line of matrices from the assembler elevator to the first elevator head is effected by a line transferrer, which consists of two parts or so-called delivery carriages movable toward each other, of which each carriage has a finger projecting downward, the two fingers engaging the line between them. The right-hand delivery carriage is moved toward the first elevator head, that is to say, leftward, by a strong spring, this movement terminating when the finger of that carriage is in the proper position relatively to the right-hand vise jaw. This position of the right-hand delivery carriage is determined by a stop, such as the cam which effects the rightward movement of the said carriage. The leftward pushing motion thus caused is transmitted to the left-hand delivery carriage, through the composed line of matrices then located between the two fingers.

If a line is composed of less than the standard length, the left-hand finger is jerked away from the leading end of the line at the abrupt stoppage of the right-hand finger, whereby the matrices separate from each other, and may assume such slanting positions in the first elevator head that the spacebands, during justification, cannot restore the matrices to their upright position, which results in the squirting of the molten metal between them, or at least in the production of a badly alined slug.

The object of the present invention is to provide means for overcoming the above-named difficulties, and according to the said invention, this result is attained by a device which prevents the left-hand finger leaving the front or leading end of the composed line at the time at which the leftward motion of the right-hand finger is stopped. The pressure imposed by this device must however be removed at the beginning of the downward movement of the first elevator, because, were it not so removed, it would push the line of matrices out of the first elevator head.

In order that a line of matrices of less than standard length may be held compactly together during the downward movement of the first elevator, during which the said line is deprived of the support of the right-hand finger, a spring-actuated pusher is provided in the first elevator head, the spring of which is only strong enough to hold the line of matrices compactly together without pushing it out of the first elevator head, and without obstructing the justification. This spring-actuated pusher is so connected with the before-mentioned device for preventing the jerking of the left-hand finger away from the composed line, that both can be adjusted at the same time for a given length of line.

In the accompanying drawings:—Figure 1 is a front elevation showing the composed line of matrices in the position which it assumes after it has been pushed from the assembler elevator, through the fixed delivery channel, and into the first elevator head; Fig. 2 is a view similar to Fig. 1 showing the composed line of matrices lowered by the first elevator, to between the vise jaws, and Figs. 3 and 4 show detached portions of the mechanism.

1 is the fixed delivery channel through which the line of matrices is transferred from the raised assembler elevator to the first elevator head 2 of which latter only a part of the back portion is shown.

3 is the right-hand delivery carriage and 4 the left-hand delivery carriage, the respective fingers of which, 5 and 6, hold the line of matrices between them as shown in Fig. 1. The two delivery carriages 3 and 4, are connected together in known manner, *e. g.*, by a rod 7, the effective length of which is adjustable according to the length of line to be composed.

8 is the device, hereinafter termed a buffer, with which the left-hand finger 6 engages

before the right-hand delivery carriage 3 reaches the end of its leftward movement. This buffer 8, which is shown in section in Fig. 3, is a piston or plunger guided in a cylinder 9, and acted upon by a compression spring 10. The cylinder 9, in the example represented, is mounted on the first elevator head 2, to which it is secured by a clamping device 11, which permits of an easy adjustment of position of the cylinder 9, and, relatively to the said head 2. On the finger 6, or its carriage 4 is secured a block 12 for engaging with the piston 8. The piston 8 is adjusted on the first elevator head 2 to correspond with the length of line to be set, in such a way that it projects so far into the path of the block 12 that it is in engagement with the latter before the right-hand delivery carriage 3 has completed its leftward movement, and this happens even in a very short line.

The first elevator head 2 is provided with a forked-shaped pusher 13 shown detached in Fig. 4, which is acted on by a comparatively weak compression spring 14, which presses it into contact with the leading end of the composed line of matrices, but with only such force as will not cause an obstruction to the justification of the line nor push the said composed line out of the first elevator head. The rod 15 carrying the spring 14, is secured to the cylinder 9 by means of a clamp 16, so that in adjusting the cylinder 9, as previously described, the pusher 13 will also be adjusted.

The device operates as follows:—On the transfer of the line of matrices by means of the delivery fingers 5, 6, through the fixed delivery channel 1 into the first elevator head 2, the block 12 on the finger 6 will engage with the piston 8 before the right-hand delivery carriage 3 reaches the end of its leftward movement, even when a very short line has been set. The spring 10 acting on the piston 8 in the cylinder 9, will consequently receive the impact transmitted through the line of matrices to the finger 6, and thereby prevent the said finger being jerked away from the line of matrices and the latter being thrown into disorder. As soon as the first elevator commences its descent, the piston 8 is removed from contact with the block 12 on the finger 6, so that it will cease to act on the line of matrices and consequently, will not force the said line out of the first elevator head. The pusher 13 presses gently against the line of matrices, so that the latter, as soon as it leaves the control of the finger 6, is kept in compact form.

The means for pressing the left-hand finger 6 against the composed line of matrices, may be arranged otherwise than hereinbefore described, for example, it can be mounted on the machine frame instead of on the first elevator head. Also, instead of the piston 8 being acted upon by pressure, it, or the equivalent thereof, can be acted upon by tension.

Having described my invention I declare that what I claim and desire to secure by Letters Patent is:—

1. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, the said line-transferrer comprising a finger held in contact with the leading end of the composed lines, of a resilient buffer against which the said finger contacts before the composed lines complete their travel into the first elevator.

2. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, the said line-transferrer comprising a finger held in contact with the leading end of the composed lines, of a resilient buffer against which the said finger contacts before the composed lines complete their travel into the first elevator and out of contact with which the finger is moved by the descent of the first elevator.

3. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, the said line-transferrer comprising a finger which precedes the line when entering the first elevator, of a resilient buffer in the path of the said finger.

4. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, the said line-transferrer comprising a finger which precedes the line when entering the first elevator, of a resilient buffer in the path of the said finger, and a clamp on the first elevator adjustably holding the resilient buffer.

5. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, of a resilient buffer in the path of the line-transferrer and a spring-actuated matrix pusher in the path of the matrices entering the first elevator.

6. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, of a resilient buffer against which the line-transferrer contacts before the composed lines complete their travel into the first elevator and out of contact with which the line-transferrer is moved by the descent of the first elevator, and a spring-actuated matrix pusher in the path of the matrices entering

the first elevator and pressing on them when the line-transferrer is out of contact with the buffer.

7. In a typographical line casting machine, the combination with the first elevator and a line-transferrer moving composed lines of matrices into the first elevator, of a resilient buffer in the path of the line-transferrer, a spring-actuated matrix pusher in the path of the matrices entering the first elevator, and a clamp adjustably securing the buffer and pusher to the first elevator.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

CARL MUEHLEISEN.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."