

(No Model.)

2 Sheets—Sheet 1.

J. A. TOOMEY.
TYPE WRITING MACHINE.

No. 507,858.

Patented Oct. 31, 1893.

Fig. 1.

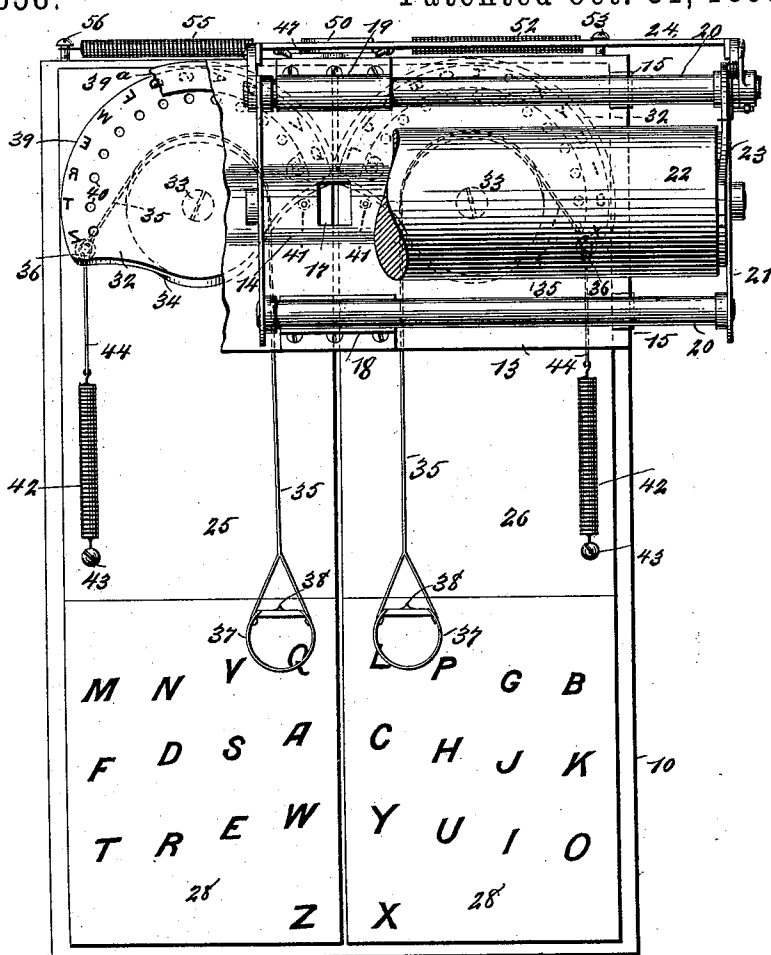
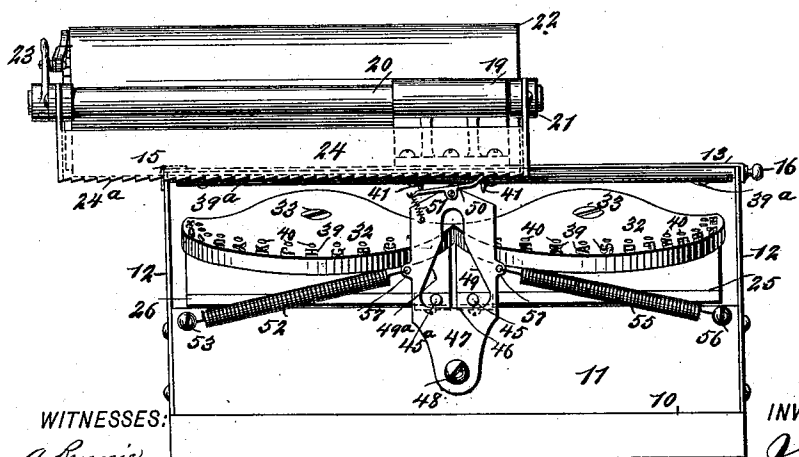


Fig. 2.



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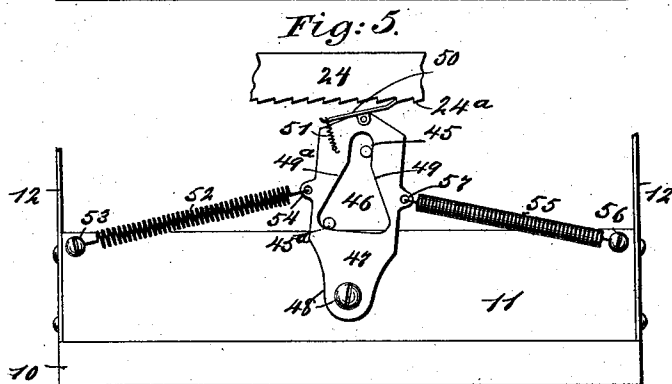
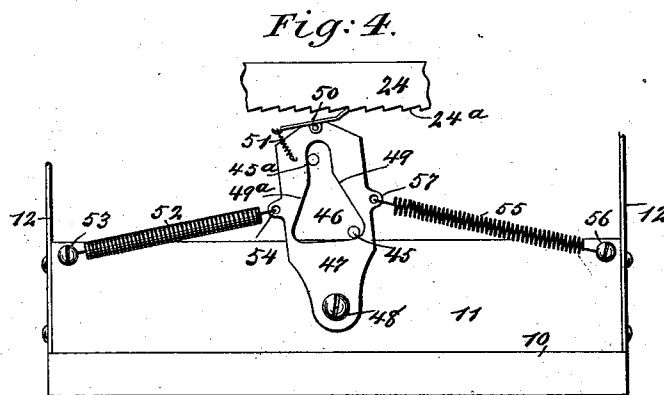
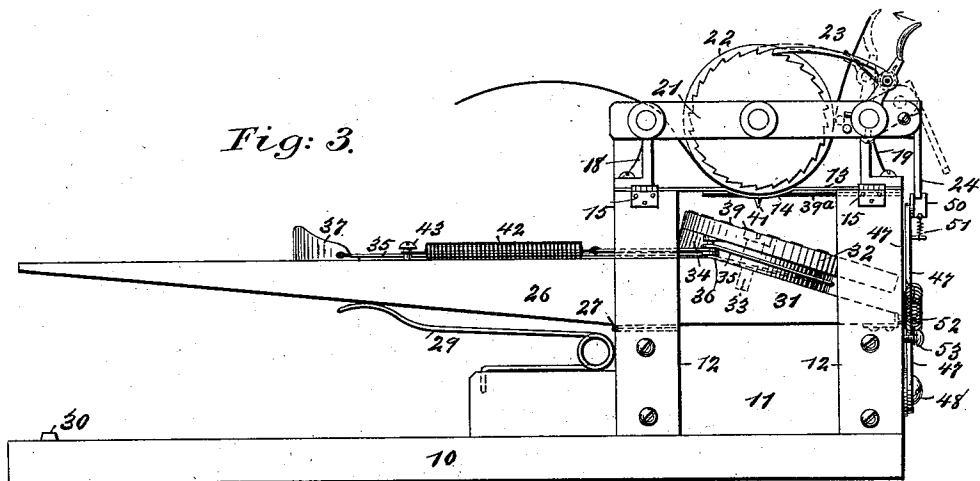
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UNITED STATES PATENT OFFICE.

JOHN A. TOOMEY, OF TOLEDO, OHIO.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,858, dated October 31, 1893.

Application filed December 8, 1892. Serial No. 454,490. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. TOOMEY, of Toledo, in the county of Lucas and State of Ohio, have invented a new and Improved
5 Type-Writing Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in the cheaper class of typewriting machines.

The object of my invention is to produce
10 an extremely cheap and simple machine, which may be operated by both hands, and which is provided with an improved spacing mechanism adapted to automatically and accurately make the required spaces between
15 the letters and words.

A further object of my invention is to construct the machine in a substantial manner and to arrange the parts with especial reference to rapid work.

20 To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying
25 drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken plan view of the type-writer embodying my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a side elevation of the machine. Fig. 4 is a broken detail rear elevation of the spacing mechanism, showing the position of the shifting plate and carriage pawl after the plate has been
30 moved in one direction and is in position to be pressed in the opposite direction by a spring; and Fig. 5 is a similar view, but with the shifting plate and carriage pawl in the position assumed when the carriage is moved
35 directly by one of the type levers.

The machine is provided with a suitable base 10 which is thickened near its rear end, as shown at 11, to form a suitable support for the type levers, but the shape of the base and frame of the machine is not material to the
45 invention. The thickened part 11 of the base also affords a support for the legs 12 of a rigid table 13, which table extends horizontally above the rear ends of the type levers
50 and is curved slightly downward in the cen-

ter, as shown at 14, so as to fit closely beneath the platen of the carriage which moves above the table and which will be described presently. The table 13 is hinged at one end, as shown at 15, and at the other is provided
55 with a convenient knob 16 to the end that it may be tipped up when necessary, to enable the type to be easily reached. On the front and rear sides of the table are supports 18 and 19, the former serving as a rest for the front slide bar 20 of the carriage 21, and the
60 latter serving as a slide and hinge for the carriage. The carriage 21 is preferably of a rectangular shape, but it will not be described in detail as it forms no part of my invention, 65 and any suitable carriage may be used. The carriage is, however, provided with the usual platen or roller 22 which fits in the depression 14 of the table, and the platen is fed so as to make the requisite line spaces by the
70 usual ratchet mechanism 23 which need not be described in detail. The carriage has also on its back side and lower edge a rack bar 24 with ratchet teeth 24^a on its bottom edge, and the mechanism for engaging the bar and moving the carriage will be hereinafter described.

Hinged longitudinally on the base 10 and extending beneath the table 13 are broad type levers 25 and 26 which are fulcrumed near the center, as shown at 27 in Fig. 3, and these
80 levers have at their front ends a key-board 28, a portion of the characters of which are produced on one lever and a portion on the other. The front ends of the levers 25 and 26 are normally pressed upward by springs 29, which springs return the levers after they have been depressed. Beneath the free ends of the levers are cushions 30 to prevent excessive shock when they are depressed. The rear ends of the levers are inclined on the
90 upper side, as shown at 31, see Fig. 3, and on the inclined portion of each lever is pivoted a segmental type plate 32, the plate being pivoted, as shown at 33, and as the plate is normally inclined, it will be seen that when
95 the lever is depressed at its front end and the plate raised at its rear end, the plate will swing into a horizontal position so as to print evenly upon the platen in the manner hereinafter described. On the under side of each
100

type plate is a hub 34 over the back side of which extends a belt 35, see Fig. 1, and one end of the belt is secured, as shown at 36, to the outer end portion of the segmental type plate, while the opposite end portion of the belt extends outward upon one of the type levers and terminates in a finger-piece 37 to which the belt is securely fixed. The finger-piece is adapted to be slipped upon the end of the finger like a thimble, and it has a flat under side to enable it to be moved easily over the key-board. If desired, the finger-piece may be provided with an indicator 38 which may be brought opposite a letter or other character to be printed.

The type plates 32 have on their upper sides and near the edge, raised type 39, which are adapted to be brought beneath the hole 17 in the central portion of the table 13, see Fig. 1, and when the levers 25, 26 are operated so as to raise one of the type plates, the type which registers with the hole 17 will project upward through the same and cause an impression to be made upon the paper carried by the platen 22. It will be noticed that by pulling outward upon one of the finger-pieces 37, the type plate connected therewith may be swung so as to bring the type below the hole 17, and the type on the type plate and the characters on the key-board are arranged so that when a finger-piece is made to register with a certain character on the key-board, the type representing said character will be turned so as to register with the hole 17. Then by depressing the lever the type projects upward through the hole and makes an impression.

To facilitate the accurate registration of the type with the hole 17 so as to produce perfect alignment, the type plates are provided opposite the type 39 with holes 40, and these holes are adapted to register with pins 41 on the under side of the table 13 and on opposite sides of the hole 17, there being a pin for each type plate. It will be noticed that the pins are pointed and the holes are made of the same shape as the pins, so that when a pin enters a certain hole the continued upward movement of the type plate causes the pin to guide the plate and bring the type into the exact position required. The type plates, after being operated by the finger-pieces and belts 35, are returned to their normal position by springs 42 which lie upon the levers 25 and 26, the springs being secured to the levers at one end, as shown at 43, and the opposite ends of the springs connect by cords 44, or their equivalents, with the studs 36 on the type plates. On the rear ends of the levers 25 and 26 and preferably near their inner corners, are projecting studs 45 and 45^a which enter an opening 46 in a swinging shift plate 47, which is pivoted at its lower end, as shown at 48. The opening 46 has oppositely inclined walls 49 and 49^a, which walls converge upward, and it will be seen

that when the lever 25 is depressed at its front end the stud 45, acting on the wall 49, will swing the plate 47 in one direction, while the depression of the front end of the lever 26 causes the stud 45^a to move upward and strike the wall 49^a so as to swing the plate 47 in the opposite direction. Pivoted centrally on the upper end of the plate 47 is a pawl 50 which engages the ratchet teeth 24^a on the lower edge of the carriage rack bar 24; the pawl 50 is normally pressed into engagement with the rack bar by a spring 51 which is secured to the rear end of the pawl and to the plate 47. The plate 47 is held centrally and in a vertical position by the springs 52 and 55, the former being secured at one end to the base of the machine, near one side, as shown at 53, and at the other end to the plate 47, as shown at 54, while the spring 55 is secured to the opposite side of the base, as shown at 56, and to the opposite side of the shifting plate, as shown at 57. The spring 55 should be strong enough to move not only the shift plate, but the carriage 21, as the spring does a portion of the spacing, as will be described presently. To provide for even and accurate spacing it is necessary that one of the levers actuate the carriage before the type strikes the paper, and that the other lever actuate the carriage after the printing, as in any other event the spacing would be irregular.

By referring to Fig. 1, it will be noticed that the hole 17 is wide enough to receive type from both the type plates 32. When the finger-piece 37 of the lever 25 is pulled opposite a certain character, the belt 35 turns the plate 32 so as to bring the appropriate type beneath the hole 17, and then by depressing the lever the impression is made on the platen above. When this depression of the front end of the lever 25 is made and before the type strikes the paper, the stud 45 strikes the inclined wall 49 of the shift plate 47 and swings the plate to one side, while the pawl 50 carried by the plate engages the rack 24^a of the rack bar 24 and shifts the carriage the distance of one letter space. When the lever 25 resumes its normal position, the spring 52 draws back the shift plate to its normal position. It will be seen that if the lever 26 should be next used and a space again made before a character was printed, there would be too great a distance between the letters, as the type on the two type plates are a letter space apart when in printing position. Consequently the spacing is done after the movement of the lever 26 and in the following way:—When the lever 26 is depressed at its front end, the rear end rises and the stud 45^a striking the inclined wall 49^a, swings the shift plate 47 to one side, and the pawl 50 is thus pulled back over one or more teeth of the rack 24^a according to the character of the teeth, and when the lever 26 is released and returns to its normal position,

the stud 45^a drops and the spring 55 pulls the shift plate 47 into a vertical position, thus causing the pawl 50 to advance the rack bar and carriage; these operations are constantly repeated and the correct space made in every instance. Spacing without printing may be accomplished by repeatedly depressing the type levers.

To provide for inking the type, inking pads 39^a are secured to the under sides of the table 13 above the type, and by forcing the type plates upward occasionally, the type and pads are brought into contact and the type supplied with ink. Any other suitable inking device may, however, be used without departing from the principle of my invention.

In the drawings I have shown one shift plate 47, but it will be understood that this arrangement may be duplicated and other forms of inclined walls to engage the studs 45 and 45^a used if desired. When the machine is operated, the finger-pieces 37 are pulled out to points opposite the letters to be printed, and the levers 25 and 26 depressed, which movements of the levers causes their rear ends to swing upward and the characters are printed in the manner clearly described above.

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

1. A typewriter, comprising parallel levers, oscillating type plates pivoted on the levers and provided with type on their upper surfaces, the pivots of the said type plates being located substantially in the plane in which the levers are adapted to move, a platen carried above the type plates, and finger operated mechanism for swinging the type plates into printing position beneath the platen, substantially as described.

2. A typewriter, comprising parallel levers, type plates pivoted on the levers and provided with type upon their upper surfaces, the pivots of the said type plates being located substantially in the plane in which the levers are adapted to move, a movable platen arranged above the type plates, and movable finger pieces connected with the type plates and adapted to swing them into printing position, substantially as described.

3. A typewriter, comprising parallel tilting levers having the type characters represented on one end, oscillating type plates pivoted on the opposite ends of the levers, means, as the finger-pieces and belts, for moving the type plates into printing position, and a movable platen arranged above the type plates, substantially as described.

4. A typewriter, comprising parallel tilting levers fulcrumed on a suitable support and having at one end the type characters of the machine, oscillating spring-returned type plates pivoted on the opposite ends of the levers and provided with type upon their upper surfaces, means, as the finger-pieces and belts,

for moving the type plates against the resistance of their springs, and a movable platen held above the type plates, substantially as described.

5. A typewriter, comprising parallel tilting levers having their rear ends inclined and having a type index on their front ends, oscillating type plates pivoted on the inclined ends of the levers and having type upon their upper surfaces, mechanism for turning the type plates into printing position, and a movable platen arranged above the type plates, substantially as described.

6. A typewriter, comprising parallel tilting levers fulcrumed on a suitable support, oscillating type plates pivoted on the levers and provided with type upon their upper faces, finger-operated mechanism for turning the type plates, a table arranged above the type plates and levers and provided with a central hole adapted to register with the meeting edges of the type plates, and a movable platen carried above the table and held to slide over the hole therein, substantially as described.

7. A typewriter, comprising parallel tilting levers fulcrumed on a suitable support, oscillating type plates pivoted on the rear ends of the levers and provided with type upon their upper faces, the pivots of the said type plates being located substantially in the plane in which the levers are adapted to move, finger-operated mechanism for turning the type plates in a printing position, a platen-carrying carriage held to move above the type plates, and mechanism for moving the carriage by the movement of the type levers, substantially as described.

8. In a typewriter, the combination of the tilting levers, revoluble type-carrying plates having their pivot in substantially the same plane in which the levers are adapted to move, the platen-carrying carriage held to move transversely above the levers, the rack bar secured to the carriage, the swinging carriage pivoted beneath the carriage and having a pawl to engage the rack bar, and mechanism for moving the shift plate by the upward movement of one of the type levers, and by the downward movement of the corresponding type lever substantially as described.

9. The combination with a perforated table secured to the frame of the typewriter the parallel type levers, and revoluble type plates pivoted on the said levers and carrying types adapted to register with the hole in the table, of a carriage held to slide upon the table and provided with a platen to move over the hole in the table, and mechanism whereby the movement of one type lever will actuate the carriage before a printing impression is made, and the other lever will actuate the carriage after such an impression, substantially as described.

10. The combination with the tilting type

levers carrying type upon their rear ends, and the sliding carriage having a rack bar thereon, of a spring-retained shift plate fulcrumed beneath the carriage and arranged
5 opposite the ends of the type levers, the plate having oppositely inclined abutments thereon, a pawl carried by the plate and adapted to engage the rack bar of the carriage, and studs secured to the type levers and adapted to engage the inclined abutments on the shift plate, substantially as described.

JOHN A. TOOMEY.

Witnesses:

JAMES A. DAILEY,
MARY DAILEY.