W. E. RUSSELL.

TYPE WRITER.

APPLICATION FILED MAY 12, 1914.

1,141,831.

Patented June 1, 1915.

4 SHEETS—SHEET 1.

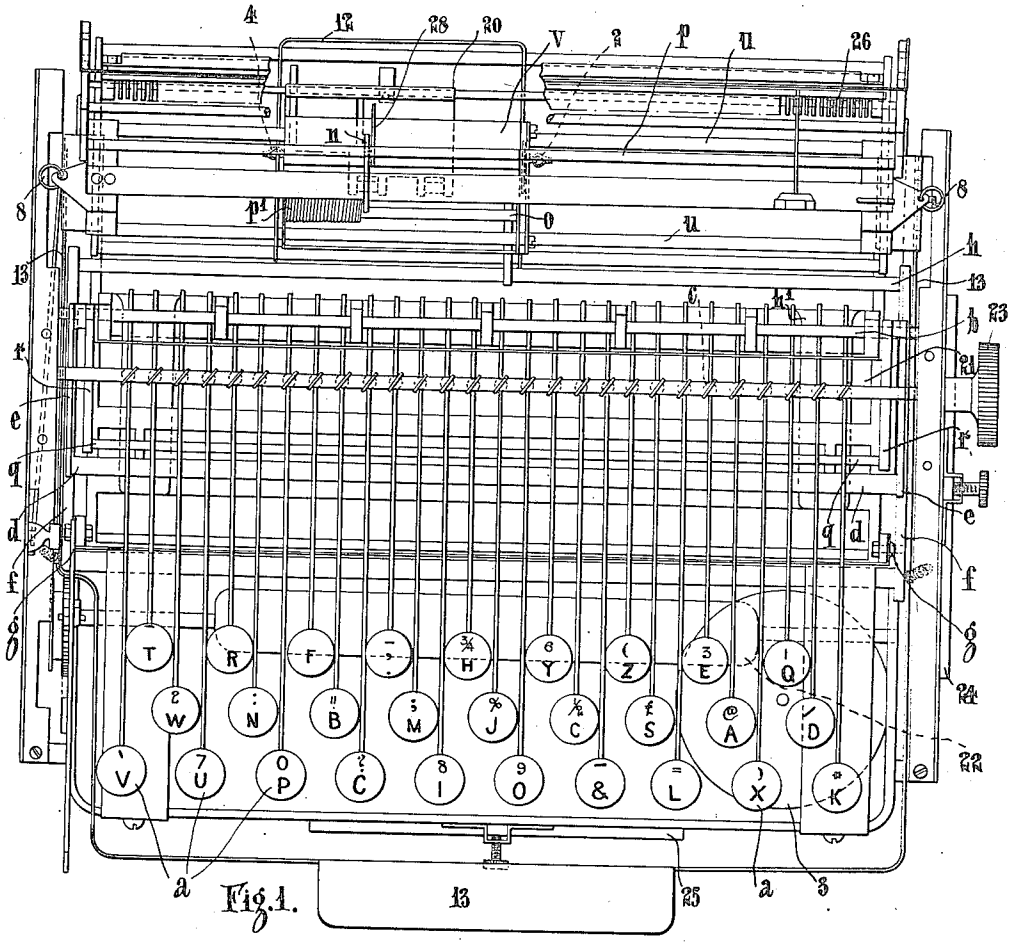


Fig. 1.

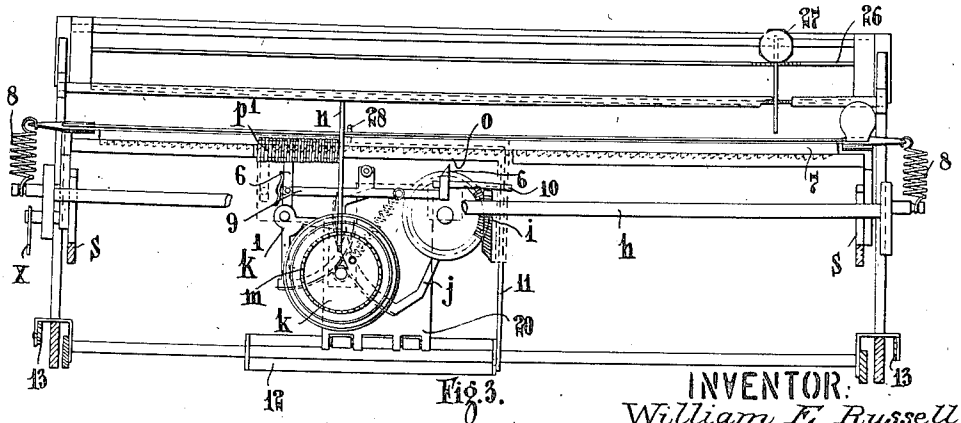


Fig. 3.

WITNESSES:

E. W. L. Tolson

Bessie L. Bishop.

INVENTOR:

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4 SHEETS—SHEET 2.

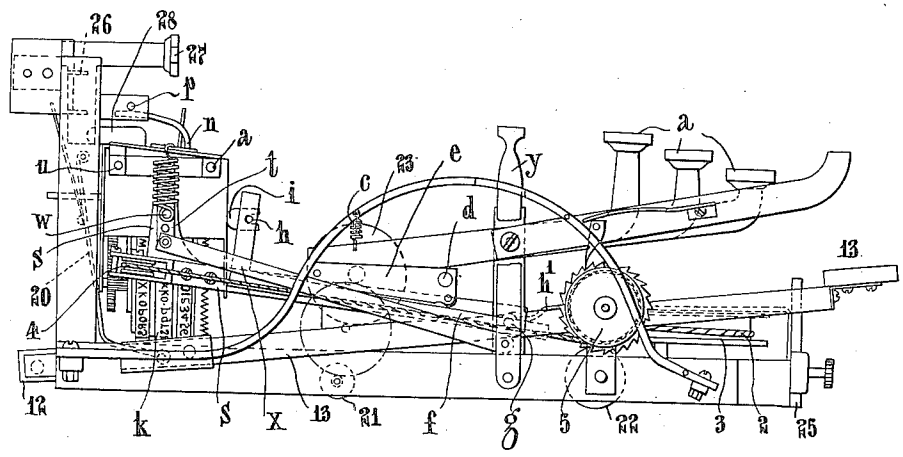


Fig. 2.

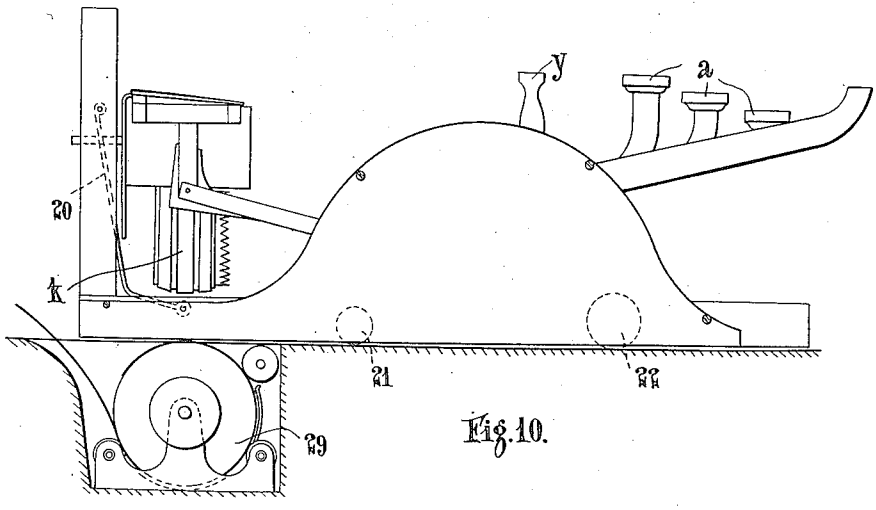


Fig. 10.

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4 SHEETS—SHEET 3.

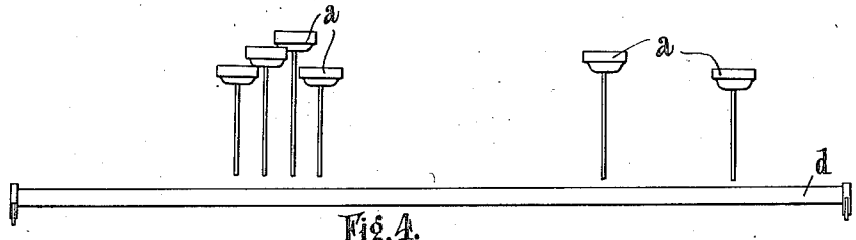


Fig. 4.

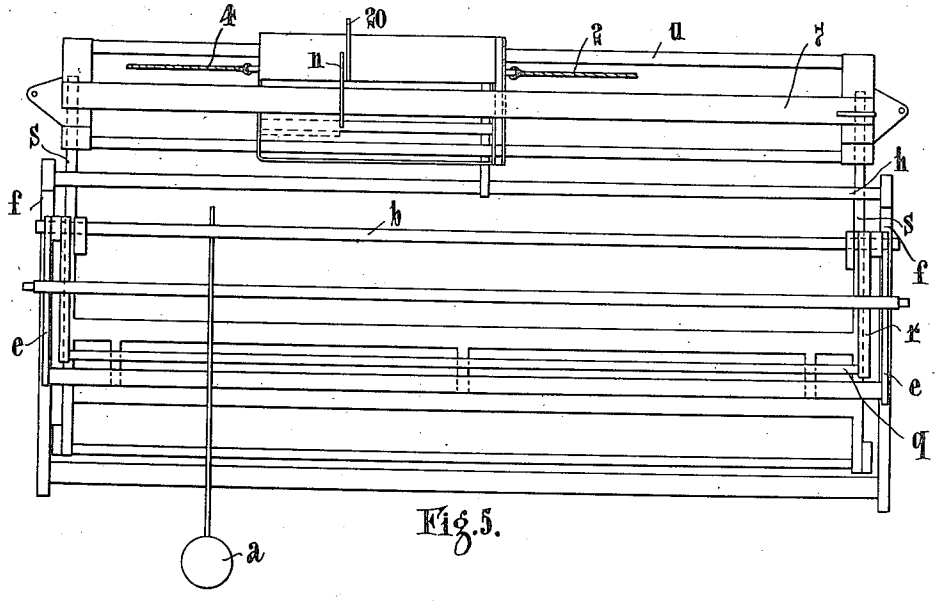


Fig. 5.

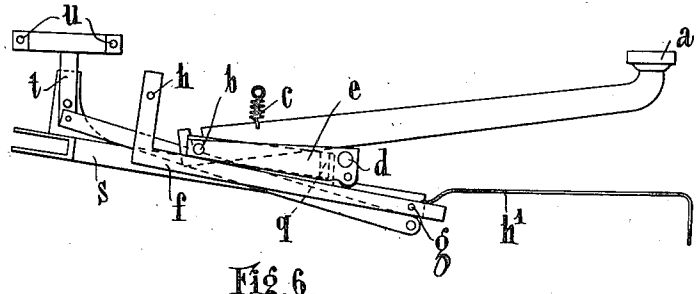


Fig. 6.

WITNESSES:

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APPLICATION FILED MAY 12, 1914.

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Patented June 1, 1915.

4 SHEETS—SHEET 4.

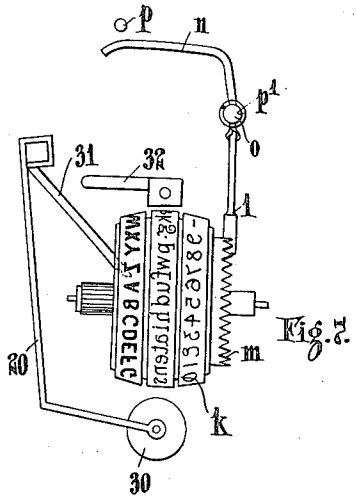


Fig. 7.

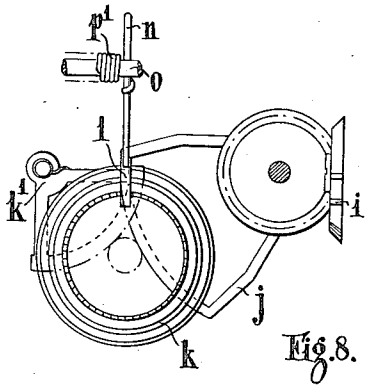


Fig. 8.

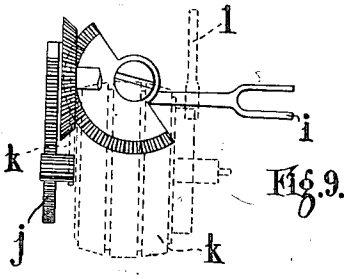


Fig. 9.

WITNESSES:

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Bessie I. Bishop.

INVENTOR:

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Spear, Middleton, Donnelly & Spear

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM ERNEST RUSSELL, OF UPPER WORTLEY, LEEDS, ENGLAND.

TYPE-WRITER.

1,141,831. Specification of Letters Patent. Patented June 1, 1915.

Application filed May 12, 1914. Serial No. 838,085.

To all whom it may concern:

Be it known that I, WILLIAM ERNEST RUSSELL, a subject of the King of Great Britain and Ireland, and resident of Barras Garth House, Upper Wortley, Leeds, in the county of York, England, have invented certain new and useful Improvements in or Connected with Type-Writers, of which the following is a specification.

This invention relates to typewriters of the class in which the sheet being printed upon is stationary and the type is caused to travel across the sheet, and has for its object to provide an improved arrangement of parts having great simplicity and producing a machine of light construction and convenient for use.

My invention comprises essentially the provision, in a typewriter having a stationary keyboard, of a carriage having a rotatable type drum or cylinder mounted thereon with means for traversing and for controlling the traverse of the carriage for letter spacing purposes, and depression keys for first rotating the type drum and then moving the carriage so as to cause the type drum to strike the sheet of material being printed upon.

Referring to the accompanying explanatory drawings:—Figure 1 is a plan view of a typewriter constructed and arranged in one convenient form in accordance with my invention. Fig. 2 is a side elevation of the machine with the cover plates removed. Fig. 3 is a sectional elevation on the line A B of Fig. 2. Fig. 4 shows the arrangement of the traverse bar operated by the depression keys. Figs. 5 and 6 are respectively a plan and end elevation of the levers operated by the depression keys. Fig. 7 shows the type inking mechanism. Figs. 8 and 9 show the means for rotating the type drum. Fig. 10 is an end view of a typewriter constructed in accordance with my invention and disposed over a paper carrying roller.

The depression keys *a* are arranged in any known manner, being separated by the usual comb like part (not shown) and pivoted about the bar *b*. Springs *c* hold the keys in their normal or uppermost position. Extending from side to side of the machine and beneath the depression keys is a bar *d* mounted in arms *e*, the latter bearing upon arms *f* pivoted at *g*. The arms *f* at the respective ends of the machine carry a cross bar or rod *h* engaging a bifurcated arm *i* which by means of suitable gearing, including the quadrant *j*, Figs. 3, 8 and 9, rotates the type drum *k* having three sets of type set in three rings angularly disposed to one another (see Figs. 2 and 7) so that according to the angular tilt or disposition of the drum, the respective rings will be brought to the printing position. The means for tilting the drum *k* will be hereinafter referred to. A pawl *l* (see Figs. 7, 8 and 9) engages the teeth *m* on the type drum but when said drum is in its out-of-service or uppermost position, the said pawl is held out of engagement with the type drum by means of the arm *n* upon the spindle *o* which carries the pawl. Such arm *n* engages the bar or rod *p* extending from side to side of the machine and turns the spindle *o* against the action of the spring p^1.

It will be seen that the bar *d* (see Fig. 4) is set on an incline so that there is a varying amount of lost motion between the key levers *a* and said bar. This will result in a variable amount of movement being given to the rod *h* and so to the type drum *k* according to the key which is depressed. I make no general claim to the arrangement of an inclined bar as *d*.

Extending across the machine beneath the depression keys *a*, there is a second rod *q* which, when one of the keys *a* is depressed, acts through side arms *r* and the levers *s* upon the frame *t* supporting the rails *u* carrying the type carriage *v*.

With the arrangement aforesaid, when a key *a* is depressed, the bar *d* is first lowered and causes the rotation of the type drum to the required extent and then the type carriage *v* is lowered to cause the drum *k* to strike the sheet of paper which is laid flat upon the table or like part upon which the typewriter rests. As the said carriage lowers, the arm *n* moves clear of its bar *p* and allows the pawl *l* to engage the teeth *m* on the type drum so holding said drum stationary while the impression is being made upon the paper beneath. The type drum is rotated back to its original position and the rod *h* is returned by the plate springs h^1. The spring pressed quadrant k^1 acts to prevent over-running of the type drum. The carriage and connected parts are returned to their out-of-service position by spring pressure.

The rails *u* upon which the type carriage runs, are mounted at their respective ends

in T shaped parts pivoted at *w* to the member *s* (see Fig. 2). To the lower end of one of said T shaped parts is attached a link *x* connected to a key *y*. The latter, which may be termed the "shift" key, is capable of being moved into any one of three positions so as to tilt the T shaped member and consequently the type drum *k* and bring one or other of the three rings of type to the operative position.

The type carriage is traversed from side to side of the machine by a cord 2 attached to the spring drum 3 (see Fig. 1). An additional cord 4 may be attached to said carriage and be secured to a drum 5 (see Fig. 2) capable of being actuated by a pawl and ratchet wheel device for back spacing purposes. For controlling the traversing movements of the type carriage for letter spacing purposes, I provide upon the type carriage two pawls 6, 6 (see Fig. 3) engaging a stationary rack 7 held in its down or service position by spring 8. The said pawls are mounted on a pivoted arm 9 having a projecting portion 10 capable of being actuated by a strut like member 11 carried upon a frame 12 operated or raised and lowered from the spacing lever 13 (see Fig. 1). To space the type carriage without making any type impression upon the paper, the spacing lever 13 is depressed at its forward end when the frame 12 and strut 11 are raised and cause one pawl 6 to clear the rack 7 and the other or check pawl to limit the movement of the carriage under the action of its traversing spring. In all cases, however, when the type carriage is depressed by a key *a* for printing purposes, the strut 11 causes the actuation of the pawl 6 for letter spacing purposes. The frame 12 and strut 11 traverse from side to side of the machine along with the type carriage, the strut passing into a slot or gap on the carriage as shown in Fig. 3. The rack 7 can be raised out of engagement with the pawls 6 so as to permit the type carriage to be traversed freely by its traversing spring in the drum 3.

The inking mechanism for the type drum preferably comprises a spring controlled plate 20 with ink bobs thereon. The said plate has slots therein corresponding in number with the number of bobs thereon. A pin upon the type carriage engages one or other of said slots and so traverses the ink bobs with the carriage. As the type drum descends it strikes the ink bob, so inking the type and moving the bob clear of the printing surface. If desired, the bob may be positively moved clear of the printing surface by the means shown in Fig. 7. The ink bob 30 is mounted on the plate 20 which has an extension arm 31 thereon adapted to be engaged by an arm 32 fixed on the carriage. Thus as the latter descends, the arm 32 strikes the arm 31 and moves the ink bob clear of the drum immediately after the type on said drum has been inked.

The typewriter is mounted on two or more rollers as 21, 22, one of which namely 21 is capable of being rotated by the wheel 23 for line spacing purposes. The machine has also adjustable feet 24, 25 thereon which can be lowered when the typewriter is working near the margin or edge of a book or set of documents and needs supporting in its correct position. The said feet may have rollers therein to assist in the movement of the machine by the wheel 23.

I may provide a tabulating attachment for the machine, such attachment comprising a comb like part 26 extending across the machine and having one or more keys as 27 which can be held in said comb and engage a projecting stop 28 on the type carriage. I, however, make no general claim to the tabulating attachment.

Instead of traversing the machine itself for line spacing purposes, I may, when typing on single sheets, place the latter around an ordinary roller as 29 (see Fig. 10) which is rotated for line spacing. The machine is then maintained stationary during printing.

I do not limit myself to the particular details of construction described and illustrated but may modify same to suit requirements. Thus, the adjustable feet 24 and 25, the tabulating attachment, the inking mechanism, the gears for operating the type drum *k* and the levers operated by the keys *a* may be varied. In place of the rod *h* and bifurcated arm *i*, a quadrant and pinion may be employed for actuating the type drum.

My improved machine is particularly adapted for typing in books and ledgers placed beneath the machine but it may be employed equally advantageously for general work with a roller to support the sheet being typed upon.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a typewriter, in combination, a carriage, a rotatable type drum mounted on said carriage, rails extending across the machine for supporting said carriage, means for raising and lowering said rails and means for tilting the rails, as set forth.

2. In a typewriter, in combination, a carriage, a rotatable type drum mounted on said carriage, with its axis at right angles to the direction of traverse of the carriage, means upon the carriage for rotating the type drum, rails extending across the machine for supporting said carriage, means for raising and lowering said rails, and means for tilting the rails, as set forth.

3. In a typewriter, in combination, a carriage, a rotatable type drum mounted on

said carriage with its axis at right angles to the direction of traverse of the carriage, means upon the carriage for rotating the type drum, a plurality of rings of types disposed angularly to one another upon the type drum, rails extending across the machine for supporting said carriage, means for raising and lowering said rails, and means for tilting the rails, as set forth.

4. In a typewriter, in combination, a carriage, a rotatable type drum mounted on said carriage with its axis at right angles to the direction of traverse of the carriage, means upon the carriage for rotating the type drum, a plurality of rings of types disposed angularly to one another upon the type drum, rails extending across the machine for supporting the said carriage, means for raising and lowering and also for tilting said rails, and type inking means supported by said rails and traversed with said carriage, as set forth.

5. In a typewriter, in combination, a carriage, a rotatable type drum mounted in said carriage, means upon the carriage for rotating the type drum, a track extending across the machine for supporting said carriage, a rack upon said track, pawls upon the carriage engaging said rack, means traversible with the carriage for actuating said pawls, means for raising and lowering and also for tilting said track, type inking means supported by said track and traversed with said carriage, and a bar extending across the machine for operating the type drum rotating means, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM ERNEST RUSSELL.

Witnesses:
ARTHUR HUGHES,
HILDA HUGHES.