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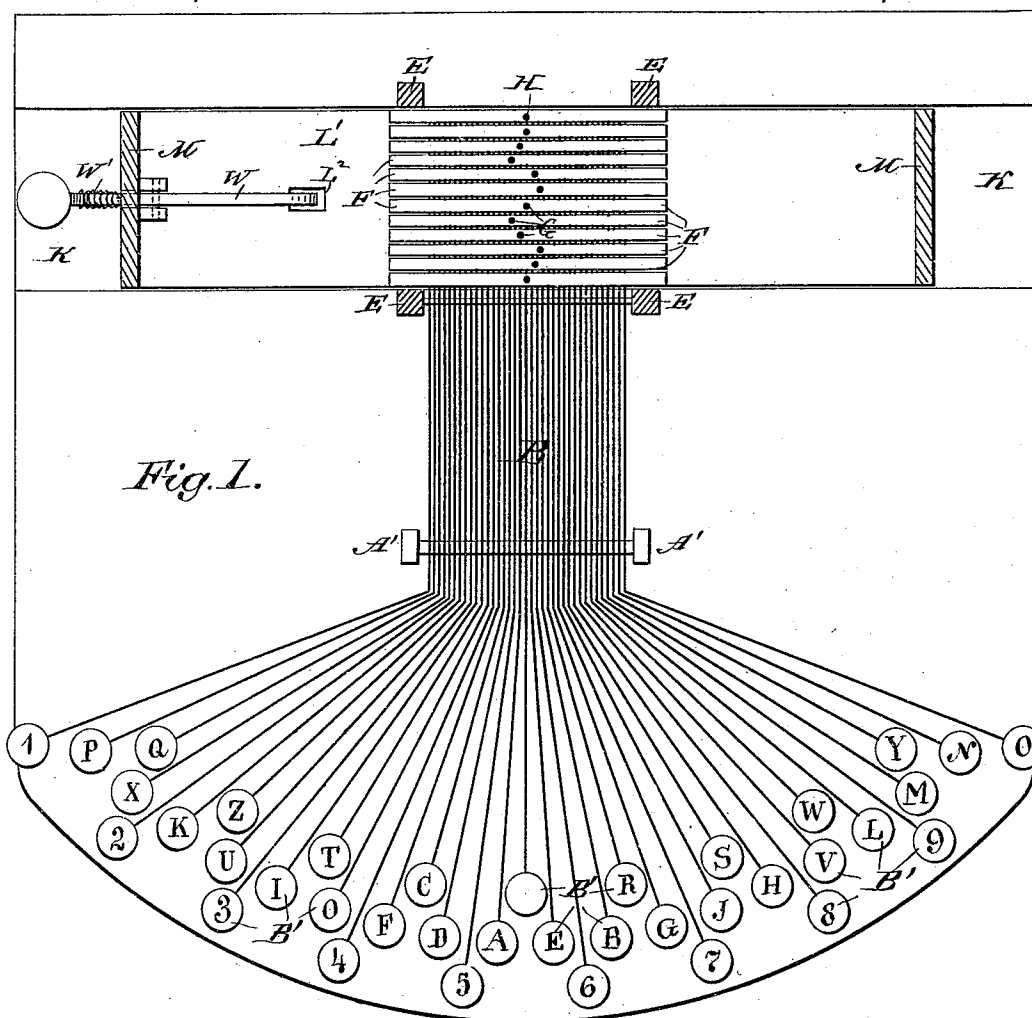
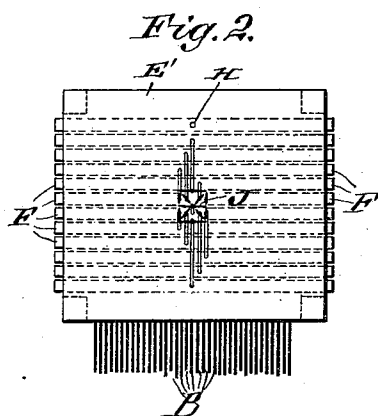
3 Sheets—Sheet 1.

G. W. GREENE & L. P. SMITH.

TYPE WRITING MACHINE.

No. 356,245.

Patented Jan. 18, 1887.



WITNESSES:

Probyer
la Sedgwick

INVENTOR:

G. W. Greene
L. P. Smith
BY *Munn & Co*
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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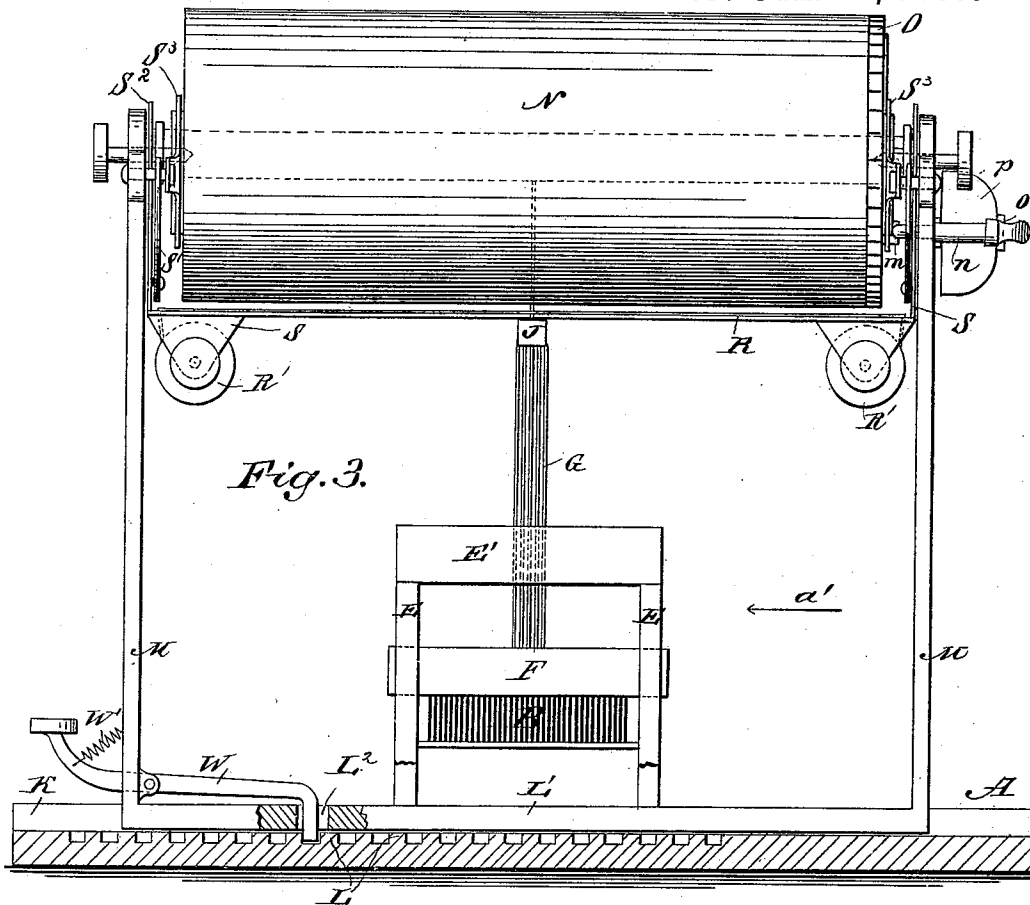
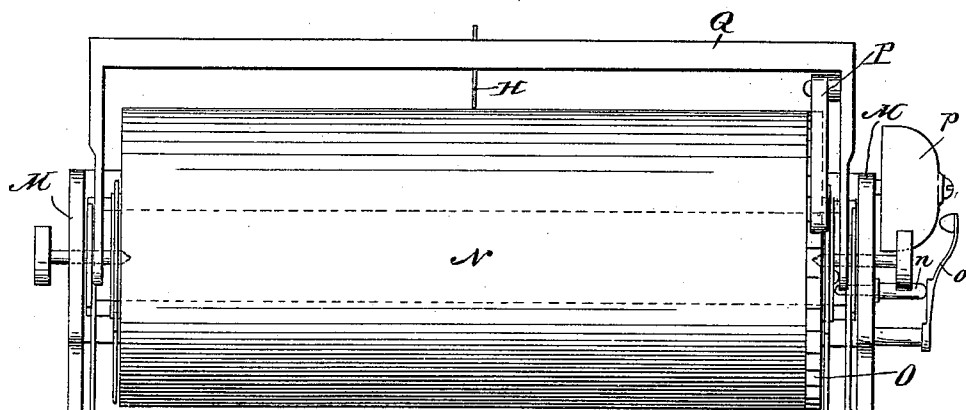


Fig. 4.



WITNESSES:

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(No Model.)

3 Sheets—Sheet 3.

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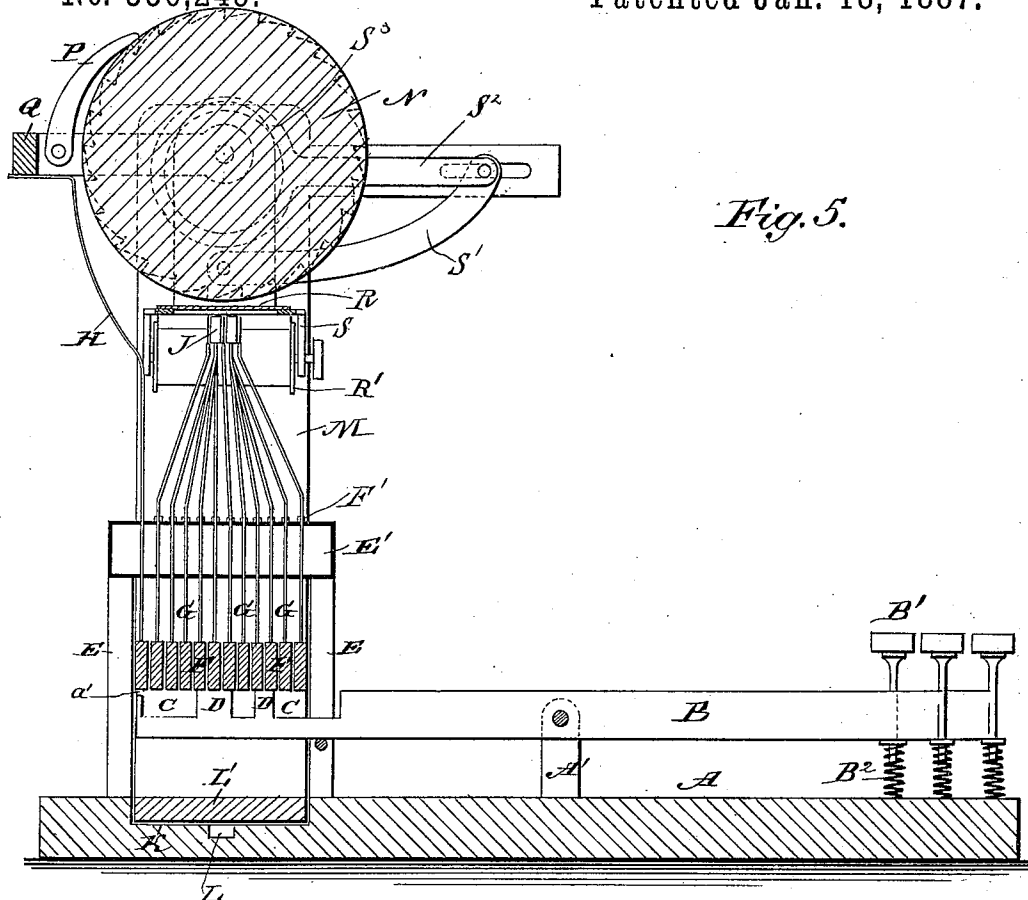
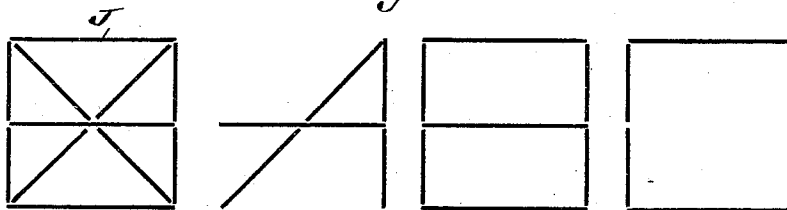


Fig. 5.

Fig. 6.



WITNESSES:

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INVENTOR:

G. W. Greene
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE W. GREENE, OF ABINGTON, AND LEWIS P. SMITH, OF SMITHFIELD,
INDIANA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 356,245, dated January 18, 1887.

Application filed December 23, 1885. Serial No. 186,540. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. GREENE, of Abington, in the county of Wayne and State of Indiana, and LEWIS P. SMITH, of Smithfield, in the county of Wayne and State of Indiana, have invented a new and Improved Type-Writer, of which the following is a full, clear, and exact description.

The object of our invention is to provide a new and improved type-writer which is simple in construction, being composed of comparatively few parts, and which is not expensive and can be manufactured very easily.

The invention consists in the construction and combination of parts and details, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional plan view of our improved type-writer. Fig. 2 is a plan view of part of the machine, showing the plate above the inner ends of the levers and the means for forming the characters. Fig. 3 is a cross-sectional elevation of the machine. - Fig. 4 is a plan view of the roller and attachments. Fig. 5 is a longitudinal sectional elevation of the machine. Fig. 6 shows the various combinations of the plates for forming the characters.

A represents the base-plate of the machine, and on the same the standards A' are erected, on which the several levers B are pivoted, the outer ends of the levers carrying the push-buttons B' diverging from each other, as shown in Fig. 1. The outer ends of said levers are pressed upwardly by springs, B², placed below them; or the levers can be balanced or mounted in any other way so as to hold the ends provided with the push-buttons raised. On the upper faces of the said push-buttons the numbers, characters, &c., of the corresponding levers are produced. At the inner ends notches D are formed in the upper edges of the levers B, and between said notches the tongues or teeth

formed in the bit of a key, the tongues in each key-lever being different in shape, size, and location from those of any other key-lever.

Uprights E are erected on the base, and are united at their upper ends by a top, E', below which a series of bars, F, are held at right angles to and over the inner ends of the key-levers B, which key-levers B are between the uprights E, as shown, so that when the outer ends of the key-levers are depressed and the inner ends swung upwardly the said inner ends can raise one or more of the said bars F. From each bar F a rod, G, projects upwardly and through apertures in the top E', and each rod is provided at a suitable place with a collar, F', which, when the corresponding bar F is lowered as much as is necessary, rests on the upper surface of the top E', and prevents the said bar F from descending too far. The rear bar F is not connected with a rod, G, but with the rod H, which extends upwardly and is connected with a rocking pawl-frame, as will be set forth hereinafter.

The upper ends of the rods G are grouped, as shown in Fig. 2, and on the upper end of each of said rods a metal strip, J, is fastened with its edge at the top, so that when all the bars F are in the position of rest the top edges of the several strips or pieces J will be in the same plane. There are eleven rods G, and on the upper end of each one of the strips or plates J is held, the rods being placed in such a manner that the plates J form a square or, if desired, a rectangle having the sides slightly longer than the ends—which is immaterial—two diagonal lines through the square or rectangle, and a transverse line through the middle. top and bottom of the square are each formed of a single plate, J; the sides are each formed of two plates J, the length of each of which is equal to half the length of one of the plates forming the top and bottom; the diagonal lines are each formed of two plates J in the manner shown, and the transverse line is formed of a single plate. The said plates can be combined in different manners to form different characters, which, however, are com-

posed only of straight lines, and have no curved parts. In Fig. 6 the letters A, B, and C are represented.

The notches C in the key-levers B are so arranged that when any one of the key-levers is depressed the bars F of those rods G that are not to be raised will pass into a notch, C, and those bars F that must be raised remain and rest on the teeth D. Said bars F are carried upward by the key-levers, and the plates J are moved upward and make the desired impression by means of the inked ribbon in the same manner as in other type-writers.

Between the standards E a groove, K, is formed in the top of the base at right angles to the inner ends of the key-levers, and in the bottom of said groove notches are cut to form a rack, L; or the said rack can be secured in a depression or recess in the bottom of the groove K. In said groove K a base-bar, L', is placed, from the ends of which the standards M project upward, on which the roller N is mounted to revolve, said roller being covered with rubber in the same manner as the rollers generally used on type-writers, and at one end a ratchet-wheel or circular ratchet, O, is formed on the roller, with which circular ratchet a hook-pawl, P, engages, which is pivoted on a rocking frame, Q, mounted to turn on the pivots of the roller N; and said rocking frame Q is connected with the wire H, which, as stated, is connected with the rear bar F, said rear bar resting on the teeth of all the key-levers B, including the spacing-lever. The weight of the rocking frame Q must be sufficient to enable it by swinging down to revolve the roller N.

The inked ribbon or band R is mounted on rollers R' on a U-shaped frame, S, which is slotted lengthwise, mounted to swing on the pivots of the roller, and provided with the arm S', connected with the rod S², provided at the opposite end with a ring, S³, surrounding an eccentric neck on the end of the roller, whereby, when the roller revolves, the frame S will be moved forward and back, and thus different parts of the ribbon will always be presented to the action of the type-plates J. The ribbon is then wound from one roller R' to the other, a greater or less distance, at suitable intervals, by hand.

In the lower part of one of the standards M the lever W is pivoted, the inner end of which passes through a slot, L², in the bottom plate, L', and engages with the teeth of the rack L. A spring, W', is connected with the outer end of the lever W, keeping the inner end depressed. A push-button is provided on the outer end of said lever.

The operation is as follows: The paper is wrapped around the cylinder N in such a manner that the lines of writing will pass circumferentially around the cylinder. The edge of the paper is placed in a longitudinal groove in the cylinder, or held in any other suitable manner on the cylinder. Every time one of

the key-levers is depressed an impression of some kind is made on the paper, and at the same time the hook-pawl P is raised to get a fresh grip on the teeth of the circular ratchet O. When the key-levers are released, the frame Q swings down and the hook-pawl P revolves the cylinder the distance of one tooth, corresponding to the space required for a letter. In case a blank is to be left on the paper the spacing-key is depressed, which raises the swinging frame Q without making an impression. When the line is completed, the cam m on one end of the cylinder acts on the sliding pin n, which in turn acts on the spring-hammer o and presses the same from the bell p; then the hammer is released and strikes the bell or gong, thus giving the signal that the line is completed. The outer end of the lever W is depressed to disengage the inner end from the rack L', and the entire roller-frame is moved in the direction of the arrow a', is then locked in place automatically by the lever W, and the next line is printed around the cylinder, and so on.

In place of the lever W, any other suitable latch or locking device may be used for locking the frame carrying the cylinder every time the same has been shifted.

The letter I does not occupy as much space as the other letters, and for the purpose of avoiding a wide space in a word where this letter occurs, which space would not look well, the paper-cylinder N is provided with two teeth for each letter, and the key-lever B for the letter I is reduced at its end opposite the rear bar F, as at a', whereby, as said lever is depressed, its reduced surface acting upon said bar, the rod H will be moved, it is obvious, only sufficiently to enable the frame Q to cause the cylinder-propelling pawl P to move the cylinder one tooth, the key-levers for all the other letters acting upon the said rear bar F to elevate the rod H to such an extent as to enable the rocking frame Q to cause the pawl to move the cylinder two teeth, leaving only about half the amount of space upon the paper for said letter that is provided for the other letters.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a type-writer, the combination, with an impression-cylinder, of a rocking inking-ribbon support and mechanism, substantially as described, for rocking said ribbon-support from the cylinder, substantially as herein shown and described.

2. In a type-writer, the combination, with an impression-cylinder having an eccentric formed on one end, of a reciprocating bar operated by the eccentric and of a rocking inking-band support operated by means of a connecting-piece from the eccentric, as herein shown and described.

3. In a type-writer, the combination, with a series of key-levers having notches in their

upper edges, of bars above the key-levers, rods projecting upward from the bars, impression-plates on the upper ends of the rods, an impression-cylinder pivoted in the upright frame, 5 a rocking frame at the impression-cylinder, and a pawl on said frame engaging with a ratchet on the impression-cylinder, which rocking frame is operated by one of the rods connected with one of the bars above the key-levers.

GEORGE W. GREENE.
LEWIS P. SMITH.

Witnesses:

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ED. W. HUNT.