(No Model.) 3 Sheets—Sheet 1.

B. A. BROOKS.

TYPE WRITER.

No. 273,454. Patented Mar. 6, 1883.

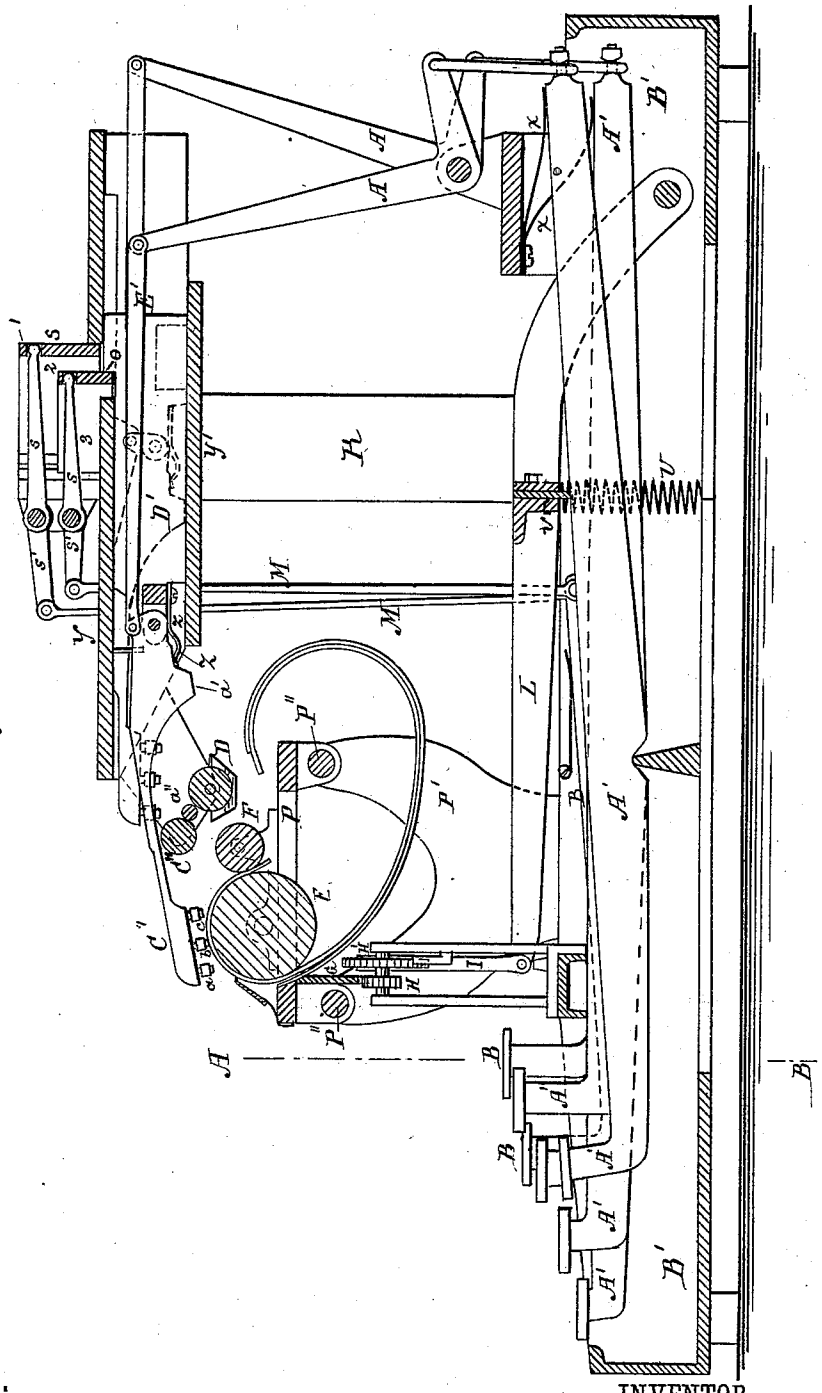

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

B. A. BROOKS.

TYPE WRITER.

No. 273,454. Patented Mar. 6, 1863.

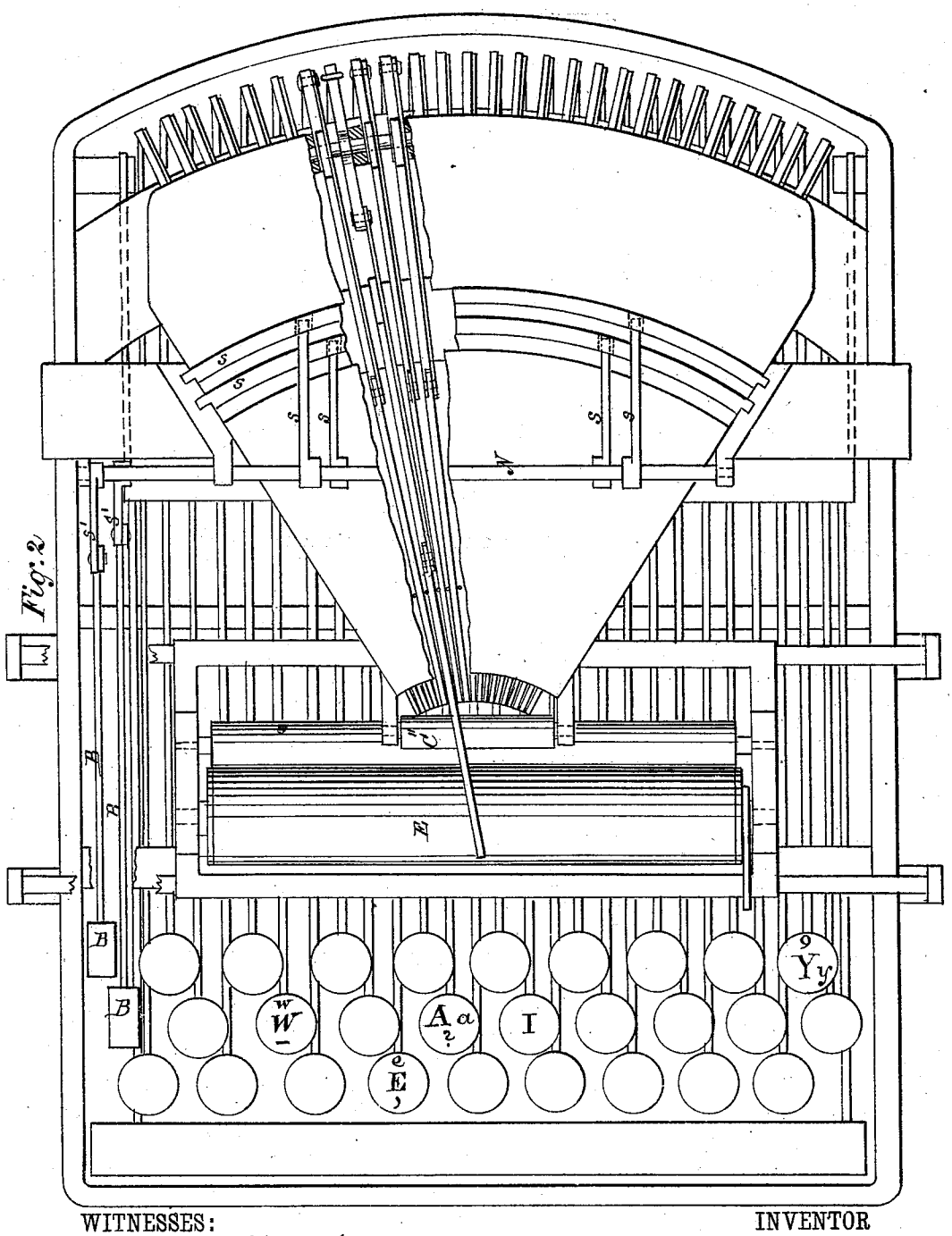

Fig: 2

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(No Model.) 3 Sheets—Sheet 3.

B. A. BROOKS.

TYPE WRITER

No. 273,454. Patented Mar. 6, 1883.

Fig. 3.

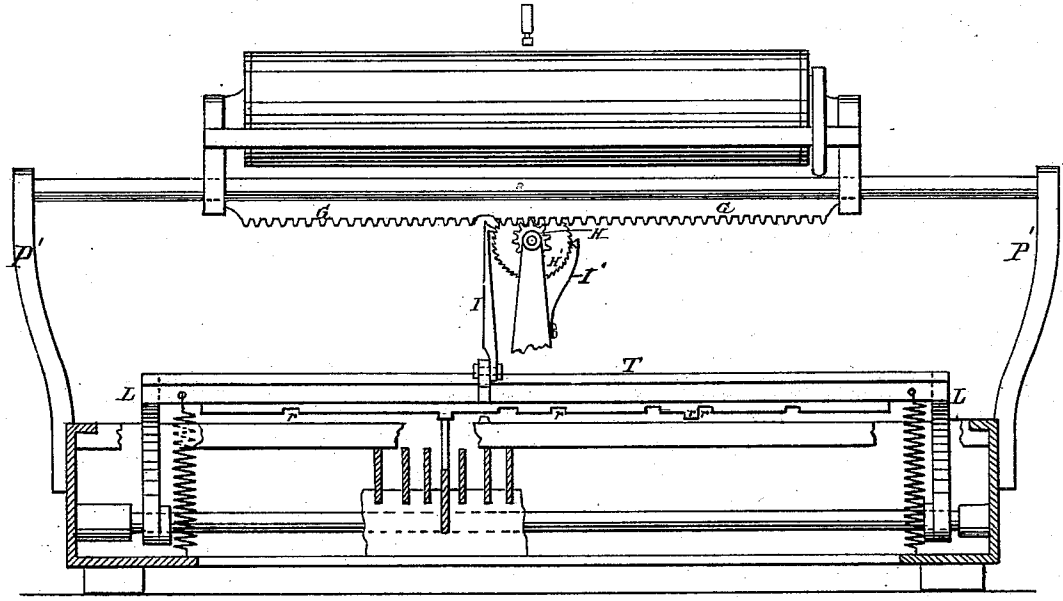
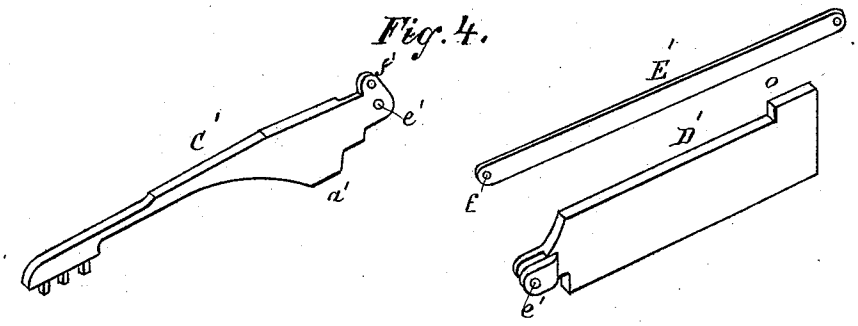


Fig. 4.



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UNITED STATES PATENT OFFICE.

BYRON A. BROOKS, OF NEW YORK, N. Y.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 273,454, dated March 6, 1883.

Application filed April 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, BYRON A. BROOKS, of the city, county, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a description in such full, clear, and exact terms as to enable any one skilled in the art to which it appertains or with which it is most nearly connected to make and use the same, reference being had to the annexed drawings, making part of this specification, and to the figures and letters of reference marked thereon.

Figure 1 of said drawings is a longitudinal vertical section through the center of my improved type-writer. Fig. 2 is a top view of the same, and Fig. 3 is a section on the line A B.

My invention consists of a series of type-levers set in an arc of a circle upon a horizontal plane, each lever carrying two or more types upon its under side, and arranged to move forward to a common printing-point and strike downward to print upon the paper by one impulse of the operating-lever, the series of type-levers being placed above and parallel to the plane of the key-levers, and moving forward to print upon the paper from above, leaving the printing always in sight.

Reference being had to the drawings, the combination and operation of the parts constituting the invention will be understood from the following description:

The frame of the machine is shown in the drawings by B′. In this frame is arranged a series of key-levers, A′. These levers are the prime movers of the machine, and through their instrumentality all the parts of the machine are put in action. To the rear end of each of these key-levers there is connected a bell-crank, A, the upper end of which is connected to the type-lever C′, a detached view of which appears in Fig. 4. This type-lever is connected at e' to the carriage D′ and at f' to the bell-crank through the connecting-rod E′. The carriage D′ travels to and fro in a channel or course between two supporting-plates, y y', held in position by the standards or posts R, and the point a' of the type-lever rides on the bottom of the channel while it is pressed forward over the front end of the bottom plates y'.

There are three types, a b c, on the under side of each of the type-levers, either one of which may be made to strike directly upon the top of the platen or paper-roller E. To effect this there is a shoulder, o, made on the top side of the carriage D′, and three stops, 1 2 3, provided in the top plate, y. Stops Nos. 1 and 2 are movable, and are moved up and down by the levers s s in corresponding slots cut in the plate y. By these means, when the carriage D′ is moved back and stop 1 shoved down, the type a is on the center of the cylindrical platen E in position to print; and when stop 1 is raised up and stop 2 shoved down, the carriage D′ moves forward against it, bringing type b in position to print; and when stop 2 is raised up, the carriage D′ moves forward against stop 3, bringing type C over the center of the platen in position to print; but to do its work this type-lever must have not only a horizontal motion, but also a vibrating motion, and the stops 1, 2, and 3 not only govern the extent of its horizontal motion forward, but they assist also in imparting to it a vibratory motion, for it will be seen that when the shoulder on the carriage strikes the stops the forward motion of the type-lever will be arrested; but the rod E′ being connected to it at f', above the point of its connection at e', its forward end will be forced down against the spring z by the connecting-rod as soon as the point a' passes off of the plate y'. The impression of the type having been made and the force of the key-lever A′ taken off, the spring z raises the type-lever up, and the weight of the rear end of the key-lever and the springs x draw the carriage D′ back to its normal position, as shown by dotted lines in Fig. 1, and in doing so it causes the type to ride over the inking-roller C′, the ink being supplied from a trough, D, by means of a roller therein, and an intermediate roller, a'', to spread the ink evenly over the roller c''. It will be understood that the type in each lever may be of different character. Thus the type a may be a Roman letter, b a capital, and c a figure, each of which may be printed by merely moving the type-lever backward or forward, as the case may require. The stops 1 and 2 are operated by the levers s through the connecting-rods M, connected to levers s' on the shafts N, the three stops extending

across the machine and serving for all the keys and type-levers, the types in all the levers bearing the same relation to each stop. The paper-platen is carried in a carriage-frame, P, that rides upon rods P″, set in supporting-posts P′. Its lateral motion is effected by means of pinion H acting in a rack, G, bolted to the carriage P, the pinion being operated by means of a dog, I, acting upon a ratchet-wheel, H′, the dog being connected to the string piece T between the levers L, operated by the key-levers A′, acting against a cross-bar, *v*, common to them all, the lever being drawn down by the retractile force of the spring U. The position of the bar *v* upon the levers L and A′ will depend of course upon the amount of lateral motion to be imparted to the carriage P at each impulse of each key, the object being to regulate the space between the impression of each type, and to obtain the amount of lateral motion in each impulse necessary to insure an equal space between each letter, whether the letter be broad or narrow. The bar *v* is notched or ribbed more or less, as shown by *r*, Fig. 3, the key-levers acting either in the notches more or less deep or on the ribs, according as the letter is wide or narrow, the amount of lateral motion of the carriage P being thus varied at each impulse of the keys, according to the width of the several letters or figures used in printing. The paper is placed upon the cylindrical platen E, between it and the roller F, and the spacing between the rows of letters is obtained by any of the well-known devices and connections used for that purpose.

Having thus described my improved type-writer, I claim and desire to secure by Letters Patent the following features of novelty:

1. In a type-writing machine, the combination of type-bars *c′*, type-bar carriages D′, key-levers A′, and intervening connecting-levers, the type-bars having a reciprocating and vibratory motion and being placed above the platen to print on the upper side of the paper, and the carriages having a stop or stops to govern accurately the reciprocating motion of the type-bars.

2. In a type-writing machine, the combination of type-bars C′, key-bars A′, intervening cranks, A, carriages D′, and stops 1 2 3, the whole coacting substantially as described.

3. In a type-writing machine, the combination of the type-bars C′, movable stops 1 2, and reciprocating carriages D′, having stop projections *o*, the several parts coacting substantially as described, for the purpose specified.

4. In a type-writing machine, one or more movable stops, 1 2, connected to and operated by the levers B B, and in combination with the type-bar carriage, the connection being made by rods M and levers S and S′, substantially as described.

5. In a type-writing machine, the combination of reciprocating and vibrating type-bars, each carrying two or more type and having a variable reciprocating motion with and above a traveling platen, E, and an inking-roller, C″, the several parts coacting substantially as described, for the purpose specified.

BYRON A. BROOKS.

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