

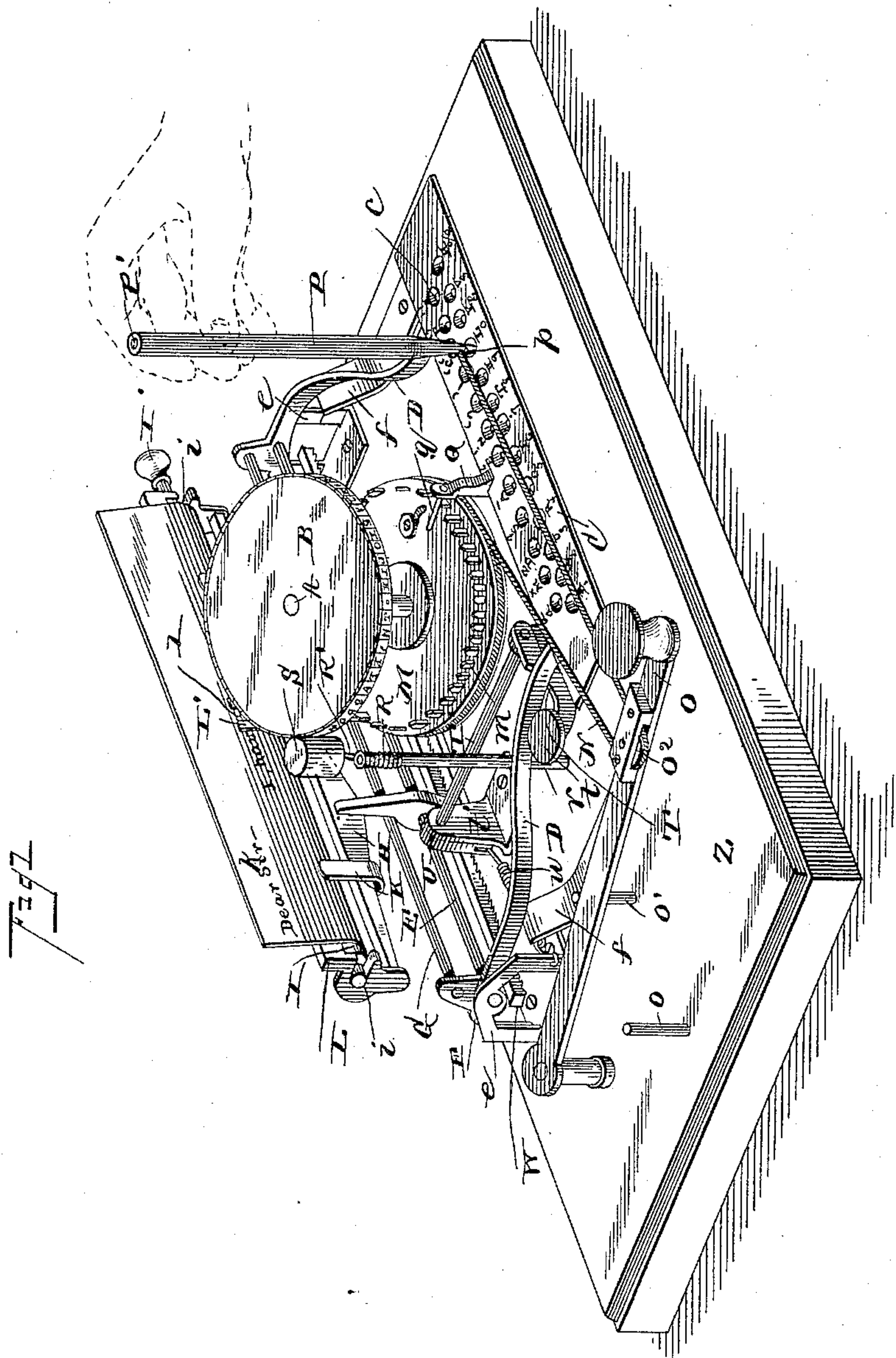
(No Model.)

3 Sheets—Sheet 1.

J. J. GREEN.
TYPE WRITING MACHINE.

No. 444,750.

Patented Jan. 13, 1891.



Witnesses
John Irvine

A. E. Doyle

Inventor
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By his Attorneys

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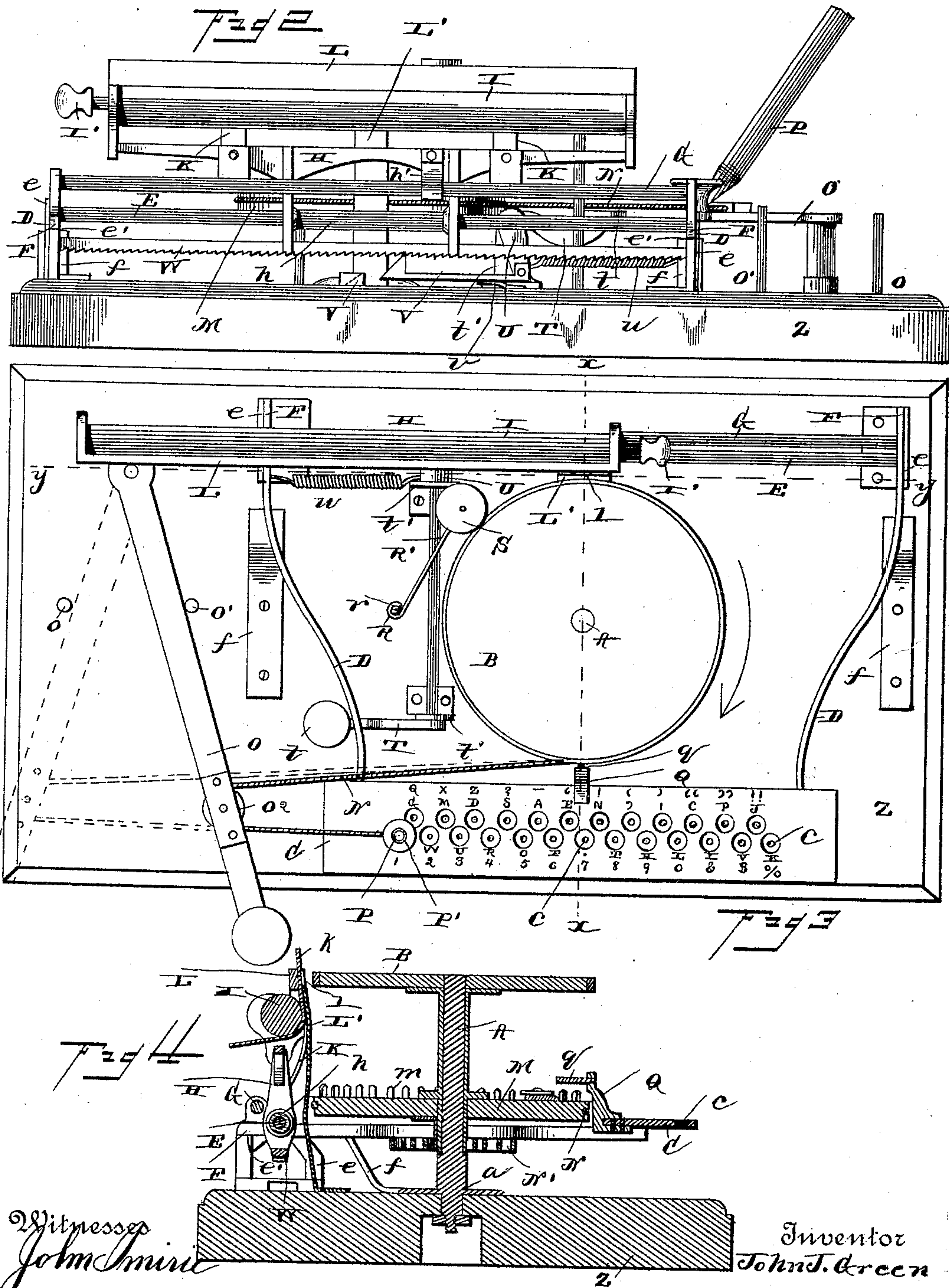
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3 Sheets—Sheet 2.

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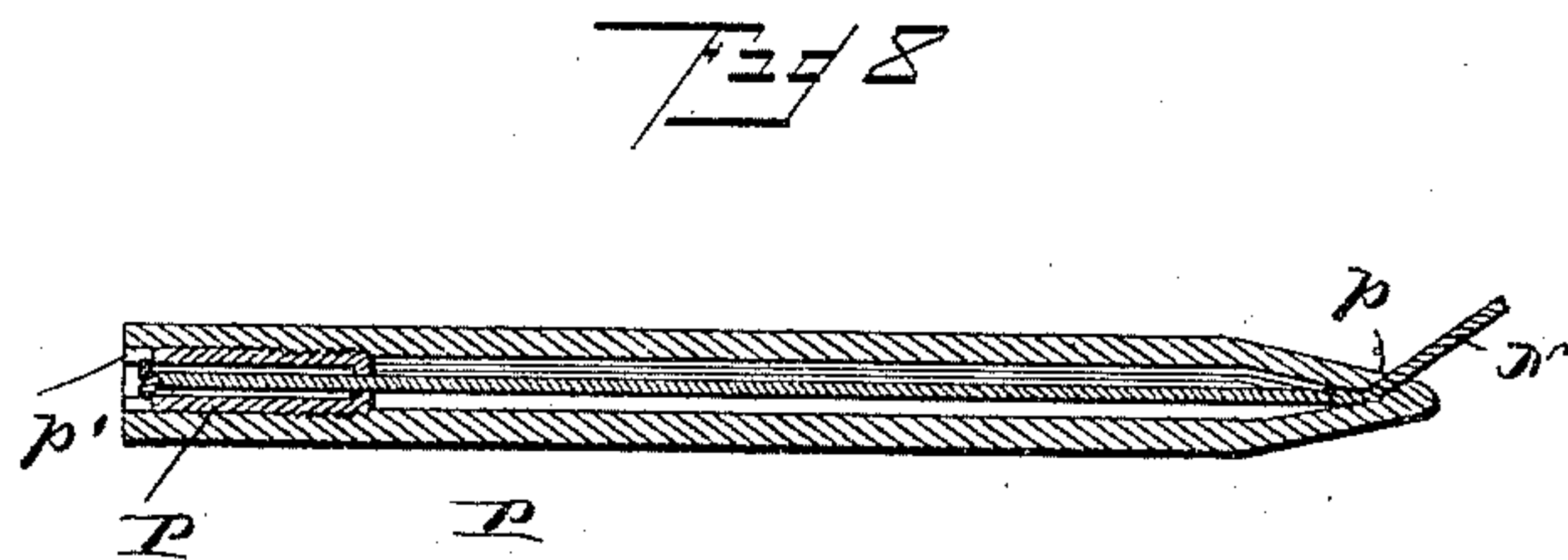
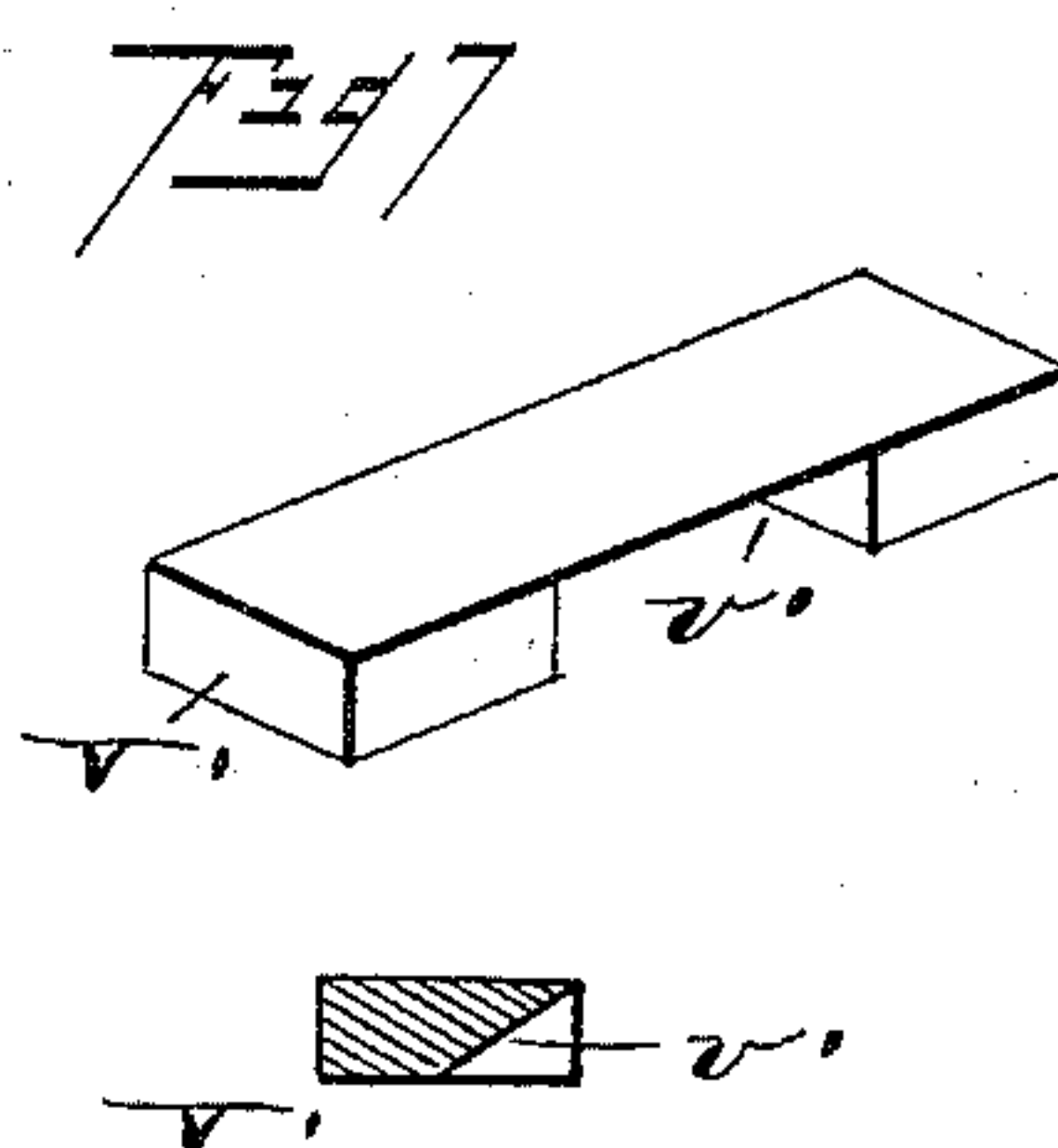
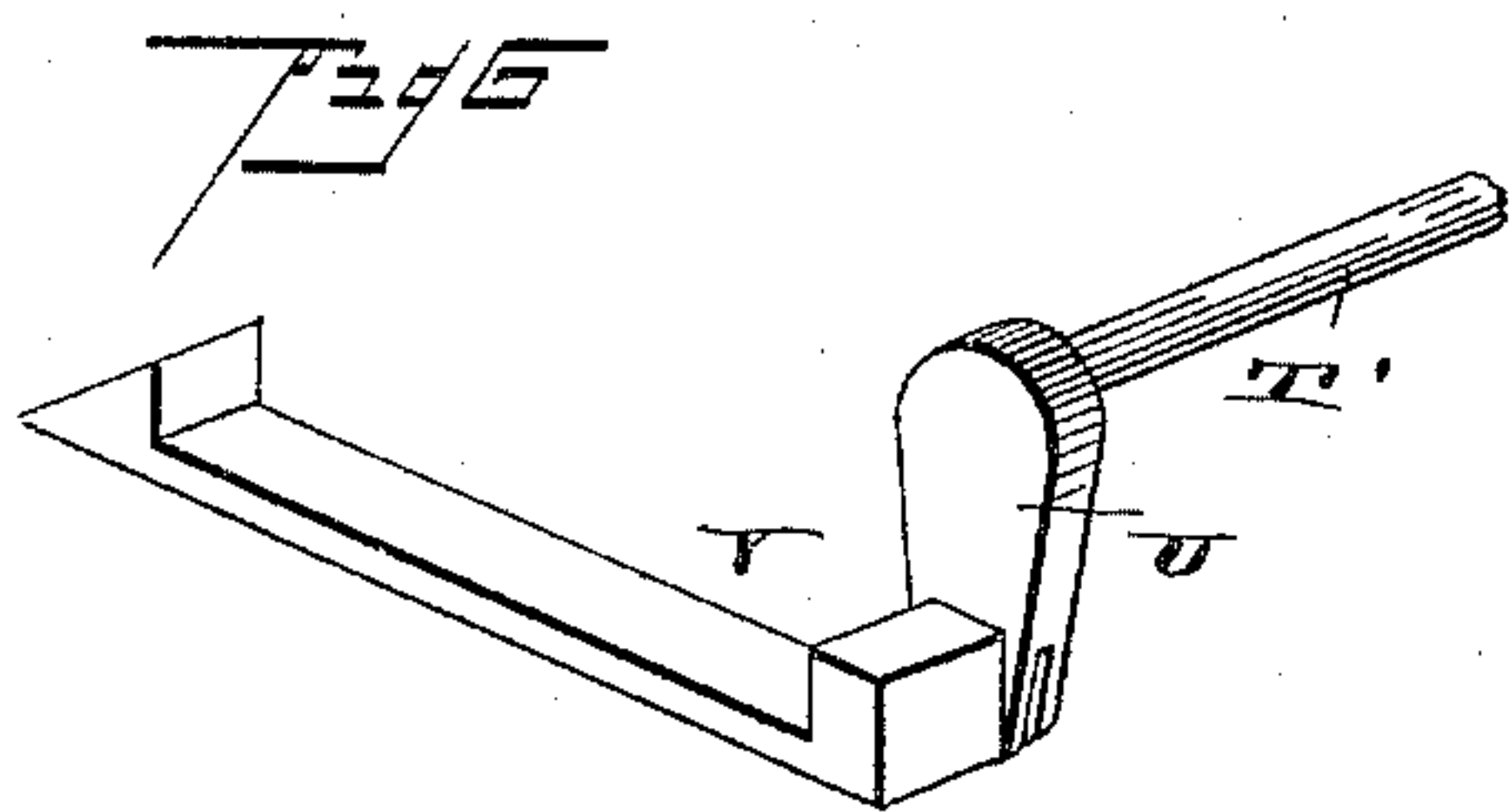
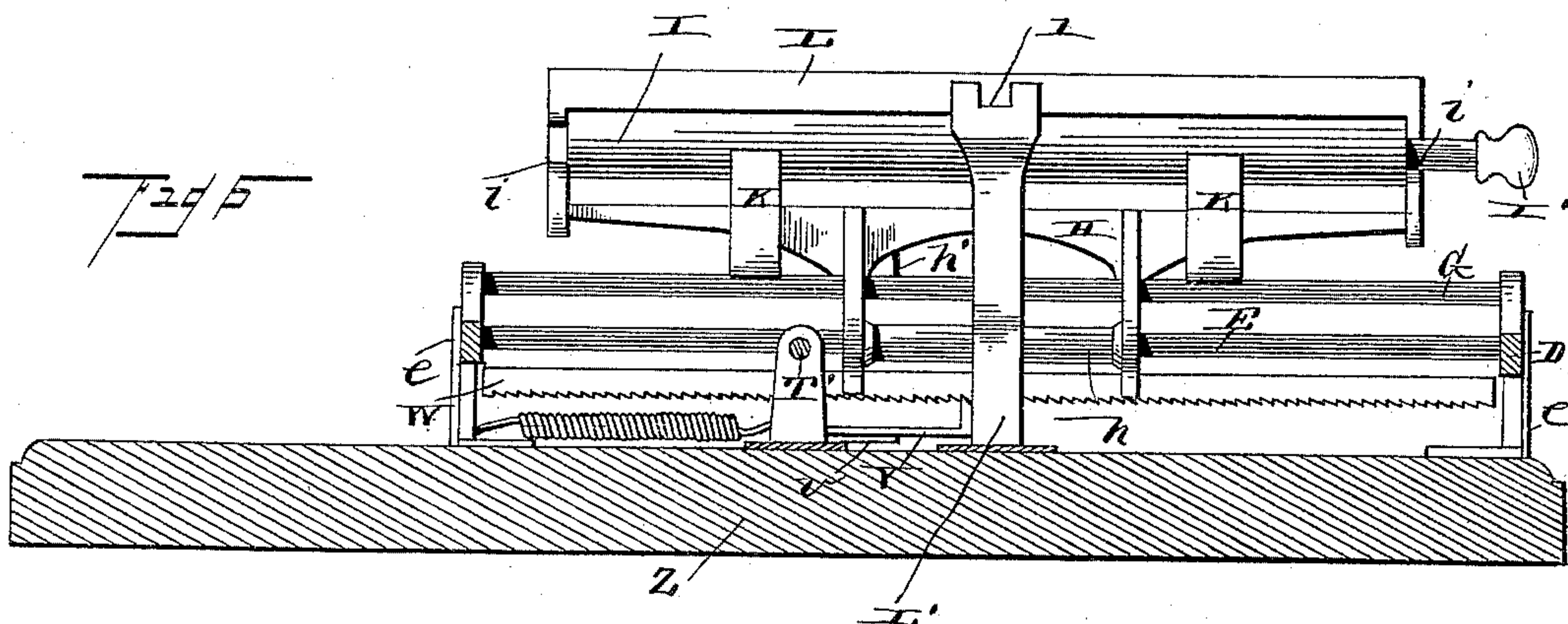
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3 Sheets—Sheet 3.

J. J. GREEN.
TYPE WRITING MACHINE.

No. 444,750.

Patented Jan. 13, 1891.



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UNITED STATES PATENT OFFICE.

JOHN JAY GREEN, OF BOONTON, NEW JERSEY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,750, dated January 13, 1891.

Application filed December 13, 1888. Serial No. 293,459. (No model.)

To all whom it may concern:

Be it known that I, JOHN JAY GREEN, a citizen of the United States, residing at Boonton, in the county of Morris and State of New Jersey, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The invention relates to improvements in type-writing machines; and it consists in a certain novel construction and combination of devices, fully described hereinafter in connection with the accompanying drawings, and specifically pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a type-writer embodying my invention. Fig. 2 is a rear view of the same. Fig. 3 is a plan view thereof. Fig. 4 is a vertical sectional view of the line *x x* of Fig. 3. Fig. 5 is a similar view of the line *y y* of Fig. 3, taken in rear of the type-disk and looking rearward. Fig. 6 is a detail perspective view of the pawl and the swinging arm by which it is connected to the rock-shaft. Fig. 7 is a similar view of the catch which engages the pawl to release the carriage. Fig. 8 is a longitudinal sectional view of the style.

Referring by letter to the drawings, A designates a vertical revoluble shaft, which is stepped at its lower end in a socket *a*, and to the upper end of the said shaft is attached the horizontal type-disk B, having the type arranged on its periphery. These type are preferably of rubber and are arranged in two sets end to end, the letters being mostly disposed in one set, and the punctuation-marks, figures, and a few of the letters seldom used being disposed in the other set.

The key-board C is rigidly attached to the free ends of the swinging arms D D, which are connected at their rear ends to the rock-shaft E, which is mounted at its ends in suitable bearings in the standards *e e*. The rear ends of the said arms extend slightly beyond the rock-shaft to form the stop-fingers F F, which strike against shoulders *e' e'* on the standards and limit the upward movement of the free ends of the arms. Springs *ff* bear against the under sides of the swinging arms

and normally hold them in their raised positions.

G represents a guide-rod secured at its ends to the swinging arms D D, slightly above and parallel with the rock-shaft E, and H represents the carriage, which is provided with a barrel *h*, fitting and sliding on the rock-shaft, and a clip *h'*, engaging the said guide-rod. The carriage is provided at its ends with the bearings *i i*, in which are journaled the trunnions on the ends of the roller I, and flat springs K K are secured to the carriage and bear at their free ends against the face or front side of the said roller to hold the latter in its place in the carriage, to hold the said roller from turning accidentally, and to prevent the paper (which is shown at *k* in Fig. 4) from slipping on the roller.

A striking-bar L is arranged on the carriage just above and parallel with the roller, over the front or face of which the paper passes, and a spring-pressure arm L' bears against the face of the striking-bar to hold the paper closely in contact therewith. This pressure-arm is provided at its upper end with an aperture or notch *l*, (through which is exposed a portion of the striking-bar or the paper which is arranged thereon,) and the lower end of the arm is attached to the base Z of the machine, whereby it is stationary and maintains the same position at all times with relation to the type-disk.

In operating this machine the key-board is depressed against the strength of the springs *ff* until the striking-bar comes in contact with the type-disk; but only one type can come in contact with the said bar at a time, owing to the aperture or notch in the pressure-arm. When the key-board is released, it is elevated or returned to its normal position by the said springs *ff*. The paper-roller is provided at one end with a knob I', by which it may be rotated to form the spaces between the lines.

M represents a disk or pulley secured to the vertical shaft A and provided with a grooved periphery in which fits the operating-cord N, whereby when the cord is wound on the pulley the latter may be rotated in the direction indicated by the arrow in Fig. 3 by pulling

the cord. A spiral spring N' is connected to the said pulley to rotate it in the opposite direction to that indicated by the said arrow, and thereby automatically wind the cord and maintain it in tension.

O designates a shifting arm, which is capable of a limited swing between the outer and inner stop-pins o and o' , and a roller o^2 is mounted on the said arm near its free end, around which the cord N passes. A style P is attached at its point to the free end of the cord and is adapted to be inserted in the sockets cc , which are formed in the key-board.

It is obvious that as the cord is drawn or slackened the type-disk will be rotated more or less in order to bring different type opposite the aperture or notch in the upper end of the pressure-arm. The sockets in the key-board are inscribed with suitable characters and are arranged in such relative positions, as shown in the drawings, as to bring the type upon disk in position to print when the pointer is inserted in the socket bearing the desired letter, figure, or other character. No two of the sockets are arranged at the same distance from the pulley o^2 .

Each socket in the key-board is provided with two characters, as shown in the drawings, and to cause the upper series to be written the shifting-arm is moved to the position indicated in dotted lines in Fig. 3 against the outer stop-pin, thereby turning the opposite side of the type-disk and second set of type toward the carriage and held there by the left hand while the proper characters are printed.

The pulley M is further provided at its periphery with a series of vertical tapered teeth mm , equal in number to the type on the disk, and the key-board is provided with a vertical arm Q , carrying a pin q , which is adapted, when the said key-board is depressed, to engage between two of the said teeth, and thereby hold the type-disk stationary while an impression is being made. Thus the pin on the key-board engages the said teeth at each depression of the key-board and locks the type-disk in position, and if by accident the pulley is rotated slightly too far by drawing the cord too far the said pin will slide on the tapered sides of the said teeth and adjust the pulley and consequently the type-disk.

R represents a spring coiled on the upper end of a vertical post r and provided with an arm R' , on the extremity of which is mounted the inking-roller S , which is held pressed against the periphery of the type-disk by the spring. The type are automatically inked by the rotation of the said disk in contact with the roller, and this is accomplished by the slackening or drawing of the cord in the operation of the machine.

T represents the spacing-lever, which is provided at its free end with a plate t , and is connected at the other end to a rock-shaft T' , mounted in suitable standards $t' t'$. This rock-shaft is provided at its rear end with an

arm U , to which is connected the coiled spring u to normally hold the free end of the spacing-lever elevated. A horizontal sliding pawl V is connected at one end to the free end of the said arm, and a flat spring v is secured to the under side of the pawl to normally hold its free end raised. A catch V' is arranged in the path of the pawl and is provided with a beveled recess v' , which engages the doubled end of the pawl when projected and draws it out of contact with the feed-bar. A feed-bar W is attached to the carriage and is arranged parallel with the base Z above the pawl, whereby the latter is normally held in engagement with the ratchet-teeth on its under side by the flat spring v . When the spacing-lever is depressed against the strength of the coiled spring u , the pawl is moved along the feed-bar, (slipping out of engagement with the tooth with which it is engaged and engaging the next tooth,) and when the spacing-lever is released the feed-bar is drawn toward the left the distance of a space. This spacing-lever extends under one of the arms D , whereby when the key-board is depressed to print a letter the spacing-lever is also depressed, thereby properly spacing the letters.

The style is tubular, and is provided near its point with a small eye p , through which the cord is passed, and the tubular socket P' , which is screwed in the threaded outer or upper end of the bore of the style, is attached firmly to the extremity of the said cord. A transverse cut p' is formed in the outer end of the said socket, in which to engage a screw-driver to turn the socket.

If after much use the cord becomes stretched, so as to interfere with the adjustment of the machine, the socket may be unscrewed slightly, thereby shortening the cord, or the socket may be removed from the end of the style, the cord detached therefrom, shortened, and re-attached. Thus the socket enables the length of the cord to be adjusted, so as to cause the desired letter to be printed.

The operation of this type-writer will be obvious from the above description.

Having thus described the invention, I claim—

1. In a type-writer, the combination of the spring-actuated revoluble type-disk having two sets of type on its edge, end to end, the grooved pulley connected to the type-disk, the key-board, the shifting arm carrying a roller, and the cord coiled on a grooved pulley extending around said roller and provided with a style to engage said key-board, one set of type being normally in position and the other set being brought into position when the arm is shifted, substantially as specified.

2. In a type-writer, the combination, with a revoluble disk having two sets of type on its edge, end to end, and a coiled spring to rotate it in one direction, of the cord coiled on a pulley connected to the said type-disk, a style connected to the end of said cord, a

shifting arm having a guide-roller around
which said cord passes between its ends, and
stops for limiting the movement of said shift-
ing arm, said stops being so spaced that the
5 guide-roller on the arm will move a distance
sufficient to rotate the type-disk one-half of
a revolution, substantially as and for the
purpose set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 10
presence of two witnesses.

JOHN JAY GREEN.

Witnesses:

LEWIS VAN DUYN,
NATHAN L. BRIGGS.