W. MYERS.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 11, 1915.

1,246,983.

Patented Nov. 20, 1917.

2 SHEETS—SHEET 1.

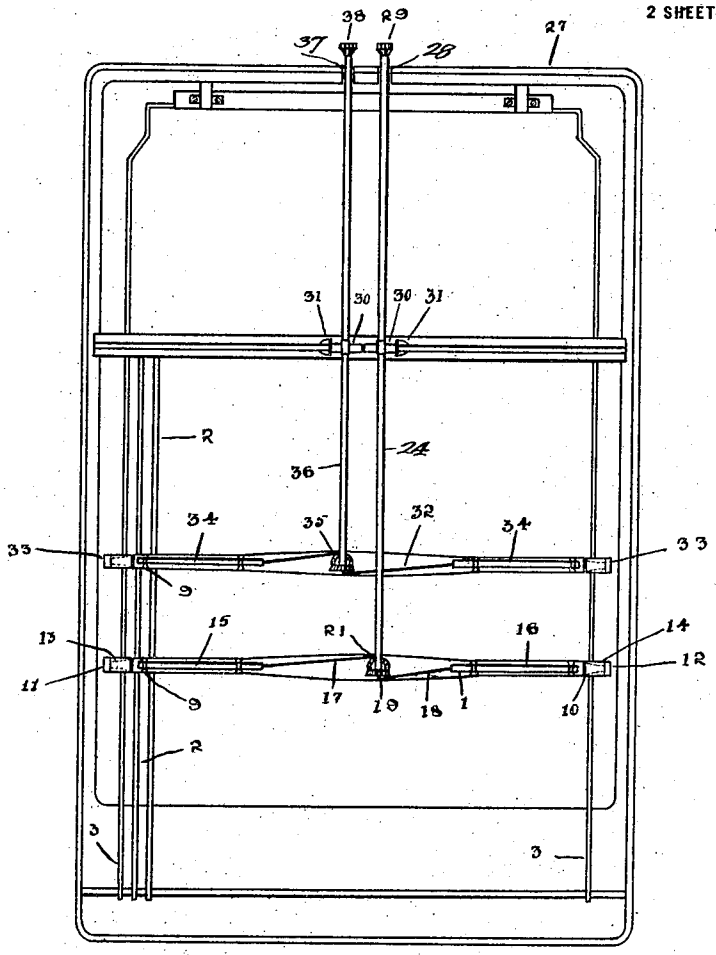


Fig. 1

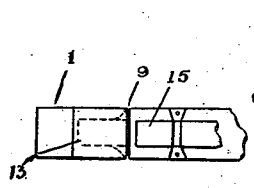


Fig. 4

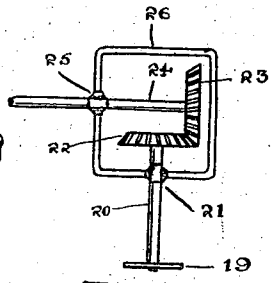


Fig. 2

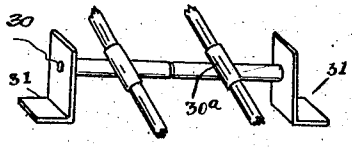


Fig. 3

Witnesses

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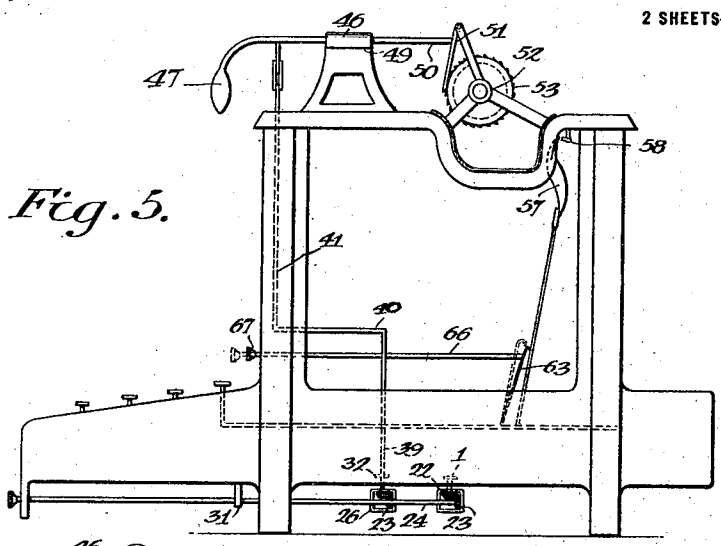


Fig. 5.

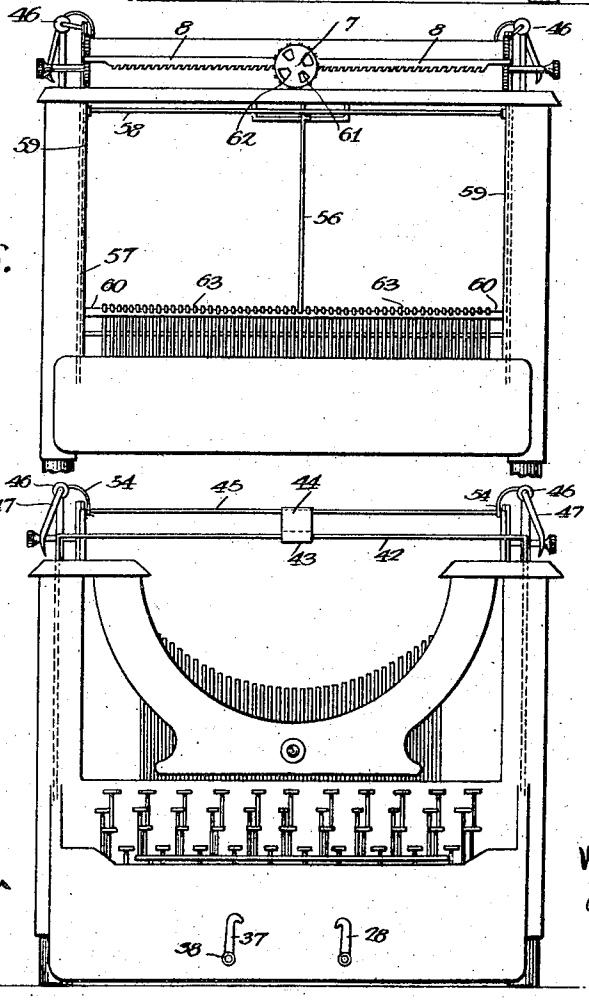


Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

1,246,983. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed March 11, 1915. Serial No. 13,562.

To all whom it may concern:

Be it known that I, WILLIAM MYERS, a subject of the King of Great Britain, and resident of 723 City Hall avenue, in the city of Montreal, Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to improvements in type writing machines, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel construction and arrangement of parts as more particularly described hereinafter.

The objects of the invention are to facilitate the operation of type writing machines in calculating, tabulating and generally arranging the work in vertical and diagonal spacing to eliminate the necessity in smaller establishments of special machines for book keeping, and generally to provide substantial improvements on the existing styles of machines without materially adding to the cost.

In the drawings, Figure 1 is a plan view of the underside of the machine showing a new system of bars and levers operated by the key levers.

Fig. 2 is an enlarged detail of the operating gear and their bearing frame used with the new bars and levers illustrated in Fig. 1.

Fig. 3 is an enlarged detail of the bearing for the rocking levers in said new bars and levers.

Fig. 4 is an enlarged detail showing the lock joint used in connecting the new bars for operating purposes.

Fig. 5 is a side elevation of the machine.

Fig. 6 is a rear elevation of the machine.

Fig. 7 is a front elevation of the machine.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, the bar for horizontal spacing and extending under the pivoted key levers 2 is formed in three sections 1, 11 and 12, the sections 11 and 12 being rigidly mounted on the pivoted spacing levers 3, one at each side of the key lever group, said sections 11 and 12 having the bolt holes 13 and 14, into which the sliding bolts 15 and 16 are introduced to insure the operation of the three sections as one rod.

The arm 19 is pivotally secured by the upwardly projecting pin 20 to the section 1 in the space between the inner ends of the bolts 15 and 16, and is connected from its ends, respectively, with the said bolts 15 and 16 by the rods 17 and 18.

The pivot pin 20 is journaled in the bearing 21 in the frame 26, the rod 24 being also journaled in said frame in the bearing 25 at right angles to the bearing 21.

The bevel gear wheel 22 mounted at the end of the pin 20 coacts with the gear wheel 23 mounted at the end of the rod 24, both being within the bearing frame 26.

The rod 24 extends through the base 27 of the key board in the lock slot 28 and terminates in the knurled knob 29.

The bearing for the rod 24 intermediate of the length of said rod is formed of the sleeve 30^a, which is rigidly secured to the shaft 30 and rocks therewith in the rotation of said shaft in the bearings 31, the latter rigidly secured to the frame of the machine.

It will be thus seen that by turning the knob 29, the gear wheel 23 is turned, which, through the gear wheel 22, turns the arm 19 on its pivot and draws on the rods 17 and 18 and these in turn draw on the bolts 15 and 16 and release the section 1 from the sections 11 and 12. The knob 29 is then lifted up to the upper end of the slot 28 into the locking notch, thereby rocking the rod 24 and moving the section 1 from engagement with the key levers.

The vertical spacing bar, under the key levers 2 and connected with the spacing levers 3, is also formed of three sections, the center section 32 under said key levers 2 and the end sections 33 secured respectively, to the spacing levers 3 and having bolt holes similar to the end sections 11 and 12.

The pivoted arm and connecting rods to the bolts 34 are precisely similar to the mechanism mounted on the bar section 1 and the gear mechanism 35 is similar to the gears 22 and 23 and their mountings.

The rod 36 extends through the slot 37 in the base 27 and is locked at the upper end of said slot in the notch provided.

The said rod 36 terminates in the knurled knob 38 and intermediate of its length is journaled in a sleeve similar to the sleeve 30^a and secured to the shaft 30.

The operation of the vertical spacing bar is similar to the horizontal spacing bar, so far as the key levers are concerned, but the result is quite different, for when the section 1 is freed from the key levers, the spacing is entirely vertical and when the section 32 is freed, the spacing is entirely horizontal, but when both are in engagement the spacing is diagonal.

The horizontal spacing is done in a way well known to any person at all familiar with the art and may be summarized in a few words. The section 1 of the horizontal spacing bar operates a crank shaft and the latter is operatively connected to a pawl and ratchet mechanism 7 for turning the pinion that operates the rack 8 secured to the carriage. The carriage thereby moves one space onward at each depression of the horizontal spacing bar formed of the jointed sections 1, 11 and 12, whether by a key lever or spacing lever, as usual in type writing operations.

The vertical and diagonal spacing is done in a manner especially applicable to the machine illustrated, though it may be considerably varied to suit the mechanisms of other machines.

In the manner shown the brackets 46 form the bearings for the operating cranks 47, the latter being pivotally connected to the cranks 49. The cranks 49 are pivotally connected to the operating rods 50 and the latter engage the pawls 51 supported from the frame of the platen 52.

The ratchets 53, one at each end of the platen 52, are engaged by the pawls 51, so it is only necessary to rotate one or other or both of the cranks 47 to secure the desired result of turning the platen. To do this automatically and at the same time be able to operate the horizontal spacing is one of the objects of this invention and by connecting the end sections 33 by means of the links 39, 40 and 41 this is accomplished.

The links 41 are joined to the shaft 42 extending across the front of the machine at the top. In the center of said shaft 42 the bracket 43 is rigidly mounted and extends upwardly therefrom and in the upper part has the slot 44 in alinement vertically and longitudinally with the shaft 42.

The shaft 45 is secured to the carriage of the typewriter, so as to be continuously part of the cranking mechanism for turning the platen 52. The shaft 45 extends through the slot 44, thus connecting it with the links 39, 40 and 41 and the vertical spacing bar, but allowing said shaft the freedom of movement necessary in the carrying out of the operations of the machine.

The cranks 47 are operatively connected to the shaft 45 by the links 54 and this completes the connections from the pawl and ratchet mechanism for rotating the platen to the vertical spacing bar under the key levers, said bar being operated at each depression of a key lever except when separated therefrom by the tilting of the rod 36.

The key levers 2 and the spacing levers 3 are here shown as pivoted at the back of the machine, the former operating type bars in hammer form against the platen, as customary in visible type writing machines, said spacing levers being joined at the front as usual by an elongated key.

The back spacing levers 56 are also operated from the key board and are connected with the rods 57, which connect said levers 56 to a crank rod 58, the latter operating the pawl 61 in engagement with the ratchet 62 and in action moving the carriage in a reverse direction by means of the rack 8 and coacting pinion.

The additions to the back spacing mechanism to complete this invention are shown more particularly in Figs. 5 and 6. The shaft 60 joins the rods 57 just above the key levers 2.

Each key lever 2 is provided with a hook 63 pivotally secured thereto and engaging the shaft 60, so that any one operation of a key will have the effect of moving the carriage in a reverse direction.

The hooks 63 are encircled intermediate of the height by loose rings, suitably supported and connected, by a cross bar joined to the rod 66, the latter having the key 67 on its outer end.

Briefly the operation of the invention is as follows:—

To space vertically in printing either letters, figures, dashes or other characters the horizontal spacing bar is separated into its sections by turning the knob 29. The central section 1 is removed from the key levers 2 by tilting the rod 24 and thus the connection to the regular escapement mechanism of the machine for horizontal spacing is broken, and at each action of a key lever the shaft 45 is drawn down and as it is part of the cranking mechanism for turning the platen, the latter is rotated to the extent of a tooth or more as desired. Thus a vertical row of figures, letters or other characters is obtained and this will be found very convenient in a regular correspondence machine.

To space diagonally the two bars, the vertical spacing bar and the horizontal spacing bar, are left intact and therefore in engagement with the key levers.

In such arrangement the carriage is progressing and at the same time the platen is turning and the result is a forward diagonal row of letters, figures or other characters.

To back space diagonally the central section 1 of the horizontal spacing bar is removed from the key levers and the key 67 moved inwardly, which puts all of the hooks

63 in engagement with the shaft 60, therefore each action of a key lever will move the carriage in the reverse direction and at the same time turn the platen, thereby obtaining a backward diagonal row of figures, letters or other characters.

For horizontal spacing in the regular way, the vertical spacing is broken into sections, as explained, and the center section removed from the key levers, and the key 67 is pulled outwardly to remove the hooks 63 from engagement with the shaft 60.

It will now be seen that five forms of spacing are provided in the one machine, namely horizontal and back spacing, as at present known, vertical, forward diagonal and backward diagonal and each of these in operation is traceable directly to the action of a key lever and none of them in any way interferes with the progress of the carriage or in any way relies on its motion for actuating the operating parts.

What I claim is:

1. In a typewriting machine, the combination with a frame, a carriage, a platen, a horizontal spacing mechanism and key levers, of means for spacing the characters vertically adapted to coact with said horizontal spacing mechanism in spacing the characters diagonally and means for assembing and freeing the spacing mechanisms to accomplish the horizontal, the vertical or the diagonal spacing.

2. A typewriting machine, comprising, a frame, a carriage traveling across said frame, a platen journaled in said carriage, means for controlling the movement of said carriage for horizontal spacing, key levers operating said spacing means, means actuated by said key levers for controlling the rotation of said platen in automatic vertical spacing, means for freeing said horizontal spacing means, means for freeing said vertical spacing means, said vertical and horizontal spacing means being operatively connected with said key levers for coincident operation therewith separately or together and independent of the machine frame.

3. A typewriting machine, comprising, a frame, a carriage traveling across said frame, a platen, means for controlling the carriage for horizontal spacing, key levers, means operatively connecting said key levers to said spacing means for forward spacing, means operatively connecting said key levers to said spacing means for back spacing and means for automatically rotating said platen operable coincidently with the aforesaid forward and back spacing respectively.

4. A typewriting machine, comprising, a frame, a carriage traveling across said frame, a platen, pawl and ratchet mechanism operatively connected to said platen, mechanism for horizontal spacing forward and reverse, key levers, a transverse bar in separable sections connected to said horizontal spacing mechanism and depressed by said key levers and detachable therefrom in its separated state, a transverse bar of similar formation operated by said key levers and detachable therefrom and operatively connected to said pawl and ratchet mechanism, and means extending from each key lever and detachable therefrom for operatively connecting said key levers to said mechanism for the reverse horizontal spacing.

Signed at Montreal Canada this 31st day of December 1914.

WILLIAM MYERS.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."