C. J. ROLLEFSON.

TYPE WRITING MACHINE.

APPLICATION FILED OCT. 16, 1907.

911,842.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

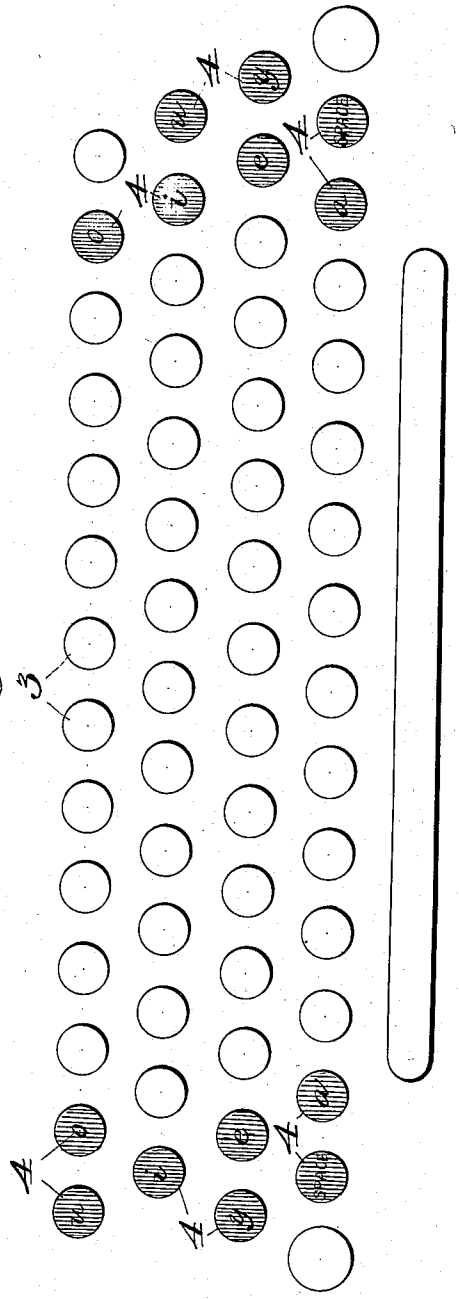
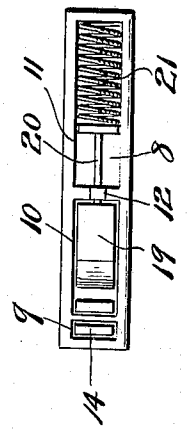


Fig. 7.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

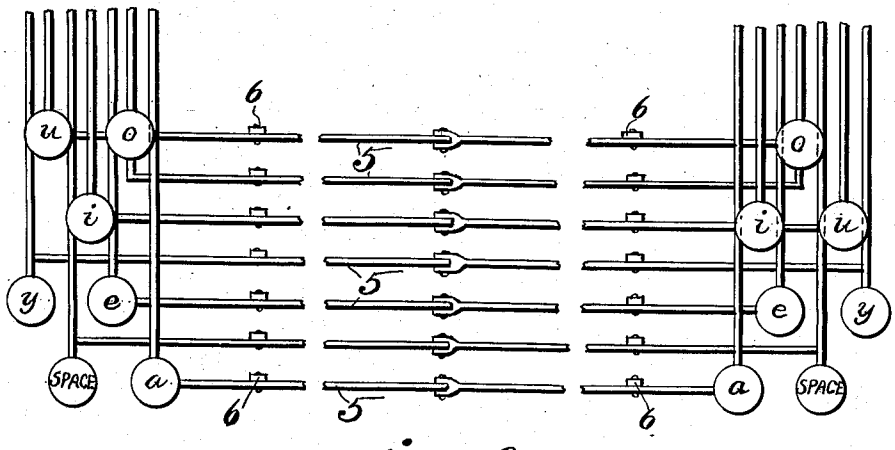
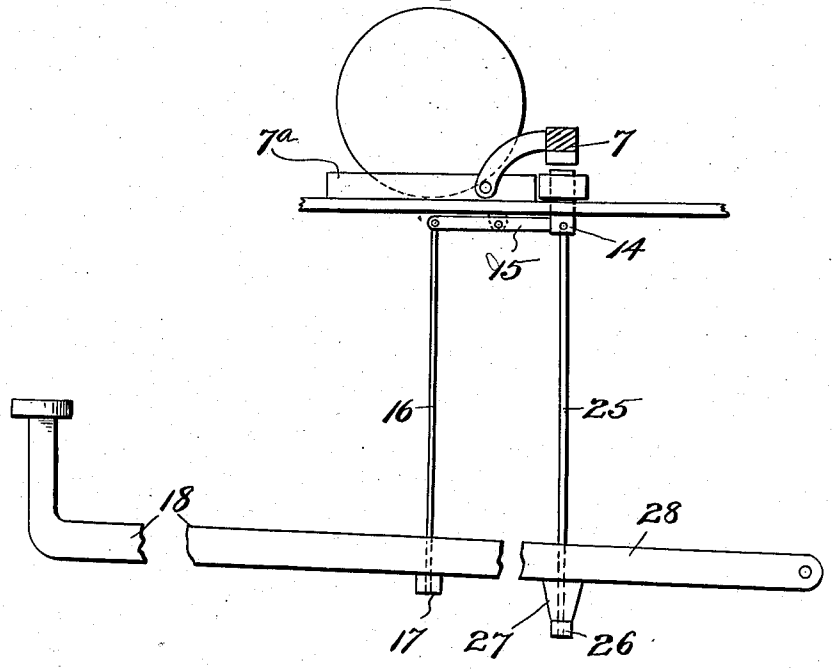


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 4.

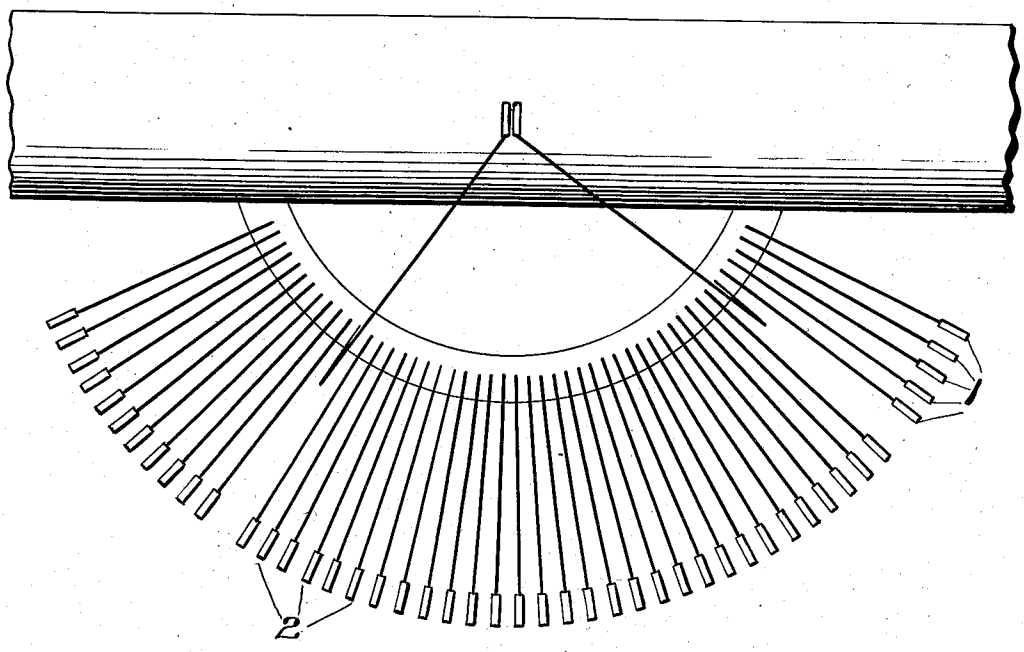


Fig. 3.

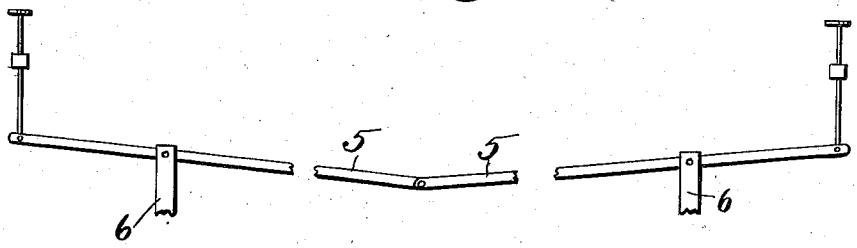
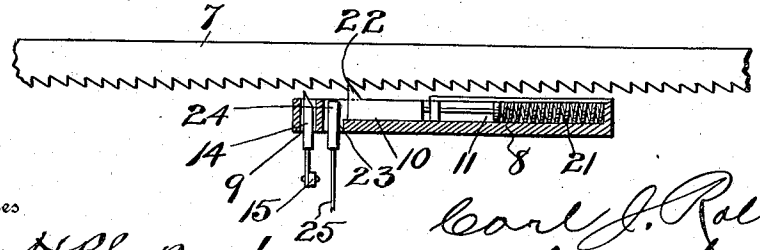


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

No. 911,842. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed October 16, 1907. Serial No. 397,641.

To all whom it may concern:

Be it known that I, CARL J. ROLLEFSON, a citizen of the United States, residing at Ellsworth, in the county of Pierce and State of Wisconsin, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and has for its object the improvement of the keyboard and operation of the printing mechanism by which two letters may be printed simultaneously or the final letter at the end of a word may be printed and the space following the word provided for at one stroke. I have found by actual experiment that the number of times that a letter is followed by one of the vowels including "y" or the space at the end of the word is between thirty-five and forty per cent. of the strokes necessary to be made in operating a typewriting machine.

My invention contemplates the provision of extra keys at either or both ends of the keyboard of an ordinary typewriter or in any other convenient position and have them connected with extra type arms arranged to strike the platen one space to the right of the ordinary type arms, said type arms being assigned to the letters "a" "e" "i" "o" "u" and "y" and one extra key in each set being assigned to space.

I have described a differential spacing mechanism hereinafter that is applicable to a certain class of machines and it will be understood that some form of differential spacing mechanism will be necessary in every case.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a view of a keyboard showing my improved arrangement, Fig. 2, a diagrammatic view showing the manner of connecting the respective keys for simultaneous operation, Fig. 3, a view in elevation of a pair of keys showing the means to connect them for simultaneous operation, Fig. 4, a view showing the arrangement of the type bars in the basket, Fig. 5, a fragmental side view of the escapement, Fig. 6, an end view showing the operating mechanism for the escapement, and Fig. 7, a plan view of the escapement

In the drawing similar reference characters indicate corresponding parts throughout the several views.

As hereinbefore stated my invention consists essentially in providing an extra set of type bars in a typewriting machine and connecting them with extra keys on the key board and so arranging the keys and type bars that any one of them may be struck simultaneously with one of the regular keys on the key board so that two letters may be written simultaneously or the final letter of a word and the space following it may be formed at one stroke.

To this end my invention consists in adding a number of type bars 1 at the right side of the basket of bars ordinarily found in a typewriting machine and indicated at 2. Type-bars 1 are so hung that they strike the paper one space to the right of the position that the ordinary type bars strike it. On the keyboard, shown in Fig. 1, the keys ordinarily found thereon are indicated by 3, said keys being operatively connected with the type bars 2, while 4 indicates keys operatively connected with type bars 1 so that one of the keys 3 and one of the keys 4 may be depressed at one time and two letters be written together.

In the drawings I have shown two sets of extra keys 4, one set at each end of the keyboard, and shown keys assigned to the letters "a" "e" "i" "o" "u" and "y" and one key in each set assigned to "Space". The extra letter keys at the right of the keyboard only are connected directly with the type bars for writing the respective letters and in order that the letter keys at the left end of the key board may actuate the type bars, it is necessary that the keys at the left be operatively connected with the keys at the right of the keyboard and this I have shown in Figs. 2 and 3. The means for connecting the extra keys of each letter for simultaneous operation consists of rods 5 pivotally secured together at one end and having their other ends pivotally secured to the keys at the right and left of the keyboard for each letter while each rod is pivotally secured intermediate of its ends to a suitable support as shown at 6.

For the successful operation of my improved typewriter it will be necessary to provide a spacing mechanism so arranged that when one of the keys 3 only is operated the carriage will move forward but one

space while when one each of the keys 3 and 4 are operated simultaneously the carriage will move forward two spaces and the copy be carried forward so that it will be in the proper position to receive an impression from one of the type bars 2. The differential spacing mechanisms will vary in construction with the different constructions of machines to which my invention will be attached but in the drawings I have shown one form of spacing mechanism which I will proceed to describe.

7 indicates a ratchet bar which is secured to the carriage 7^a of the machine, said ratchet bar being pivotally mounted so as to raise and lower for the successful operation of the spacing mechanism as in machines of this class.

8 indicates a plate secured to the frame of the machine having a transverse slot 9 in one end and two recesses 10 and 11 therein connected by a slot 12 in the partition wall 13 between said recesses 10 and 11. Slot 9 is formed to receive dog 14 pivotally secured to one end of lever 15 which has its other end connected by rod or rods 16 with cross bar 17 that hangs under the key bars 18 connected with keys 3.

19 indicates a sliding detent mounted in recess 10 having a bar 20 on its rear end that extends through slot 12 into recess 11, and 21 indicates an expansible coil spring mounted in said recess 11 and bearing against the end of bar 20.

22 indicates a lug or projection on detent 19 that engages the teeth of ratchet bar 7 to stop the movement of the carriage 7^a.

23 indicates a transverse slot in the end of recess 10 adjacent to slot 9 and 24 a stop slidably mounted therein and secured to rod 25 connected with cross bar 26 that is on a lower plane than cross bar 17 and adapted to be engaged by a projection 27 on each of the bars 28 connected with the extra keys 4.

The operation of the differential spacing mechanism is as follows: When one of the ordinary keys 3 only is depressed the key bar 18 secured thereto actuates the type bar 2 connected therewith, and at the same time by depressing the cross bar 17 and the end of lever 15, connected therewith, raises dog 14 into engagement with ratchet bar 7 which is raised out of engagement with lug or projection 22 on detent 19. Detent 19 is actuated by spring 21 and driven forward until it engages stop 24. When pressure on key 3 is released and it resumes its normal position the dog 14 descends and with it the ratchet bar 7 which again engages the lug 22 on detent 19 one space removed from its former engagement therewith and when the dog is released from engagement with said ratchet bar the carriage and ratchet bar together with detent 19 are carried along under the impulse of the carriage actuating means (not shown), and against the resistance of spring 21, until the rear end of the detent strikes partition 13, and the motion of the carriage arrested, and the machine is in position for another stroke.

When one each of the keys 3 and 4 are depressed the operation just above described is repeated except that the projection 27 on the key bar 28 connected with the key 4 that is actuated depresses cross bar 26 and with it stop 24 so that instead of the detent 19 being stopped by said stop 24 it is projected the full length of recess 10 and when the ratchet bar 7 is lowered, by releasing the pressure on dog 14, the lug or projection 22 engages it two spaces removed from its former position and the carriage moves forward two spaces instead of one.

Having thus described my invention what I claim is—

1. In a typewriter, in combination with the ordinary set of type bars, a secondary set of type bars arranged to make an impression to the right of the ordinary set, keys operatively connected with the ordinary set of type bars, and two sets of secondary keys one set arranged at each side of the last mentioned keys and operatively connected with the secondary set of type bars, substantially as shown and described.

2. In a typewriter, in combination with the ordinary set of type bars, a secondary set arranged at the right of the ordinary set and adapted to be actuated simultaneously therewith, keys operatively connected with the ordinary type bars, two secondary sets of keys assigned to the same characters, said secondary sets of keys being arranged at each side of the first mentioned keys, and operative connections between said secondary sets of keys and the secondary set of type bars, substantially as shown and described.

3. In a typewriter, in combination with the ordinary set of type-bars, a secondary set assigned to a portion of the characters used in the first-mentioned set, keys operatively connected with the ordinary set of type bars, two sets of secondary keys, one set arranged at each side of the last mentioned keys and operatively connected with the secondary set of type bars, the ordinary set of keys being adapted to be actuated to the exclusion of the secondary set or simultaneously therewith, and mechanism by which when the ordinary set of type-bars are alone operated the carriage will move forward but one space, and when the secondary set of type-bars are actuated in conjunction with the ordinary set the carriage moves forward two spaces.

4. In a typewriter, in combination with the keyboard and the usual set of keys and type bars, a secondary set of type bars assigned to a portion of the characters used in the usual set, said secondary type bars being

arranged to strike the copy one space to the right of the ordinary set, and extra keys at each end of the usual set of keys assigned to the characters to which the secondary set of type bars are assigned, said extra keys being adapted to be actuated simultaneously with the ordinary keys, substantially as shown and described.

5. In a typewriter, in combination with the ordinary set of type bars, a secondary set arranged at the right of the ordinary set and adapted to be actuated simultaneously therewith, keys operatively connected with the ordinary type bars, two secondary sets of keys arranged at the two sides of the ordinary set of keys, the secondary set at the right side connected directly with the secondary set of type bars, and the secondary set at the left of the keyboard operatively connected with the secondary set at the right of the board so as to actuate the secondary type bars, substantially as shown and described.

6. In a typewriter, in combination with the ordinary set of type bars, a secondary set arranged at the right of the ordinary set and adapted to be actuated simultaneously therewith, keys operatively connected with the ordinary typebars, two secondary sets of keys arranged at the two sides of the ordinary set of keys, the secondary set at the right side connected directly with the secondary set of type bars, levers suitably fulcrumed and pivotally secured together in pairs and one of each pair of levers operatively connected with the secondary keys at the two sides of the keyboard assigned to the same characters, substantially as shown and described.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

CARL J. ROLLEFSON.

Witnesses:
GEORGE THOMPSON,
FRANK N. WARREN.