F. HEIDNER.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 18, 1914.

1,138,474. Patented May 4, 1915.

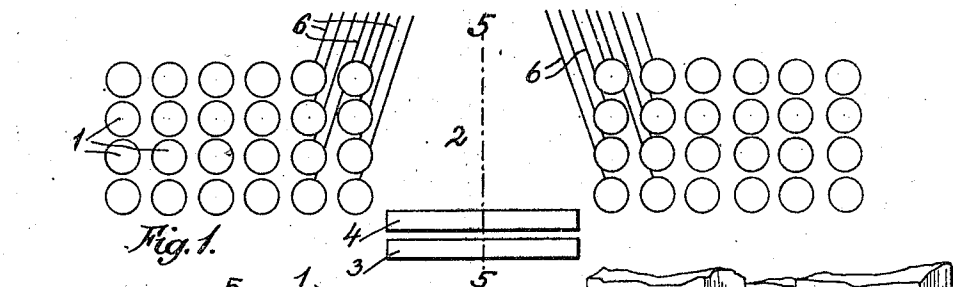

Fig. 1.

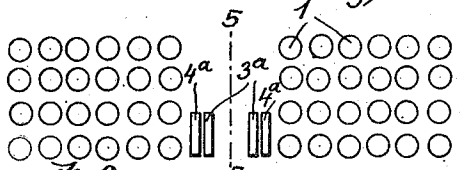

Fig. 2.

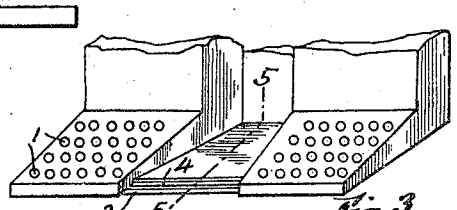

Fig. 3.

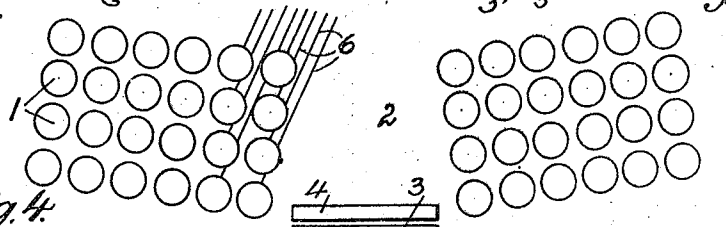

Fig. 4.

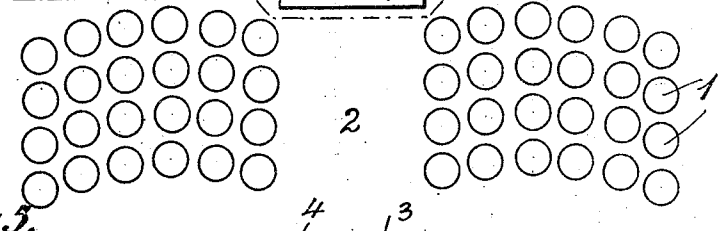

Fig. 5.

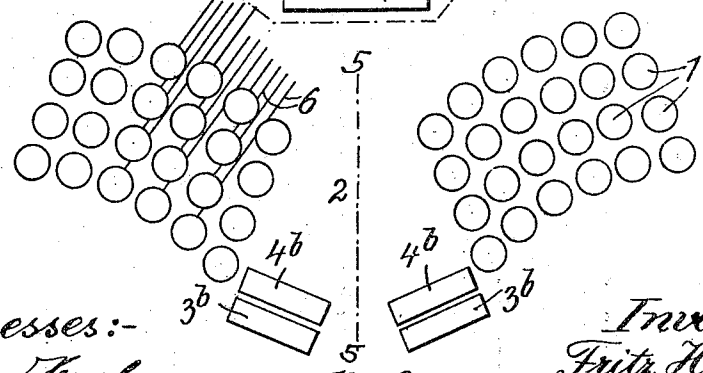

Fig. 6.

Witnesses:-
Hermann Kenrk
D. F. Schilling

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Fritz Heidner
by Dwd. D. Lewis
his attorney

UNITED STATES PATENT OFFICE.

FRITZ HEIDNER, OF FREIBURG, GERMANY.

TYPE-WRITING MACHINE.

1,138,474. Specification of Letters Patent. Patented May 4, 1915.

Application filed March 18, 1914. Serial No. 825,583.

To all whom it may concern:

Be it known that I, FRITZ HEIDNER, a subject of the German Emperor, and residing at Freiburg, Baden, German Empire, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in the keyboards and key levers of type-writing machines, my object being to enable the operator to obtain a better view of the keys and to write with greater ease, in a less cramped position than ordinarily. With this object in view I divide the keyboard into halves and locate the two groups of keys thus formed in such manner that the forearms of the operator in the normal position for writing, instead of converging as is usual, lie substantially parallel with each other. In order to adapt the key levers to the above form of keyboard, I so dispose them that they are directed at a certain angle to the rows of ascending keys.

My invention is illustrated diagrammatically in the accompanying drawing, in which—

Figure 1 is a plan of a keyboard showing one manner of disposal of the keys and their levers. Fig. 2 is a plan of a similar keyboard, provided with two shift and two spacing keys, accommodated in the space between the two groups of keys. Fig. 3 is a perspective view of the keyboard shown in Fig. 1. Fig. 4 is a like view to Fig. 1, showing a modified arrangement of the keys and their levers. Figs. 5 and 6 are like views illustrating two further modifications.

Referring more particularly to Figs. 1 and 3, the keys 1 are positioned in horizontal and vertical rows, and are divided into two groups separated by a space 2 of such width that when the operator applies his fingers to the keys in writing on the so-called ten digit system, his forearms lie substantially parallel with each other. The shift key 3, which may be of bar or other form, is located on the center line 5—5 drawn through the gap between the two groups of keys 1, adjacent to the usual spacing key 4, so that it may be conveniently operated by the thumbs. Or, if desired, as shown in Fig. 2, each group may be provided with its own shift key 3^a and spacing key 4^a, located in the gap 2.

The novel arrangement of the keys is of great advantage from a hygienic point of view, as the forearms have no longer to be held in a more or less constrained position against the body, but remain perfectly free, so that the chest can be normally expanded. Moreover, owing to the parallel disposition of the forearms, the hands have not to be twisted outward to the same extent as formerly has been the case, and there being thus much less strain upon the abducent muscles, writing is rendered considerably less fatiguing. The keys, again, can be distinguished more readily and their position more quickly impressed on the memory; and there is no longer any tendency for the hand to operate keys which properly belong to the domain of the other hand. The method of dividing the keys into two separate groups also facilitates operation of the shift and spacing keys with the thumbs, which in view of their natural position, their power and their freedom of motion, and of the fact that they are otherwise idle, are particularly adapted therefor. It will be seen from the above that this invention is particularly favorable to the ten digit system of writing, which is not only the most practical and economical method, but also the only correct one from the hygienic point of view. The vacant space between two groups of keys also greatly facilitates mounting of the spacing mechanism in the center of the machine, which mechanically regarded is the most satisfactory method.

The new mode of disposing the keys demands extension and lateral deviation of the lever mechanism. This may be conveniently provided for by directing the parallel key levers 6 of each group at a certain angle to the rows of ascending keys, so that they converge in the direction toward the printing point. By suitable selection of the angle of inclination of the levers 6 the danger of collision of the latter may be effectively obviated even in the case of keys disposed, as shown in Fig. 1, in vertical rows. Such an arrangement also permits of the banks of keys being relatively low, so that the entire keyboard may be made considerably flatter than ordinarily, whereby a clearer view of the keys is obtained.

In the modification shown in Fig. 4 the two groups of keys 1, instead of being located parallel with each other, as depicted in Fig. 1, are placed at an angle to the cen-

ter line 5—5. The key levers b, even if they were to follow the line of the rows of ascending keys would converge to a certain extent, but they may naturally be directed at any desired angle to such rows. Such convergence of the key groups further facilitates operation of the keys by the fingers in their natural position in the extended axis of the forearm. It may also be possible, by suitable selection of the angle of inclination of the key groups, to diminish somewhat the width of the gap 2 between the same, with out sacrificing any of the advantages of the invention.

In order that the keys may be disposed in accordance with the natural form of the hand, that is to say, lengths of the fingers, the transverse rows of the two key groups may run in curves, as shown in Fig. 5. It is obvious that in this case also the key groups may be located at an angle to the center line 5—5, for instance as indicated in Fig. 6. In the latter figure separate shift and spacing keys 3^b, 4^b, are shown for each key group immediately in front of the space 2, on each side of the center line 5—5.

It is manifest that although I have only described the invention with respect to a so-called normal keyboard, with shift key, it is equally applicable to full keyboards, without any shift keys; and it is also clear that the keys need not ascend in a right line from bank to bank, as shown in the drawing, but may be disposed in the more usual manner, in which the keys of the one bank are more or less staggered relatively to those of the next.

What I claim as new is—

1. In a typewriter keyboard, two groups of keys separated from each other by a space of such width that the forearms of the operator lie substantially parallel with each other, the transverse rows of keys of each group running in the form of curves whose concavity is on the side next the operator.

2. In a typewriter key-board, two groups of keys separated from each other by a space of such width that the forearms of the operator lie substantially parallel with each other, the transverse rows of keys of each group running in the form of a curve whose concavity is on the side next to the operator, in combination with parallel levers for the keys directed at an angle to the rows of keys.

3. In a typewriter key board, two groups of keys separated from each other, the two groups of keys being opposite the hands of an operator when the operator's arms are extended parallel from his sides, the said keys being arranged in concentrically curved rows and parallel straight rows from the front to the rear of the said key board.

4. In a typewriter key board, two groups of keys separated from each other, the two groups of keys being opposite the hands of an operator when the operator's arms are extended parallel from his sides, the said keys being arranged in concentrically curved rows and parallel straight rows from the front to the rear of the said key board, and parallel obliquely extending groups of key levers connected to the keys.

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

FRITZ HEIDNER.

Witnesses:
ARNOLD ZUBER,
PHILIP HOLLAND.