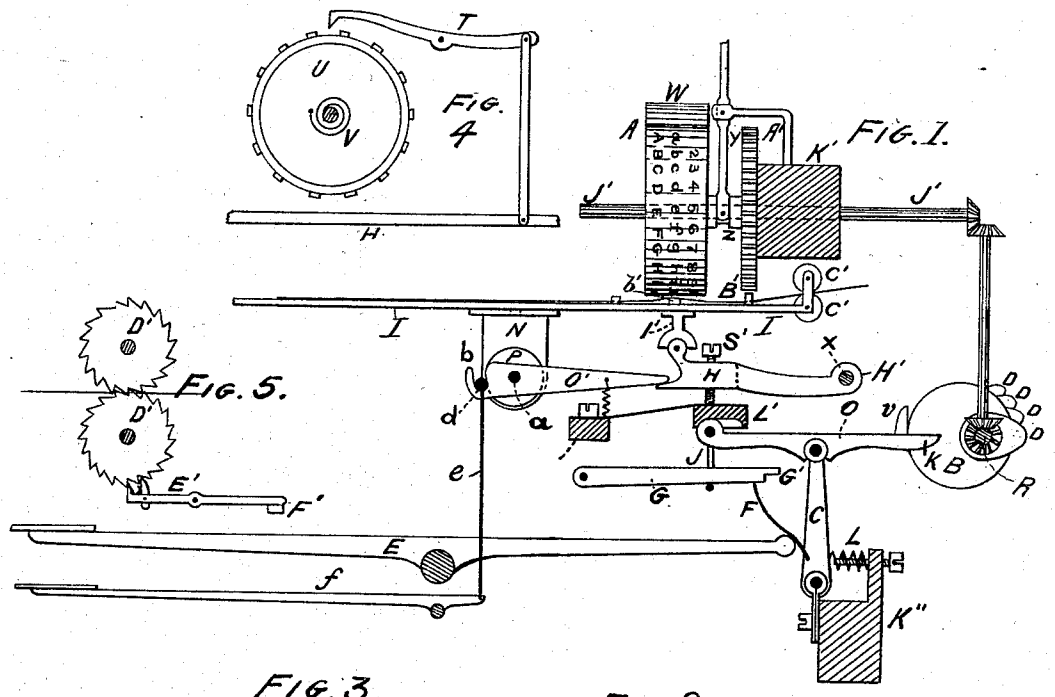
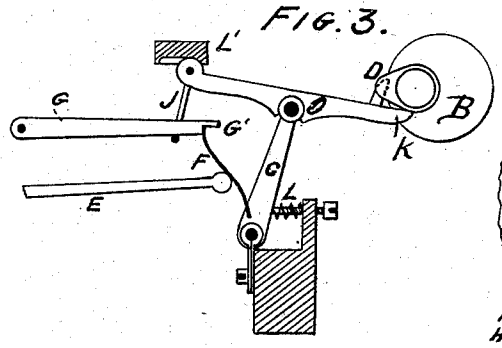
(No Model.)

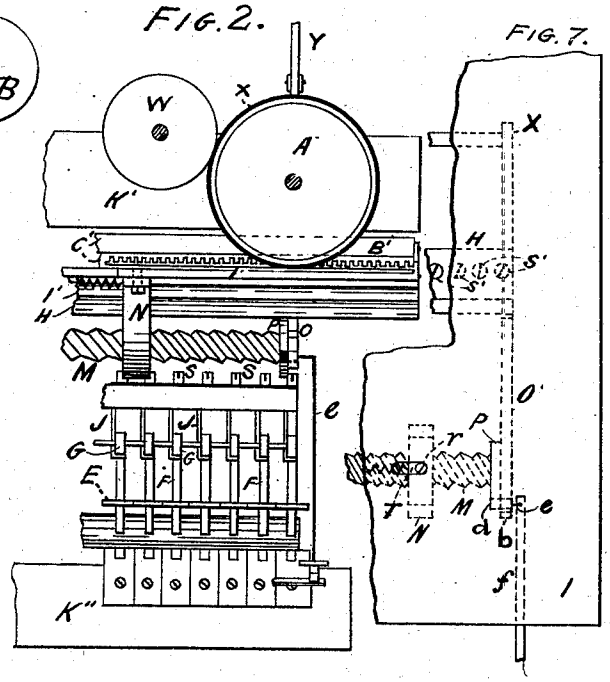
B. A. BROOKS.

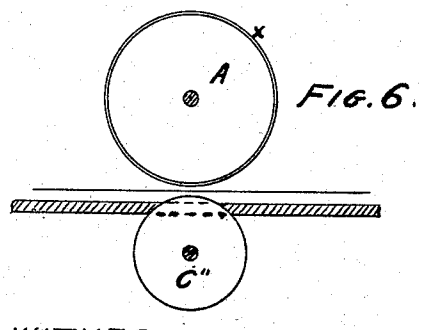
TYPE WRITING MACHINE.

No. 272,023. Patented Feb. 13, 1883.









WITNESSES.

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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,023, dated February 13, 1883.

Application filed May 16, 1881. (No model.)

To all whom it may concern:

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

The drawings aforesaid show the parts and combinations of parts that make the essential features of the invention, omitting the merely mechanical details of such parts of the machine as do not make part of the invention.

By Figure 1 of the drawings is shown a longitudinal vertical section through the machine, illustrating the operative parts in connection, but showing only detached parts of the frame that carry and sustain the principal operative parts of the machine. Fig. 2 is a partial section of a front elevation of the machine, showing an end elevation of the printing and inking wheels or cylinders A and W. Fig. 3 is a part of Fig. 1, illustrating the parts represented in the position taken by them at certain periods in the operation. Figs. 4 and 6 are proposed substitutes, to be hereinafter explained. Fig. 5 is a detached part of Fig. 1. Fig. 7 is a top view of a section of the platen I, hereinafter described.

My improvements consist of certain improvements in type-writers, hereinafter described, the points of novelty being designated by the claims concluding this specification.

The construction, combination, and operation of the several parts of the invention will be understood from the following description, reference being had to the drawings.

The type-wheel is represented in the drawings by A. It is exactly cylindrical, and has sufficient length and circumference to contain the necessary type set in rows upon its periphery to correspond with the operating-keys. It rotates upon the shaft J′, upon which it also has a longitudinal movement, governed by the fork-lever Y, fitted in the grooved sleeve *e*, by which the desired row of type is brought in action. The shaft J′ is supported in a suitable journal, made in or upon the frame K′, and upon it is also keyed a cog-wheel, A′. This wheel works in a cog-rack, B′, bolted to the top side of the paper platform I, whenever the platform is raised up against the type-wheel, the platform thus getting a longitudinal motion equal to the circumferential motion of the type-wheel, the paper traveling with the wheel at the instant of contact between the two, the cog-wheel only acting in the cog-rack when the platform is raised up against the type-wheel.

The paper-platform, as incidentally mentioned above, is shown in the drawings by I. It is provided with a narrow raised platen, *b′*, underneath the row of type to be printed from, which prevents the paper in passing under the wheel from touching the other rows of type. It is supported at one point upon a screw, M, passing through a bracket, N, and at another point directly under the type-wheel upon the end of a lever, H, the platform being raised and lowered by the levers around the screw M as a center. The vertical motion of the platform is obtained through the operation of the keys, as follows: The end H′ of the lever H is fixed upon a journal-shaft set in the frame, as shown by *x*, and also fitted with a series of fulcrum-screws, by which its proper adjustment can be obtained against a bearing-piece, I′, bolted against the under side of the platform, the lower ends of the adjusting-screws having their bearing upon a series of riders, L′, that set upon the ends of a series of levers, O, equal in number to the number of keys. The lever O is pivoted in the center to a standing lever, C, bolted to the frame K″. Now, by forcing down the outer end of the key E, so as to press the end of the spring F in the notch G′ cut in the end of the lever G, pivoted at one end and suspended by a hook, J, to the end of lever O, the toe *v*, on the out end of lever O, will be forced and held against the periphery of the eccentric B until the cam D, set at the side of the eccentric and on its shaft, strikes the toe *k* and throws up the rider L′, as in Fig. 3, thus forcing the platform I up against the type-wheel. It should be observed that the inner end of the lever H consists of a broad plate reaching across the entire width of the machine, making one common bar, through which all the adjusting-screws S′ pass, each screw setting upon a separate bearing-piece,

L′, by which the platform is thrown up by the separate action of each lever O, of which there are as many as there are type upon the wheel and eccentrics and cams upon the shaft K. The paper-platform has two longitudinal motions, one of which is obtained through the instrumentality of the screw M and the lever o', as follows: One end of lever o' rests upon a lip made on the inner end of lever H; and the other end of said lever o' is pivoted at and upon the end of screw M, against a friction-wheel, P, keyed to the end of the screw. In the top side of lever o' a notch, b, is cut, in which a small friction-ball, d, is fitted. By these means, when the lever o' is raised, the ball rolls against the periphery of the wheel P without turning the screw; but when the platform and the lever o' falls, the ball impinges against the wheel and turns the screw, thus moving the platform during its downward motion longitudinally under the type-wheel far enough to bring the paper in its right rotation to the succeeding type; but the platform must have an additional longitudinal motion—that is to say, it must move under the type-wheel and with a velocity equal to it, as soon as the two are brought together—otherwise the surface of the type would rub and blur the paper without printing upon it. This latter longitudinal motion is obtained by the cog-wheel A′ and cog-rack B′, as above stated, the wheel catching the rack when the platform is raised, and carrying it with it during the continuation of the contact between the paper and the type-wheel. To allow the plate to move with the type-wheel a slot, T, Fig. 7, is cut in the platform, through which a pin, r, is put in the nut N, by which means the platform is left free to move with the wheel, notwithstanding its connection to the screw M, the action of which succeeds the action of the cog-wheel A′ upon the cog-rack, the one motion continually supplementing the other in the same direction. To enable the operator to turn the screw in the opposite direction, so as to bring the platform back to its initial position, the lever o' is perforated in the notch under the ball, and a rod, e, and lever f is applied to it for the purpose of lifting the ball and keeping it clear of the wheel, so as to permit the screw to turn without hinderance from the ball.

It will of course be observed that there are as many keys as there are type on the wheel; that the number of levers O equal the number of keys, and that there are as many eccentrics and cams—each upon the shaft R—as there are levers O—that is to say, there is a cam and eccentric for each lever, the cams and eccentrics being arranged with reference to each other and to the type on the wheel, so as to bring the one in harmony with the other in the operation of printing. The keys are of course lettered to correspond with the type on the wheel, but the key is not used to do the printing. Its function is to throw the lever O that corresponds with the key acted upon against its proper cam and eccentrics, by which the platform is raised against the type that corresponds with the actuating-key.

The paper is fed under the type-wheel and rack B′, (the rack being supported at the ends only, so as to allow the paper to pass under it,) by a pair of rollers, c' c', Fig. 1, the ends of these rollers being fitted with ratchet-wheels, (shown by Fig. 5,) operated by a lever, E′, the end F′ of the lever sliding up an inclined plane when the platform is drawn back to its initial position, by which the dog on the end of the lever is made to turn the wheel and throw the paper forward.

By Fig. 4 of the drawings is shown a substitute for the cog-wheel A′. It consists of a ratchet-wheel, U, fixed to the type-wheel by means of a sleeve, e, and to the shaft by means of a coil-spring, v. Now, by these means, when the platform H, Fig. 4, is lifted up, the lever T locks in the ratchet-wheel and for the instant arrests the motion of it and the type-wheel, the shaft turning in the meantime, during the printing, against the coil of the spring; but as soon as the printing is done the platform falls and detaches the ratchet-lever from the wheel, thus releasing the type-wheel and allowing it to fly back to its normal position through the reverse action of the spring.

By Fig. 6 of the drawings is shown a wheel, C″, that may be used in the platform under the type-wheel in place of the flat surface of the platform. This wheel is carried upon the inner end of the lever H, and projects up through a slot cut in the platform, by which the wheel is left free to rise and fall with the lever H, while at the same time the platform is permitted to move longitudinally without interfering with the action of the wheel. The space between words is obtained by a key corresponding to a blank space on the type-wheel, or by a key operating the screw independently. (Not shown on the drawings.)

The inking-rollers are shown on the drawings by W.

The lever T, wheel U, and spring V, and their relation with each other and the common lever H, substantially, are intended as modifications of the invention, and the same is true of the wheel C″ and its relation to the common lever H. These several features, though not claimed as part of this specification, will be made the subject-matter, together with other modifications, of a future application for a separate patent.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a type-writing machine, a type-wheel rotating on a fixed axis at right angles with the line of print, which is parallel to the operator and always in sight, in combination with a flat platen or paper-carrier having a vertical and longitudinal motion, by which the paper is forced against the type-wheel and carried with it during the operation of printing.

2. In a type-writing machine, a flat platen,

I, having a projection, b', above its surface to bring the paper against the row of type in action, in combination with a lever, H, to give it a vertical motion, a cog-rack and cog-wheel, B′, to give it a longitudinal motion, and a type-wheel, A, having several rows of type moved longitudinally over the platen by means of a lever and clutch, the whole coacting substantially as described.

3. The combination of the lever C, spring F, lever G, and hook J with the cams D, eccentrics B, and connecting-lever O, by which the lever H and platen I are raised at the instant the corresponding type on the type-wheel is over the printing-point.

4. The combination of the screw M, wheel P, ball d, lever O′, and lever f, as shown and described.

5. The combination of the levers C, springs F, levers G, and hooks J with the key-levers E, by which the lever O is thrown into position to be operated upon by the revolving cams D, and retained in position, after the key-lever drops, by the spring F until it is released by the hook J.

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Witnesses:
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