

(No Model.)

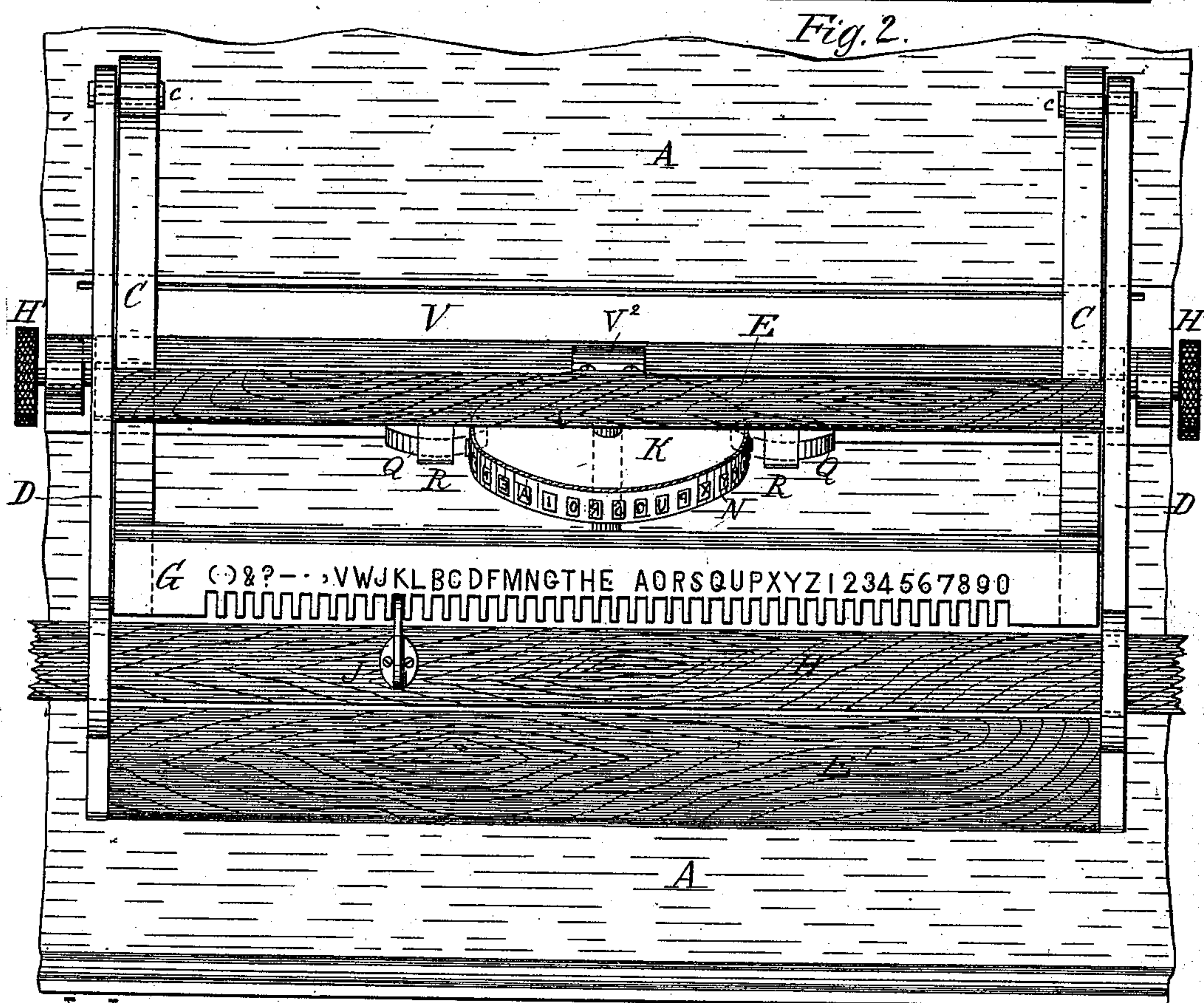
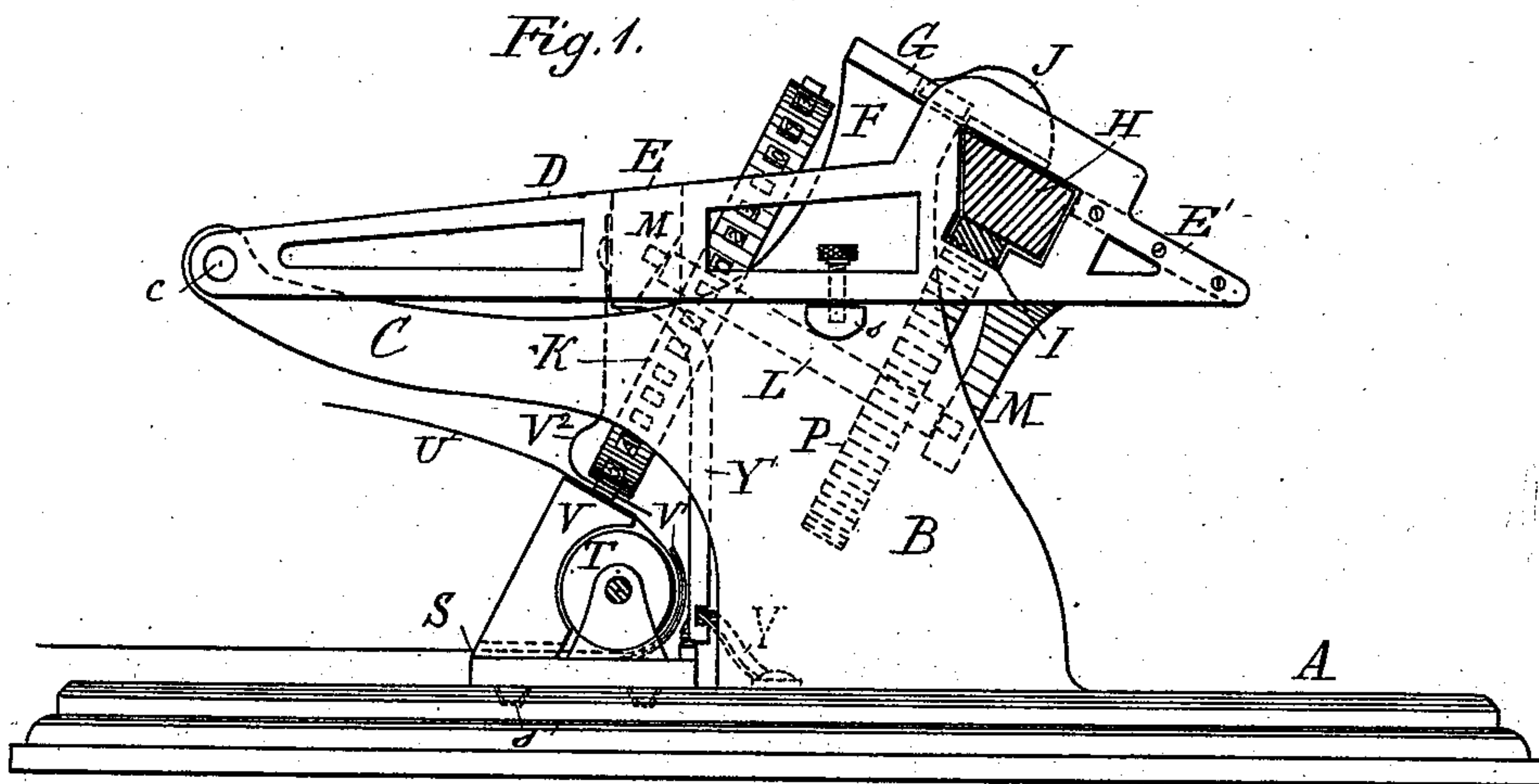
2. Sheets—Sheet 1.

E. C. LOCKE.

TYPE WRITING MACHINE.

No. 376,715..

Patented Jan. 17, 1888.



Witnesses

Wm. A. Lowe.
Wm. H. Weightman

Inventor

E. b. Locke,
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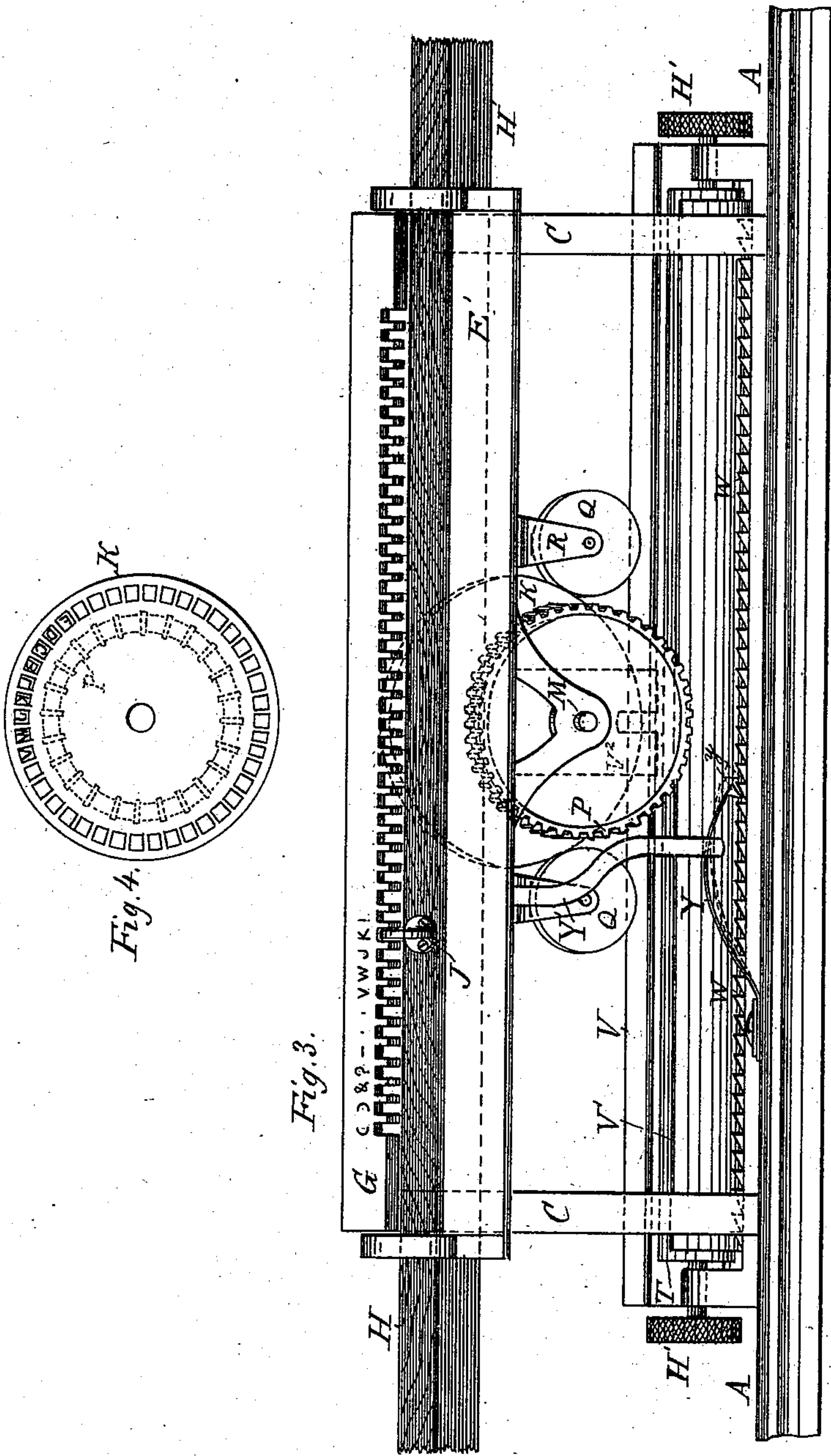
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UNITED STATES PATENT OFFICE.

EDWARD C. LOCKE, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE T. BRIGGS, OF CAMBRIDGE, MASSACHUSETTS.

TYPE-WRITING MACHINE.

-SPECIFICATION forming part of Letters Patent No. 376,715, dated January 17, 1888.

Application filed May 23, 1884. Serial No. 132,614. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. LOCKE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates especially to devices employed for impressing printed characters upon paper or other material, and has for its object the provision of a mechanism cheap and simple to construct and easy and accurate to operate.

The invention consists, essentially, in a wheel bearing letters or characters upon its periphery or surface, said wheel being mounted in a frame-work pivoted at one side in such a manner that the wheel may be held slightly raised from a bearing beneath the type, a suitable spring holding said frame elevated until depressed to give an impression. The paper or other material passes around a roller mounted upon a movable carriage, which is made to travel from right to left by the depression of the frame bearing the type-wheel. Suitable means are employed for inking the characters upon the wheel.

Fixed to the top of the main frame of the machine is a toothed plate, each of the spaces between the teeth being marked for a letter or character represented upon the type-wheel. Sliding in suitable supports in the pivoted frame, at the side of said toothed plate, parallel therewith, is a bar or stick bearing a finger adapted and arranged to enter an opening between the teeth when the movable frame is depressed. The lower side of the stick bears a rack which engages with the teeth of a pinion upon the shaft which supports the type-wheel. The characters upon the toothed plate correspond with the characters upon the type-wheel, and in operating the device, by sliding the stick until the finger registers with the character it is desired to imprint, said character is presented to the surface of the paper, and by depressing the movable frame the finger enters the opening between the teeth of the fixed plate, permitting the letter or character upon the type-wheel to press against the paper, all

of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is an end elevation of my improved type-writer. Fig. 2 is a plan view, and Fig. 3 is a front elevation. Fig. 4 is a view of a modified form of type-wheel.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

A is the base, upon which the main frame B is secured. Pivoted to arms C of the main frame at *c* are levers or arms D, united together by cross-pieces E and E'. Secured to the sides of the main frame at F, and extending from side to side thereof, is a toothed plate, G. Upon this plate are marked the various characters to be used in printing with the machine, as plainly illustrated in Fig. 2.

H is a sliding bar or stick passing through openings in each side of the movable frame. At the bottom of this stick is fixed a rack, I, and upon the upper side a finger, J, which is arranged to fit within the spaces between the teeth of plate G.

K is a type-wheel mounted upon a shaft, L, supported in bearings M upon the movable frame at an angle of about thirty degrees. Connecting-bar E' and toothed plate G are also supported at this angle, as I have found it the best adapted to the eye and hand in using the machine.

The characters to be employed in the device are formed upon a plate or strip, N, which is secured to the periphery of type-wheel K.

P is a gear-wheel mounted upon shaft L, the teeth thereof engaging with the rack upon stick H.

Q are inking-wheels, composed of ribbon or other suitable material wound upon a roller or spool, and supported upon arms R in such a manner as to press against the type-wheel K.

S is a carriage adapted and arranged to slide to the right or left in grooves S'. This carriage bears a roller, T, around which the paper, U, to be printed upon is passed, a solid bearing for the type being formed by a block, V, secured to the carriage. A metal plate, V', guides the paper around the roller.

V² is a fixed plate secured to the movable frame and extending beneath the type-wheel.

A slot is cut through the center of this plate of sufficient width to permit one letter only to pass therethrough and touch the paper when the type-wheel is depressed, thus preventing the possibility of blurring the papers with the letters at either side of the one required.

At the front of the carriage is located a rack, W, and a spring, Y, secured at one end to the base A at the side of the carriage, the opposite extremity of the spring terminating in a pawl, y, adapted and arranged to engage with the teeth of the rack upon the carriage.

Y' is an arm secured to the movable frame and engaging with the spring, as shown in Fig. 3.

H' are milled wheels secured to each extremity of roller T, by which the roller may be turned for drawing the paper upward at the end of a line or when it is desired to leave a space.

In Fig. 4 the modified form of type-wheel K is shown as having the characters placed upon the side instead of upon the periphery. When thus constructed, teeth may be placed upon the opposite side of the wheel or upon the axis thereof, which engage with the rack upon stick H, the axis of the type-wheel being in this instance placed at right angles to that shown in Fig. 1.

It will be seen by referring to Fig. 1 that the side frames, B, have rearwardly-extending arms C, to which the movable frame is pivoted. This construction of the side frames, B—i. e., with the rearwardly-extending arms C—admits of a long and easy leverage to the pivoted type-wheel frame, and also admits of the paper-carriage S passing back and forth underneath said arms C without any obstruction, thereby allowing the machine to be made very narrow and compact, as the paper-carriage is free to travel out (from either side) beyond the side frames, B, a sufficient distance to admit of printing the widest paper desired. It will also be seen by referring to Fig. 2 that the index-plate G is straight (not curved) and is arranged parallel with the line being printed, and, furthermore, the operating-finger J travels back and forth (when the machine is operated) in a straight line parallel with the line being printed. The operating-finger J is thus at all times exactly the same distance from the axial centers of the type-wheel-frame pivots as said finger is moved back and forth across the front of the machine when printing. This is an important feature, as it not only gives to the hand of the operator a free and natural movement, but it also insures an equal leverage in printing any and all of the characters, and consequently gives more uniform impressions than would be the case if the index-plate G was curved and the operating-finger J swung in the arc of a circle, for then the leverage would decrease as the finger swung or moved to the right or left of the center of the machine, and the printing would, in consequence of such unequal leverage, show heavy and light impres-

sions, varying with the different positions of the operating finger or lever when said impressions were pressed upon the paper.

When constructed and arranged in accordance with the foregoing description, the operation of my device is as follows: A sheet or strip of paper is placed in position upon the roller and over the bearing upon the carriage, which is pushed over to the right. The stick H is moved to the right or left by means of the projecting finger J until said finger reaches the character it is desired to print, designated upon plate G, when the frame is depressed, the finger entering the space opposite the character. The pressing downward upon the movable frame brings the character upon the type-wheel in contact with the paper, the impression being governed by stops s at the sides of the main frame. When the movable frame is depressed, the spring Y is straightened out, moving the pawl one tooth to the right, and as the pressure of the hand is withdrawn the spring resumes its normal position, elevating the movable frame and drawing the carriage the necessary distance to the left. Upon reaching the end of a line, by raising the movable frame slightly, the pawl is withdrawn from the rack, because the spring Y, which carries the pawl, passes through the arm Y', as shown by dotted lines in Fig. 3, so that the spring will be lifted when the frame is raised and the carriage may be pushed back to the starting-point.

By reason of the peculiar construction of my device I am enabled to print upon a straight line, each of the characters striking the same parallel, which is not the case in that class of type-writers wherein each character is formed upon the extremity of a pivoted arm, as said arms soon become bent, rendering the printed line crooked. In my machine paper of any length may be employed, and each line may be plainly seen at its completion, as no obstruction interposes between the paper and the eye of the operator.

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

1. The herein-described type-writing machine, consisting of the base A, having rigidly secured on the right and left sides thereof the frames B B, having rearwardly-extending arms C C, the notched index-plate G, extending across the front of the machine and rigidly secured to the frames B B, the type-wheel frame pivoted on the arms C C and carrying the freely-revolving shaft I, arranged therein at an angle to the base A, the type-wheel K and its operating-gear P, fast on the respective ends of said shaft, the rack I, meshing with said gear and having the operating-finger J, and adapted to slide or move right and left across the front of the machine in a straight and horizontal way or bearing on the type-wheel frame, the paper-carriage S, adapted to travel under the frame-arms C C right and

left across the base A, means for automatically feeding said carriage along, and means for inking said type-wheel, all combined and arranged to operate substantially as shown and described, and for the purpose set forth.

2. In a type-writer, the combination of a rotatable type-wheel, a carriage movable back and forth in ways in the base of the machine, an inclined bearing for the type carried by said carriage beneath the type-wheel, a roller for the paper to pass around supported by said carriage, a rack connected with said carriage, and a spring-pawl engaging with the teeth of said rack and operating the same, substantially as described.

3. In a type-writer, the combination of a rotatable type-wheel, a carriage movable back and forth and carrying a roll for the paper to be printed by the type on said wheel, a rack connected with said carriage, a spring having

a pawl engaging with the teeth of said rack, a vertically-movable frame carrying the type-wheel, and an arm connecting the same with said rack-pawl, whereby, when said frame is depressed, the spring-pawl is made to pass from one tooth of the rack to another to move said carriage, substantially as described.

4. In a type-writer, the combination of the paper-carriage and the movable frame carrying the type-wheel with a spring for both moving the carriage and elevating the frame, substantially as described.

Signed at New York, in the county of New York and State of New York, this 21st day of May, A. D. 1884.

EDWARD C. LOCKE.

Witnesses:

A. M. PIERCE,
WM. A. LOWE.