2 Sheets—Sheet 1.

R. T. P. ALLEN.

TYPE-WRITERS.

No. 185,714. Patented Dec. 26, 1876.

Fig: 1.

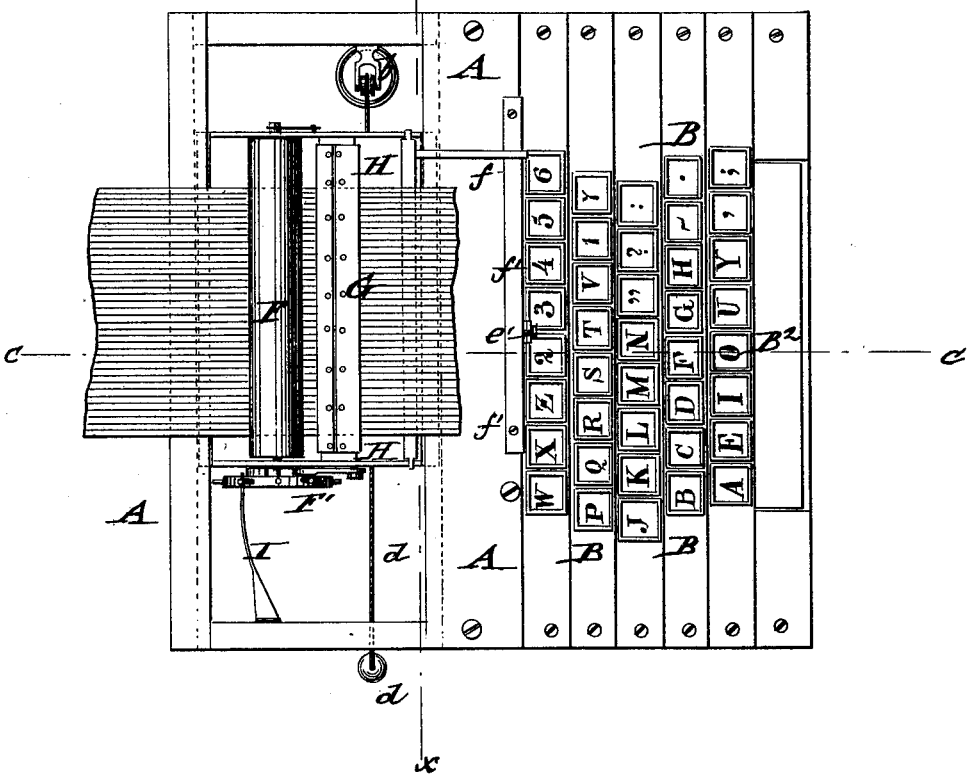
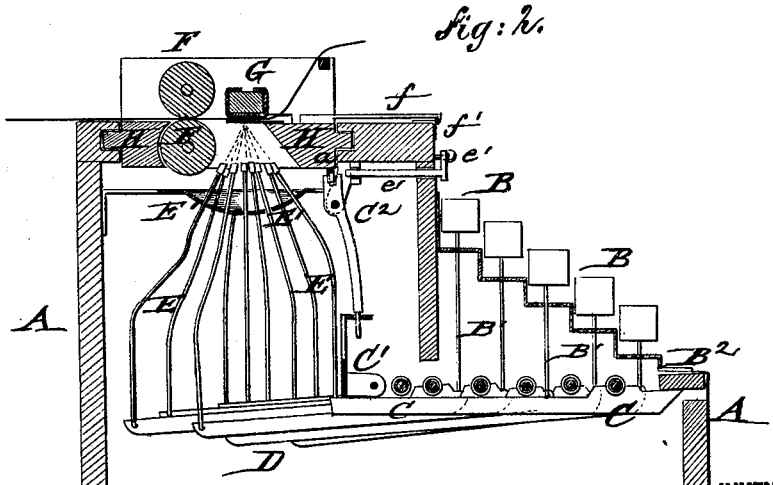


Fig: 2.



WITNESSES:

Chas. Notz
John Gethals.

INVENTOR:
R. T. P. Allen.

BY
Munn & Co
ATTORNEYS.

2 Sheets—Sheet 2.

R. T. P. ALLEN.

TYPE-WRITERS.

No. 185,714. Patented Dec. 26, 1876.

Fig: 3.

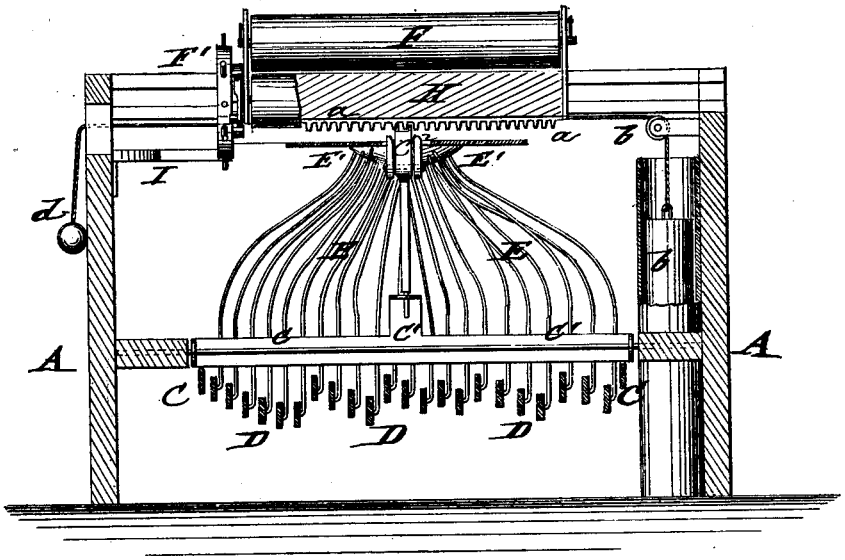


Fig: 4.

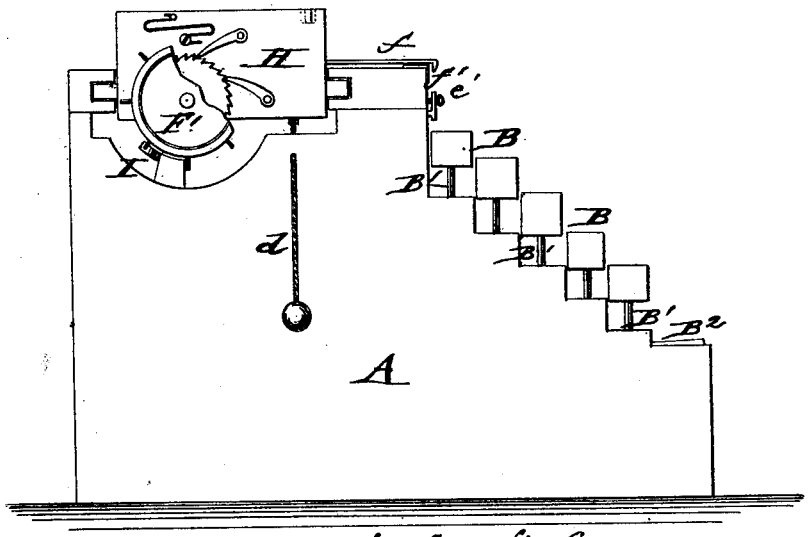
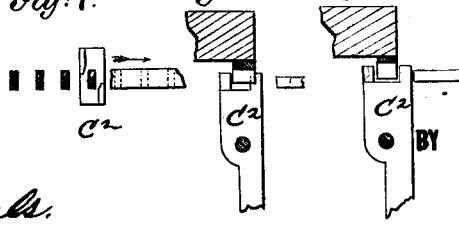


Fig: 7. *Fig: 5.* *Fig: 6.*



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

ROBERT T. P. ALLEN, OF FARMDALE, KENTUCKY.

IMPROVEMENT IN TYPE-WRITERS.

Specification forming part of Letters Patent No. **185,714**, dated December 26, 1876; application filed April 25, 1876.

To all whom it may concern:

Be it known that I, ROBERT T. P. ALLEN, of Farmdale, county of Franklin and State of Kentucky, have invented a new and Improved Type-Writing Machine, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a top view of my improved type-writing machine. Figs. 2 and 3 are vertical longitudinal and transverse sections, respectively, on the lines *c c* and *x x*, Fig. 1. Fig. 4 is a side elevation of the machine, showing mechanism for feeding paper; and Figs. 5, 6, and 7 are detail side and top views of the double pawl governing the motion of the carriage.

Similar letters of reference indicate corresponding parts.

My invention relates to certain improvements to type-writing machines, by which the carriage is moved back for a new line in a simple manner, and the paper fed forward for the action of the types simultaneously therewith by suitable mechanism; and the invention consists in the arrangement of types striking a common center, and connected by curved type-rods and levers with suitably-disposed keys, governing, by means of a double pawl that is operated by each depression of a key, the motion of the sliding and weighted carriage that is arranged with the printing-ribbon, platen, and paper-feeding mechanism. The carriage is moved backward to one side by a button and cord, simultaneously with the release of the double pawl by a suitable key, and feeds the paper forward for the next line, by means of a spur-wheel and stationary set-spring.

In the drawing, A represents a casing or frame of suitable size, that supports the different working parts of my improved type-writing machine. At the upper or top part is arranged the movable carriage and paper-feeding mechanism, while in front of the same are disposed, in suitable manner, but preferably in step-shaped manner, as shown in Figs. 1 and 2, the keys B, arranged according to frequency and convenience of use, and provided with the letters of the alphabet, numerals, and the most common punctuation-signs. The keys B are connected by downward descending wire rods B^1 with a corresponding number of parallel levers, D, that are fulcrumed to cross-pivots of the frame, and extended backward, carrying at their rear ends the curved type-rods E, which are curved in upward and inward direction toward a common center, being guided by suitable guide-plates E′, and provided with types that correspond to the character of their keys. The types are so arranged at the ends of their curved and radiating rods E that when the keys are depressed they are separately thrown up against a common center or printing-point, striking a coloring ribbon and printing on the paper, that is retained by a platen, G, in the manner of the well known type-writing machines in use.

For the purpose of spacing the words, a space key or bar, B^2, is arranged at the lowermost step of the frame A, and connected by outer levers C with a lateral vibrating bar, C^1, that is pivoted, by suitable lever-arms, to the sides of frame A. The vibrating bar C^1 carries on a central support the lower part of a fulcrumed and spring-acted double pawl, C^2, that engages a toothed bar or back, *a*, of a carriage, H, that slides laterally in suitable ways or guides at the table or top part of the machine. The carriage H is moved in one direction by means of a cord, pulley, and weight, *b*, which latter slides in a suitable casing at the inside of frame A, as shown in Figs. 1 and 3, and in the other direction by a cord and button, *d*, the weight serving, in connection with the double pawl, to move the paper laterally with each marking of a type, and carry it into position for the printing action of the next key, while the button serves to bring the carriage and paper back to admit the forward feeding of the paper for the next line, by a suitable mechanism.

As the type-operating levers are arranged to pass below the vibrating pawl-operating bar, the depression of each key produces the action of the double pawl, so that one of its lugs releases one of the cogs on the cog-bar, and admits, by the action of the weight, the forward motion of the carriage to a distance equal to the space between the cogs of the rack, the second lug of the same arresting instantly the motion of the carriage by engaging the next tooth of the rack, as illustrated

clearly in Figs. 5, 6, and 7. The paper is thereby fed forward for the space of a letter, and so on until the line is completed. The spaces between the words are formed in the same manner by the depression of the space-bar. When the line is completed the carriage is drawn back, to begin a new line, by the button, the double pawl C^2 being withdrawn at the same time to admit the free movement of the carriage, by pressing a sliding rod, *e*, with button *e'* arranged at the center of the box, against the upper end of the pawl. When the carriage has arrived at the starting-point of the case or frame, the pawl-governing rod is released for the printing of the next line. The paper is fed forward for the space required between the lines by means of two feed-rollers, F, of which one is placed above, the other below, the plane of the paper, they being journaled to suitable supports of the carriage. The paper passes from a top guide bar or roller of the carriage, between the plates and coloring ribbon, and between the feed rollers, to the rear of the case, the rollers being pressed together to take hold of and retain the paper by suitable springs attached to the ends of their shafts. The shaft of the lower roller is provided with a ratchet-wheel and check-pawl, to prevent the rollers and paper from being moved in backward direction. The shaft of the lower roller F is also provided at the end toward the operating-button of the carriage with a spur-wheel, F', whose radially-extending and equidistant spurs or spokes are engaged by the free end of a band-spring, I, that is affixed at one end to the frame of the machine, and so twisted or shaped that it presses against one of the spokes when the carriage is drawn back, turning thereby the spur-wheel and the feed-rollers to the distance required between the lines.

The feed-roller-actuating spring may be further arranged to strike a bell when releasing the adjoining spur of the wheel, so as to indicate the approaching of the carriage to t end of the line, and notify the operator to p pare for the drawing back of the carria The spring bears during the forward motion the carriage on the next spur, and is broug on the release of the same, and the dra ing back of the carriage, over to the oth side of the same spur, so as to produce, by t drawing back of the carriage, the forwa feeding of the paper simultaneously with th motion of the carriage.

The carriage H is further provided with a indicating finger or indicator, *f*, that ru along a graduated scale, *f'*, along the fro part of the case, so that the operator can s at any time the distance to which the line i printed, and when the line is completed.

The type-writer may be brought by the sir ple arrangement of the devices for moving th carriage and feeding the paper, into hand and compact shape, to be placed on any tabl or desk for ready and convenient use.

Having thus described my invention, I clai as new and desire to secure by Letters Pa ent—

1. In a type-writing machine, the combina tion of the curved converging rods, bearing types on their upper ends with levers, whos other extremities are connected with letteree keys, as shown in the drawings herewith.

2. In a type-writing machine, the combina tion of the sliding paper-carriage, rock-bar double-governing pawl, its sliding releasing rod, feed-rollers, spur-wheel, check-ratchet, and twisted spring, with curved converging type-bearing rods and levers, the whole ar ranged to operate substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 10th day of April, 1876.

R. T. P. ALLEN.

Witnesses:
E. S. THEOBALD,
A. W. OVERTON.