

UNITED STATES PATENT OFFICE.

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TYPE-WRITER.

No. 836,999.

Specification of Letters Patent.

Patented Nov. 27, 1906.

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To all whom it may concern:

Be it known that I, LOUIS SHOLES, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Type - Writers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The main object of this invention is to shift the pivots or fulcrums of type-bars, each having a plurality of type for printing different characters by the manipulation of the keys employed to produce the impression of the type upon the platen.

It consists in certain novel features of construction and in the peculiar arrangement and combinations of parts hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a side elevation of a portion of a type-writer embodying the invention, certain parts being broken away and shown in section. Fig. 2 is a vertical cross-section on the line 2 2, Fig. 1, and Fig. 3 is a horizontal section on the line 3 3, Fig. 1.

a designates a type-bar having a plurality, in the present case two, type *b c*, for printing different characters. It is fulcrumed or pivoted at *d* to a shifting lever *e*, which is in turn fulcrumed or pivoted at *f* to a fixed support *g* on the frame of the machine.

h is a key or impression lever fulcrumed or pivoted at its rear end to a fixed support *i* on the frame and connected between its ends by a link *j* with an intermediate lever *k*, which is in turn fulcrumed at its rear end to a rearwardly-extending arm of the lever *e* and is pivotally connected at its front end with the type-bar *a* by a pin *l*, working in a slot in said bar. A retracting-spring *m*, connecting the lever *h* with the support *i*, tends to return said lever and type-bar with their connections to their normal or initial positions.

n is a key-support provided with guides *o* and *p*, in which the stem *q* of the key *r* is movably endwise. The key-stem is pivoted in the upper guide *o* and on a pin *s*, passing transversely through the opening in said guide and a longitudinal slot in said stem. The lower guide *p* has a plurality of openings *t*, corresponding in shape with the stem *q* and in number and arrangement with the type *b c*

on the type-bar *a*, and these holes are connected by a constricted passage, as shown in Fig. 3.

The stem *q* has a reduced part *u*, which registers with the constricted passage in the guide *p* when the key *r* is in its upper or initial position and permits the key with said stem to be rocked backward and forward on its pivot in the upper guide *o*, so as to shift the type-bar *a* into its different printing positions, as hereinafter explained and as indicated by dotted lines on Fig. 1. At its lower end the stem *q* is forked or slotted to loosely embrace the lever *h*, which is curved on its upper edge in its normal position concentrically with the pivot-pin *s*. A bar or rod *v*, pivoted at its rear end to a depending arm of the shifting lever *e*, is pivoted at its front end to the lower end of a link *w*, which is in turn pivoted at its upper end on or in line with the pin *s* in the upper guide *o*. The lower end of this link has pins or projections *x* loosely embracing the key-stem *q* and causing it to impart its lateral movement to the bar or rod *v* and the shifting lever *e*. A spring *y*, connecting the bar or rod *v* with the support *g*, tends to retract the key and its stem into and to hold them in their normal printing position, in which the stem stands vertically, as shown in Fig. 1.

The improved shifting and printing mechanism hereinbefore described operates as follows: By depressing the key *r* from its normal initial position, in which it is shown by full lines in Fig. 1, the upper or outer type *b* on the type-bar *a* is caused to describe the path indicated by the upper or outer dotted arc and is caused to make an impression on the platen, which is indicated in the same figure by broken circles. If an impression is to be made with the lower or inner type *c*, the key *r* is thrust backward and the stem *q* tilted into an inclined position. By this operation the front end of the shifting lever *e* and the fulcrum or pivot *d* of the type-bar *a* are carried upward, as indicated by dotted lines, into position to produce an impression of the type *c* on the platen. If now the key is depressed, its stem *q* being held and guided in the front opening *t* after the reduced portion *u* of the stem passes below the guide *p*, the type-bar *a* will be swung upward and backward against the platen, the type *c* describing the path represented by the lower or inner dotted arc, which intersects the upper or outer arc described by the type *b* at the surface of the platen or at the printing-point thereon. The

key being released upon reaching the upper limit of its movement when the reduced part *u* of its stem is brought opposite the constricted passage in the guide *p* will be carried back by the spring *y* into its original position, in which the stem registers with the rear opening *t*, thus restoring the parts of the mechanism to the required positions for making an impression with the type *b* by simply depressing the key *r* in the usual way. It will be understood, of course, that each multiple type-bar is to have printing and shifting connections with a single key like or similar to those shown and described.

Various modifications in the construction and arrangement of the parts of the mechanism may be made without departing from the principle and scope of the invention.

I claim—

1. In a type-writer the combination of a type-bar having a plurality of type, a shifting lever to which said bar is fulcrumed or pivoted, an intermediate lever pivoted to said bar and to said shifting lever, a key-lever connected with said intermediate lever close to the axial line of the fulcrum of the shifting lever, and connections for operating said shifting and key levers, substantially as described.

2. In a type-writer the combination of a shifting lever, a type-bar fulcrumed or pivoted to said lever and having a plurality of type, an impression-lever connected with said type-bar, a vertically and laterally movable key having a stem engaging said impression-lever and connected with said shifting lever, and guides for said key-stem, one of said guides being slotted to permit lateral movement of the key, substantially as described.

3. In a type-writer the combination of a shifting lever, a type-bar fulcrumed or pivoted to said lever and having a plurality of type, a key-support having guides for the key-stem, and a key connected with the shift-

ing lever and having a stem movable endwise in said guides and pivoted in one of them, one of said guides having a plurality of openings for the key-stem corresponding in number and arrangement with the number and arrangement of type on the type-bar and connected by a constricted passage, and the key-stem having a reduced part which registers with said constricted passage when the key is in a certain position, substantially as described.

4. In a type-writer the combination of a shifting lever, a type-bar fulcrumed or pivoted to said lever and having a plurality of type, a key-support having guides for the key-stem, a key having its stem movable endwise in said guides and pivoted in one of them, the other being slotted to permit lateral movement of the stem when the key is in a certain position, and a bar connected at one end with said shifting lever and at the other with said key-support by a link which is pivoted at one end to said support adjacent to the pivot-guide of the key-stem and has at the other end a guiding connection with said stem, substantially as described.

5. In a type-writer the combination of a shifting lever, a type-bar having a plurality of type and fulcrumed or pivoted to said lever, a key-support having guides for the key-stem, a key having its stem movable endwise in said guides and pivoted in one of them, the other guide being slotted to permit lateral movement of the stem when the key is in a certain position, a bar connecting said stem with said shifting lever, and a spring tending to hold said key-stem in its normal position, substantially as described.

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

LOUIS SHOLES

Witnesses:

FRANK C. KELLER,
CHAS. L. GOSS.