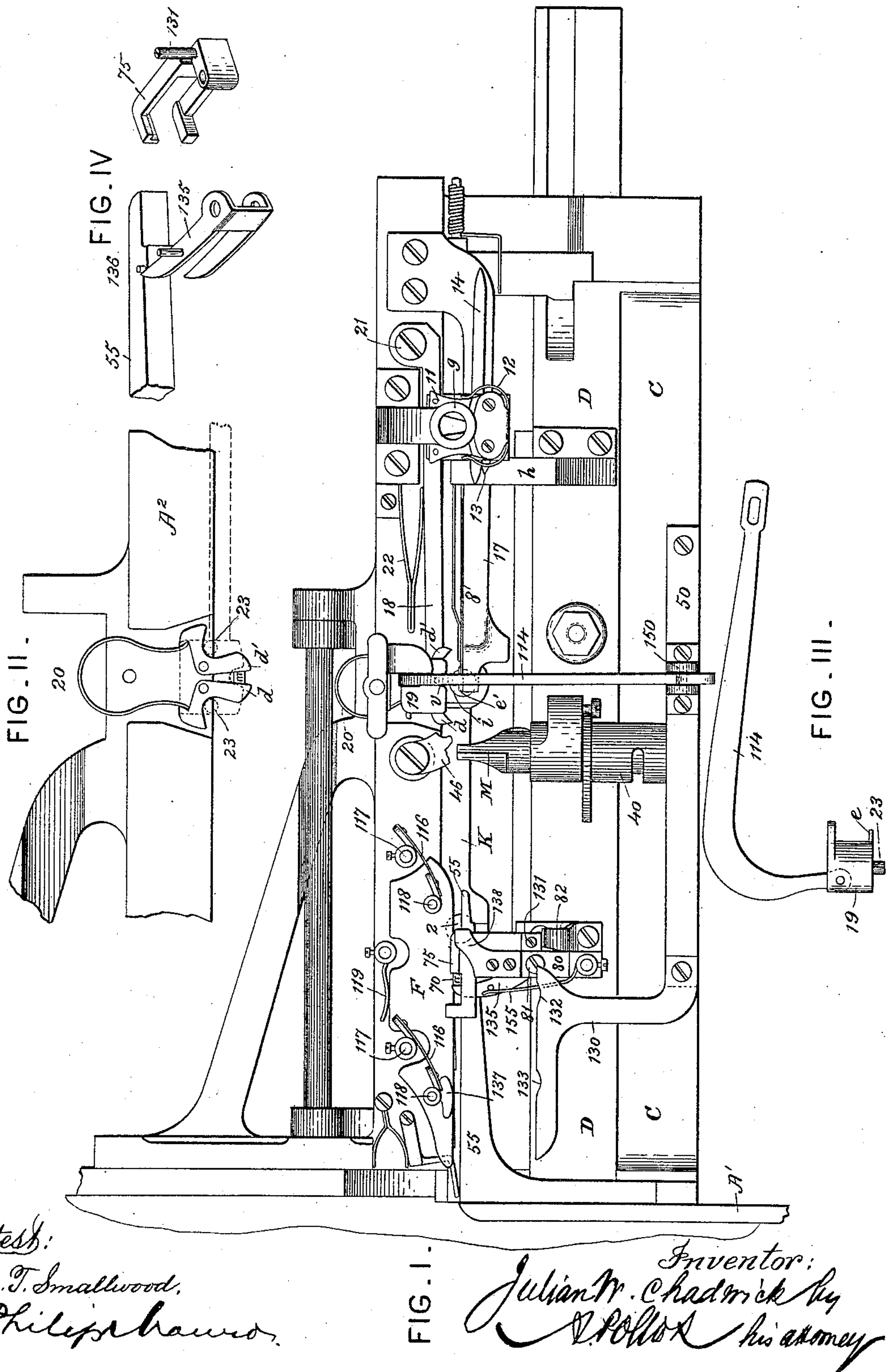


J. W. CHADWICK.  
TYPE SETTING MACHINE.

No. 429,754.

Patented June 10, 1890.



Attest:  
Geo. T. Smallwood,  
Philippsbauer.

FIG. I.

Inventor:  
Julian W. Chadwick by  
V. Pollock his attorney

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FIG. VI.

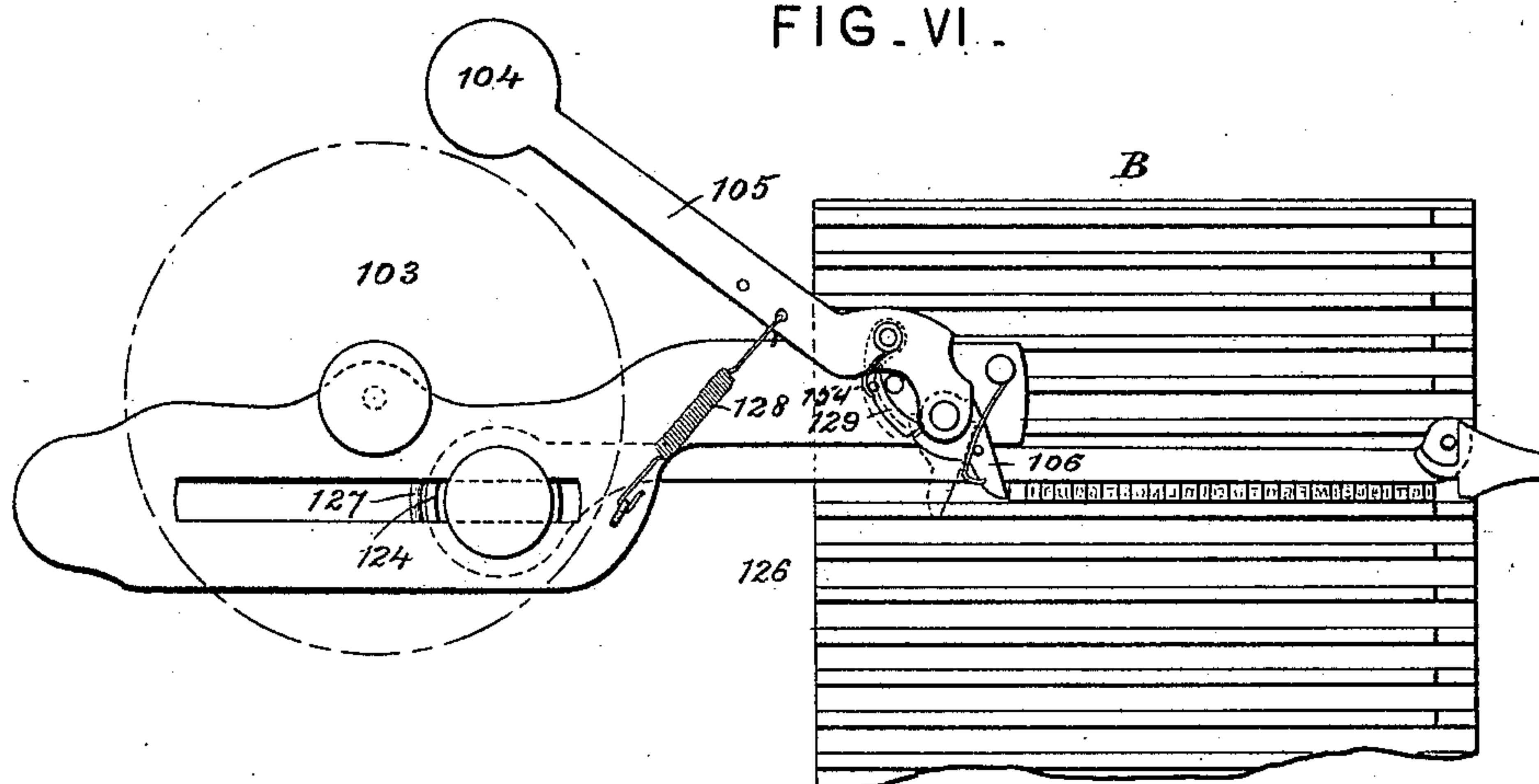


FIG. VII.

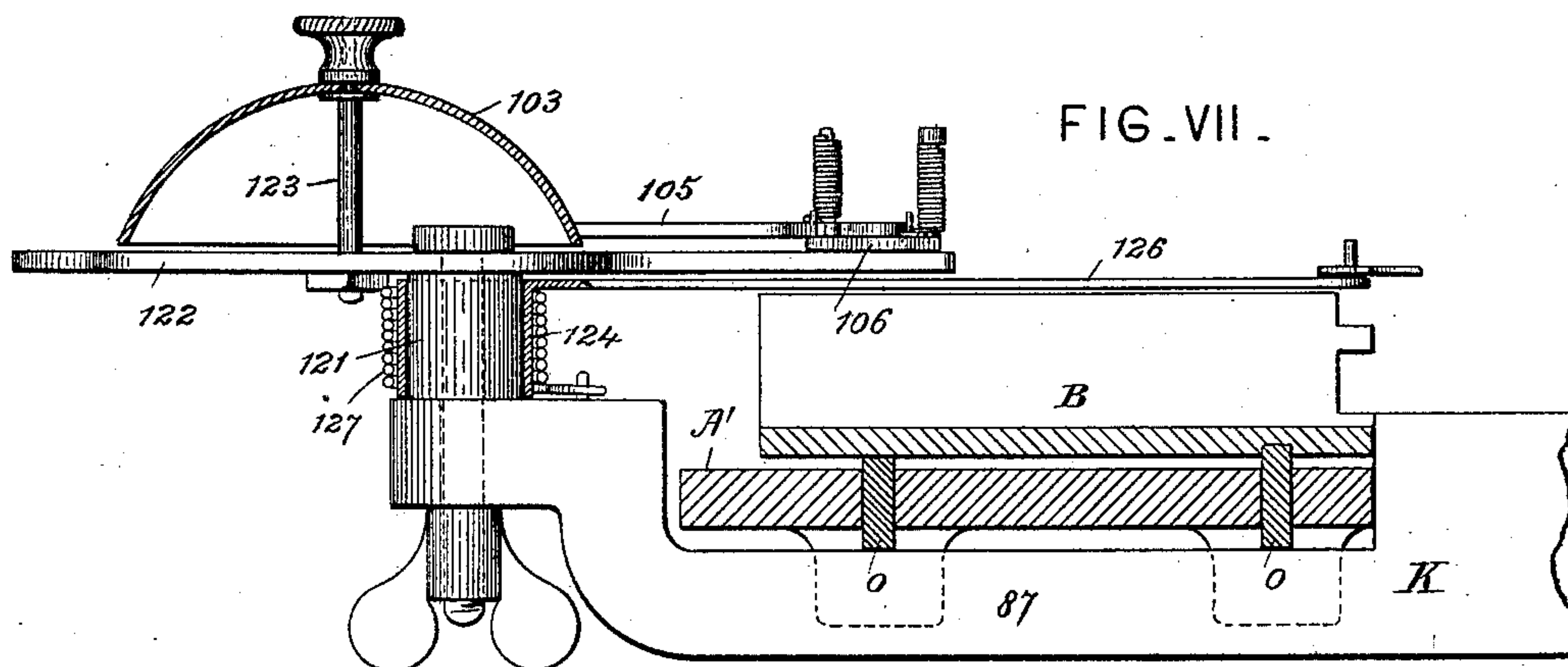
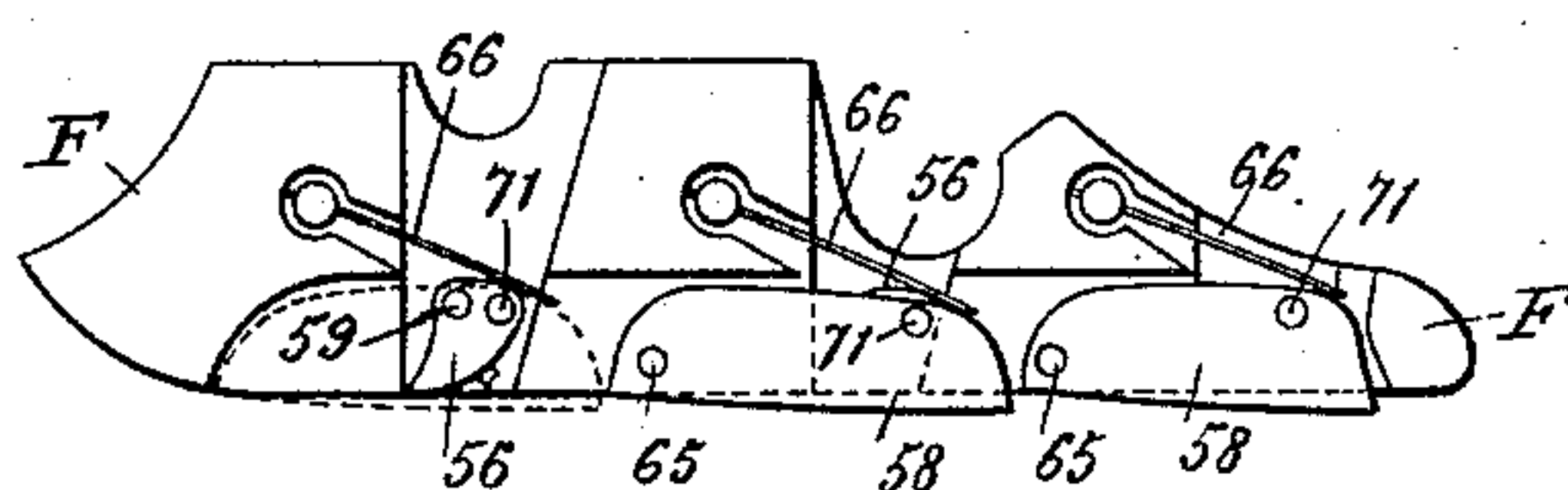


FIG. V.



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# UNITED STATES PATENT OFFICE.

JULIAN W. CHADWICK, OF BROOKLYN, ASSIGNOR TO THE LAGERMAN  
TYPOTHETER COMPANY, OF NEW YORK, N. Y.

## TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 429,754, dated June 10, 1890.

Application filed November 23, 1889. Serial No. 331,362. (No model.)

*To all whom it may concern:*

Be it known that I, JULIAN W. CHADWICK, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Type-Setting Machines, which is fully set forth in the following specification.

This invention has reference to type-setting machines, and particularly to that class of type-setting machines known as "Typotheter." It embraces certain improvements upon the machine described in Letters Patent No. 427,685, granted May 13, 1890, for the invention of John Gustafson. By close and long-continued observation of the machine described in said patent while in practical use, it was found that some of the devices did not operate with the absolute certainty required in a machine for setting type, and in various respects improvements have been made which tend to increase the efficiency of the machine and to diminish the chances of derangement or of failure on the part of any of the elements to perform with precision its appropriate function. In the machine described in said patent the feelers, which act on the side of the type while being raised by the pusher, were pivoted on the end of a swinging arm. With this arrangement, when operating at high speeds, it was found that the type was not released with sufficient promptness, and sometimes by the motion of the swinging arm the type would be tilted to one side or the other, so that the pinchers could not grasp it properly. These difficulties are avoided by pivoting the fingers on the casting or frame of the machine and spreading them by pins on the under side of the swinging arm. By this arrangement the feelers leave the type without any tendency to disturb its position. In the former machine the swinging arm aforesaid was pushed back by a finger carried by the reciprocating slide. The pressure on this finger had a tendency to twist the slide, and produced great friction and wear on the bearings on the oscillating bed. According to the present invention the swinging arm is actuated by a link which connects it with the bed itself, taking all strain off the slide.

Improvements have also been made in the

tripper mechanism. According to this invention the trippers and the controllers are all mounted pivotally on a movable plate or ledge, which bears with yielding pressure upon the type, holding it against the fixed ledge. The connections between this tripper-supporting plate and the machine-frame are of a highly-flexible character, permitting it freedom of motion in all directions, and not restricting it to a single movement upon a center, as the support of each tripper was heretofore mounted. These connections, as herein shown, consist of spring-arms, one at each end of the supporting-plate, which arms are attached at one end to studs on the machine-frame and at the other to sleeves which fit loosely over pins on the plate. Further, to prevent a type making more than one-quarter turn when acted upon by a tripper, which was likely to occur with thin letters, an additional holding-finger (or, more accurately, a pair of holding-fingers) is provided to grasp the forward side of the type. The spring-actuated finger for advancing the type is acted on by an extension of the oscillating bed, which insures its return to its proper position in case its spring, after yielding to permit the turning of a type, should not return it to position. These improvements in the tripper mechanism, and others which will be hereinafter described in detail, are found to conduce greatly to certainty in the operation of setting the type properly in the galley, and to avoid failure from turning them too much or not enough, even when operating at the highest speeds.

Heretofore the audible signal announcing the approach of the end of a line continued ringing until the compositor threw in his space-type. It is desirable to avoid this, and according to this invention the bell is so constructed as to sound but once. It is also arranged so as to give the signal at exactly the same point for each line, regardless of any inequalities in width of the type-spaces in the galley.

The invention includes certain other improvements in details of construction and in combinations and arrangements of parts, as hereinafter more fully described.



The accompanying drawings, which form part of this specification, illustrate a type-setting machine embodying the invention.

Figure I is a top plan view of the part of the machine to the right of the galley, the overhanging bracket being broken away. Fig. II is a plan of the feelers, the swinging arm being removed. Fig. III is a detail view of the swinging arm and its operating-link. Fig. IV represents details of the type-advancing fingers. Fig. V is a plan view of the tripper mechanism inverted, the bottom plate being removed. Fig. VI is a plan view of the bell mechanism, showing part of the galley; and Fig. VII is a sectional elevation of the same.

In the drawings I have employed the same letters and figures of reference as are used in the said patent of John Gustafson to designate corresponding parts.

A' A<sup>2</sup> represent castings composing the stationary supporting frame-work of the machine.

B is the galley, and C is the swinging or oscillating bed.

D is the reciprocating slide supported in ways of said bed, and carrying the several feeding devices by which the type is carried in successive stages through the machine.

E is the driving-wheel, which imparts motion to the operative parts.

The type is introduced through socket *g*, which supports a funnel, (not shown,) the dropping of the type being controlled by the pivoted jaws 11, normally held together by spring 12. The jaws are opened at the proper time by a lever 13, actuated by a bar 14, carried by slide D. The finger *h*, carried by slide D, pushes the type along the fixed ledge 17, against which it is pressed by a flat spring 8 until it arrives at the end of the first movement above pusher *i*, where it is to be acted upon by the feelers. Up to this point the mechanism is the same as described in the aforesaid patent.

As herein shown, the feelers *d d'*, which are in the form of a pair of jaws, having ribs of the proper size to engage the nick of the type, are pivoted on the casting A<sup>2</sup> and pressed toward each other by spring 20. The head 19 of swinging arm 18, which is pivoted at 21 and actuated by a spring 22, carries two downwardly-projecting pins 23, which, as the arm is pushed back, engage the tail ends of jaws *d d'* and spread them apart. The feelers *e e'* are carried as before, one by the head 19 of arm 18, the other by the fixed ledge 17. Arm 18, instead of being pushed back to release a type by a finger on slide D, is connected with a bracket 150, carried by bar 50 on bed C by a link 114, Fig. III. This link is connected to the bracket 150 by a slot and pin, so that when the forward motion of arm 18 is arrested by the pressure of a type over pusher *i* the bed C can continue its motion. Head 19 of arm 18 has a notch *v* with inclined edges, which edges act to center the type over pusher

*i*. If the type has come into the machine nick end up, and the feelers consequently found no nick to engage, the type will be raised so high that, as nippers M carry it forward, it will strike the overhanging bracket 46, causing the nippers to rotate in sleeve 40, turn the type over, and place it right side up over the pusher *n*, as described in the said patent. The type is here held between the fixed ledge or sill 55 and the movable ledge F, which carries the tripper mechanism. Ledge or plate F is pressed toward the opposing ledge by two spring-arms 116. These spring-arms are secured at one end to pins 117, projecting from the casting A<sup>2</sup>. At their other ends they have sleeves, which fit loosely over pins 118 on plate F. The pressure of these springs is supplemented by an intermediate spring 119. This mounting gives great flexibility of movement of the ledge or plate F.

In Fig. V, which is a plan of ledge F inverted and with the bottom plate removed, is shown the mounting of the tripper mechanism. The trippers 56 are pivoted at 59 to ledge F. The controllers 58 are pivoted to the ledge at 65 and to the trippers at 71. The controllers are pressed out beyond ledge F by springs 66, so that their edges project slightly into the path of the type. If the latter is fed along with one of its smooth sides toward ledge F, it will press the controller back, turning the corresponding tripper until its tooth projects and trips the type, giving it a quarter-turn. If the nick side be toward ledge F, which is the proper position of the type in the galley, the nick spans the controller and the type passes without actuating the tripper.

The type-feeding finger 75, which pushes the type through the tripper mechanism, is, as heretofore, carried by a standard 80, which is fixed rigidly on slide D, said finger being pivoted to the standard by screw-pin 81, and held in its normal position against the rear side of the type by a spring 82, which permits the finger to yield when the type makes a turn. The lower corner of the type is held by a small shoulder 70 in the stationary part 80, which, when the tripper-tooth projects and catches the corner diagonally opposite, causes the type to turn on its axis. It sometimes happens that in so turning, the type lodges above this shoulder and hangs between it and the opposite ledge F, the spring 82 failing to return finger 75 to its normal position. To insure against this occurrence, an arm 130 is extended from the bar 50, carried by bed C, immediately behind pin 131 on finger 75. The edge of this arm 130 acts as a cam on pin 131, returning the finger 75 to its proper position and insuring that the type is properly seated in front of and against shoulder 70 before it encounters the next tripper. Opposite each tripper the arm 130 is grooved or notched out, as at 132 and 133, so that the finger 75 is free to tilt at these points. To control the type with greater certainty during this part of its travel, and to prevent thin



type from making two quarter turns, as occasionally happened, a spring-actuated finger 135, also pivoted on screw-pin 81, is provided to grasp the type on its forward side. (See Fig. IV.) This part is bifurcated, as is the finger 75, with which it co-operates, its two members bearing on the type above and below the tripper. The type is thus held by devices which bear with yielding pressure on all sides during its motion past the tripper mechanism. The finger 135 is, as slide D moves to the right, struck by a small pin 136 on ledge 55 (see Fig. IV) and turned back on its pivot against the pressure of its spring 155, closing again on the type when the latter moves forward. Finger 75 is cut away on the under side, so as to clear pin 136. One of spring-arms 116 has a small lug 137, which is in the path of a raised portion 138 of the standard 80, which raised portion makes contact with said lug at each reciprocation of slide D to the left, thereby opening ledge F for the admission of the next type carried by the pinchers M. It is preferred to use some such arrangement to open the ledge for the reception of each type, and thus avoid the wear on the type and the jar given to the pinchers, which results when the type forces its way into the path adjacent to ledge F by striking against the latter and pushing it back.

The adjustable bed K (see Fig. VII) has, as heretofore, an arm 87, extending under the casting A' and supporting the galley-rails o. According to this invention arm 87 is prolonged beyond the galley B and provided with a stud 121, upon which the alarm-bell 103 and its operating parts are mounted. Consequently when galley B is raised or lowered, in consequence of the adjustment of bed K by means of the screw p and nut q, these parts are raised or lowered with it, and their position relative to the galley remains unaltered. Across the top of stud 121 is clamped a horizontal plate 122, upon which the bell is mounted by means of a pin 123. A sleeve 124 loosely surrounds stud 121, and this sleeve carries an arm 126, which overhangs galley B, and is caused to bear by the pressure of the spiral spring 127 against the line of type as they are fed into the galley, thereby holding the type in place. The striker 104 of the bell is carried by a pivoted arm 105, and is actuated by a spring 128. A pivoted lug 106 projects into the path of the type, and its farther end is in contact with a dog 129, pivoted to the striker-arm 105, and held by spring 154 in engagement with the heel of the lug 106. The foremost type of the line pushes back lug 106, which, acting on dog 129, gradually raises the striker-arm until the face of the lug slips past said dog, (as shown in dotted lines, Fig. VI,) when the striker falls, giving a single stroke and warning the compositor that he is approaching the end of a line. It is obvious that the bell cannot ring again until by the dropping of the galley the lug 106

again resumes its position in engagement with the striker-arm, being returned by a small spring 146.

It is obvious that modifications may be made in respect of details of construction and arrangement, and that parts of the invention may, if desired, be used without the others.

Having now fully described my said invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the pusher for raising the type, of the jaws or feelers pivoted on the frame of the machine and pins carried by a movable part for spreading the jaws to release the type, substantially as described.

2. The combination, with the pusher and feelers, of the swinging arm, having a notch with inclined edges for bringing the type into proper position above said pusher, substantially as described.

3. The combination, with the feelers, the swinging arm for operating the same, and the oscillating bed, of a link connecting said arm and bed, so that the former is actuated by the latter, substantially as described.

4. The combination, with the type-advancing mechanism, of a series of tripper mechanisms comprising each a tripper and controller, said tripper mechanisms being all carried by a plate or ledge mounted flexibly on the machine-frame, substantially as described.

5. The combination, with type-feeding devices, of a ledge or plate having a flexible and elastic mounting or connection with the frame and trippers carried by said ledge, substantially as described.

6. The combination, with the trippers, of a type-advancing finger pivoted so as to yield in the direction opposite to the motion of the type and a cam-bar arranged to hold the finger rigid in its normal position after passing the trippers, substantially as described.

7. The combination, with a series of trippers for acting successively on the type, of a pivoted type-advancing finger, a spring holding the same in position, and a cam-bar having faces for acting on said finger and holding it rigid when between the trippers, said bar being cut away between said acting faces, so as to permit the finger to yield when the trippers are acting, substantially as described.

8. The combination, with the tripper mechanism, of a pair of fingers constituting jaws for grasping the type between them and carrying it past the tripper mechanism, substantially as described.

9. The combination, with the trippers, of a pair of pivoted fingers for grasping the type between them and springs for said fingers, substantially as described.

10. The combination, with the movable ledge carrying the trippers and the reciprocatory slide, of a finger carried by said slide and arranged to strike a lug on said ledge at the proper time to open the same for the admission of a type, substantially as described.



11. The combination, with the adjustable bed supporting the galley-rails, of the spring-actuated arm for holding the type in the galley, said arm being carried by and movable  
5 with said bed, substantially as described.

12. The combination, with the adjustable bed and the galley supported thereby, of the alarm-bell and its operating mechanism attached to said bed, substantially as described.

10 13. The combination, with the galley, devices for moving the same step by step, the alarm-bell, and its striker-arm, of a pivoted lug disposed in the path of the type in said

galley, and arranged to trip said striker-arm and cause a single stroke on the bell when  
15 pushed back by the type, and means, as specified, for returning the lug into engagement with the striker-arm when the galley has moved a step, substantially as described.

In testimony whereof I have signed this  
20 specification in the presence of two subscribing witnesses.

JULIAN W. CHADWICK.

Witnesses:

PHILIP MAURO,  
C. J. HEDRICK.