No. 750,572. PATENTED JAN. 26, 1904.

A. BEYERLEN.

KEYBOARD FOR TYPE WRITING MACHINES.

APPLICATION FILED JUNE 4, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

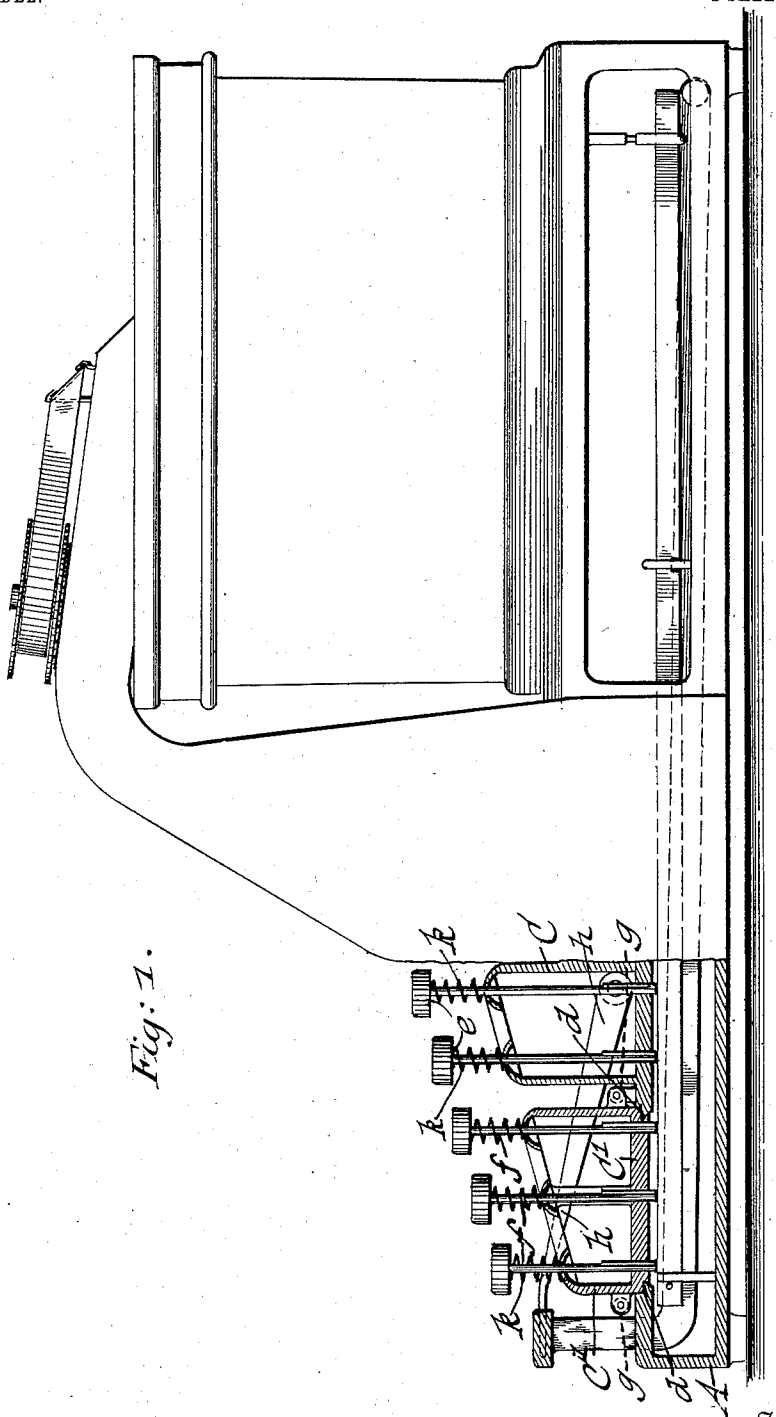


Fig. 1.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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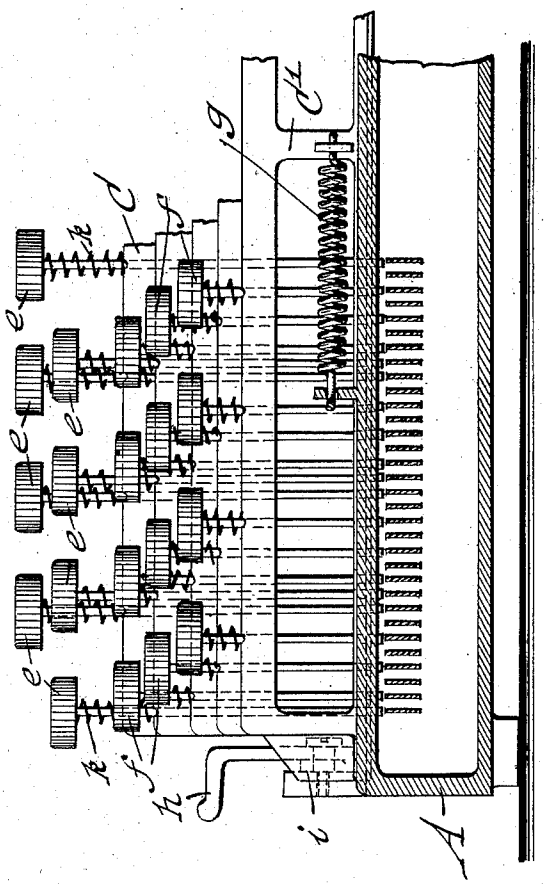
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NO MODEL. 2 SHEETS—SHEET 2.

Fig: 2.



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UNITED STATES PATENT OFFICE.

ANGELO BEYERLEN, OF STUTTGART, GERMANY.

KEYBOARD FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 750,572, dated January 26, 1904.

Application filed June 4, 1903. Serial No. 159,989. (No model.)

To all whom it may concern:

Be it known that I, ANGELO BEYERLEN, a citizen of the Empire of Germany, residing in Stuttgart, in the Kingdom of Würtemberg and Empire of Germany, have invented certain new and useful Improvements in Keyboards for Type-Writing Machines, of which the following is a specification.

This invention relates to certain improvements in keyboards for type-writing machines.

In the type-writing machines heretofore in use either a full keyboard in which keys corresponding to the number of letters of the alphabet for capitals and small letters are employed—that is to say, for each sign a separate key—or keyboards with shifting devices are employed. The former keyboards (Yost machines) have the disadvantage of having a large number of keys, by which mistakes in striking the keys are easily made and by the use of which the operator becomes quickly fatigued for the reason that the hands have to be moved over a larger surface, while the machines with a single system of keys and carriage-shifting devices have the disadvantage that on one and the same key letters or signs differing in form have to be placed, so that naturally the liability to make mistakes is increased, especially when, as in the Hammond keyboard, a key is used in which letters and figures are combined.

The object of this invention is to supply an improved keyboard in which the objections referred to are obviated; and to this end the keyboard is constructed in sections and comprises a stationary section having keys each representing a single character and adapted to coöperate with a single lever or other printing means and a shiftable keyboard-section carrying keys each representing a plurality of characters and adapted to coöperate with one lever or printing means when in normal position and with a different lever or printing means when in shifted position. In this system the use of the type-writing machine can be learned quickly and with great facility and mistakes in striking the keys avoided.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved keyboard; and Fig. 2 is a front elevation of a portion of the keyboard, in which the covering front plate is removed.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the bottom frame of the type-writing machine, and C C′ two keyboard-sections, the section C being permanently connected with the bottom frame of the type-writing machine, while the section C′ is guided in transverse ways *d* of the bottom frame, as shown in Fig. 1. Both sections C C′ are provided with a system of keys, the keys *e* in the non-shiftable section C being arranged for those characters in which only one form is used—as, for instance, numerals, punctuation-marks, and other characters—while the keys *f* in the shiftable section C′ are each intended for use in producing signs of the same kind but of different form—as, for instance, "A a, B b," &c. By this arrangement the operator has to learn only the position of the keys of different signs and those of keys for the letters of the same kind. The division of the keyboard into a stationary casing and a shiftable casing is the characteristic feature of the present invention. It is obvious that such a keyboard facilitates the learning of the use of the type-writing machine and prevents to some extent the erroneous striking of keys as compared to keyboards in which each letter has its own key or in which some of the keys serve for several dissimilar letters or signs.

The key-levers or other printing means or devices for imparting motion to the printing-types are arranged in the base of the machine underneath the stems of the keys. There are usually as many key-levers as there are stationary keys plus twice the number of shiftable keys. The keys of the non-shiftable keyboard-section each represent a single character and are adapted to coöperate with a single printing-lever, and the keys of the shiftable section each represent a plurality of characters and are adapted to coöperate with one set of levers or other printing means or motion-transmitting devices when in normal position and with a different set of levers or printing means or transmitting devices when in shifted

position, as shown in Fig. 2. In said figure the shiftable section is in normal position, and when it is shifted to the right its stems engage the levers, which in said figure appear to have no stems above them.

The shifting of the section C′ can be accomplished in any suitable manner. In the drawings the section C′ is returned by means of helical expansion springs *g*, one at each side of the section, which are attached each at one end to a lug projecting laterally from the section above the bottom frame of the machine and at the other end to a lug projecting upwardly from said bottom frame into line with the lug of the casing. The extent of the shifting motion of the section C′ is controlled by suitable stops. For producing the shifting of the section C′ a shift-key *h* is employed at the left-hand end of the keyboard. Said key or lever is pivoted at its rear end adjacent the fixed keys and extends forward opposite said carriage C′, as shown in Fig. 2, and is provided beyond the same with an operating-handle. It slides when depressed along an inclined lug *i* on the section C′ and moves the same sidewise and in opposite direction to the tension of the springs *g* for the reason that the shift-key is guided in a plane which is at right angles to the bottom frame A. By the shifting of the section C′ all the keys *f* in the same are so shifted that they are placed vertically above the adjacent key-levers of each group, but not over the levers of the fixed keys. Between the heads of the keys and the top of the keyboard-sections C and C′ are interposed on the key-shanks helical springs *k*, which are not connected with the key-levers so as to have a perfectly free motion and permit thereby the vertical striking of the key-levers by the key-stems when they are depressed. This arrangement, however, can be made in different manners, according as the keyboard is used for one or the other system of type-writing machines.

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

1. In a type-writer, the combination of a fixed keyboard-section having keys, each representing a single character and adapted to cooperate with a single printing means, and a shiftable keyboard-section carrying keys, each representing a plurality of characters and adapted to coöperate with one printing means when in normal position and with a different printing means when in shifted position.

2. The combination with a sectional keyboard having fixed and shiftable sections, of a plurality of levers, the keys of the fixed section each representing a single character and coöperating with a single lever and the keys of the movable section each representing a plurality of characters and coöperating with one lever when in normal position and with a different lever when shifted.

3. The combination with a sectional keyboard having fixed and shiftable sections, of a plurality of levers, the keys of the fixed section each representing a single character and coöperating with a single lever and the keys of the movable section each representing a plurality of characters and coöperating with one lever when in normal position and with a different lever when shifted, a shift-key for shifting said shiftable section in one direction, and automatic means for shifting it in the other direction.

4. In a type-writer, the combination of a plurality of fixed keys spaced apart and carrying each a character of single form, a plurality of laterally-shiftable keys arranged in groups between said fixed keys and carrying each a character having a plurality of forms, a carriage supporting said laterally-shiftable keys in fixed relation relatively to each other, key-levers in opposition to the fixed and movable keys, an extra set of key-levers for each group of shiftable keys, and means for moving said carriage to bring said shiftable keys over said extra set of key-levers, but not in opposition to the levers of the fixed keys, substantially as set forth.

5. In a type-writer, the combination of a plurality of fixed keys spaced apart and carrying each a character of single form, a plurality of laterally-shiftable keys arranged in groups between said fixed keys and carrying each a character having a plurality of forms, a carriage supporting said laterally-shiftable keys in fixed relation relatively to each other, key-levers in opposition to the fixed and movable keys, an extra set of key-levers for each group of shiftable keys, lugs, one at each side of said carriage, projecting therefrom, above the bottom frame of the machine, lugs projecting upwardly from said bottom frame into line with the lugs of the carriage, extension-springs between the lugs of the frame and carriage, and an operating-lever pivoted at its rear end adjacent the fixed keys and extending forward opposite said carriage and provided beyond the same with an operating-handle, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

A. BEYERLEN.

Witnesses:
K. ZEISIG,
ERNST ENTERMAN.