

UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

No. 804,938.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB FELBEL, a citizen of the United States, and a resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to type-writing machines; and its main object is to provide an improved construction of type-bar and type block or head whereby the alinement of the types is facilitated.

To this end my invention consists in certain combinations of devices, features of construction, and arrangements of parts, all as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical front to rear sectional view taken centrally of the machine, with such parts omitted as are immaterial. Fig. 2 is an enlarged side elevation of a portion of a type-bar with my improvement thereon. Fig. 3 is a central view taken on the line *xx* of Fig. 2. Fig. 4 is an enlarged side elevation of a portion of a type-bar, showing the preferred form of the invention. Fig. 5 is a sectional view taken on the line *yy* of Fig. 4.

Like parts are designated by like numerals of reference throughout the several views.

The frame of the machine comprises a base 1, corner-posts 2, and a top plate 3, the latter supporting a suitable carriage, (not shown,) the platen 4 of which is diagrammatically illustrated. Key-levers 5 have the usual finger-keys 6, and pivoted at 7 on each key-lever is a sublever 8, formed with a slot 9 near its lower end, said slot embracing a fixed fulcrum-bar 10, which passes from side to side of the machine beneath the key-levers. Pivoted at 11 to the upper end of the sublever 8 is an actuating-link 12, the forward end of which is pivoted at 13 to the type-bar 14. The type-bar is supported at its free end by the type-rest 15, which is sustained in position by several arms, whereof the left-hand one, 16, is shown extending forwardly from the type-bar segment 17.

The type-bars of the machine herein shown are segmentally arranged, and each is disposed in a radial bearing-slot 18, formed in the segment 17, and is pivoted therein on a pivot-wire 19, that passes through holes in the type-bars. As best appears in Fig. 2,

the forward portion of the type-bar proper terminates in a head 20, provided with a forward lug 21 and a rear lug 22, which lugs have tapped holes in them for the reception of set-screws 23 and 24. The face or edge 25 of the type-bar between these lugs 21 and 22 is a plane surface and the side faces 26 of the bar join the face 25 at right angles, the three faces serving as a bed or support for the type-block 27. As herein shown, the type-block consists of a base having a face furnished with two types; but the number of types is immaterial and one or more may be employed. The type-block 27 has a front face 28 sloping rearwardly from its base, against which face the set-screw 23 abuts, and said block has an oppositely-disposed rear face 29, against which the set-screw 24 abuts. In the bottom of the type-block 27, which is somewhat wider than the type-bar, is a groove or cut-away 30, adapted to closely embrace the bed formed by the faces 25 and 26 of the head 20 of the type-bar, and thus serve to prevent lateral displacement of the type-block.

It is evident that the type-block 27 may be positioned longitudinally of the type-bar 14 by means of the set-screws 23 and 24, thus enabling the longitudinal alinement of the type to be effected. To illustrate: When the finger-key 6 is depressed, the type-bar is actuated in a manner well understood, and the forward or lower-case type describes the path represented by the dotted arc in Fig. 1. If the point of contact of this lower-case type with the platen should be too high, the rear set-screw 24 is unscrewed sufficiently to allow the type-block 27 to be moved toward the pivot 19 to bring the type into alinement, and this movement of the type-block is effected by screwing in the impinging front set-screw 23 until the type-block again contacts with the rear set-screw 24. If the point of imprint of the said lower-case type be too low, the front set-screw 23 is unscrewed sufficiently to enable the type-block 27 to be moved outward until it alines, said movement being accomplished by screwing in the rear set-screw 24. The set-screw 24 is screwed in until the type-block is again brought into contact with the set-screw 23. It will be evident from an inspection of Fig. 2 that either set-screw will have to be unscrewed a considerable distance before room will be afforded for the lower and wider portion of the type-block 27 to pass

upward between the inner ends of the set-screws, and thus permit the type-block 27 to be removed completely from the type-bar. In practical alining work it will be found
 5 that neither screw will require to be unscrewed far enough to allow of this complete removal of the type-block, so that the construction while permitting the ready adjustment of the type-block for necessary alinement within
 10 practical limits is such that at the same time the type-block is prevented from accidental removal or displacement from the type-bar. It will further be evident that when the set-screws 23 and 24 are tightened against the
 15 sloping or beveled faces of the type-block the latter is wedged down firmly on its bed, so that a very secure connection between the type-bar and the type-block is obtained, and the relation between them is not readily altered,
 20 except by means of the adjusting set-screws 23 and 24.

Figs. 4 and 5 illustrate the invention applied to a somewhat different construction of type-bar. As shown herein, the fore part of
 25 the bar terminates in an enlarged and perforated head 31, into which is driven the shank 32 of the bed-piece 33, the latter serving as a seat or bed for the type-block 34. On this bed-piece 33, which corresponds with the type-bar head 20 of the preceding figures, the type-block 34, consisting of a base portion and a face furnished with type, is held and adjusted,
 30 as previously described. With such a construction it is possible to furnish as a separate article of manufacture a type structure consisting of a type-face or type-faces, a base therefor, and a bed provided with a shank or other appropriate means for attaching the type structure to the type-bar proper. The
 35 type bar or carrier may be of any form or construction.

It will be understood, of course, that the invention is not confined to the particular constructions herein set forth and that various
 45 changes in form, construction, and arrangement may be made within its scope.

My invention is particularly advantageous to the style of type-bar bearing herein shown in which the construction is such that bodily
 50 longitudinal or radial adjustment of the individual bars is not practically attainable; but my invention is equally applicable to type-bars mounted in individual type-bar hangers, radially adjustable or not.

It will be observed that the adjusting devices are arranged at the front of the machine, where they are readily accessible to the aliner, and so tend to facilitate his work. Furthermore, owing to the use of the screws, which
 60 may be of fine pitch, very delicate and accurate alinement may be obtained, more so than by radially adjusting the hangers or bending the bars as heretofore.

It will be understood that in a machine,
 65 strictly speaking, only very few of the types

are adjustable longitudinally on their bars, because as the bars depart from the longitudinal center of the machine the type-blocks are progressively arranged at increasing angles to the longitudinal axes of the bars. At
 70 the sides of the machine or near the ends of the segment the type-blocks are arranged at or nearly at right angles to the lengths of the bars; but in all cases the types are adjustable for alinement in the direction of their length
 75 or longitudinally of their bases. Moreover, the types are in all such cases adjustable transversely of the line which they print upon the paper in the machine. In the broadest sense the type structure as a whole may be considered as a type and so designated, whether it
 80 comprise the face or faces and the base, as in Fig. 1, or the face or faces, base, bed, and shank, as in Fig. 4, or be otherwise formed or constructed, since the primary purpose is to
 85 provide for adjustment of the type transversely of the line of print or longitudinally and angularly of the bars.

It will be observed that by my invention new types or type-blocks to replace broken or
 90 worn-out types may be sold to users of machines and that such types or type-blocks may be accurately positioned for alinement by such users without calling in the services of an expert aliner, since the block and face only need
 95 be substituted.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a type-bar, a type having a slotted
 100 base, a bed for said base to slide on, and an adjusting-screw abutting said base and capable when moved of also moving said base for adjustment.

2. In a type-writing machine, the combination of a type-bar, a type having a slotted
 105 base, a bed for said base to slide on, and adjusting and holding screws abutting against the ends of said base and capable when turned of moving the latter longitudinally of its bed.
 110

3. In a type-writing machine, the combination of a type-bar, a type having a slotted base, a bed having threaded ears, and adjusting and holding screws.

4. In a type-writing machine, the combination of a type-bar, a type having a base with
 115 beveled ends, a bed having threaded ears and adjusting and holding screws.

5. In a type-writing machine, a type-bar having a removable type-base which may be
 120 secured at varying distances from the type-bar pivot by means on the type-bar, said type-block being removable independently of said securing means.

6. In a type-writing machine, the combination of a type-bar, a type-base having a slot
 125 adapted to embrace a part carried by the bar, and screws for securing the base in position, the ends of said screws abutting said type-base.
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7. In a type-writing machine, the combination of a type-bar having a type-base adapted to be securely wedged to the bar, and wedging-screws the ends of which abut against the type-base.

8. In a type-writing machine, the combination of a type-bar carrying lugs in its forward portion, set-screws passing through the lugs, and a removable wedge-shaped type-base adapted to be secured to the type-bar by the set-screws, which latter abut against the ends of said type-base.

9. In a type-writing machine, the combination of a type-bar, a bed-piece, means for connecting the type-bar and bed-piece together, a type-base, and means for adjustably connecting the type-base with the bed-piece, said means comprising screws the ends of which abut the type-base and exert a wedging effect thereon.

10. In a type-writing machine, the combination of a type-bar having a perforated head, a bed-piece having a shank adapted to be inserted into the perforated head on the type-bar, a type-base and means for adjustably connecting the type-base with the bed-piece, said means comprising screws the ends of which abut the type-base and exert a wedging effect thereon.

11. In a type-writing machine, a type structure consisting of one or more type-faces, a base on which they are mounted, a bed portion, and means for attaching the bed portion to the type-bar, the base being wedged on the

bed and the bed being wedged on the type-bar.

12. In a type-writing machine, the combination of a type-bar, a type-base having oppositely-beveled ends, and securing-screws on the type-bar coacting with the beveled ends of the type-base.

13. In a type-writing machine, the combination of a type-bar, a type-base thereon, and a screw adapted to move said type-base longitudinally.

14. In a type-writing machine, the combination of a type-bar, a type-base thereon, and adjusting-screws adapted to move said type-base to and fro longitudinally.

15. In a type-writing machine, the combination of a type-bar; a type-base slidably mounted on said type-bar, and screws adapted to communicate sliding motion to said type-base.

16. In a type-writing machine, the combination of a type-bar, a type-base slidably mounted on said type-bar, and screws adapted to communicate sliding motion to said type-base and to secure said type-base to said type-bar.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 9th day of April, A. D. 1904.

JACOB FELBEL.

Witnesses:

E. M. WELLS,

M. F. HANNWEBER.