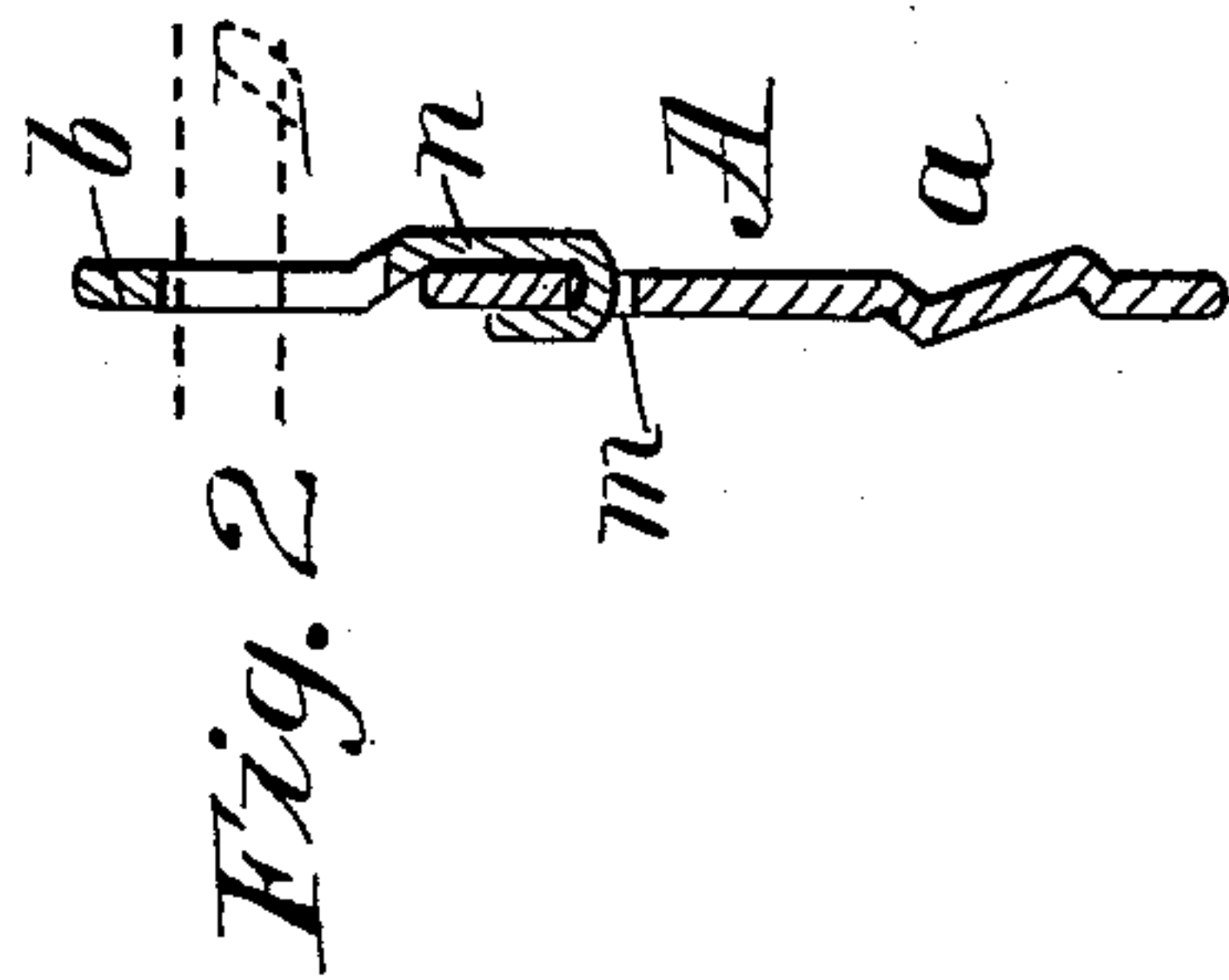
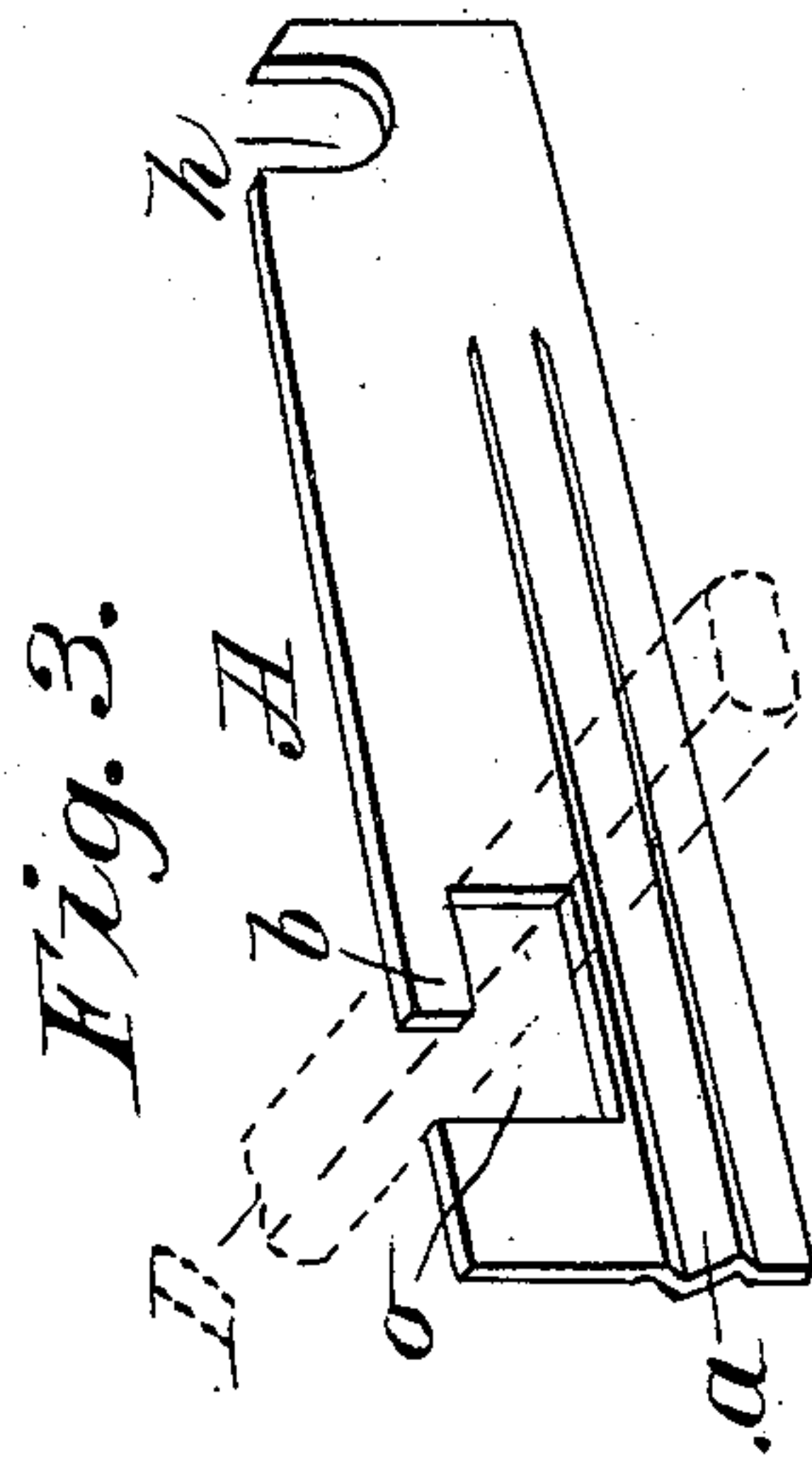
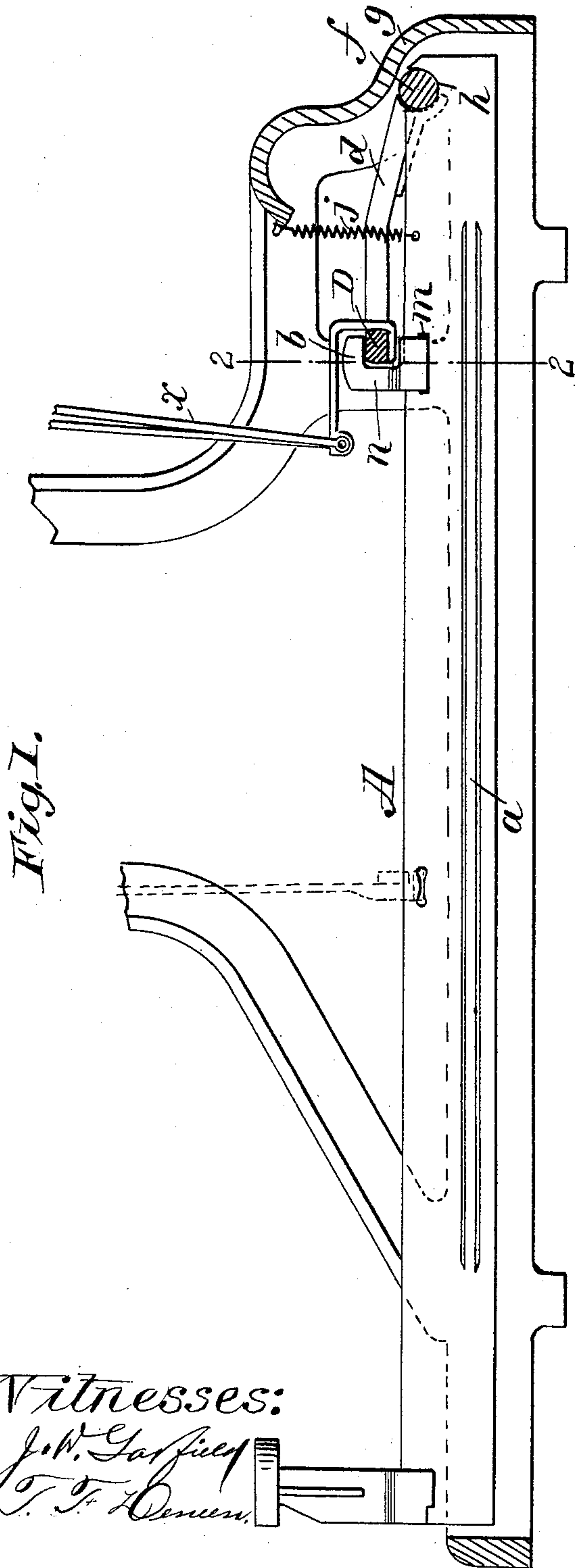


(No Model.)

A. DENSMORE.
TYPE WRITING MACHINE.

No. 475,443.

Patented May 24, 1892.



Witnesses:

J. W. Garfield
T. J. Densen.

Inventor,
Amos Densmore,
per Chapman & Co.
attys.

UNITED STATES PATENT OFFICE.

AMOS DENSMORE, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 475,443, dated May 24, 1892.

Application filed October 3, 1891. Serial No. 407,657. (No model.)

To all whom it may concern:

Be it known that I, AMOS DENSMORE, a citizen of the United States, residing in the city, county, and State of New York, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in type-writing machines, and especially the construction of the key or operating levers and the arrangement relative thereto of the universal bar, whereby the means for effecting the operation of the escapement or letter-spacing mechanism for controlling the movements of the carriage and platen becomes simplified and most inexpensive.

The invention consists, in a type-writing machine, of the combination, with a series of key or operating levers, each having at its upper portion a hook-like member, of the universal bar ranged across the key-levers and having its top next below and engaged by said hook-like members of the key-levers and mounted for the proper movements for actuating the letter-spacing mechanism, there being an unobstructed space below each key-lever hook member of greater vertical extent than the height of the universal bar, all whereby on the depression of any of the key-levers the hook thereof will downwardly force the universal bar, which latter then moves downwardly from its proximity to the under surfaces of the hook members of the remaining levers of the series.

In the accompanying drawings the invention is illustrated, Figure 1 being a sectional elevation of parts of the type-writing machine sufficient to clearly indicate the construction of the novel parts and the arrangements thereof with relation to each other and to some of the other parts of the machine. Fig. 2 is an enlarged cross-section of the key or operating lever through the hook-formed portion thereof or as indicated by the section-line 2 2 on Fig. 1. Fig. 3 is a perspective view to illustrate a slight modification of the hook form of the operating-lever for engaging the universal bar.

In the drawings, A represents the key-lever, which, as usual in the most common class of type-writing machines, is many times duplicated, and is now understood to be of thin

or sheet metal, formed by being struck or stamped out or otherwise, and, as shown, is provided between its edges with the longitudinal corrugation *a* for imparting to it increased strength and practically maintaining it against deflection. Each key-lever at its rear end is adapted to be pivotally supported, and intermediate of its length, at or near its upper edge, it has a hook member *b*, with which the universal bar D may engage, substantially as shown, the same being above the lower edges of the key or operating levers. The universal bar, which ranges transversely relative to the operating-lever A, is carried at the forward ends of duplicated arms *d*, one of which is indicated in Fig. 1 and understood to be at one side of the machine-frame, said arms being pivotally mounted at their rear ends upon a transverse rod or shaft which lies within the rear inclosing portion *g* of the frame. The pivot or fulcrum point for each of the operating-levers A is formed by the partly-circular recess formed in the rear upper corner of the lever, the edges of which recess bear on the said rod *f*. The levers are supported by the individual springs *j*, which respectively connect said levers near their ends and hold them in engagement with the fulcrum-rod, and the hook engagements between the key-levers and universal bar also assist in the keeping of the levers in proper position.

As shown in Figs. 1 and 2, each lever A has a longitudinal slot *m* formed just below its upper edge, and the bar-engaging part is constituted by a separate piece or strip of metal, as indicated at *n*, which has its upper portion formed to directly constitute the hook *b*, the lower portion being bent laterally and passed through the slot and again bent upwardly at right angles to lie alongside of the face of the key-lever proper, the sections of the said metallic piece *m* which lie on opposite sides of the key-lever being forced together to permanently pinch or bind upon the lever.

In Fig. 3 the hook formation is shown as constituted by an integral part of the lever, this being attained by making the angular recess *o* and in the disposition of the universal bar G within the hook-forming slot, as here possible. The top of the bar lies below the tops of the levers. It will be observed that

there is an unobstructed space below the lower surface of the hook member *b* of each key-lever which is of considerably greater vertical extent than the vertical thickness of the universal bar. Hence on the depression of any key-lever of the series the hook of that lever will downwardly force the universal bar, which recedes as it moves downwardly from proximity with the under surfaces of the other key-levers, which remain in their normal positions. One or more of the levers of the series may be the usual push-down lever for securing the letter-spacing; but, as plain, each and all of the levers on being depressed will, through the movement imparted to the universal bar, operate the escapement or spacing mechanism. (Not shown, but which, as usual, is understood as being located at the upper rear portion of the machine.)

The rod *x* (shown in Fig. 1 as being connected to an arm of the universal bar) is to be understood as extending to an operative connection with the above-mentioned escapement device.

In the manufacture of type-writing machines it is regarded as a matter of utility,

ease, and economy to arrange the universal bar above the key-levers in lieu of locating said bar below such levers, as has heretofore been practiced, and this arrangement of the universal bar becomes a matter of the utmost practicability when carried out in the manner substantially as hereinabove set forth.

I claim—

In a type-writing machine, the combination, with a series of key or operating levers, each having at its upper portion a hook-like member, of the universal bar ranged across the key-levers and having its top next below and engaged by said hook-like members of the key-levers and mounted for the proper movements for actuating the letter-spacing mechanism, there being an unobstructed space below each key-lever hook member of greater vertical extent than the height of the universal bar, substantially as described, for the purposes set forth.

AMOS DENSMORE.

Witnesses:

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