

1,058,815.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 1.

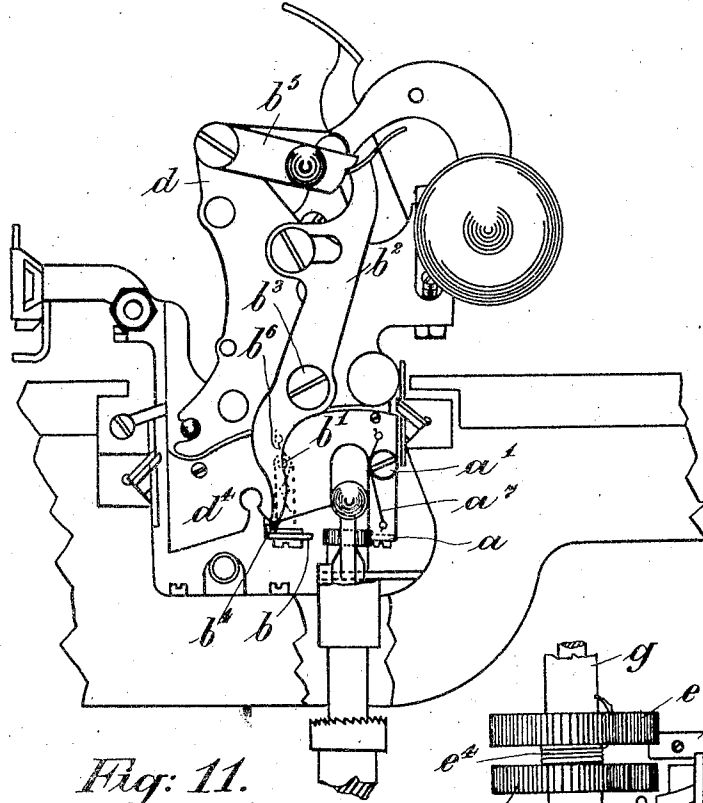


Fig. 11.

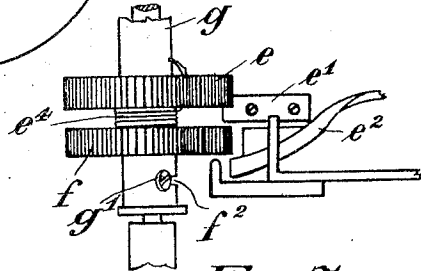


Fig. 7.

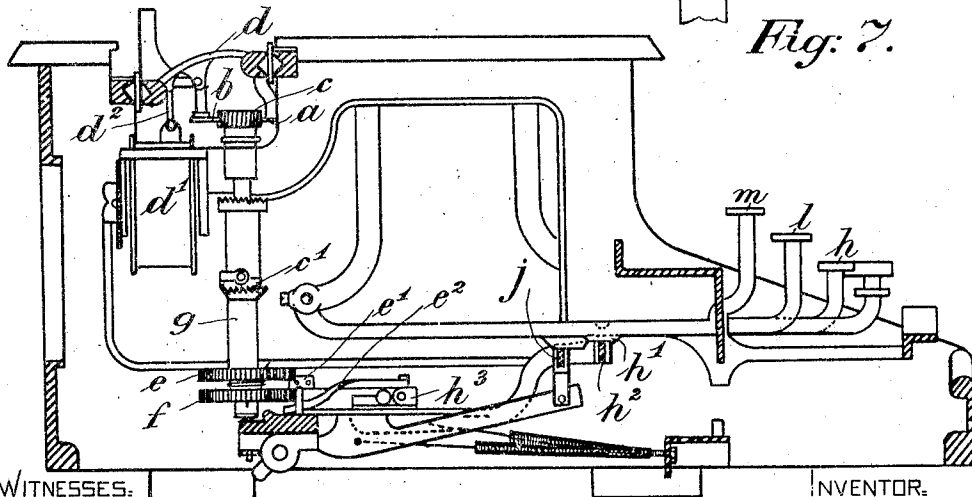


Fig. 1.

WITNESSES:

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 HIS ATTORNEY

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3 SHEETS-SHEET 2.

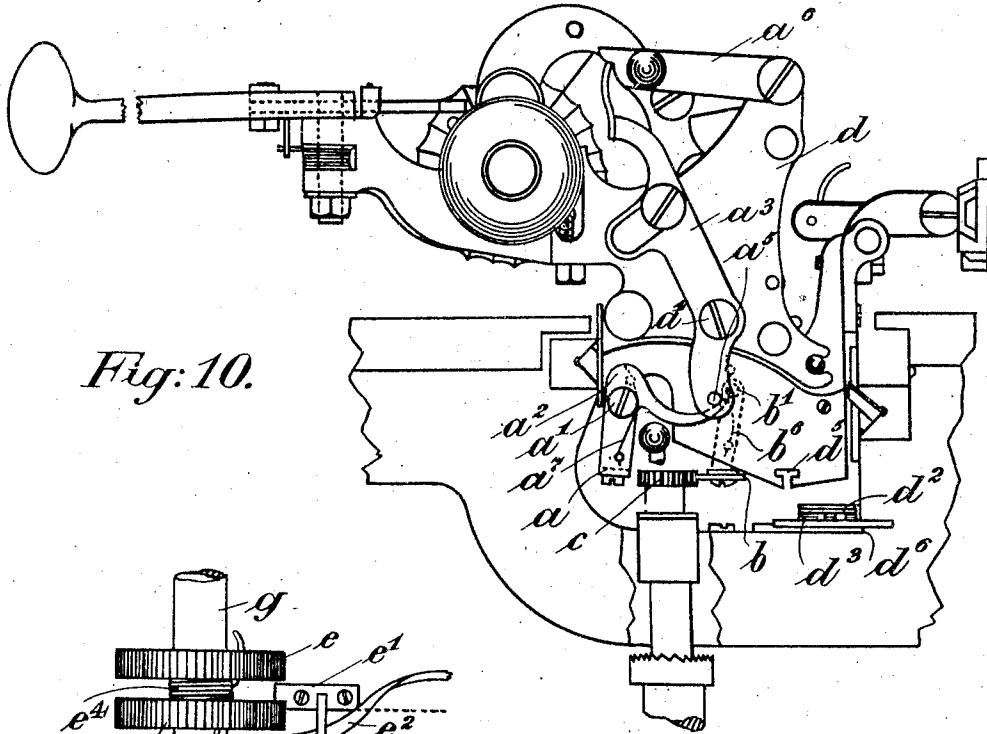
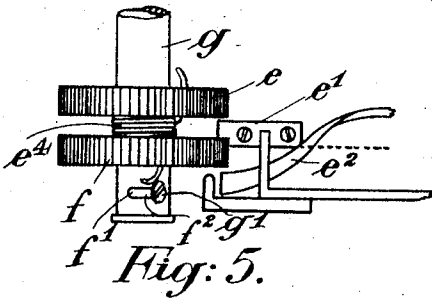


Fig: 10.



S. W. TURNER.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 31, 1911.

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3 SHEETS-SHEET 3.

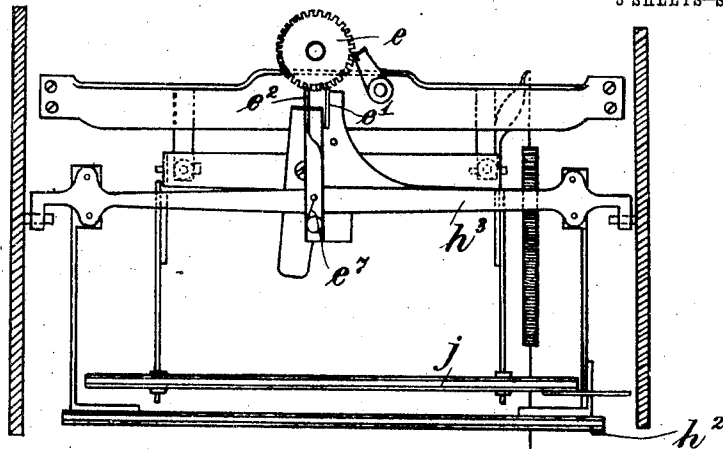


Fig: 4.

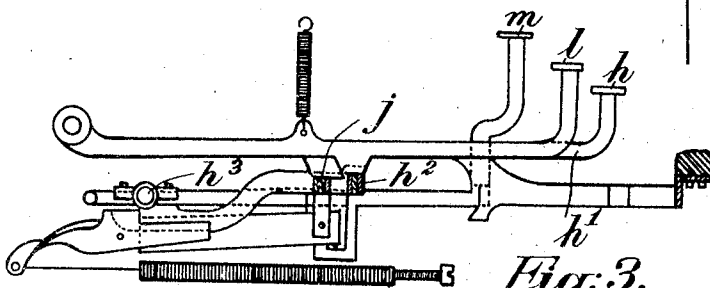


Fig: 3.

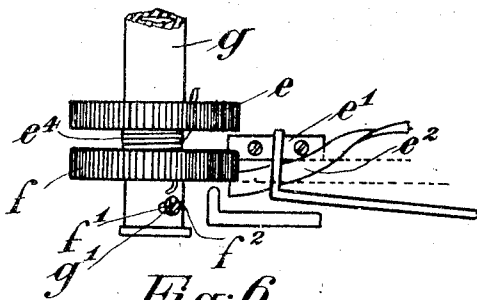


Fig: 6.

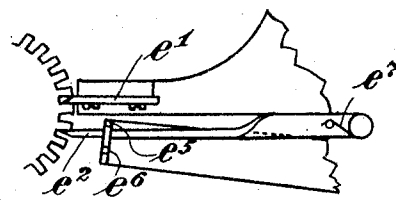


Fig: 8.

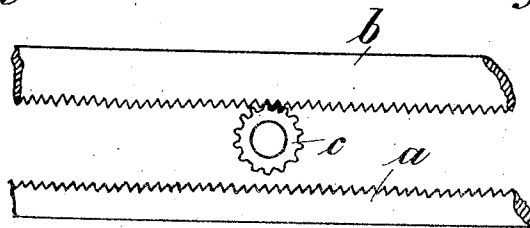


Fig: 9.

WITNESSES.

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UNITED STATES PATENT OFFICE.

SAMUEL WILLIAM TURNER, OF CANONBURY, LONDON, ENGLAND, ASSIGNOR TO YOST WRITING MACHINE COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,058,815.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed January 31, 1911. Serial No. 605,732.

To all whom it may concern:

Be it known that I, SAMUEL WILLIAM TURNER, subject of the King of Great Britain and Ireland, residing at 11 Douglas road, Canonbury, in the county of London, England, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting machines, and has for its object improvements in the arrangement and construction of escapement mechanism for the platen carriage, whereby the letter spacing can be effected in two different spacing increments.

These features in a typewriting machine are specially useful in the case of writing Turkish and Arabic owing to the difficulty with which such writing is performed as compared with that of ordinary modern languages.

The invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In order that the invention may be the better understood, I will now proceed to describe the same in relation to the accompanying drawings, reference being had to the letters and figures marked thereon.

Like letters refer to like parts in the various figures.

Figure 1 is a part sectional side elevation of the lower part of a typewriter with my invention applied thereto, the detachable part of the carriage being removed. Fig. 2 is a rear sectional elevation of the same. Fig. 3 is a view showing the two universal bars and two keys for letters requiring different spacing. Fig. 4 is a plan showing the two universal bars and their connection with the escapement mechanism. Figs. 5, 6, 7 and 8 are detail views showing the various positions of the escapement mechanism for different spacing. Fig. 9 is a detail view of the two racks and escapement pinion. Fig. 10 is an end view of the carriage and platen mechanism showing the operative means for drawing one rack out of engagement with the escapement pinion. Fig. 11 is a similar view at the opposite end of the carriage, showing the method of withdrawing the other rack out of engagement with the escapement pinion.

The escapement is of the rotary type and

engages with the carriage by means of a pinion co-acting with a rack carried by the carriage.

According to this invention I provide two racks a and b , one on each side of the pinion c the said racks being alternately rocked into engagement with the escapement pinion at the will of the operator.

The rack a is pivoted on the carriage on screws a^1 and is provided with a bent arm a^2 . The disengaging movement of the rack about the axis of the screw a^1 is effected by means of a thumb lever a^3 pivoted at a^4 and having a projecting pin a^5 which engages with the bent arm a^2 . Springs a^7 are provided to return the rack a into its operative position.

The thumb lever a^3 is maintained in the position shown in the drawings by means of a pivoted detent a^6 so as to maintain the rack a out of engagement with the pinion c .

The rack b is pivoted to the carriage frame by means of screws b^1 and is operated by means of a thumb lever b^2 pivoted to the frame by a screw b^3 , the lower end of the lever b^2 engaging with an upwardly projecting rib b^4 . The thumb lever b^2 is maintained in its actuated position by means of a pivoted detent b^5 which engages with the upper end of the lever b^2 . Springs b^6 are provided to return the rack b into its operative position.

When a particular direction of travel of the carriage is desired, the operator by regulating the position of the thumb levers a^3 and b^2 allows either one or other rack a or b to come into operative connection with the escapement pinion c according to the direction of travel of the carriage desired; the racks being on the opposite sides of the pinion c , permits motion of the carriage in either direction although the pinion c has a uni-directional motion.

From the above description it will be obvious that when one of the keys a^3 and b^2 is locked by its latch a^6 or b^5 , the other of said keys becomes a release key for the carriage.

In operating the carriage d I use a single spring drum d^1 , the cord d^2 of which passes around a pulley or snatch block d^3 and is attached to the carriage at d^4 in the usual way but at the left-hand end of said carriage. The pulley or snatch block d^3 is adapted to be readily attached either to the carriage at d^5 or to the main frame of the machine at d^6 and in this way the spring exerts a pull

on the carriage either in one or the other direction according to whether the pulley or snatch block is carried by the carriage d , or is attached to the frame. If the pulley or snatch block d^3 is attached to the frame as shown in Fig. 2, the carriage will have a motion under the action of the spring drum from right to left as viewed in said figure; whereas if the pulley or snatch block d^3 is attached to the carriage at d^5 , the carriage will then have a motion from left to right as viewed in Fig. 2 which is a rear view.

The differential spacing is obtained by means of two escapement wheels e and f , coaxially arranged on the shaft g which is driven by the pinion c through the intermediation of a clutch c^1 ; in combination with an oscillating dog e^1 adapted to move in a fixed plane and an auxiliary loose dog e^2 adapted to have motion in two directions.

The escapement wheel e is rigidly fixed to the shaft g while the escapement wheel f is loosely mounted upon the same and is permitted to revolve freely through a fixed arc controlled by stops f^1 carried by the shaft g or by the fixed escapement wheel e .

In the form illustrated in the drawings, the stops f^1 comprise a circumferential slot f^2 arranged in the boss of the wheel f , and a screw g^1 rigidly fixed in the shaft g .

The escapement wheel f is spring pressed in relation to the fixed escapement wheel e in one direction by means of the spiral spring e^4 ; the amount of movement being limited by the stops f^1 hereinbefore described. The dog e^1 is adapted to engage both the wheels e and f .

When a key button h is depressed for which a long space is required, the key lever h^1 at the same time depresses a universal bar h^2 which operates the dog trunnion h^3 so as to throw out the dog e^1 from engagement with the loose wheel f and throw it into engagement with the fixed wheel e which is shown in Figs. 5 and 7. The loose wheel f then advances the full space under spring action and on the removal of the finger of the operator from the key button the dog e^1 returns to engagement with the loose wheel f and releases the fixed wheel e and the carriage advances the distance of the long space.

In order to deal with the short space a second universal bar j is arranged by which the auxiliary pivoted loose dog e^2 is raised so as to trip past one tooth only of the escapement and thus permit a short space movement when the key button l is depressed, the character of which requires only a short space to be used.

By reference to Figs. 3, 6 and 8 it will be seen that the movement of the auxiliary universal bar j throws up the auxiliary loose dog e^2 into the loose wheel f and by further depression of the key lever the ordinary

universal bar h^2 is depressed (see Fig. 3) and the fixed dog e^1 is thrown up from the lower loose wheel f into the fixed wheel e the lower loose wheel f rotates under the action of the spring e^4 until the loose dog e^2 contacts with its stop e^5 , thus when the finger of the operator is removed from the key button l and the dog e^1 again engages with the loose wheel f , the wheel e only permits the advance of the carriage for a short space. Upon the release of the dog e^2 from the wheel f , the dog moves back into contact with the stop e^6 under the action of the spring e^7 .

It will be understood that the ordinary space key operates the escapement in the same manner as a long space key lever and in addition thereto I provide a short space key lever m adapted to co-act with both universal bars j and h^2 .

The operation of my machine is as follows:—For writing ordinary Arabic or Turkish, the pulley d^3 is attached to the frame of the machine at d^6 , the thumb lever b^2 is actuated and maintained in position by a detent b^5 , the thumb lever a^3 being used as a release key in the usual way. The carriage now moves from left to right under control of the escapement mechanism, the line of writing reading from right to left. In order that figures may be written it is necessary to reverse the direction of the line of writing; the pulley d^3 is therefore attached to the carriage at d^5 , the thumb lever b^2 is permitted to resume its normal condition and the thumb lever a^3 is drawn toward the operator and maintained in position by the detent a^5 , the lever b^2 being used as the ordinary release lever.

It will be seen that by the use of a unidirectional escapement and escapement pinion, it is possible to retain all the usual devices common to typewriting machine escapements, such as back spacing devices and the like.

The means whereby the carriage feed is made reversible is not claimed herein but is claimed in a divisional case filed September 7, 1912, Serial No. 719,066, patented January 14, 1913, No. 1,050,315.

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

1. In a typewriting machine in combination a platen carriage, a fixed escapement wheel and a loose escapement wheel on the escapement axle the loose escapement wheel having a limited free motion on said axle, a main universal bar having connected therewith a dog adapted to move at right angles to the plane of revolution of the escapement wheel, an auxiliary universal bar having connected therewith a dog adapted to move at right angles to the plane of revolution of its escapement wheel and also for a limited

distance parallel to said plane of revolution, key levers, and operative means on said key levers adapted to engage either the main or the main and auxiliary universal bars according as to whether double or single spacing motion of the escapement is required for the particular character used.

2. In a typewriting machine, the combination of a carriage, an escapement rack connected with said carriage, a second escapement rack having a limited freedom of motion with reference to the first recited rack, a dog for engagement with said two racks alternately to effect the feed of the carriage, a series of keys, means operated by said keys for operating said dog, and a second dog movably mounted on a relatively fixed part of the machine and operated by certain of said keys into engagement with said relatively movable rack and operating further to limit such freedom of motion of said rack.

3. In a typewriting machine, the combination of a carriage, a toothed rack connected to move in unison with said carriage, a second toothed rack having freedom of motion with respect to the first rack, such freedom of motion being limited to a plurality of teeth of the first rack, a dog for engagement with said two racks alternately to control the feed of said carriage, a series of keys, means whereby said keys operate said dog, and a second dog operated by cer-

tain of said keys and moved thereby into engagement with the teeth of said relatively movable rack to limit the freedom of motion of said relatively movable rack to less than said plurality of teeth.

4. In a typewriting machine, the combination with a carriage, of escapement mechanism for controlling variably and intermittently the spacing of the carriage, said mechanism comprising an escapement rack connected to move in unison with said carriage, a second rack having freedom of motion with respect to the first rack, means for engagement with said two racks alternately to control the feed of said carriage, and means for variably limiting the extent of freedom of relative motion between the two racks in order to vary the extent of movement imparted to the carriage at each actuation of the escapement mechanism, the last recited means including a reciprocatory dog adapted for engagement with said second rack and having freedom of motion with said second rack less than the maximum freedom of motion of said second rack.

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

SAMUEL WILLIAM TURNER.

Witnesses:

WALTER CARVER,
CHAS. R. BULLOUGH.