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TYPE BAR ACTUATING MECHANISM IN STANDARD AND PORTABLE TYPEWRITERS

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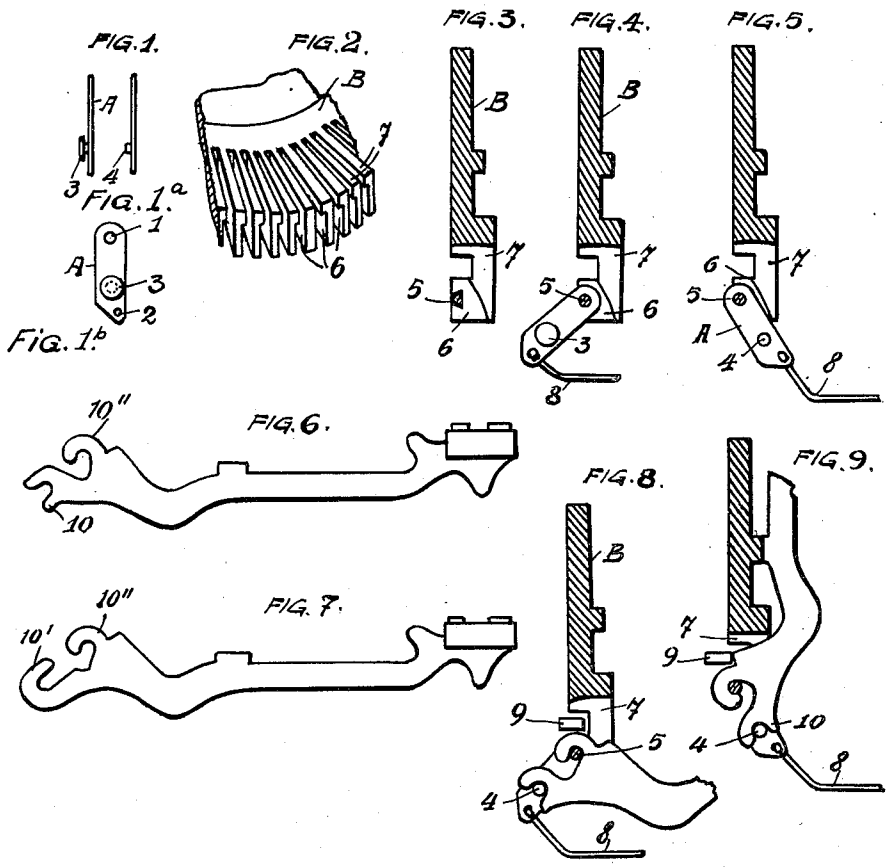

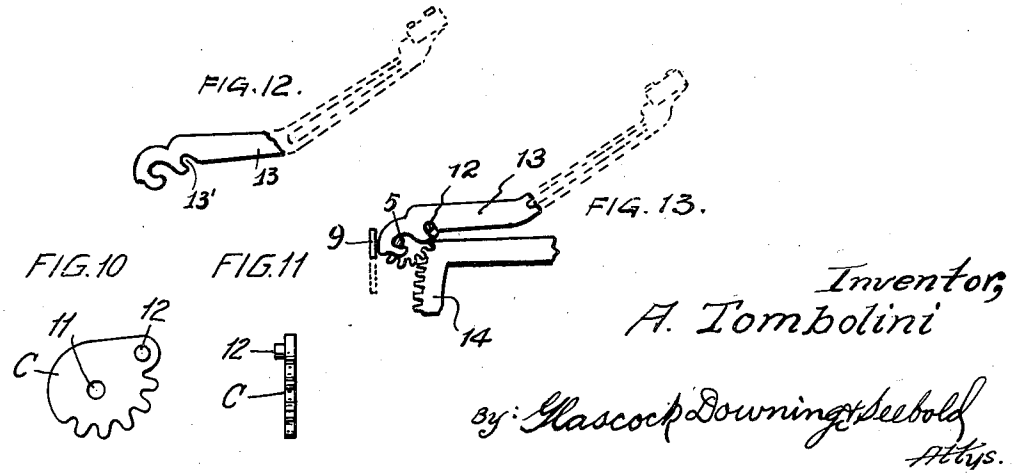

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TYPE BAR ACTUATING MECHANISM IN STANDARD AND PORTABLE TYPEWRITERS

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3 Claims. (Cl. 197—27)

This invention relates to an improvement in "standard" and portable typewriters and more particularly it has for its object an improved and simplified type bar actuating mechanism with which the following advantages are obtained: (*a*) the possibility of removing any single type bar from the type bar segment in all models of typewriters; (*b*) elimination of resistances and frictions in the type bar actuating mechanism and, consequently, softer and easier actuation of the key bars; (*c*) elimination of the "crown segment" or "milled bridge" placed under the type bar segment, which crown segment was necessary in some typewriters for the fixing of conjunction levers between each type bar and the corresponding pulling element; the device according to the invention permitting of the discharging of this crown segment, conserving however, the advantage of removing any single type bar; (*d*) the possibility of giving the type bar segment a shifting movement instead of raising the carriage, to write the capital letters.

According to the invention a small conjunction plate (having a thickness of about 0.6–0.8 mm.) is provided between each type bar and the corresponding pulling element. This conjunction plate is fixed on the same segment as the type bars and is arranged either to the right or left of each type bar in the slits of the segment, where the type bars are fixed.

To provide the space for said conjunction plates it is sufficient that the slits of the segment be of about 0.6–0.8 mm. larger. The space for the conjunction plate may also be obtained, as shown in the annexed drawing, entirely or partially, by milling a space between each tooth of the segment, which milled space, will, of course, be shorter than the whole slit of the segment; said space might further be obtained, in the case of very thick type bars, by diminishing the thickness of the type bar, where it is connected with the conjunction plate, without it being necessary to increase the width of the slits of the type bar segment.

The annexed drawing shows, by way of example, some forms of execution of the invention.

Fig. 1 is an end view of one form of the conjunction plate, according to the invention,

Fig. 1*a* is an end view of another conjunction plate,

Fig. 1*b* is a side elevational view of the plate shown in Fig. 1,

Fig. 2 is a perspective view of a part of the type bar segment,

Fig. 3 is a radial section of said segment,

Fig. 4 is a similar view showing also the conjunction plate in its position of rest,

Fig. 5 is a sectional view showing the conjunction plate in a position corresponding to the position of the key bar when depressed.

Figs. 6 and 7 show in elevation two different forms of the type bar,

Figs. 8 and 9 are views partly in section and partly in elevation showing the type bar respectively in rest and in operative position,

Fig. 10 is a side elevational view of a modified form of a toothed conjunction plate for use in typewriters having a gear drive.

Fig. 11 is an end elevation of the plate shown in Fig. 10,

Fig. 12 is a side elevational view of a type bar used in connection with the forms shown in Figs. 10 and 11, and

Fig. 13 is a side elevational view showing the junction plate according to Fig. 11 associated with a type bar according to Fig. 12 and operated by a gear drive.

It is known that in all portable typewriters and also in some "standard" typewriters, the type bars have been fixed on the segment by means of a semi-circular axis; said axis having been arranged through openings provided at the end of each type bar. To remove, for instance, a central type bar, it was necessary to take out this axis from one side and to remove all the type bars on this side, until the desired type bar was reached. When it was desired to remove all of the type bars, for instance for cleaning purposes, it was necessary to disengage them from the pulling elements which latter were left inside the machine. These elements often became loose also at the opposite end and fell inside of the machine causing much trouble and inconvenience, especially when said pulling elements were of different length and shape. Said inconveniences have been tolerated up to now for the following reasons: (*a*) in portable machines, because in view of the lowness of this kind of typewriter, there was no space under the type bar segment to arrange the crown segment; (*b*) in "standard" typewriters, because actually the actuation of the key bars is easier, allowing greater writing speed with less fatigue when the type bars are directly connected with the pulling element, without the intermediary levers. But this system did not permit the removal of the type bars singly from the type bar segment. This is, however, a necessary feature in typewriters both for the typist, the repairer and the manufacturer, when assembling the typewriters, for the operations of solder-

ing and arranging the letters on the heads of the type bars.

Up to now, to obtain this result, in some "standard" typewriters, where a sufficient space exists—but not in portable machines—a crown segment or milled bridge is arranged under the type bar segment; on said crown segment conjunction levers are fixed which connect the type bars with the pulling elements.

But the arrangement of conjunction levers in a crown segment gives rise to a great inconvenience as said conjunction levers describe such a movement that the fixing journal of the conjunction lever (sliding in the oval shaped slit of the type bars) gets too near to the point of fulcrum of the type itself and, owing to the gradually greater resistance which ensues, the keys gradually become stiffer, and cause loss of time in operating, imperfect impression of the letters, unsatisfactory multiple copies, etc.

On a "standard" typewriter an attempt has been made to remedy this by means of a double open slit on the type bar and relative double pin on the connecting lever; this is but a partial and not a thorough improvement which, anyway, makes it necessary to maintain the crown segment under the type bar segment.

The contrivance forming the object of this invention maintains all the advantages offered by the rod following the trajectory of the type bar and toothed sector and remedies the entire situation in that it permits the removal of single type bars, does away with the crown segment or milled bridge placed under the type bar segment and, moreover, allows those typewriters that are without it, to write capital letters, by displacing or shifting the type bar segment instead of the carriage, which constitutes an advantage especially as regards machines fitted with a long carriage.

With reference to the annexed drawing: A indicates the conjunction plate placed between type bars and pulling elements; B indicates the toothed segment between whose teeth 7, are pivoted the above mentioned plates, being provided, for this purpose, with bores or openings 1. The plates are further provided with a small pin 4 on which rests the fork 10 or hook 10' of the type bars, and are provided with a bore 2 to which the rods or pulling elements 8 are hooked. C indicates the toothed conjunction plate as used in typewriters having a gear drive.

Arranged in the bore or opening 1 of the conjunction plate A is the semi-circular axis of segment 5 (Figs. 3, 4). Arranged in the opening 2 is the rod 8 (which previously was introduced into the bore of the type bar directly). 3 designates a headed pin, behind which is to be placed the type bar; the pin can also be used without a head as shown at 4. Fig. 11 shows the same plate, as conceived, but toothed, intended for the portable typewriters in which, instead of the rod, the motion of the type bar is of the so-called "Franklin" gear system, which however, up to now has not permitted the removal of a single type bar at a time.

Arranged in the sectioned segment B is the semi-circular axis 5 into which are introduced the connecting plates and on which are hooked the type bars. The sides of the teeth 7 are recessed as by milling at 6 so as to contain, besides the type bar, also the conjunction plate A.

In Fig. 7 there is shown another conformation that the type bar may have, in case it should be necessary to increase the length of the conjunction plate through the fastening bore of rod 8, or by applying on the reverse face of the plate a fastening for said rod.

In Figs. 10 to 13 there is shown a modified form of the invention adapted for use on typewriters having a gear drive. The conjunction plate C is in the form of a toothed segment having an opening 11 for mounting on axis 5 and is fitted with a pin 12 for receiving the fork 13' on the type bar 13 when the hooked end of the latter is engaged with the axis 5. The driving or operating lever 14 is provided with a toothed arm for engaging the teeth on the segmental conjunction plate C to rock the latter when desired to operate the type bar 13.

To remove and replace the type bars one proceeds in the usual way followed with typewriters, that is to say by removing the common semi-circular bar (Figs. 8, 9, 13).

It is understood that the particulars of construction and shape may in practice vary, without departing from the invention.

What I claim is:

1. Improvement in the type bar actuating mechanism in standard and portable typewriters, comprising a type bar segment having a groove, a semi-circular axis on the segment, a conjunction plate pivoted on the semi-circular axis and arranged in the groove of the segment and having a supporting pin and a type bar having a double hooked end also arranged in said groove and engaged with the semi-circular axis and with the supporting pin of the conjunction plate.

2. Improvement as claimed in claim 1 wherein a rod is provided for pivoted connection with the lower end of the conjunction plate.

3. Improvement as claimed in claim 1, applied on a typewriter having a gear drive for the type bar, in which the conjunction plate has a toothed sector for the gear drive of the type bar.

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