

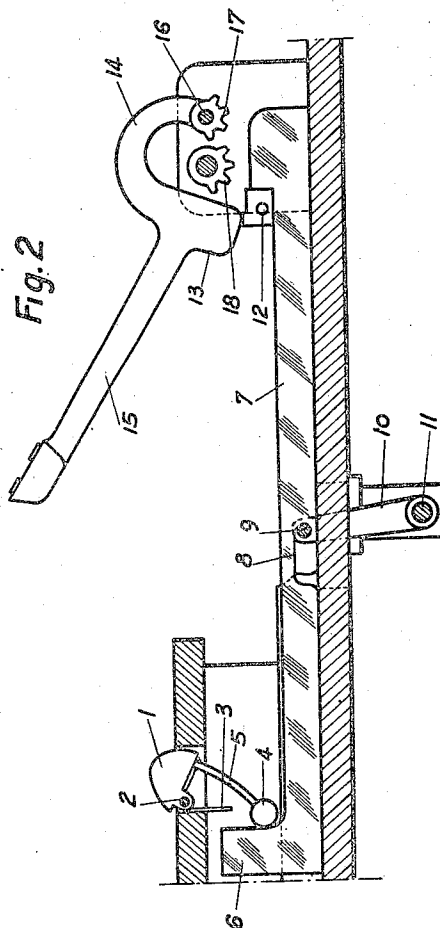
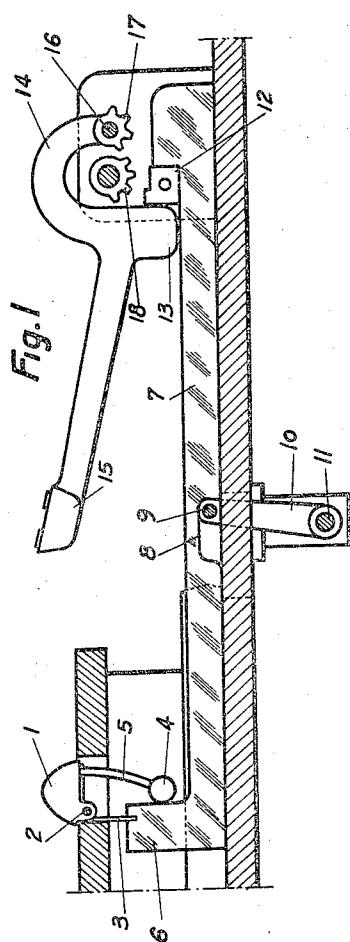
July 31, 1951

M. JULLIARD
SPRING POWERED TYPE BAR ACTUATING
MECHANISM FOR TYPEWRITERS

2,562,237

Filed July 24, 1948

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

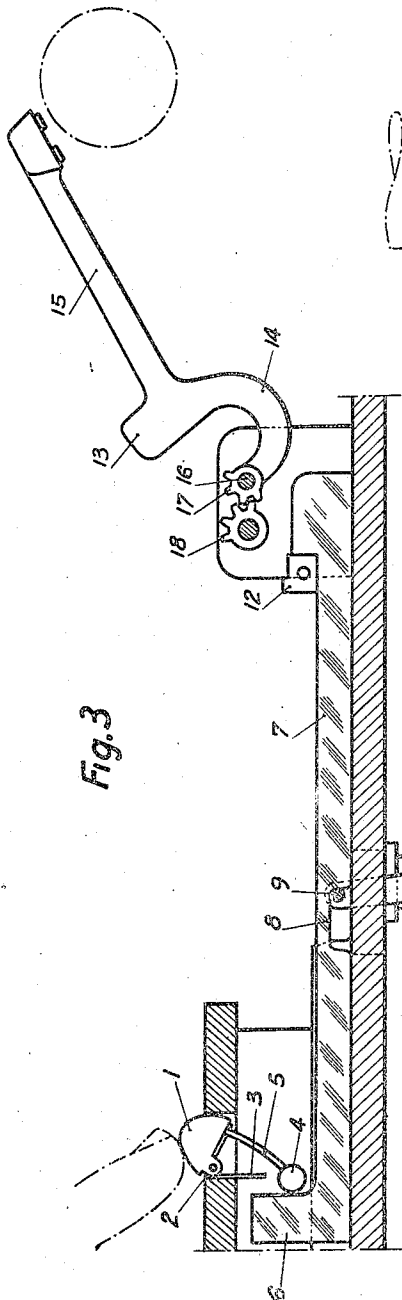


Fig. 3

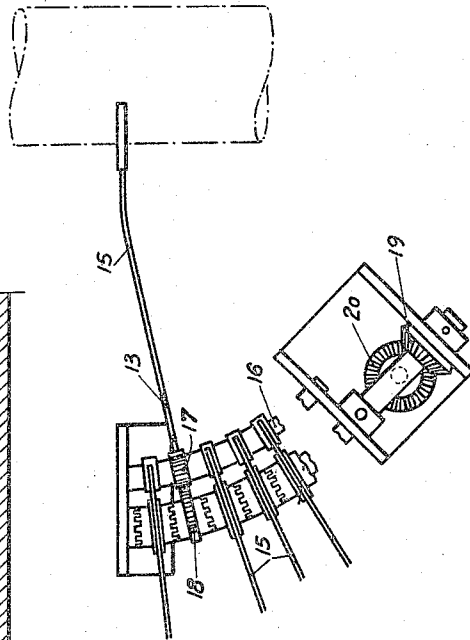


Fig. 4

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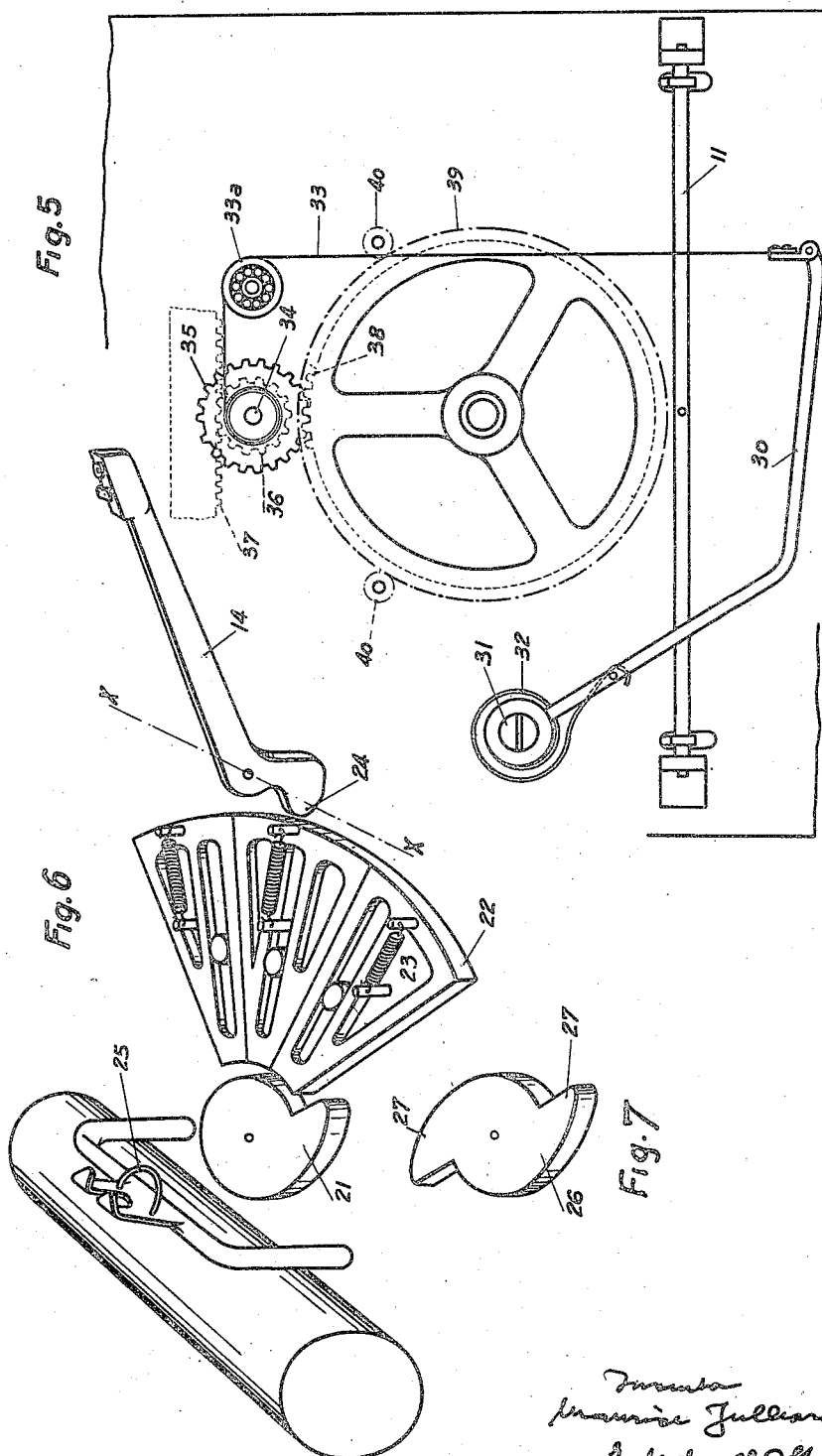
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UNITED STATES PATENT OFFICE

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SPRING POWERED TYPE BAR ACTUATING
MECHANISM FOR TYPEWRITERS

Maurice Julliard, Paris, France

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In France September 18, 1947

7 Claims. (Cl. 197—17)

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The object of the present invention is a type-writer whose operation is particularly gentle. To this effect, the machine in accordance with the invention is characterized especially in that the pressure exerted on a key by the user has as its only direct effect a slight lifting of the type-carrying lever to bring it into the active position and to release the action of a spring; it is this spring which ensures the motion of the carriage and the striking by the type-carrying lever which is in the active position.

According to another characteristic of the invention, all the type-carrying levers are mounted free on their axles about which they can move freely, which greatly reduces any risks of fouling and decreases substantially the force to be exerted both for the striking and for the return to the rest position.

Finally, this mounting of the type-carrying levers makes it possible to utilize a single very light spring which they encounter just before striking and which sends them promptly back to the inactive position.

Numerous types of embodiment are obviously possible without departing from the scope of the present invention. Two of them are described hereinafter, with reference to the schematic drawing appended wherein:

Figure 1 shows a control device for a type-carrying lever in the inactive position.

Figure 2 is a similar view in the active position.

Figure 3 is a similar view showing the type-carrying lever positively driven for the typing.

Figure 4 is a view in part, in plan.

Figure 5 is a view of the machine from underneath.

Figure 6 is a perspective view showing a variant.

Figure 7 shows a detail.

The key 1 is mounted pivotally about the axis 2 and a spring 3 constantly tends to bring it back to an inactive position; it is associated with a pushing element 4 through an elastic arm 5; this pushing element acts on a shoulder 6 of a thin and flexible link bar or strip 7, capable of sliding inside an appropriate guide and comprising a notch 8 wherein is engaged a transverse bar 9 supported by the ends of two arms 10 rotationally associated with a rock shaft 11; at the end of the thin and flexible strip 7 a pushing element 12 is provided which cooperates with a shoulder 13 of the type-carrying lever 14, 15 to bring it into an active position.

In this first type of embodiment, this lever

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14 which is mounted freely about its axis 16 is rotationally associated with a toothed sector 17 which, when in the active position, can engage with a pinion 18 comprising a toothed sector; at each stroke, this pinion 18 rotates 360°, drives rapidly the toothed sector of lever 14 which is in the active position, projects it against the roller and releases it immediately, which allows it to come back to the inactive position.

All these pinions 18 gear laterally with one another and are thus all associated in rotation; the whole constitutes a circular caterpillar but any other curve could be realised; the first of these pinions is driven by a conical pinion 19, with a horizontal axis, engaging with a conical pinion 20, having a vertical axis.

In the second type of embodiment, shown in Figure 6, the cam 21 rotates 360° at each stroke; it pushes back rapidly sectors 22 which are immediately brought back to their starting positions by springs 23; these sectors encounter the heel 24 of the type-carrying lever which is in the active position and cause it to pivot swiftly around the axis X—X about which it is freely mounted; an elastic element 25 is sufficient to return the lever 24 to an inactive position; instead of cam 21, a cam 26 could be provided, comprising two lobes 27 and pivoting only 180° at each stroke.

Figure 5 shows, schematically, by way of example, a type of embodiment of the control for the mechanism; a lever arm 30, pivotally mounted about an axis 31, is constantly biased by a strong spring 32; at the end of this arm is attached a metallic ribbon acting as a flexible connection 33, which passes over a pulley 33' mounted on roller bearings and is wound around a shaft 34 to which its other end is attached; it thus tends constantly to cause a rotation of this shaft.

This shaft 34 is rotationally associated with a toothed wheel 35 which an escapement mechanism, not shown, actuated by the transverse rock shaft 11 allows to advance one tooth every time a key is struck. This toothed wheel 35 is rotationally associated with a toothed pinion 36 engaging the toothed rack 37 of the carriage which also advances one tooth each time the toothed wheel 35 advances one tooth.

This toothed wheel 35 engages another toothed wheel 38 rotationally associated with another toothed wheel 39 engaging pinions 40 which rotate 360° every time toothed wheel 35 advances one tooth; these toothed pinions 40 control the rotation of the conical pinion 20 of the

first type of embodiment or of the cam 21 of the second type of embodiment.

Pushing back the carriage automatically biases the spring 32.

It will be understood, however, that this control of the mechanism has been given only by way of indicative and non-limitative example and that numerous other types of embodiment could be adopted within the scope of the present invention.

The invention also aims at a device which makes it possible owing to the feature of the free mounting of the type-carrying levers, to use the system described here for typing directly on a draughting table, a book, notebook or the like by eliminating from a machine similar to the one described here, the carriage and attaching said machine on a suitable frame. In such a case the machine itself is displaced horizontally and vertically on said frame.

What I claim is:

1. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings and having gear sectors individually fixed thereon; pinion sectors rotatably mounted adjacent to the gear sectors, said type levers and gear sectors being movable from an inactive to an initially active position; movable means operable by the keys for bringing said type levers to the initially active position; and spring operated means effective upon operation of said movable means by said keys in the initially active position of said type levers to engage and mesh the pinion sectors with the gear sectors and effect a typing stroke of the type levers respectively corresponding to the operated keys.

2. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings and having gear sectors individually fixed thereon remote from the type thereof; a plurality of movable link bars actuated by the keys; means upon the type levers cooperating with said link bars in one operated position of the latter for raising said type levers to initially active position and in another position being withdrawn from said operated position and allowing said type levers to occupy an inactive position; a plurality of pinion sectors rotatably mounted adjacent to the gear sectors; and spring operated means for engaging and meshing the pinion sectors with the gear sectors in the initially active position of the type levers and effective to operate said type levers and provide a typing action thereof upon movement of said link bars from withdrawn to operated position by said keys.

3. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings; a plurality of slidable link bars actuated by the keys; shoulders on the type levers; abutments on the link bars cooperating with the shoulders on the type levers in one position of the link bars to bring said type levers into an initially operative position but disabling the cooperation between said shoulders and abutments in another position of said link bars and allowing the type levers to recede to inactive position; normally inactive spring operated means effective in the initially operative position of the type

levers to operate said type levers to effect a typing action upon operation of said keys; and means operable upon sliding movement of said link bars caused by operation of said keys for causing said spring operated means to effect a typing action of the type levers respectively corresponding to the operated keys.

4. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings; a plurality of slidable link bars actuated by the keys; shoulders on the type levers; supporting abutments on the link bars cooperating with the shoulders on the type levers for supporting the latter in raised initially operative position in an advanced operated position of the link bars, the shoulders on said type levers clearing the supporting abutments in a retracted position of said link bars and allowing the type levers to recede to inactive position; normally inactive spring operated means effective in the initially operative position of the type levers to operate said type levers to effect a typing action upon operation of said keys; and means operable upon sliding movement of said link bars caused by operation of said keys for causing said spring operated means to effect a typing action of the type levers respectively corresponding to the operated keys.

5. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings and having gear sectors fixed thereon remote from the type thereof; a plurality of slidable link bars actuated by the keys; shoulders on the type levers; abutments on the link bars cooperating with the shoulders on the type levers in one position of the link bars to bring said type levers into an initially operative position but disabling the cooperation between said shoulders and abutments in another position of said link bars and allowing the type levers to recede to inactive position; pinion sectors rotatably mounted adjacent to the gear sectors upon said type levers and effective to engage and mesh therewith in the initially operative position of said type levers; and spring operated means for engaging and meshing said pinion sectors with said gear sectors in the initially operative position of the type levers to actuate said type levers in order to effect a typing action upon operation of said keys.

6. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings and having gear sectors individually fixed thereon; pinion sectors rotatably mounted adjacent to the gear sectors, said type levers and gear sectors being movable from an inactive to an initially active position; a plurality of longitudinally slidable elongated horizontal link bars actuated by the keys; shoulders on the type levers; corresponding abutments on the link bars cooperating with the shoulders on the type levers in one position of said link bars to support said type levers in the initially active position and in another position of said link bars allowing said type levers to occupy an inactive position; and spring operated means effective to mesh said pinion sectors with said gear sectors in the initially active position of said type levers and thereby produce a typing stroke.

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7. In a typewriter, a type lever operating mechanism, including a plurality of manually operable keys; a plurality of pivotally mounted type levers freely oscillatable on their pivot mountings and having gear sectors individually fixed thereon; pinion sectors rotatably mounted adjacent to the gear sectors, said type levers and gear sectors being movable from an inactive to an initially active position; a plurality of horizontally movable link bars actuated by the keys; shoulders on the type levers; corresponding abutments on the link bars cooperating with the shoulders on the type levers in one position of said link bars to support said type levers in the initially active position and in another position of said link bars allowing said type levers to occupy an inactive position; spring operated means effective to mesh said pinion sectors with

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said gear sectors in the initially active position of said type levers and thereby produce a typing stroke; and an intermediate rotatably mounted shaft rotatable upon operation of said key and movement of the corresponding link bars and effective to cause operation of said spring operated means.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
713,703	Smith	Nov. 18, 1902
1,156,061	Crawley	Oct. 12, 1915