(No Model.)

2 Sheets—Sheet 1.

I. B. DODSON.

TYPE WRITING MACHINE.

No. 407,180. Patented July 16, 1889.

Fig. 1.

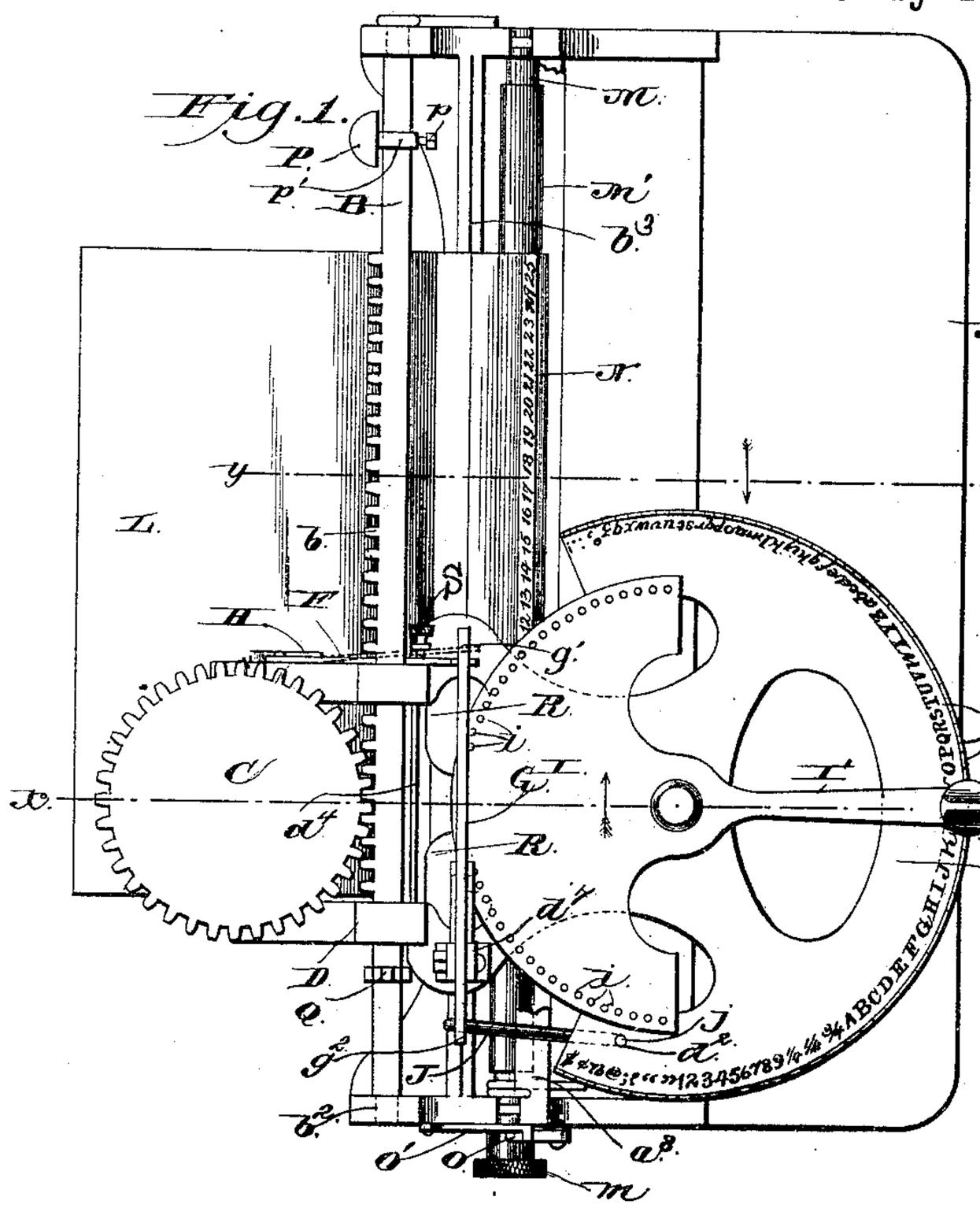
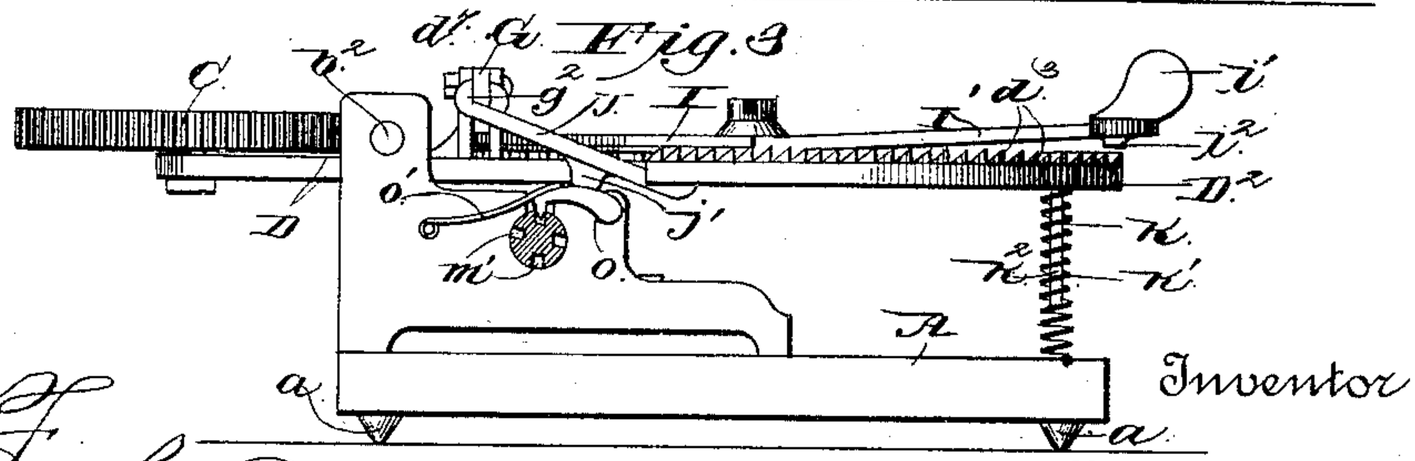


Fig. 2.

Fig. 3.



Witnesses
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J. C. Garner

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(No Model.) 2 Sheets—Sheet 2.

I. B. DODSON.

TYPE WRITING MACHINE.

No. 407,180. Patented July 16, 1889.

Fig. 4.

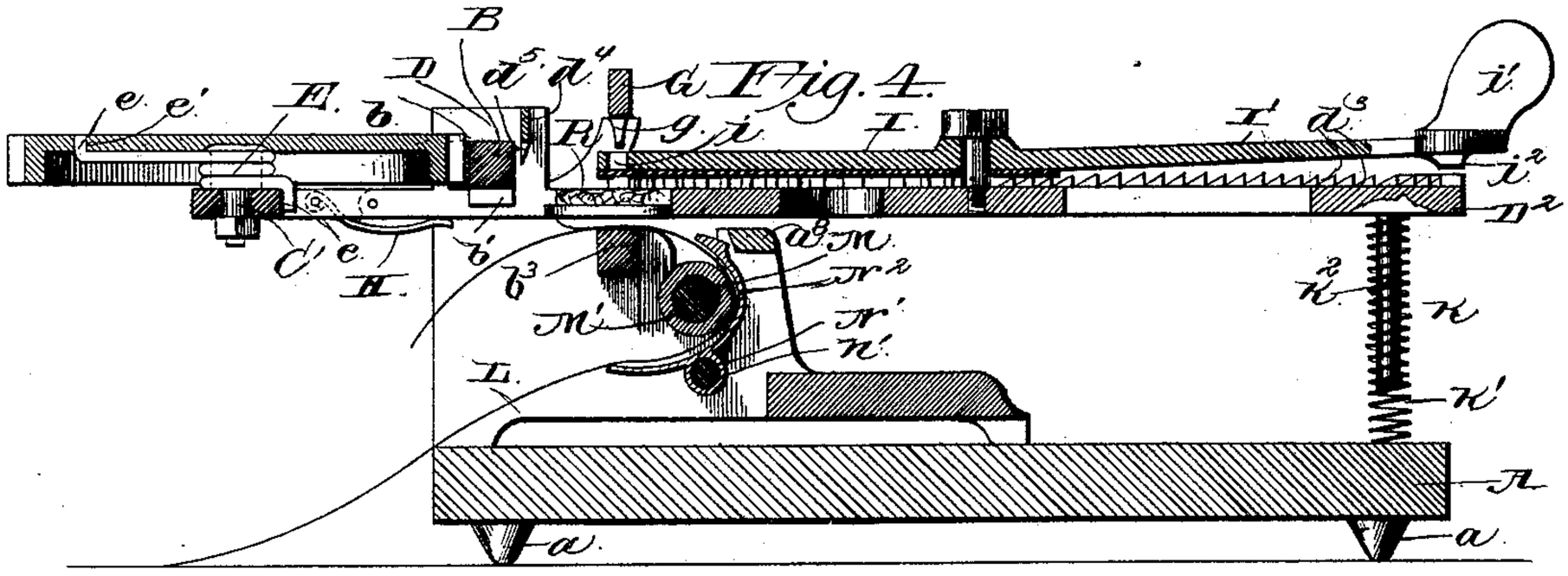


Fig. 5.

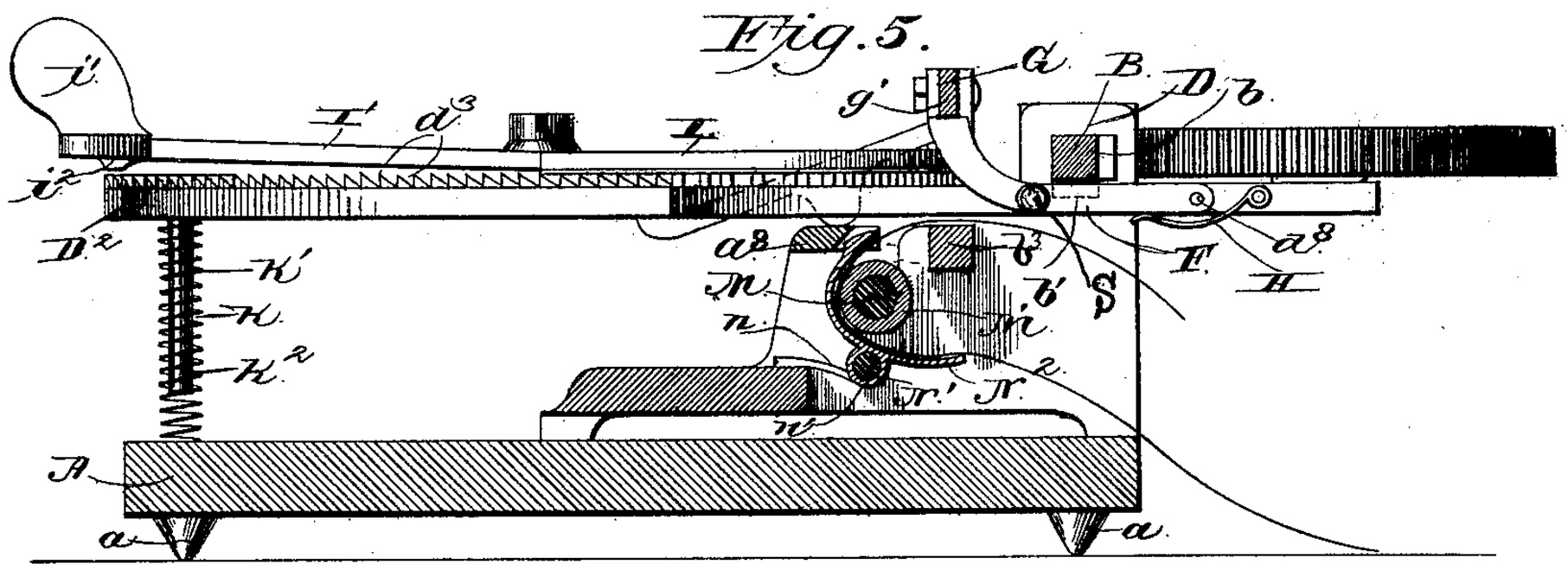
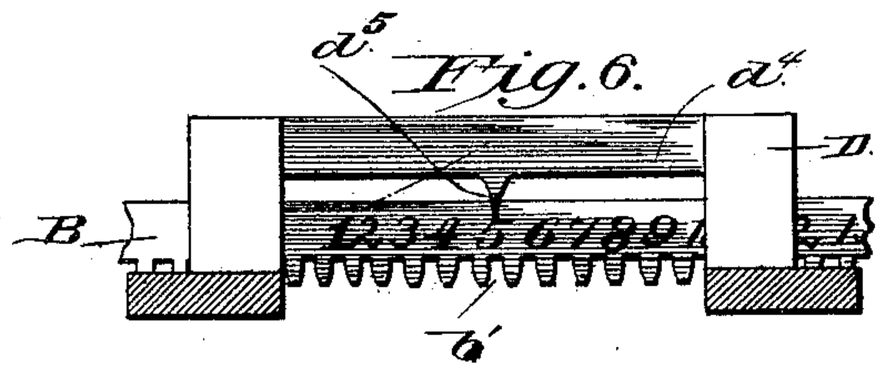


Fig. 6.



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UNITED STATES PATENT OFFICE.

ISAAC BEAUREGARD DODSON, OF DANVILLE, VIRGINIA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 407,180, dated July 16, 1889.

Application filed May 31, 1888. Serial No. 275,614. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BEAUREGARD DODSON, a citizen of the United States, residing at Danville, in the county of Pittsylvania and State of Virginia, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The invention relates to improvements in type-writers.

The object is to improve, simplify, and cheapen the construction of type-writers and render their operation more positive and reliable.

The invention consists in the novel combination and arrangement of the parts, hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the drawings, Figure 1 is a plan view of the improved type-writing machine. Fig. 2 is a front elevation. Fig. 3 is a side elevation. Fig. 4 is a sectional view taken on line $x\ x$ of Fig. 1. Fig. 5 is a sectional view taken on line $y\ y$ of Fig. 1. Fig. 6 is a detail view of the pointer that indicates the position of the carriage.

Referring to the drawings, A designates the main frame of the type-writer, constructed of suitable material, preferably metal, and resting upon supports a, to keep the frame slightly elevated above the supporting-surface. Journaled in the top and back of the main frame A is a square bar B, upon which is mounted in suitable bearings the sliding carriage D, and the square bar B is provided upon its rear and lower faces with teeth b and b'. The teeth b on the rear face of the square bar B mesh with a cog-wheel C, pivoted to the back of the carriage D, and the cog-wheel is constructed hollow with an open lower face in order to form a casing for a spring E, which is coiled around the pivot C′, and has its ends e bent outward, one of which is secured in a depression e' in the cog-wheel C, and the other bears against the edge of the carriage D, and as the carriage D slides along the square bar B the spring E is wound around the pivot C′, and when the carriage is released the spring E by its resiliency unwinds and forces the carriage to the right, the carriage in writing moving from left to right.

The carriage D is held against the action of the spring-actuated cog-wheel C by a curved spring-arm F, which engages the teeth b' on the lower face of the square bar B. One end of the curved arm F is pivoted to the side of the carriage D at d^8, and the other end is curved upward and supports an end of a lever G, that carries a striking-pin g. A spring H is secured to the side of the carriage D, a short distance from the pivotal point d^8 of the curved arm F, and it causes said curved arm F, by bearing against the lower edge, to engage the teeth b' on the lower face of the square bar B, and the curved arm F remains in such engagement until released and depressed by the lever G.

When the spring-arm F is depressed and disengaged from the square bar B, its free end springs laterally away from the carriage and assumes a position under the next tooth b', as shown in dotted lines in Fig. 1, whereby when the arm is released it will be forced up and engaged with the said tooth, and the carriage will then be moved laterally until its side bears against the spring-arm. A small-shouldered set-screw S extends through a vertical slot in the spring-arm and engages a tapped aperture in the carriage, whereby the said arm is permitted a vertical swing, and is also permitted a limited lateral spring movement. When the free end of the spring-arm is released and swings laterally, it strikes against the shoulder of the set-screw, and by adjusting the latter the said lateral swing is increased or diminished at the will of the operator.

The curved arm F, besides engaging the teeth of the square bar B, supports the end g' of the lever G and holds the striking-pin g up from a movable type-support I. The lever G is pivoted to a bifurcated projection d^7 of the carriage D, and has its end g^2 connected to another lever J, that is secured to the under side of the carriage by inserting its upturned end j in a depression or concavity d^2. This connecting-lever J is provided on its lower edge and at a suitable point between its ends with a lug j', which is fulcrumed on the cross-piece a^8 of the main frame A, whereby when the front D^2 of the carriage is depressed the connecting-lever J will raise the end g^2 of the lever G, thereby causing the striking-pin g, situated on the other side of

the bifurcated projection d^7, to descend upon the type-support I. Simultaneously with the downward movement of the striking-pin g the curved arm F is depressed by the end g' of the lever G and released from engagement with the teeth b' of the square bar B, the carriage being held from lateral movement while the depression of the arm F continues by the downward pressure of the finger of the operator. When the finger of the operator is raised, thereby relieving the pressure on the carriage, the arm F resumes its normal position in engagement with the bar B, and the spring-actuated cog-wheel moves the carriage laterally until its side comes into contact with the arm F.

The square bar B has its ends b^2 rounded to form journals, and they turn in these bearings when the carriage D is elevated and depressed.

The type-support I has suitably secured on its under side rubber type, and is provided with perforations i, which lie parallel with its curved edge and directly over the type, in order that the descending striking-pin g, entering the perforations i, may strike the type and force them downward. The type-support is pivoted to the front D^2 of the carriage D, whose outer edge is curved and provided with an upward-extending notched flange, and said type-support is provided with an integral outward-extending arm I', which serves as a handle to oscillate the type-support to bring different type beneath the striking-pin g. The striking-pin is normally held raised out of contact with the type-support I.

The outer end of the arm or handle I carries a thumb-piece i' upon its upper side and a projection i^2 upon its lower side, which engages in the notches d^3 of carriage D, to hold the desired type under the striking-pin g. On the face of the carriage D, opposite the notches d^3, are letters, figures, and other characters corresponding with the type, and these letters, figures, and other characters are, as well known in the art, so arranged with reference to the type that by bringing the projection i^2 of the outward-extending arm or handle I' in the notch opposite any character the corresponding type will be brought under the striking-pin g.

The front D^2 of the carriage D is normally elevated, and is retained in that position by the spring-support K, which consists of a spiral spring K' and a downward-projecting leg K^2. The spiral spring K' is attached to the lower face of the front of the carriage D and rests on the main frame, and the leg K^2 is secured to the carriage D, and is inclosed within the coils of the spring K' and extends downward nearly to the main frame A, but leaving sufficient distance between it and the said main frame to permit the depression of the front of the carriage D to cause the striking-pin g to hit the type. When the front portion of the carriage is depressed, the pressure of the fingers of the operator thereon causes the leg K^2 to bind against the frame A, and thus hold the carriage against movement. The spring-arm F holds the carriage against movement until its front portion is depressed, and when the said front portion is depressed the carriage can move only until its side strikes against the spring-arm.

The paper L is inserted from the back of the type-writer and passed between a roller M and a paper-support and clamping device N. The roller M is suitably mounted in the sides of the main frame A, and is partially covered by a rubber sleeve M', which contacts with the paper and carries it forward. The roller M is provided at one end with a thumb-knob m, having a series of notches m', which extend around the roller M, and are adapted to receive a pawl O, that is secured to the side of the main frame A just above the roller M, to hold the roller M and the paper L and prevent them slipping during writing. The pawl O is caused to remain in engagement with the roller M by the spring O', secured to the side of the frame and bearing upon said pawl. When it is desired to make a space after writing a line, the pawl O, whose tooth is beveled, is lifted out of engagement with a notch m' by exerting sufficient pressure to turn the thumb-knob m, and the pawl drops into the next notch or depression. By this rotation of the roller the paper is carried forward.

The paper supporting and clamping device N, which holds the paper L in contact with the roller M, consists of the revoluble rod N', the sheet-metal guide N^2, and the spring n. The rod N' is journaled in the sides of the main frame A, and has secured to it the sheet-metal guide N^2, which is curved and partially surrounds the roller, and is provided on its curved side with a sleeve n', through which passes the rod N', whereby the guide N^2 is fastened to the rod N'. The guide N^2 is caused to remain in contact with the roller M by the spring n, which is coiled around the rod N' and bears against a portion of the main frame A.

Secured to the sliding carriage D just above the square bar is a cross-strip d^4, which is provided upon its lower edge with a pointer d^5, that projects down opposite the front face of the square bar B. The front face of said square bar B is provided with a series of numbers, and the guide N^2 has a similar row of numbers which indicate the number of spaces or letters in a line of writing, and the marker d^5 indicates the position of the carriage D, and enables the writer to see instantly whether a space has been made or a letter struck. The bar b^3 passes directly under the point of the striking-pin and affords a guide and a mark by which to adjust the paper L.

A bell P is adjustably secured to the right-hand end of the square bar B, and gives warning that the end of a line of writing has been reached by the carriage D striking against

and ringing it. The bell P is rendered adjustable by a set-screw p, and a band p', that is secured to the bell and encircles the square bar B. At the left-hand end of the carriage is an adjustable set-screw Q, that designates the starting-point and regulates the width of the left-hand margin of the paper.

Ink-pads R are secured to the carriage D, and type which are upon the under side of the type-support I rub against them during writing and thereby become inked.

From the foregoing description and the accompanying drawings the construction, operation, and advantages of the present invention will readily be seen, and I desire it to be understood that I do not limit myself to the precise details of construction herein shown and described, as I may, without departing from the spirit of the invention, make any minor changes therein.

Having described my invention, I claim—

1. The combination of the main frame, the rotary rack-bar B, journaled in the frame, the carriage mounted on the said rack-bar and sliding thereon, the spring-actuated wheel secured to the back of the carriage and engaging the rack-bar, mechanism for preventing the movement of the carriage, the pin K^2, depending from the front portion of the carriage, and the spring surrounding said pin and having its upper end secured to the carriage and its lower end resting on the base of the main frame, as set forth.

2. In a type-writer, the combination of the main frame, the carriage suitably mounted in the frame and capable of being elevated and depressed, a lever pivoted to the carriage and provided with a striking-pin, a connecting-lever having one end secured to an end of the lever carrying the striking-pin and the other end secured to the carriage and fulcrumed intermediate of its ends on the main frame, whereby the striking-pin will be caused to descend upon depression of the front of the carriage and the type arranged in the path of the striking-pin, substantially as described.

3. In a type-writer, the combination of the main frame, the square bar having upon its under side teeth, the carriage, the lever provided with a striking-pin, a curved spring-arm pivoted to the carriage and adapted when elevated to engage the teeth of the square bar, the said arm being capable of a lateral spring movement, and a spring to hold the curved arm elevated, substantially as specified.

4. In a type-writer, the combination of the main frame, the bar provided upon its lower face with teeth, the carriage mounted upon the said bar and capable of being elevated and depressed, the lever provided with a striking-pin and secured to the carriage, the connecting-lever fulcrumed on the main frame and having one end attached to the carriage and the other secured to the lever provided with the striking-pin, and the curved spring-arm F engaging the teeth on the lower face of the said bar and supporting an end of said lever provided with the striking-pin, whereby the curved arm will be disengaged from the teeth of the bar and the striking-pin lowered upon depression of the carriage, substantially as described.

5. In a type-writer, the combination, with the main frame having the toothed bar B, of the tilting carriage sliding on the said bar and carrying the type, the lever G, connected to the carriage and carrying a striking-pin to engage and depress the type, the laterally resilient arm F, pivoted to the carriage and connected to the lever G and adapted to normally engage the toothed bar, and the shouldered set-screw S on the carriage to limit the lateral swing of the arm F, substantially as specified.

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

ISAAC BEAUREGARD DODSON.

Witnesses:
E. B. WIMBISH,
E. B. BROWN.