

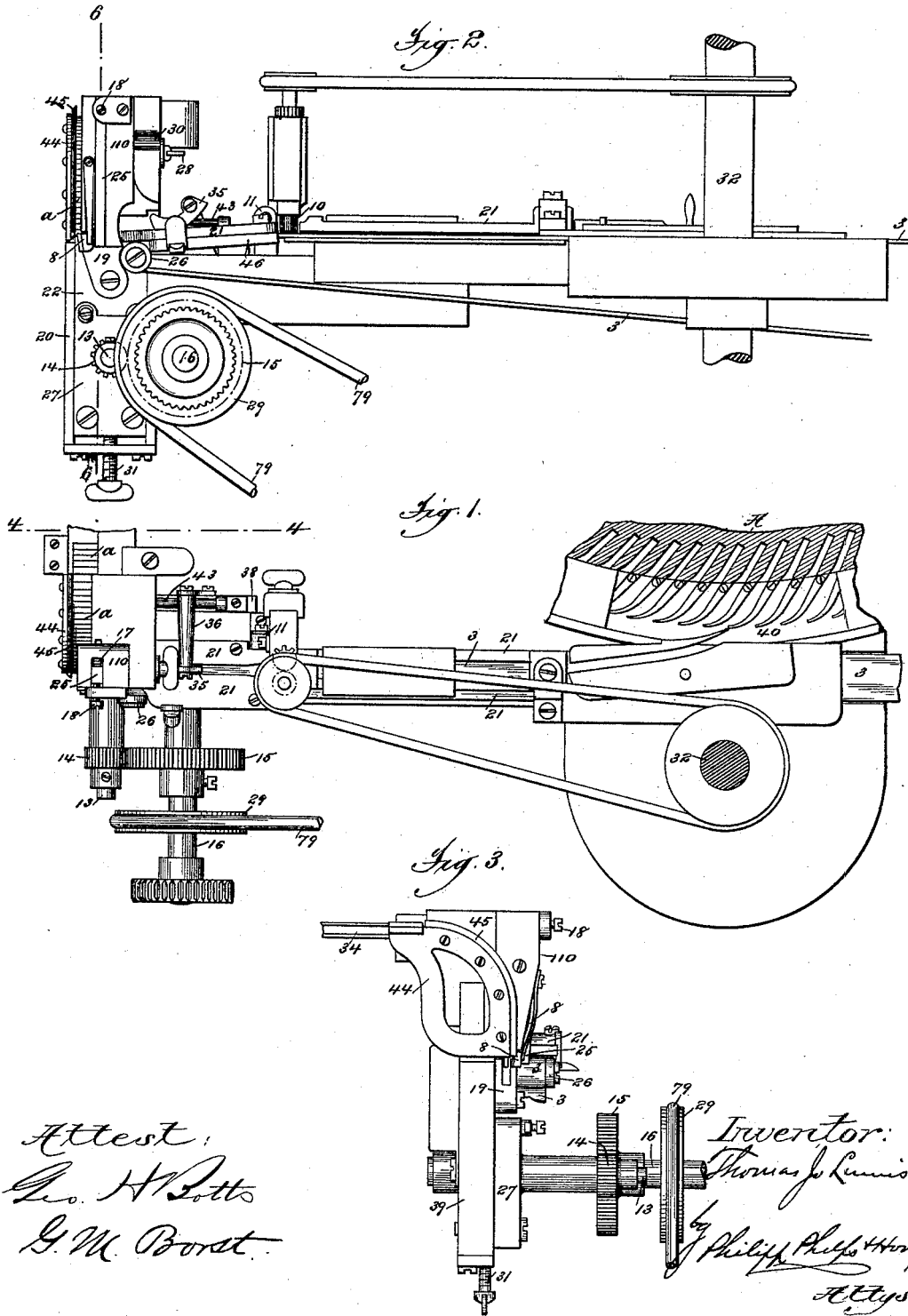
(No Model.)

3 Sheets—Sheet 1.

T. J. LUMIS.  
TYPE SETTING MACHINE.

No. 417,057.

Patented Dec. 10, 1889.



(No Model.)

3 Sheets—Sheet 2.

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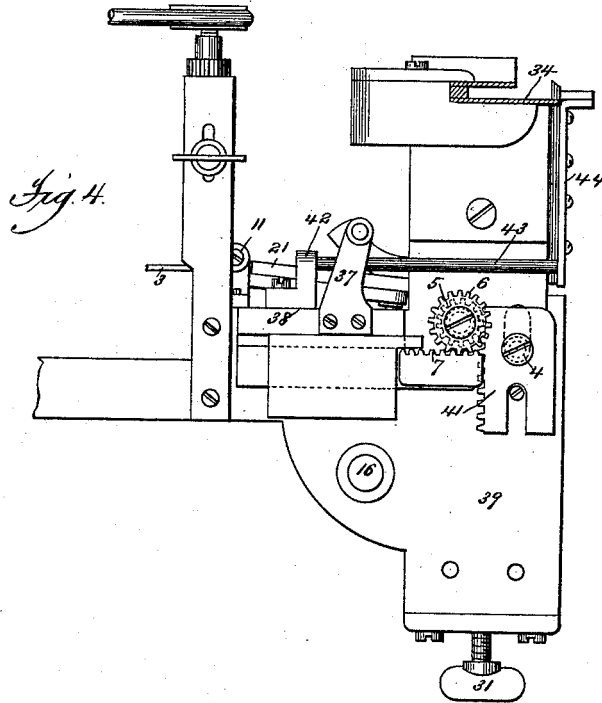


Fig. 9.

Fig. 8.

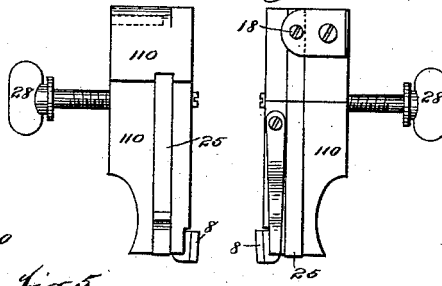
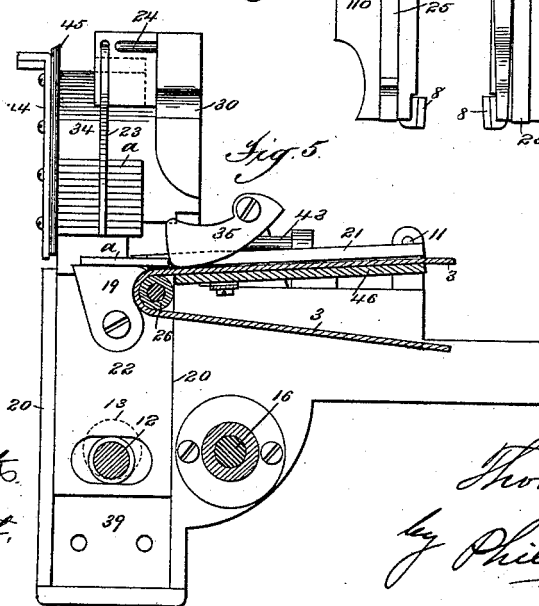


Fig. 5.



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G. H. Little  
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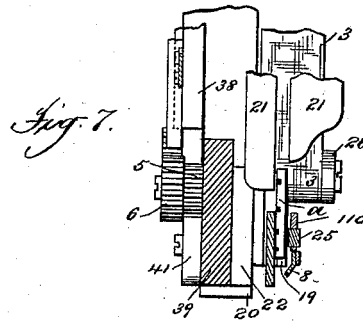
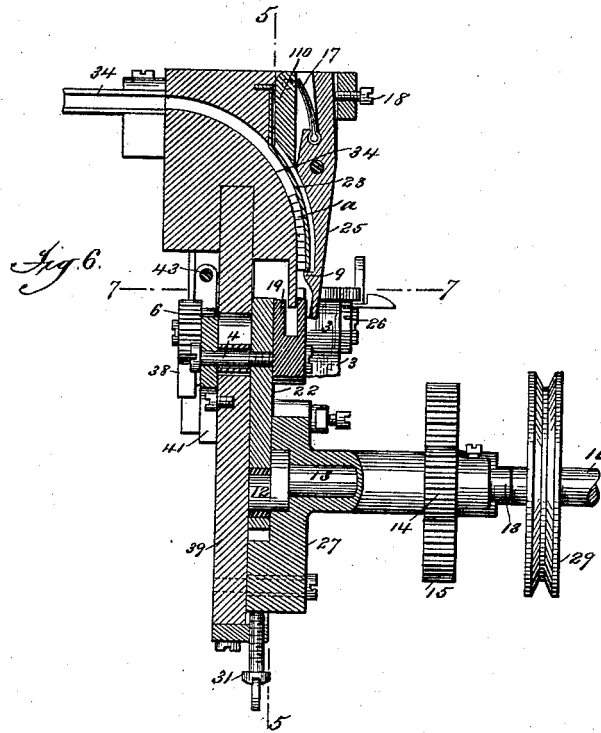
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3 Sheets—Sheet 3.

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Attest:

Geo. H. Burt.

G. M. Burt.

Inventor:

Thomas J. Lumis

by Philip Phelps & Hoey  
Attys

# UNITED STATES PATENT OFFICE.

THOMAS J. LUMIS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE THORNE MACHINE COMPANY, OF NEW YORK.

## TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 417,057, dated December 10, 1889.

Application filed February 10, 1888. Serial No. 263,619. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. LUMIS, a citizen of the United States, residing at Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Type-Setting Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to a type setting and distributing machine of the character shown and described in the United States Letters Patent Nos. 232,167, 283,934, 372,186, and 372,187, heretofore granted to Joseph Thorne.

The improvements constituting the present invention relate particularly, however, to the type-setting mechanism, and especially to the means for transferring the type from the type-conveying belt to the composing-stick, it being the object of the invention to render this part of the machine more certain and reliable in its operation, and thus increase the practical efficiency of the machine as a whole.

The general organization and operation of the machine to which the present improvements relate are fully illustrated and described in the Letters Patent referred to, and need not, therefore, be herein described, except in so far as they have immediate relation to these improvements.

A preliminary general description of the machine will therefore be omitted and the specific improvements will be described, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of the type-conveying belt and the parts immediately connected therewith of a machine of the character shown in the Letters Patent referred to, showing, also, a portion of the composing-stick, a portion of the revolving type-carrying table, and a portion of the composing-case in section. Fig. 2 is a side view of the same parts. Fig. 3 is an end view looking from the left of Figs. 1 and 2. Fig. 4 is an enlarged section taken on the line 4 of Fig. 1. Fig. 5 is an enlarged view of a portion of Fig. 1, certain parts being removed and other parts being shown in section, the figure being substantially a section taken on

the line 5 of Fig. 6. Fig. 6 is an enlarged section taken substantially on the line 6 of Fig. 2. Fig. 7 is a horizontal section taken on the line 7 of Fig. 6. Figs. 8 and 9 are respectively outside and inside views of the cap-plate, showing the same removed from the other parts.

Referring to said figures, it is to be understood that A represents the composing-case, 40 the revolving type-carrying table, 3 the type-conveying belt, and 34 the composing-stick, of a type-setting machine constructed and organized as shown and described in the Letters Patent referred to. In the construction shown in the said Letters Patent the type-conveying belt 3 passed at its forward end around a stationary pulley or roll located beneath the end of the composing-stick, and as the type arrived at the end of the belt they passed into the control of a revolving lifting-wheel or lifter, by which they were successively raised to take their places in the line of composition, where they were retained by suitable devices for that purpose.

In the present organization the revolving lifter or lifting-wheel is dispensed with, and in its stead there is employed a reciprocating lifter formed in part by the conveying-belt itself and in part by a lifter proper, onto which the type pass from the belt. For this purpose the pulley 26, around which the belt 3 passes at its forward end, is mounted upon a stud projecting from the face of a head or plate 22, which is arranged to move vertically between flanges 20, projecting from a depending plate 39. The plate 22 is provided upon its face with a block 19, forming the lifter proper, which is shaped to conform to the belt 3 as it passes around the pulley 26, and the upper edge of which is in line with and forms a continuation of the belt. The lifter 19 is so positioned that as it is carried upward by the movement of the plate 22 it is caused to enter the end of the composing-stick 34 and raise the type into position to be caught and retained in the stick by the retaining devices. The plate or head 22, carrying the lifter and the roll 26, receives a rapid reciprocating movement from an eccentric or crank 12 upon the end of a short shaft 13, which is mounted in a bearing formed on a

plate 27, secured to the plate 39, and is provided with a pinion 14, which engages with a gear 15, mounted upon a similar shaft 16, which is driven through a pulley 29 and belt 79 from the vertical shaft 32 in the manner shown in the Letters Patent referred to.

In order to permit the belt 3 to have the rising and falling movement due to the vertical movement of the roll 26, the forward portion of the guides 21, and also the plate 46, which supports the belt at that point, are pivoted, as shown at 11, so as to be capable of oscillating vertically with the belt as it rises and falls.

The cap-plate 110, which forms the outer wall of the lower end of the composing-stick, and also extends downward outside the lifter, is provided with a slot in which is pivoted a retaining-hook 25, which is acted on by a spring 17 in such manner as to be constantly pressed inward into position to catch and retain the type as they are successively raised into the stick by the lifter. The extent to which the hook 25 may be pressed inward is controlled by an adjusting-screw 18. Co-operating with the hook 25 to retain the line of type in the stick is a spring 23, which is attached to the body of the composing-stick, and lies in the slot of the plate 110, with its end just above the shoulder 9 of the hook 25. In order to prevent the momentum of the type as they pass from the belt 3 onto the lifter 19 from projecting them too far onto the lifter, and yet arrest them without danger of marring or injuring their faces, the plate 110 is provided with a spring 8, which is curved at its edge, so as to project in front of the type and arrest them by engaging with their corners, as shown in Fig. 7. In order to facilitate access to the lifter and to the type in the lower end of the stick, the plate 110 is pivoted at its upper end upon a stud 24, so that it can be swung out to a horizontal position, or can be entirely detached from the other parts. When in use, it is held in position by a locking-screw 28, which enters an open recess 30 in the body of the stick. In order to regulate with great accuracy the position which the lifter shall reach in its upward movement, the plate 27 is made capable of a limited adjustment upon the plate 39, and the plate 39 is provided with an adjusting-screw 31, by which the position of the former plate can be varied.

In order to insure the proper advancement of the type onto the lifter as they are raised into the composing-stick, so that they will enter the stick squarely, there is provided a reciprocating follower 35, which is loosely pivoted upon a reciprocating rod 36, with its free forward end resting upon the belt 3. The rod 36 projects from an arm 37, which in turn projects from a bar 38, having a rack 7, which is engaged by a pinion 6, to the face of which is secured a second pinion 5, which is engaged by a rack upon a bar 41, which is connected by a stud 4, passing through a slot

in the plate 39, with the reciprocating plate 22. From this it results that the follower is caused to make one forward-and-back movement to each vertical reciprocation of the plate 22 and lifter 19, and the parts are so timed that the forward movement of the follower takes place simultaneously with the upward movement of the lifter, so that each type as it is raised by the lifter is at the same time advanced by the follower, (if not already sufficiently advanced,) so as to enter the composing-stick squarely and in proper position.

In order to even up the line of type as it is advanced into the stick, the bar 38 is provided with a second arm 42, from which extends a rod 43, which passes beneath the composing-stick and carries an evening-plate 44, which, as the bar 38 is reciprocated, strikes against the faces of the type and thus evens up the line. The plate 44 is provided with an inner face 45, of rawhide or other material, which will prevent the faces of the type from being injured.

The operation of the mechanism thus organized is as follows: The type will be ejected from the channels of the composing-case onto the revolving type-carrying table 40, and will pass thence onto the type-conveying belt 3 and be conveyed forward between the guides 21 and the separator formed by the oval-shaped rolls 10, the same as in the Letters Patent before referred to. As each of the type *a* arrives at the forward end of the belt 3 it will pass beneath the follower 35, which will rise freely to allow it to pass and be projected onto the lifter 19, as shown in Fig. 5, and upon the upward movement of the lifter it will, if necessary, be advanced to the proper position by the follower and will be raised past the shoulder 9 of the hook 25, where it will be caught and retained, and so the operation will be repeated, the line of type being advanced in the composing-stick as the successive type are added. If at any time two type follow each other in such close succession that the second is in contact with the first when the latter is raised onto the stick, the weight of the follower will be sufficient to press the second type downward, when the lifter and belt are lowered, so as to permit it to pass forward and take its proper place beneath the type just lifted.

What I claim is—

1. The combination, with the continuously-moving type-conveying belt having a vertical reciprocating movement, of the vertically-reciprocating lifter arranged at the end of the belt to receive the type therefrom, and the composing-stick arranged to receive the type from the lifter, substantially as described.

2. The combination, with the continuously-moving type-conveying belt 3 and the composing-stick 34, of the reciprocating head-plate 22, carrying the pulley around which the belt passes, and the lifter for transferring the type to the stick, substantially as described.

3. The combination, with the composing-stick, the vertically-moving lifter, and the vertically-moving type-conveying belt, of the pivoted reciprocating follower 35, resting upon  
5 the belt, substantially as described.

4. The combination, with the vertically-reciprocating lifter and the composing-stick, of the pivoted spring-pressed hook 25 and the spring 23, located inside the hook, with its end

just above the shoulder 9 of the hook, substantially as described.

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

THOMAS J. LUMIS.

Witnesses:

R. W. NELSON,  
A. B. JENKINS.